

# PROJECT MANUAL

---

**DATE: JULY 2024**  
**ISSUED FOR BID: JANUARY 2025**



## **SPECIFICATIONS FOR:**

**CAPITAL PROJECTS 2023 – PHASE 2A**  
**HILTON CENTRAL SCHOOL DISTRICT**  
**225 WEST AVENUE**  
**HILTON, NEW YORK**

**Book 1 of 2      Divisions 0 - 32**

- |                                |   |
|--------------------------------|---|
| 1. High School                 | <b>SED PROJECT #26-11-01-06-0-007-023</b> |
| 2. Middle School               | <b>SED PROJECT #26-11-01-06-0-005-020</b> |
| 3. Northwood Elementary School | <b>SED PROJECT #26-11-01-06-0-003-023</b> |
| 4. Quest Elementary School     | <b>SED PROJECT #26-11-01-06-0-001-027</b> |
| 5. Village Elementary School   | <b>SED PROJECT #26-11-01-06-0-004-024</b> |

## **NOTICE**

**IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ARCHITECT TO ALTER ANY ITEM ON THIS DOCUMENT IN ANY WAY. ANY LICENSEE WHO ALTERS THIS DOCUMENT IS REQUIRED BY LAW TO AFFIX HIS OR HER SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY HIS OR HER SIGNATURE AND A SPECIFIC DESCRIPTION OF ALTERATIONS WHICH WERE MADE.**

## **Labella Project #2221581.02**

**ARCHITECT:**  
**LaBella Associates, P.C.**  
**300 State Street**  
**Rochester, NY 14614**  
**585-454-6110, Fax (585) 454-3066**

**CONSTRUCTION MANAGER:**  
**Campus Construction Management**  
**1221 Pittsford-Victor Rd**  
**Pittsford, NY 14534**  
**585-545-6567, Fax (585) 381-0206**

# PROJECT MANUAL

---

**DATE: JULY 2024**  
**ISSUED FOR BID: JANUARY 2025**



## **SPECIFICATIONS FOR:**

**CAPITAL PROJECTS 2023 – PHASE 2A**  
**HILTON CENTRAL SCHOOL DISTRICT**  
**225 WEST AVENUE**  
**HILTON, NEW YORK**

**Book 2 of 2      Divisions 0 - 32**

- |                                |   |
|--------------------------------|---|
| 1. High School                 | <b>SED PROJECT #26-11-01-06-0-007-023</b> |
| 2. Middle School               | <b>SED PROJECT #26-11-01-06-0-005-020</b> |
| 3. Northwood Elementary School | <b>SED PROJECT #26-11-01-06-0-003-023</b> |
| 4. Quest Elementary School     | <b>SED PROJECT #26-11-01-06-0-001-027</b> |
| 5. Village Elementary School   | <b>SED PROJECT #26-11-01-06-0-004-024</b> |

## **NOTICE**

**IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ARCHITECT TO ALTER ANY ITEM ON THIS DOCUMENT IN ANY WAY. ANY LICENSEE WHO ALTERS THIS DOCUMENT IS REQUIRED BY LAW TO AFFIX HIS OR HER SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY HIS OR HER SIGNATURE AND A SPECIFIC DESCRIPTION OF ALTERATIONS WHICH WERE MADE.**

## **Labella Project #2221581.02**

**ARCHITECT:**  
**LaBella Associates, P.C.**  
**300 State Street**  
**Rochester, NY 14614**  
**585-454-6110, Fax (585) 454-3066**

**CONSTRUCTION MANAGER:**  
**Campus Construction Management**  
**1221 Pittsford-Victor Rd**  
**Pittsford, NY 14534**  
**585-545-6567, Fax (585) 381-0206**



COMPOSITE SPECIFICATIONS CONSIST OF BOOK 1 & 2 – ARCHITECTURAL,  
PLUMBING, ELECTRICAL, MECHANICAL AND SITE WORK

**PROJECT MANUAL INDEX**

**DIVISION 00 – BIDDING REQUIREMENTS**

Section 000500 -	Certifications
Section 001100 -	Invitation to Bidders
Section 002100 -	A701 – 2018 Instructions to Bidders
Section 002200 -	Supplementary Instructions to Bidders
Section 004000 -	Iran Divestment Act Certification
Section 004001 -	Sexual Harassment Policy Acknowledgment
Section 004100 -	Bid Form – Contract 201 - Site Work
Section 004110 -	Bid Form – Contract 202 - General Trades Work
Section 004120 -	Bid Form – Contract 203 – Mechanical (HVAC)
Section 004130 -	Bid Form – Contract 204 – Plumbing Work
Section 004140 -	Bid Form – Contract 205 – Electrical Work
Section 004150 -	Bid Form – Contract 206 – Cabling Work
Section 004519 -	Non-Collusive Bidding Certification
Section 005200 -	A132 – 2019 Standard Form of Agreement between Owner & Contractor, Construction Manager as Advisor Edition
Section 007200 -	A232 – 2019 General Conditions of the Contract for Construction, Construction Manager as Advisor Edition
Section 007410 -	S.E.D. Commissioner’s 155.5 Regulations
Section 008100 -	Prevailing Wage Rates
Section 008200 -	Statutory Requirements

**DIVISION 01 – GENERAL REQUIREMENTS**

Section 010150 -	Project Schedule
Section 011000 -	Summary of Work
Section 011100 -	NYSED 155-5 Regulations
Section 012100 -	Allowances
Section 012200 -	Unit Prices
Section 012300 -	Alternates
Section 012500 -	Substitution Procedures
Section 012600 -	Contract Modification Procedures
Section 012900 -	Payment Procedures
Section 013100 -	Project Management and Coordination
Section 013200 -	Construction Progress Documentation
Section 013300 -	Submittal Procedures
Section 013500 -	Electronic Document Transfer
Section 013501 -	Electronic Document Agreement
Section 014000 -	Quality Requirements
Section 014110 -	Special Inspections & Testing
Section 014200 -	References
Section 015000 -	Temporary Facilities and Controls
Section 016000 -	Product Requirements
Section 017300 -	Execution

Section 017700 –	Closeout Procedures
Section 017823 –	Operation and Maintenance Data
Section 017839 –	Project Record Documents
Section 017900 –	Demonstration and Training

## **DIVISION 02 – EXISTING CONDITIONS**

Section 022800 –	Asbestos Removal and Disposal
Section 020810 –	Protection of Workers Lead Containing Materials
Section 022200 -	Existing Hazardous Materials Information
Section 022900 -	Abatement of Lead Containing Materials
Section 024119 -	Selective Demolition
Section 024300 -	Petroleum Impacted Soil
Attachments –	Merton Williams Middle School - RBM Report
	Northwood Elementary School - RBM Report
	Quest Elementary School - RBM Report
	Village Elementary School - RBM Report

## **DIVISION 03 – CONCRETE - STRUCTURAL /AND /OR ARCHITECTURAL**

Section 030130 -	Maintenance of Cast-in-Place Concrete
Section 031000 -	Concrete Forming and Accessories
Section 032000 -	Concrete Reinforcing
Section 033000 -	Cast-in-Place Concrete
Section 035416 -	Hydraulic Cement Underlayment

## **DIVISION 04 – MASONRY – STRUCTURAL /AND/OR ARCHITECTURAL**

Section 040120 –	Maintenance of Unit Masonry
Section 042000 -	Unit Masonry
Section 042201 -	Cast Stone Concrete Masonry Veneer
Section 042900 -	Engineered Unit Masonry

## **DIVISION 05 – METALS – STRUCTURAL /AND/OR ARCHITECTURAL**

Section 051200 -	Structural Steel Framing
Section 055000 -	Metal Fabrications

## **DIVISION 06 – WOOD, PLASTICS, AND COMPOSITES**

Section 061000 –	Rough Carpentry
Section 061053 –	Miscellaneous Rough Carpentry
Section 064100 -	Interior Architectural Millwork

**DIVISION 07 – THERMAL AND MOISTURE PROTECTION**

Section 071900 -	Water Repellents
Section 072100 -	Insulation
Section 072613 -	Moisture Mitigation System
Section 075323 -	EPDM Roofing System
Section 076200 -	Sheet Metal Flashing and Trim
Section 077200 -	Roof Accessories
Section 078413 -	Penetration Firestopping
Section 079200 -	Joint Sealants

**DIVISION 08 – OPENINGS**

Section 081113 -	Hollow Metal Doors and Frames
Section 081416 -	Flush Wood Doors
Section 081743 -	FRP-Alum Hybrid Doors & FRP Frames
Section 084113 -	Aluminum-Framed Entrances and Storefronts
Section 085100 -	Steel Windows
Section 085113 -	Aluminum Windows
Section 087100 -	Door Hardware
Section 087101 -	Door Hardware Index
Section 088000 -	Glazing
Section 088730 -	Safety and Security Window Film

**DIVISION 09 – FINISHES**

Section 090561 -	Common Work Results for Flooring Preparation
Section 092216 -	Non-Structural Metal Framing
Section 092900 -	Gypsum Board
Section 093000 -	Tiling
Section 095100 -	Acoustical Ceilings
Section 095423 -	Linear Metal Ceilings
Section 096500 -	Resilient Flooring
Section 097200 -	Wall Coverings
Section 097800 -	Interior Wall Paneling
Section 099113 -	Exterior Painting
Section 099123 -	Interior Painting
Section 099600 -	High Performance Coatings
Section 099672 -	Fluid Applied Insulation Coating

**DIVISION 10 – SPECIALTIES**

Section 101100 –	Visual Display Units
Section 101200 –	Display Cases
Section 101400 –	Interior Signage
Section 101419 –	Dimensional Letter Signage
Section 102113 -	Toilet Compartments
Section 102600 –	Corner Guards
Section 102800 –	Toilet Accessories
Section 104300 –	LED Signage
Section 104413 -	Fire Extinguisher Cabinets
Section 104416 -	Fire Extinguishers

**DIVISION 11 – EQUIPMENT**

**DIVISION 12 – FURNISHINGS**

Section 122413 -	Roller Window Shades
Section 123353 -	Manufactured Wood Casework
Section 123623.13	Plastic-Laminate Clad Countertops
Section 123661.16 -	Solid Surfacing Countertops
Section 124813 -	Entrance Floor Mats and Frames

COMPOSITE SPECIFICATIONS CONSIST OF BOOK 1 & 2 – ARCHITECTURAL,  
PLUMBING, ELECTRICAL, MECHANICAL AND SITE WORK

**PROJECT MANUAL INDEX – BOOK 2 OF 2**

**DIVISION 22 – PLUMBING**

Section 220517	Sleeves and Sleeve Seals for Plumbing Piping
Section 220519	Meters and Gages for Plumbing Piping
Section 220523	General-Duty Valves for Plumbing Piping
Section 220529	Hangers and Supports for Plumbing Piping and Equipment
Section 220553	Identification for Plumbing Piping and Equipment
Section 220719	Plumbing Piping Insulation
Section 221005	Plumbing Piping
Section 221006	Plumbing Piping Specialties
Section 221123	Domestic Water Pumps
Section 221435	Drainage Pumps
Section 223000	Plumbing Equipment
Section 224000	Plumbing Fixtures

**DIVISION 23 – HEATING VENTILATING AND AIR CONDITIONING**

Section 230513	Common Motor Requirements for HVAC Equipment
Section 230514	Motor Controllers
Section 230517	Sleeves and Sleeve Seals for HVAC Piping
Section 230518	Escutcheons Seals for HVAC Piping
Section 230519	Meters and Gages for HVAC Piping
Section 230523.12	Ball Valves for HVAC Piping
Section 230523.13	Butterfly Valves for HVAC Piping
Section 230523.14	Check Valves for HVAC Piping
Section 230529	Hangers and Supports for HVAC Piping and Equipment
Section 230548.13	Vibration Controls for HVAC
Section 230550	Wind restraint for HVAC Systems
Section 230553	Identification for HVAC Piping and Equipment
Section 230593	Testing, Adjusting, and Balancing for HVAC
Section 230700	HVAC Insulation
Section 230800	Commissioning of HVAC
Section 230923	Direct Digital Control (DDC) System for HVAC
Section 232113	Hydronic Piping
Section 232116	Hydronic Piping Specialties
Section 232123	Hydronic Pumps
Section 232300	Refrigerant Piping
Section 232513	Water Treatment for Closed Loop Hydronic Systems
Section 233113	Metal Ducts
Section 233300	Air Duct Accessories
Section 233423	HVAC Power Ventilators
Section 233713.13	Air Diffusers
Section 233713.23	Registers & Grilles
Section 233723	HVAC Gravity Ventilators
Section 235123	Flue Gas Vents

Section 235216	Condensing Boilers
Section 236200	Packaged Compressor and Condenser Units
Section 237313.13	Indoor, basic air handling units
Section 237416.13	Packaged, large-capacity, rooftop air-conditioning unit
Section 238113.11	Packaged terminal air-conditioners, through-wall units
Section 238126	Split-system air-conditioners
Section 238232	Radiant Heating Ceiling Panels
Section 238239.13	Cabinet Unit Heaters
Section 238239.16	Propeller Unit Heaters

## **SECTION 26 – ELECTRICAL**

Section 260500	Basic Electrical Requirements
Section 260501	Basic Materials and Methods
Section 260526	Grounding
Section 262000	Electrical Distribution
Section 262713	Electric Service
Section 263213	Power Generation
Section 265000	Lighting

## **DIVISION 27 – COMMUNICATIONS**

Section 270510	Communications General
Section 272100	Local Area Network System
Section 273200	Paging and Intercom System
Section 275313	Synchronous Clock and Program Systems

## **DIVISION 28 – ELECTRONIC SAFETY AND SECURITY**

Section 283102	Point Addressable Fire-Alarm System
----------------	-------------------------------------

## **DIVISION 31 – EARTHWORK**

Section 311000	Site Clearing
Section 312000	Earth Moving
Section 312319	Dewatering
Section 312500	Erosion Control

**DIVISION 32 – EXTERIOR IMPROVEMENTS**

Section 320105	Maintenance and Protection of Traffic
Section 321216	Asphalt Concrete Pavement
Section 321313	Concrete Pavement, Sidewalks and Curbing
Section 321640	Granite Curbing
Section 329200	Turf and Grasses

**DIVISION 33 - UTILITIES**

Section 330513	Precast Manhole
Section 334100	Storm Utility Drainage Piping

END OF TABLE OF CONTENTS





**SPECIFICATIONS FOR:**

**FOR :** CAPITAL PROJECTS 2023 – PHASE 2A  
HILTON CENTRAL SCHOOL DISTRICT

High School	<b>SED PROJECT #26-11-01-06-0-007-023</b>
Middle School	<b>SED PROJECT #26-11-01-06-0-005-020</b>
Northwood Elementary School	<b>SED PROJECT #26-11-01-06-0-003-023</b>
Quest Elementary School	<b>SED PROJECT #26-11-01-06-0-001-017</b>
Village Elementary School	<b>SED PROJECT #26-11-01-06-0-004-024</b>

HILTON CENTRAL SCHOOL DISTRICT  
225 WEST AVENUE  
HILTON, NEW YORK 14468

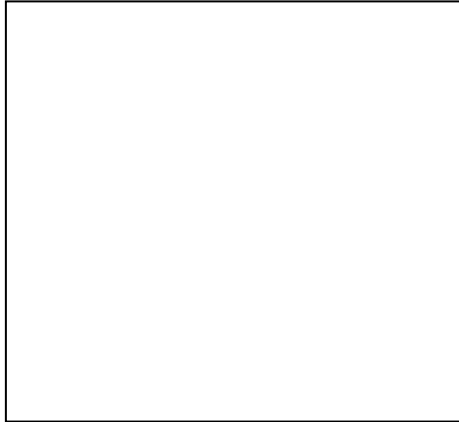
**CERTIFICATION:**

These plans and specifications have been prepared by or under the direction of the undersigned and to the best of the undersigned's knowledge, information and belief meet the requirements of the New York State Uniform Fire Prevention and Building Code and The State Energy Conservation Construction Code. Industrial Code Rule 56 and Construction standards of the N.Y.S. Education Department.



Signature: \_\_\_\_\_ Date \_\_\_\_\_  
LABELLA ASSOCIATES  
300 STATE STREET, SUITE 201  
ROCHESTER, NEW YORK 14614  
(585) 454-6110, FAX (585) 454-3066

The Mechanical plans and specifications have been prepared by or under the direction of the undersigned and to the best of the undersigned's knowledge, information and belief meet the requirements of the New York State Uniform Fire Prevention and Building Code and The State Energy Conservation Construction Code. Electrical code, Industrial Code Rule 56 and Construction standards of the N.Y.S. Education Department.



Signature: \_\_\_\_\_ Date \_\_\_\_\_  
LABELLA ASSOCIATES  
300 STATE STREET, SUITE 201  
ROCHESTER, NEW YORK 14614  
(585) 454-6110, FAX (585) 454-3066

**CERTIFICATION:**

The Electrical plans and specifications have been prepared by or under the direction of the undersigned and to the best of the undersigned's knowledge, information and belief meet the requirements of the New York State Uniform Fire Prevention and Building Code and The State Energy Conservation Construction Code, Electrical code, Industrial Code Rule 56 and Construction standards of the N.Y.S. Education Department.



Signature: \_\_\_\_\_ Date \_\_\_\_\_  
LABELLA ASSOCIATES  
300 STATE STREET, SUITE 201  
ROCHESTER, NEW YORK 14614  
(585) 454-6110, FAX (585) 454-3066

## INVITATION TO BIDDERS

### BID OPENING

Sealed Proposals for the following project

#### **HILTON CENTRAL SCHOOL DISTRICT CAPITAL PROJECTS 2023 – PHASE 2A**

will be received at the Hilton Central School District Administration Building located at 225 West Avenue, Hilton NY 14468 on **Tuesday, March 4th, 2025** until **4:00 P.M.** at which place and hour they will be publicly read.

Bids must be made in writing on the forms furnished.

Bids can be mailed to:

**Identifying Bid Enclosed on Outside of Envelope  
Hilton Bid # 24-25-04**

Mr. Adam Geist  
Hilton Central School District  
225 West Avenue  
Hilton, NY 14468

### CONTRACT TYPE

This project will proceed under six (6) Lump Sum Prime Contracts including:

- Contract # 201 – Site Work
- Contract # 202 – General Trades / General Construction Work
- Contract # 203 – Mechanical (HVAC)
- Contract # 204 – Plumbing
- Contract # 205 – Electrical
- Contract # 206 – Cabling Contractor

### PROJECT DESCRIPTION

District wide renovations for the Hilton Central School District. Schools included in Project are the High School, Middle School, Northwood Elementary School, Quest Elementary School, and Village Elementary School.

### CONTRACT TIME

The date of commencement of the Work shall be within five (5) calendar days of the date of Notice to Proceed. **NOTE: Construction to start Spring 2025.** Coordinate schedule with Owner/CM.

The Contractor shall achieve Substantial Completion of the entire Work, refer to project schedule for Substantial Completion dates (Specification 010150 - Project Schedule).

## **PROJECT ADMINISTRATION**

Owner: HILTON CENTRAL SCHOOL DISTRICT  
225 West Avenue  
Hilton, New York 14468

Architect/Engineer: Michael Skill  
LaBella Associates, D.P.C.  
300 State Street  
Rochester, New York 14614

Construction Manager: Michelle Stark  
CAMPUS CONSTRUCTION MANAGEMENT GROUP  
1221 Pittsford-Victor Road  
Pittsford, New York 14534

All Inquiries to: Michelle Stark  
Campus Construction Management Group  
Cell: 585-236-6804  
email address: [mstark@campuscmg.com](mailto:mstark@campuscmg.com)

Michael Skill  
LaBella Associates, D.P.C.  
email address: [mskill@labellapc.com](mailto:mskill@labellapc.com)

## **BID DOCUMENTS**

Bid documents containing submittal requirements and forms may be obtained at Rotolite-Elliot Corporation, One Grove Street, Suite 123, Pittsford, New York 14534, upon receipt of a bid deposit of One Hundred Dollars (\$100.00) for each set of documents requested. Checks shall be made payable to Hilton Central School District. Plans and Specifications will be available on **Monday, January 27th, 2025.**

Bid documents, if requested, will be mailed to Bidders upon receipt of deposit and reimbursement for the cost of mailing. Mailing fee for one set is \$50.00 for UPS delivery. Check shall be payable to Rotolite-Elliot Corporation. Phone number 585-385-1463.

Bid documents may also be examined at the following locations:

F.W. Dodge Reports  
Web Sites:  
[dodgeprojects.construction.com](http://dodgeprojects.construction.com)  
[www.construction.com](http://www.construction.com)  
Phone: 1-800-393-6346  
Phone: 1-877-784-9556

Rochester Builders Exchange  
180 Linden Ave., Suite 100  
Rochester, N.Y. 14625  
Phone: 1-585-586-5460

LaBella Associates D.P.C.  
300 State Street, Suite 201  
Rochester, New York 14614

Plan Holders List will ONLY be available at the Dodge Reports and Builders Exchange of Rochester. Subcontractors interested in obtaining Plan Holders List shall contact the Dodge Reports directly (phone number above).

### **PRE-BID MEETING**

A Pre-bid meeting and site visit will be held on **Monday, February 10th, 2025 at 4:00 P.M.** starting at the Hilton Quest Elementary School at 225 West Ave., Hilton, New York 14468. All Bidders are urged to attend so that their Bid is not rejected due to lack of adequate documentation. Any statements made at the pre-bid meeting do not constitute changes in the Contract Documents.

### **REJECTION AND ACCEPTANCE OF BIDS**

The OWNER hereby reserves the right to waive any informality and reject any or all bids or to accept the one that, in its judgment, will be in the best interest of the OWNER.

### **BID SECURITY**

A Bid Security in the amount of five percent (5%) of the Bid must accompany the bid in accordance with the Instructions to Bidders.

### **NONCOLLUSIVE BIDDING CERTIFICATE**

A non-collusive bidding certificate shall be included on each bid.

### **PREVAILING WAGE RATES**

This is a prevailing wage rate job.

### **RETURN OF CONTRACT DOCUMENTS**

Any Bidder, upon returning the Bidding Documents in good condition within thirty (30) days after date set for Bid opening will be refunded their deposit and any Non-Bidder so returning such set will be refunded fifty percent (50%) of his deposit.

DATED: JANUARY 27, 2025  
ADAM GEIST  
HILTON CENTRAL SCHOOL DISTRICT

**002100 – INSTRUCTIONS TO BIDDERS**

**PART 1 -GENERAL**

1.1 SUMMARY

- A. The attached AIA Document A701-2018, Instructions to Bidders, is a part of this project and is incorporated herein fully as is set forth.

**PART 2 - PRODUCTS (Not Applicable)**

**PART 3 - EXECUTION (Not Applicable)**



# DRAFT AIA® Document A701™ – 2018

## Instructions to Bidders

for the following Project:  
(Name, location, and detailed description)

Hilton Central School District  
Capital Projects 2023 – Phase 2A

THE OWNER:  
(Name, legal status, address, and other information)

Hilton Central School District  
225 West Avenue  
Hilton, NY 14468

THE ARCHITECT:  
(Name, legal status, address, and other information)

LaBella Associates, D.P.C  
300 State Street, Suite 201  
Rochester, NY 14614

### TABLE OF ARTICLES

- |   |  |
|---|--|
| 1 | DEFINITIONS                                    |
| 2 | BIDDER'S REPRESENTATIONS                       |
| 3 | BIDDING DOCUMENTS                              |
| 4 | BIDDING PROCEDURES                             |
| 5 | CONSIDERATION OF BIDS                          |
| 6 | POST-BID INFORMATION                           |
| 7 | PERFORMANCE BOND AND PAYMENT BOND              |
| 8 | ENUMERATION OF THE PROPOSED CONTRACT DOCUMENTS |

**ADDITIONS AND DELETIONS:**  
The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

FEDERAL, STATE, AND LOCAL LAWS MAY IMPOSE REQUIREMENTS ON PUBLIC PROCUREMENT CONTRACTS. CONSULT LOCAL AUTHORITIES OR AN ATTORNEY TO VERIFY REQUIREMENTS APPLICABLE TO THIS PROCUREMENT BEFORE COMPLETING THIS FORM.

It is intended that AIA Document G612™-2017, Owner's Instructions to the Architect, Parts A and B will be completed prior to using this document.

**ELECTRONIC COPYING** of any portion of this AIA® Document to another electronic file is prohibited and constitutes a violation of copyright laws as set forth in the footer of this document.

## ARTICLE 1 DEFINITIONS

§ 1.1 Bidding Documents include the Bidding Requirements and the Proposed Contract Documents. The Bidding Requirements consist of the advertisement or invitation to bid, Instructions to Bidders, supplementary instructions to bidders, the bid form, and any other bidding forms. The Proposed Contract Documents consist of the unexecuted form of Agreement between the Owner and Contractor and that Agreement's Exhibits, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, all Addenda, and all other documents enumerated in Article 8 of these Instructions.

§ 1.2 Definitions set forth in the General Conditions of the Contract for Construction, or in other Proposed Contract Documents apply to the Bidding Documents.

§ 1.3 Addenda are written or graphic instruments issued by the Architect, which, by additions, deletions, clarifications, or corrections, modify or interpret the Bidding Documents.

§ 1.4 A Bid is a complete and properly executed proposal to do the Work for the sums stipulated therein, submitted in accordance with the Bidding Documents.

§ 1.5 The Base Bid is the sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents, to which Work may be added or deleted by sums stated in Alternate Bids.

§ 1.6 An Alternate Bid (or Alternate) is an amount stated in the Bid to be added to or deducted from, or that does not change, the Base Bid if the corresponding change in the Work, as described in the Bidding Documents, is accepted.

§ 1.7 A Unit Price is an amount stated in the Bid as a price per unit of measurement for materials, equipment, or services, or a portion of the Work, as described in the Bidding Documents.

§ 1.8 A Bidder is a person or entity who submits a Bid and who meets the requirements set forth in the Bidding Documents.

§ 1.9 A Sub-bidder is a person or entity who submits a bid to a Bidder for materials, equipment, or labor for a portion of the Work.

## ARTICLE 2 BIDDER'S REPRESENTATIONS

§ 2.1 By submitting a Bid, the Bidder represents that:

- .1 the Bidder has read and understands the Bidding Documents;
- .2 the Bidder understands how the Bidding Documents relate to other portions of the Project, if any, being bid concurrently or presently under construction;
- .3 the Bid complies with the Bidding Documents;
- .4 the Bidder has visited the site, become familiar with local conditions under which the Work is to be performed, and has correlated the Bidder's observations with the requirements of the Proposed Contract Documents;
- .5 the Bid is based upon the materials, equipment, and systems required by the Bidding Documents without exception; and
- .6 the Bidder has read and understands the provisions for liquidated damages, if any, set forth in the form of Agreement between the Owner and Contractor.

## ARTICLE 3 BIDDING DOCUMENTS

### § 3.1 Distribution

§ 3.1.1 Bidders shall obtain complete Bidding Documents, as indicated below, from the issuing office designated in the advertisement or invitation to bid, for the deposit sum, if any, stated therein.

*(Indicate how, such as by email, website, host site/platform, paper copy, or other method Bidders shall obtain Bidding Documents.)*

« »

§ 3.1.2 Any required deposit shall be refunded to Bidders who submit a bona fide Bid and return the paper Bidding Documents in good condition within ten days after receipt of Bids. The cost to replace missing or damaged paper



documents will be deducted from the deposit. A Bidder receiving a Contract award may retain the paper Bidding Documents, and the Bidder's deposit will be refunded.

§ 3.1.3 Bidding Documents will not be issued directly to Sub-bidders unless specifically offered in the advertisement or invitation to bid, or in supplementary instructions to bidders.

§ 3.1.4 Bidders shall use complete Bidding Documents in preparing Bids. Neither the Owner nor Architect assumes responsibility for errors or misinterpretations resulting from the use of incomplete Bidding Documents.

§ 3.1.5 The Bidding Documents will be available for the sole purpose of obtaining Bids on the Work. No license or grant of use is conferred by distribution of the Bidding Documents.

## § 3.2 Modification or Interpretation of Bidding Documents

§ 3.2.1 The Bidder shall carefully study the Bidding Documents, shall examine the site and local conditions, and shall notify the Architect of errors, inconsistencies, or ambiguities discovered and request clarification or interpretation pursuant to Section 3.2.2.

§ 3.2.2 Requests for clarification or interpretation of the Bidding Documents shall be submitted by the Bidder in writing and shall be received by the Architect at least seven days prior to the date for receipt of Bids.  
*(Indicate how, such as by email, website, host site/platform, paper copy, or other method Bidders shall submit requests for clarification and interpretation.)*

« »

§ 3.2.3 Modifications and interpretations of the Bidding Documents shall be made by Addendum. Modifications and interpretations of the Bidding Documents made in any other manner shall not be binding, and Bidders shall not rely upon them.

## § 3.3 Substitutions

§ 3.3.1 The materials, products, and equipment described in the Bidding Documents establish a standard of required function, dimension, appearance, and quality to be met by any proposed substitution.

### § 3.3.2 Substitution Process

§ 3.3.2.1 Written requests for substitutions shall be received by the Architect at least ten days prior to the date for receipt of Bids. Requests shall be submitted in the same manner as that established for submitting clarifications and interpretations in Section 3.2.2.

§ 3.3.2.2 Bidders shall submit substitution requests on a Substitution Request Form if one is provided in the Bidding Documents.

§ 3.3.2.3 If a Substitution Request Form is not provided, requests shall include (1) the name of the material or equipment specified in the Bidding Documents; (2) the reason for the requested substitution; (3) a complete description of the proposed substitution including the name of the material or equipment proposed as the substitute, performance and test data, and relevant drawings; and (4) any other information necessary for an evaluation. The request shall include a statement setting forth changes in other materials, equipment, or other portions of the Work, including changes in the work of other contracts or the impact on any Project Certifications (such as LEED), that will result from incorporation of the proposed substitution.

§ 3.3.3 The burden of proof of the merit of the proposed substitution is upon the proposer. The Architect's decision of approval or disapproval of a proposed substitution shall be final.

§ 3.3.4 If the Architect approves a proposed substitution prior to receipt of Bids, such approval shall be set forth in an Addendum. Approvals made in any other manner shall not be binding, and Bidders shall not rely upon them.

§ 3.3.5 No substitutions will be considered after the Contract award unless specifically provided for in the Contract Documents.

### § 3.4 Addenda

§ 3.4.1 Addenda will be transmitted to Bidders known by the issuing office to have received complete Bidding Documents.

*(Indicate how, such as by email, website, host site/platform, paper copy, or other method Addenda will be transmitted.)*

« »

§ 3.4.2 Addenda will be available where Bidding Documents are on file.

§ 3.4.3 Addenda will be issued no later than four days prior to the date for receipt of Bids, except an Addendum withdrawing the request for Bids or one which includes postponement of the date for receipt of Bids.

§ 3.4.4 Prior to submitting a Bid, each Bidder shall ascertain that the Bidder has received all Addenda issued, and the Bidder shall acknowledge their receipt in the Bid.

## ARTICLE 4 BIDDING PROCEDURES

### § 4.1 Preparation of Bids

§ 4.1.1 Bids shall be submitted on the forms included with or identified in the Bidding Documents.

§ 4.1.2 All blanks on the bid form shall be legibly executed. Paper bid forms shall be executed in a non-erasable medium.

§ 4.1.3 Sums shall be expressed in both words and numbers, unless noted otherwise on the bid form. In case of discrepancy, the amount entered in words shall govern.

§ 4.1.4 Edits to entries made on paper bid forms must be initialed by the signer of the Bid.

§ 4.1.5 All requested Alternates shall be bid. If no change in the Base Bid is required, enter “No Change” or as required by the bid form.

§ 4.1.6 Where two or more Bids for designated portions of the Work have been requested, the Bidder may, without forfeiture of the bid security, state the Bidder’s refusal to accept award of less than the combination of Bids stipulated by the Bidder. The Bidder shall neither make additional stipulations on the bid form nor qualify the Bid in any other manner.

§ 4.1.7 Each copy of the Bid shall state the legal name and legal status of the Bidder. As part of the documentation submitted with the Bid, the Bidder shall provide evidence of its legal authority to perform the Work in the jurisdiction where the Project is located. Each copy of the Bid shall be signed by the person or persons legally authorized to bind the Bidder to a contract. A Bid by a corporation shall further name the state of incorporation and have the corporate seal affixed. A Bid submitted by an agent shall have a current power of attorney attached, certifying the agent’s authority to bind the Bidder.

§ 4.1.8 A Bidder shall incur all costs associated with the preparation of its Bid.

### § 4.2 Bid Security

§ 4.2.1 Each Bid shall be accompanied by the following bid security:

*(Insert the form and amount of bid security.)*

« »

§ 4.2.2 The Bidder pledges to enter into a Contract with the Owner on the terms stated in the Bid and shall, if required, furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder. Should the Bidder refuse to enter into such Contract or fail to furnish such bonds if required, the amount of the bid security shall be forfeited to the Owner as liquidated damages, not as a penalty. In the event the Owner fails to comply with Section 6.2, the amount of the bid security shall not be forfeited to the Owner.

§ 4.2.3 If a surety bond is required as bid security, it shall be written on AIA Document A310™, Bid Bond, unless otherwise provided in the Bidding Documents. The attorney-in-fact who executes the bond on behalf of the surety shall

affix to the bond a certified and current copy of an acceptable power of attorney. The Bidder shall provide surety bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 4.2.4 The Owner will have the right to retain the bid security of Bidders to whom an award is being considered until (a) the Contract has been executed and bonds, if required, have been furnished; (b) the specified time has elapsed so that Bids may be withdrawn; or (c) all Bids have been rejected. However, if no Contract has been awarded or a Bidder has not been notified of the acceptance of its Bid, a Bidder may, beginning « » days after the opening of Bids, withdraw its Bid and request the return of its bid security.

#### § 4.3 Submission of Bids

§ 4.3.1 A Bidder shall submit its Bid as indicated below:

*(Indicate how, such as by website, host site/platform, paper copy, or other method Bidders shall submit their Bid.)*

« »

§ 4.3.2 Paper copies of the Bid, the bid security, and any other documents required to be submitted with the Bid shall be enclosed in a sealed opaque envelope. The envelope shall be addressed to the party receiving the Bids and shall be identified with the Project name, the Bidder's name and address, and, if applicable, the designated portion of the Work for which the Bid is submitted. If the Bid is sent by mail, the sealed envelope shall be enclosed in a separate mailing envelope with the notation "SEALED BID ENCLOSED" on the face thereof.

§ 4.3.3 Bids shall be submitted by the date and time and at the place indicated in the invitation to bid. Bids submitted after the date and time for receipt of Bids, or at an incorrect place, will not be accepted.

§ 4.3.4 The Bidder shall assume full responsibility for timely delivery at the location designated for receipt of Bids.

§ 4.3.5 A Bid submitted by any method other than as provided in this Section 4.3 will not be accepted.

#### § 4.4 Modification or Withdrawal of Bid

§ 4.4.1 Prior to the date and time designated for receipt of Bids, a Bidder may submit a new Bid to replace a Bid previously submitted, or withdraw its Bid entirely, by notice to the party designated to receive the Bids. Such notice shall be received and duly recorded by the receiving party on or before the date and time set for receipt of Bids. The receiving party shall verify that replaced or withdrawn Bids are removed from the other submitted Bids and not considered. Notice of submission of a replacement Bid or withdrawal of a Bid shall be worded so as not to reveal the amount of the original Bid.

§ 4.4.2 Withdrawn Bids may be resubmitted up to the date and time designated for the receipt of Bids in the same format as that established in Section 4.3, provided they fully conform with these Instructions to Bidders. Bid security shall be in an amount sufficient for the Bid as resubmitted.

§ 4.4.3 After the date and time designated for receipt of Bids, a Bidder who discovers that it made a clerical error in its Bid shall notify the Architect of such error within two days, or pursuant to a timeframe specified by the law of the jurisdiction where the Project is located, requesting withdrawal of its Bid. Upon providing evidence of such error to the reasonable satisfaction of the Architect, the Bid shall be withdrawn and not resubmitted. If a Bid is withdrawn pursuant to this Section 4.4.3, the bid security will be attended to as follows:

*(State the terms and conditions, such as Bid rank, for returning or retaining the bid security.)*

« »

### ARTICLE 5 CONSIDERATION OF BIDS

#### § 5.1 Opening of Bids

If stipulated in an advertisement or invitation to bid, or when otherwise required by law, Bids properly identified and received within the specified time limits will be publicly opened and read aloud. A summary of the Bids may be made available to Bidders.

#### § 5.2 Rejection of Bids

Unless otherwise prohibited by law, the Owner shall have the right to reject any or all Bids.

### **§ 5.3 Acceptance of Bid (Award)**

**§ 5.3.1** It is the intent of the Owner to award a Contract to the lowest responsive and responsible Bidder, provided the Bid has been submitted in accordance with the requirements of the Bidding Documents. Unless otherwise prohibited by law, the Owner shall have the right to waive informalities and irregularities in a Bid received and to accept the Bid which, in the Owner's judgment, is in the Owner's best interests.

**§ 5.3.2** Unless otherwise prohibited by law, the Owner shall have the right to accept Alternates in any order or combination, unless otherwise specifically provided in the Bidding Documents, and to determine the lowest responsive and responsible Bidder on the basis of the sum of the Base Bid and Alternates accepted.

## **ARTICLE 6 POST-BID INFORMATION**

### **§ 6.1 Contractor's Qualification Statement**

Bidders to whom award of a Contract is under consideration shall submit to the Architect, upon request and within the timeframe specified by the Architect, a properly executed AIA Document A305™, Contractor's Qualification Statement, unless such a Statement has been previously required and submitted for this Bid.

### **§ 6.2 Owner's Financial Capability**

A Bidder to whom award of a Contract is under consideration may request in writing, fourteen days prior to the expiration of the time for withdrawal of Bids, that the Owner furnish to the Bidder reasonable evidence that financial arrangements have been made to fulfill the Owner's obligations under the Contract. The Owner shall then furnish such reasonable evidence to the Bidder no later than seven days prior to the expiration of the time for withdrawal of Bids. Unless such reasonable evidence is furnished within the allotted time, the Bidder will not be required to execute the Agreement between the Owner and Contractor.

### **§ 6.3 Submittals**

**§ 6.3.1** After notification of selection for the award of the Contract, the Bidder shall, as soon as practicable or as stipulated in the Bidding Documents, submit in writing to the Owner through the Architect:

- .1 a designation of the Work to be performed with the Bidder's own forces;
- .2 names of the principal products and systems proposed for the Work and the manufacturers and suppliers of each; and
- .3 names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for the principal portions of the Work.

**§ 6.3.2** The Bidder will be required to establish to the satisfaction of the Architect and Owner the reliability and responsibility of the persons or entities proposed to furnish and perform the Work described in the Bidding Documents.

**§ 6.3.3** Prior to the execution of the Contract, the Architect will notify the Bidder if either the Owner or Architect, after due investigation, has reasonable objection to a person or entity proposed by the Bidder. If the Owner or Architect has reasonable objection to a proposed person or entity, the Bidder may, at the Bidder's option, withdraw the Bid or submit an acceptable substitute person or entity. The Bidder may also submit any required adjustment in the Base Bid or Alternate Bid to account for the difference in cost occasioned by such substitution. The Owner may accept the adjusted bid price or disqualify the Bidder. In the event of either withdrawal or disqualification, bid security will not be forfeited.

**§ 6.3.4** Persons and entities proposed by the Bidder and to whom the Owner and Architect have made no reasonable objection must be used on the Work for which they were proposed and shall not be changed except with the written consent of the Owner and Architect.

## **ARTICLE 7 PERFORMANCE BOND AND PAYMENT BOND**

### **§ 7.1 Bond Requirements**

**§ 7.1.1** If stipulated in the Bidding Documents, the Bidder shall furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder.

**§ 7.1.2** If the furnishing of such bonds is stipulated in the Bidding Documents, the cost shall be included in the Bid. If the furnishing of such bonds is required after receipt of bids and before execution of the Contract, the cost of such bonds shall be added to the Bid in determining the Contract Sum.

**§ 7.1.3** The Bidder shall provide surety bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 7.1.4 Unless otherwise indicated below, the Penal Sum of the Payment and Performance Bonds shall be the amount of the Contract Sum.

*(If Payment or Performance Bonds are to be in an amount other than 100% of the Contract Sum, indicate the dollar amount or percentage of the Contract Sum.)*

« »

## § 7.2 Time of Delivery and Form of Bonds

§ 7.2.1 The Bidder shall deliver the required bonds to the Owner not later than three days following the date of execution of the Contract. If the Work is to commence sooner in response to a letter of intent, the Bidder shall, prior to commencement of the Work, submit evidence satisfactory to the Owner that such bonds will be furnished and delivered in accordance with this Section 7.2.1.

§ 7.2.2 Unless otherwise provided, the bonds shall be written on AIA Document A312, Performance Bond and Payment Bond.

§ 7.2.3 The bonds shall be dated on or after the date of the Contract.

§ 7.2.4 The Bidder shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix to the bond a certified and current copy of the power of attorney.

## ARTICLE 8 ENUMERATION OF THE PROPOSED CONTRACT DOCUMENTS

§ 8.1 Copies of the proposed Contract Documents have been made available to the Bidder and consist of the following documents:

- .1 AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor, unless otherwise stated below.

*(Insert the complete AIA Document number, including year, and Document title.)*

« »

- .2 AIA Document A101™–2017, Exhibit A, Insurance and Bonds, unless otherwise stated below.

*(Insert the complete AIA Document number, including year, and Document title.)*

« »

- .3 AIA Document A201™–2017, General Conditions of the Contract for Construction, unless otherwise stated below.

*(Insert the complete AIA Document number, including year, and Document title.)*

« »

- .4 AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, dated as indicated below:

*(Insert the date of the E203-2013.)*

« »

- .5 Drawings

Number

Title

Date

- .6 Specifications

Section

Title

Date

Pages

.7 Addenda:

Number	Date	Pages

.8 Other Exhibits:

(Check all boxes that apply and include appropriate information identifying the exhibit where required.)

[ ☐ ] AIA Document E204™–2017, Sustainable Projects Exhibit, dated as indicated below:  
(Insert the date of the E204-2017.)

« »

[ ☐ ] The Sustainability Plan:

Title	Date	Pages

[ ☐ ] Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages

.9 Other documents listed below:

(List here any additional documents that are intended to form part of the Proposed Contract Documents.)

« »

**SECTION 002200 – SUPPLEMENTARY INSTRUCTIONS TO BIDDERS**

**1.01 SUPPLEMENTS**

The following supplements modify, change, delete from and add to the Instruction to Bidders. When any portion of the Instructions to Bidders is modified or deleted by these Supplementary Instructions, the unaltered provisions of the Instructions to Bidders shall remain in effect.

**1.02 ARTICLE 1 DEFINITIONS**

**ADD**

1.10 The terms “Architect” and “Engineer” appear in the Bidding Documents and shall be synonymous with each other and refer to LaBella Associates, PC. and their Consulting Engineers.

1.11 The Owner is the Hilton Central School District.

**1.03 ARTICLE 3 BIDDING DOCUMENTS**

**3.2 INTERPRETATION OR CORRECTION OF BIDDING DOCUMENTS**

**ADD**

No oral interpretation will be made to any Bidder as to the meaning of the Contract Documents or any part thereof. Every request for such an interpretation shall be made in writing to the Architect/Engineer.

**1.04 ARTICLE 3 BIDDING DOCUMENTS**

**3.2 INTERPRETATION OR CORRECTION OF BIDDING DOCUMENTS**

**3.2.3**

**ADD**

Addendum will be on file at the offices of the Owner and the Architect/Engineer at least twenty-four (24) hours before Bid Proposals are opened. In addition, all Addenda will be mailed to each person holding Contract Documents, but it shall be the Bidder's responsibility to make inquiry as to the existence of Addenda and all Bidders shall be bound by such Addenda, whether or not received by the Bidders.

**1.05 ARTICLE 3 BIDDING DOCUMENTS**

**3.3 SUBSTITUTIONS**

**3.3.2 DELETE**

**ADD NEW**

3.3.2 EQUIVALENTS: Where, in these specifications, certain kinds, types, brands or manufacturers of material are named, they shall be regarded as the required standard of quality. Where two or more are named these are presumed to be equal, and the Contractor may select one of those items. If the Contractor desires to use any kind, type brand or manufacture of material other than those named in the specification, he shall indicate in writing, when requested, and prior to award of Contract, what kind, type, brand or manufacture is included in the base bid for the specified items, and when

requested, submit information describing in specific detail, wherein it differs from the quality and performance required by the base specifications, and such other information as may be required by the Owner.

A statement setting forth changes in other materials, equipment or other portions of the Work, including changes in the work of other contracts that incorporation of the proposed substitution would require, shall be included. The burden of proof of the merit of the proposed substitution is upon the proposer.

1.06 ARTICLE 4 BIDDING PROCEDURES

ARTICLE 4.2 BID SECURITY

4.2.1 ADD

Each bid shall be accompanied by a bid security in an amount equal to at least 5% of the base bid made payable to the Owner as a guarantee that if the Contract is awarded to the Bidder he will sign the Agreement and furnish satisfactory performance and payment bonds and insurance certificates. Bid security shall consist of either a certified check or a bid bond secured by a guarantee or surety company authorized and licensed to do business in the State of New York. If a Bidder fails to sign the agreement and deliver the bonds and insurance certificates both in conformance with requirements of the Contract Documents within ten (10) days after receipt of the Notice of Award, he shall forfeit the bid security.

1.07 ARTICLE 4 BIDDING PROCEDURE

4.4 MODIFICATION OR WITHDRAWAL OF BID

4.4.1 DELETE

ADD NEW

4.4.1 A bid may not be modified, withdrawn or canceled by the Bidder during the forty five (45) day time period following the time and date designated for the receipt of bids and each Bidder so agrees in submitting a Bid.

1.08 ARTICLE 4 BIDDING PROCUDURES

4.4 MODIFICATION OR WITHDRAWAL OF BID

ADD NEW

4.4.5 Negligence on the part of the Bidder in preparing his/her Bid confers no right for the withdrawal of the Bid after it has been opened. Any Bidder, upon his/her properly notarized written request, will be given permission to withdraw his/her Bid not later than the time set for opening. At the time of opening of the Bids, when such Bid is included, it will be returned to the Bidder unopened.

1.09 ARTICLE 5 CONSIDERATION OF BIDS

5.2 REJECTION OF BIDS

ADD

5.2.1 Without limiting the general rights which the Owner has to reject bids, as herein before set forth, the following are illustrations of some of the causes that may be considered sufficient for rejection of a bid:

- .1 Evidence of collusion with any other Bidders.



- .2 Lack of competency to complete the work as shown by statement submitted as to personnel, plant and machinery and finance.
- .3 Lack of satisfactory performance of similar work judged from the standpoint of workmanship or progress.
- .4 Incomplete work under other Contracts in force which in the judgment of the Owner may hinder or prevent the prompt completion of the pending Contract.
- .5 Being in arrears on existing Contracts, in litigation with others concerning construction contracts or having defaulted on previous Contracts awarded to him.
- .6 Lack of a fixed and regular place of business.
- .7 Failure to furnish suitable performance and payment bonds and certificates of required insurance (or name and address of authorized Surety Company, which will provide the bond, as stipulated in these documents).
- .8 A conditional or qualified bid.

1.10 ARTICLE 5 CONSIDERATION OF BIDS

5.3 ACCEPTANCE OF BID (AWARD)

ADD NEW

5.3.3 The acceptance of a Bid will be a notice in writing signed by a duly authorized representative of the Owner and no other act of the Owner shall constitute the acceptance of a Bid. The acceptance of a Bid shall bind the successful Bidder to execute the Contract as provided hereinafter. The rights and obligations provided for in the Contract shall become effective and binding upon the parties only with its formal execution by the successful Bidder and the Owner.

1.11 ARTICLE 6 POST-BID INFORMATION

6.1 CONTRACTOR'S QUALIFICATION STATEMENT

ADD

The Owner shall have the right to take such steps as it deems necessary to determine the ability of the Bidder to perform his/her obligations under the Contract, and the Bidder shall furnish the Owner all such information and data for this purpose as it may request. The right is reserved to reject any Bid where an investigation of the available evidence or information does not satisfy the Owner that the Bidder is qualified to carry out properly the terms of the Contract. The issuing of bid documents and acceptance of a Bidder's payment by the Owner shall not be construed as pre-qualification of that Bidder.

1.12 ADD NEW

ARTICLE 9 PRE-BID CONFERENCE

9.1 All Bidders are urged to attend a pre-bid conference. Any statements made at the pre-bid do not constitute changes in the Bidding Documents. Amendments to the Contract Documents can only be accomplished by means of issued Addenda. A pre-bid conference will be held:

DATE: Wednesday February 20, 2019

TIME: 3:00 p.m. prevailing local time.

LOCATION: High School

9.2 Communications regarding the General Documents and Architectural and Mechanical/Electrical Drawings shall be directed to: Michael Skill, Labella Associates, DPC by e-mail at mskill@labellapc.com

9.3 Contractor may inspect the premises Monday through Friday after 4:00 p.m. Contractors shall contact Mr. Mark Edwards, Director of Building and Grounds, 585-392-1000. Ext. 7066, and schedule appointments prior to inspection.

1.13 ADD NEW

ARTICLE 10 EXECUTION OF CONTRACT

10.1 The Bidder whose bid has been accepted shall execute the Contract within ten (10) calendar days after the date of the Notice of Award.

10.2 Execution of Contract includes the following:

- .1 Signing the AGREEMENT FORMS.
- .2 Furnishing the required insurance and bonds as follows:
  - a. Certification of Insurance in the required coverage and amounts specified prepared on Insurers ACORD Form and A.I.A. Form G-715.
  - b. Performance Bond in an amount not less than 100% of the Contract price to the Owner prepared on A.I.A. Form A-312.
  - c. Payment Bond (Labor and Material) in an amount not less than 100% of the Contract Price to the Owner prepared on A.I.A. Form A-312.

10.3 All Bonds shall be conditioned for the faithful performance of all terms, covenants and conditions of the Contract, with a surety company authorized and licensed to do business in the State of New York as surety.

10.4 All Bonds shall be maintained in full force for a period of twelve months after the date of the Contractor's acceptance of final payment as a guarantee that the Contractor will make good any faults or defects in the work arising from improper or defective workmanship or materials which may appear during the period.

10.5 Failure or refusal of the Bidder whose Bid is accepted to execute the Contract as herein before provided shall constitute a breach by such Bidder of the Agreement created by the acceptance of the Bid, and in such event, the Owner at his/her option, may determine that such Bidder has abandoned the Contract. Thereupon such Bidder's Bid and the acceptance thereof shall be null and void and the Owner shall be entitled to take action for damages. Such damages shall include the amount of the total Contract finally accepted in excess of that of the originally successful Bidder, losses arising from delays in the Owner's construction program, and all other items of cost to the Owner resulting from such breach. In the recovery of the damages specified above, the Owner may proceed against the sum represented by the Bid Security deposited with him, or take such other action, as the Owner may deem best in the public interest.

10.6 The Notice to Proceed shall be issued by the Owner within ten (10) calendar days of the execution of the Agreement by the Owner. Should there be reasons why the Notice to Proceed cannot be issued within such period; the time may be extended by mutual agreement between the Owner and the Contractor. If the Notice to Proceed has not been issued within the above indicated time or within the period mutually agreed upon, the Contractor may terminate the Agreement without further liability on the part of either party.

1.14 ADD NEW

ARTICLE 11 ASSIGNMENT

The successful Bidder to whom any Contract shall be let, granted or awarded shall not assign, transfer, convey, sublet or otherwise dispose of the Contract or of his/her right, title or interest therein or his/her power to execute such Contract, to any person or corporation without the prior consent in writing of the Owner. Any assignment made in violation hereof shall be deemed void ab initio.

END OF SECTION 002200



**SECTION 00 40 00- IRAN DIVESTMENT ACT CERTIFICATION**

As a result of the Iran Divestment Act of 2012 (Act), Chapter 1 of the 2012 Laws of New York, a new provision has been added to the State Finance Law (SFL), § 165-a, effective April 12, 2012. Under the Act, the Commissioner of the Office of General Services (OGS) will be developing a list (prohibited entities list) of “persons” who are engaged in “investment activities in Iran” (both are defined terms in the law). Pursuant to SFL § 165-a(3)(b), the initial list is expected to be issued no later than 120 days after the Act’s effective date, at which time it will be posted on the OGS website.

By submitting a bid in response to this solicitation or by assuming the responsibility of a Contract awarded hereunder, Bidder/Contractor (or any assignee) certifies that once the prohibited entities list is posted on the OGS website, it will not utilize on such Contract any subcontractor that is identified on the prohibited entities list.

Additionally, Bidder/Contractor is advised that once the list is posted on the OGS website, any Contractor seeking to renew or extend a Contract or assume the responsibility of a Contract awarded in response to the solicitation, must certify at the time the Contract is renewed, extended or assigned that it is not included on the prohibited entities list.

During the term of the Contract, should the New York State Education Department (AGENCY) receive information that a person is in violation of the above-referenced certification, AGENCY will offer the person an opportunity to respond. If the person fails to demonstrate that it has ceased its engagement in the investment which is in violation of the Act within 90 days after the determination of such violation, then AGENCY shall take such action as may be appropriate including, but not limited to, imposing sanctions, seeking compliance, recovering damages, or declaring the Contractor in default.

AGENCY reserves the right to reject any bid or request for assignment for an entity that appears on the prohibited entities list prior to the award of a contract, and to pursue a responsibility review with respect to any entity that is awarded a contract and appears on the prohibited entities list after contract award.

Signature: \_\_\_\_\_

Print Name: \_\_\_\_\_

Title: \_\_\_\_\_

Company Name: \_\_\_\_\_

Date: : \_\_\_\_\_

**Note: Include section with Bid Form**

END OF SECTION



SECTION 00 40 01- SEXUAL HARASSMENT POLICY ACKNOWLEDGMENT

**Sexual Harassment:** Federal law, New York State law, and the policies of the Hilton Central School District prohibit sexual harassment of employees, students, and third parties. Sexual harassment includes any unwelcome sexual advances, requests for sexual favors, or other verbal or physical conduct of a sexual nature that create a hostile or offensive working environment for the District employees, students, or third parties. In the event the District, in its reasonable judgment, determines that [ ] or an employee thereof has committed an act of sexual harassment, the party shall be removed and/or the District shall take such other action as may be reasonably necessary to cause such sexual harassment to cease. In accordance with New York State law, [ ] will comply with annual sexual harassment training requirements for its employees and will provide the District with proof thereof upon request. In the event [ ] subcontracts with third parties to perform work under this Agreement, [ ] shall be responsible for ensuring that any such employees of the third party have undergone sexual harassment training in accordance with the law, and will be required to provide the District with proof thereof upon request.

\_\_\_\_\_  
Name of Bidder/Proposer

\_\_\_\_\_  
\_\_\_\_\_  
Address

By \_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

\_\_\_\_\_  
FEIN

**Note: Include section with Bid Form**





**SECTION 004100 - BID FORM – CONTRACT 201 - SITE WORK**

**1.01     GENERAL**

- A.     Pursuant to and in compliance with your Invitation to Bidders and the Information to Bidders relative thereto and all of the Contract Documents including any Addenda issued by the Architect and mailed to the undersigned prior to the opening of Bids whether received by the undersigned or not, we

---

*(Name of Company)*

hereby propose to furnish all plant, labor, supplies, materials and equipment incidental to SITE WORK as required by and in strict accord with the applicable provisions of the Drawings and Specifications entitled HILTON CENTRAL SCHOOL DISTRICT CAPITAL PROJECTS 2023 Phase 2A, all to the satisfaction and approval of the Architect and the Owner in accordance with the terms and conditions of the Contract Documents.

- B.     The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner to perform all Work as specified or indicated in the Bidding Documents for the Contract Prices and within the Contract Times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.
- C.     The Bid will remain subject to acceptance for 45 days after the Bid opening, except as noted otherwise, or for such longer period of time that Bidder may agree to in writing upon request of Owner. Bidder will sign and submit the agreement with the Bonds and other documents required by the Bidding Requirements within ten (10) days after the date of Owner's Notice of Award
- D.     Bidder has familiarized itself with the nature and extent of the Contract Documents, work, site, locality, and all local conditions and all federal, state, and local Laws and Regulations that in any manner may affect cost, progress, performance or furnishing of the work.
- E.     Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
- F.     Bidder has given Architect written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by Architect is acceptable to Bidder.

**1.02     TIME OF COMPLETION**

The Bidder agrees that after receipt of a Notice to Award and a consummation of an Agreement between the Owner and the Contractor in accordance with the terms of the Contract Documents, he will start work within five (5) calendar days of the date of "Notice to Proceed," and fully complete the Work in \_\_\_\_\_ consecutive calendar days.

1.03 BID SECURITY

Attached hereto is a Bid Security in the amount of five percent (5%) of the Base Bid.

1.04 NON-COLLUSIVE BIDDING STATEMENT

By submission of this bid/proposal, each bidder and each person signing on behalf of any bidder/proposer, certifies, and in case of a joint bid/proposal, each party hereto certifies as to its own organization, under penalty of perjury, that to the best of his/her/their knowledge and belief:

1. The prices in this bid/proposal have been arrived at independently without collusion, consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other Bidder/Proposer or with any competitor.
2. Unless otherwise required by law, the prices which have been quoted in this package have not been knowingly disclosed by the Bidder/Proposer prior to the opening, directly or indirectly, to any other bidder/proposer or to any competitor; and
3. No attempt has been made or will be made by the Bidder/Proposer to induce any other person, partnership, or corporation to submit or not to submit a bid/proposal for the purpose of restricting competition.

\_\_\_\_\_  
Name of Bidder/Proposer

\_\_\_\_\_  
Address

By \_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

\_\_\_\_\_  
FEIN

1.05 ADDENDA ACKNOWLEDGEMENT

The undersigned acknowledges the receipt of the following Addenda, but he agrees that he is bound by all Addenda whether or not listed herein:

ADDENDUM NUMBERS AND DATES

Number 1 - dated	_____
Number 2 - dated	_____
Number 3 - dated	_____
Number 4 - dated	_____
Number 5 - dated	_____
Number 6 - dated	_____

1.06 BASE BID AND ALTERNATE PRICES

The Bidder will complete all the Work in accordance with the Contract Documents for the following price:

CONTRACT NO. 201 – SITE WORK

BASE BID AMOUNT \$ \_\_\_\_\_  
(figures)

(Words) \_\_\_\_\_

Bidders are to verify scope and impact of each alternate. Bidder must fill in alternate amounts for each alternate. If no dollar impact is determined indicate such below. (Note, indicate whether alternate is add or deduct.)

ALTERNATE SW HS-1: Replace Brick Pavers on Exterior Stair Landings

ADD/DEDUCT \$ \_\_\_\_\_  
(figures)

(Words) \_\_\_\_\_

1.07 ALLOWANCES

Refer to section 012100 “Allowances” for description of Allowances where used. Allowances are to be included in base bid amount and are to be used for items not identified in the contract documents. Unit price costs will be used to add or delete scope from allowances when directed by the Owner or Architect of Record

**1.08 UNIT PRICES**

Refer to section 012200 “Unit Prices” for description of Unit prices. For Owner’s information and for changing quantities of work items from those indicated by the Contract Drawings, upon written instruction from the Architect or Construction Manager, the Contractor shall submit unit prices (which must include all accessories, hangers, labor, materials, fire stopping, terminations, etc.). Unit prices include mark up, profit and overhead. Changes to the work shall be in accordance with the General Conditions (00 72 00).

A. Unit Price No. SW-1- Remove and Dispose of Unsuitable Soil

Unit of Measure – per cubic yard \$ \_\_\_\_\_

Refer to Allowance No. SW-1 (Section 012100)

SUBMITTED on \_\_\_\_\_ . 20 \_\_\_\_\_

A. If Bidder is an Individual

Name (*typed or printed*) \_\_\_\_\_

By: \_\_\_\_\_  
(*Individual’s Signature*)

Business Address \_\_\_\_\_  
\_\_\_\_\_

Phone No. \_\_\_\_\_ FAX No. \_\_\_\_\_

B. If Bidder is a Partnership

Partnership Name (*typed or printed*) \_\_\_\_\_

By: \_\_\_\_\_  
(*Signature of general partner – attach evidence of authority to sign*)

Business Address \_\_\_\_\_  
\_\_\_\_\_

Phone No. \_\_\_\_\_ Fax No. \_\_\_\_\_

C. If Bidder is a Corporation

Corporation Name *(typed or printed)* \_\_\_\_\_

State of Incorporation \_\_\_\_\_

Type (General Business, Professional, Service, Limited Liability) \_\_\_\_\_

By: \_\_\_\_\_  
*(Signature – attach evidence of authority to sign)*

Name *(typed or printed)* \_\_\_\_\_

Title \_\_\_\_\_

Attest \_\_\_\_\_  
*(Signature of Corporate Secretary)*

Business address \_\_\_\_\_

\_\_\_\_\_

Phone No. \_\_\_\_\_ FAX No. \_\_\_\_\_

Date of Qualification to do business is \_\_\_\_\_

CORPORATE SEAL

PLEASE TYPE:

LEGAL NAME OF FIRM: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

PHONE NUMBER \_\_\_\_\_

EMAIL ADDRESS: \_\_\_\_\_

END OF SECTION 004100



**SECTION 004110 - BID FORM – CONTRACT 202 – GENERAL TRADES**

**1.01     GENERAL**

- A.     Pursuant to and in compliance with your Invitation to Bidders and the Information to Bidders relative thereto and all of the Contract Documents including any Addenda issued by the Architect and mailed to the undersigned prior to the opening of Bids whether received by the undersigned or not, we

---

*(Name of Company)*

hereby propose to furnish all plant, labor, supplies, materials and equipment incidental to GENERAL TRADES as required by and in strict accord with the applicable provisions of the Drawings and Specifications entitled HILTON CENTRAL SCHOOL DISTRICT CAPITAL PROJECTS 2023 – PHASE 2A, all to the satisfaction and approval of the Architect and the Owner in accordance with the terms and conditions of the Contract Documents.

- B.     The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner to perform all Work as specified or indicated in the Bidding Documents for the Contract Prices and within the Contract Times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.
- C.     The Bid will remain subject to acceptance for 45 days after the Bid opening, except as noted otherwise, or for such longer period of time that Bidder may agree to in writing upon request of Owner. Bidder will sign and submit the agreement with the Bonds and other documents required by the Bidding Requirements within ten (10) days after the date of Owner's Notice of Award
- D.     Bidder has familiarized itself with the nature and extent of the Contract Documents, work, site, locality, and all local conditions and all federal, state, and local Laws and Regulations that in any manner may affect cost, progress, performance or furnishing of the work.
- E.     Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
- F.     Bidder has given Architect written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by Architect is acceptable to Bidder.

**1.02     TIME OF COMPLETION**

The Bidder agrees that after receipt of a Notice to Award and a consummation of an Agreement between the Owner and the Contractor in accordance with the terms of the Contract Documents, he will start work within five (5) calendar days of the date of "Notice to Proceed," and fully complete the Work in \_\_\_\_\_ consecutive calendar days.

1.03 BID SECURITY

Attached hereto is a Bid Security in the amount of five percent (5%) of the Base Bid.

1.04 NON-COLLUSIVE BIDDING STATEMENT

By submission of this bid/proposal, each bidder and each person signing on behalf of any bidder/proposer, certifies, and in case of a joint bid/proposal, each party hereto certifies as to its own organization, under penalty of perjury, that to the best of his/her/their knowledge and belief:

1. The prices in this bid/proposal have been arrived at independently without collusion, consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other Bidder/Proposer or with any competitor.
2. Unless otherwise required by law, the prices which have been quoted in this package have not been knowingly disclosed by the Bidder/Proposer prior to the opening, directly or indirectly, to any other bidder/proposer or to any competitor; and
3. No attempt has been made or will be made by the Bidder/Proposer to induce any other person, partnership, or corporation to submit or not to submit a bid/proposal for the purpose of restricting competition.

\_\_\_\_\_  
Name of Bidder/Proposer

\_\_\_\_\_  
Address

By \_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

\_\_\_\_\_  
FEIN



### 1.05 ADDENDA ACKNOWLEDGEMENT

The undersigned acknowledges the receipt of the following Addenda, but he agrees that he is bound by all Addenda whether or not listed herein:

#### ADDENDUM NUMBERS AND DATES

Number 1 - dated	_____
Number 2 - dated	_____
Number 3 - dated	_____
Number 4 - dated	_____
Number 5 - dated	_____
Number 6 - dated	_____

### 1.06 BASE BID AND ALTERNATE PRICES

The Bidder will complete all the Work in accordance with the Contract Documents for the following price:

CONTRACT NO. 202  
General Trades Work

BASE BID AMOUNT	\$ _____ (figures)
-----------------	-----------------------

ALLOWANCE GC-2	\$ <u>7,500</u> (figures)
----------------	------------------------------

ALLOWANCE GC-3	\$ <u>7,500</u> (figures)
----------------	------------------------------

(Words) \_\_\_\_\_

Bidders are to verify scope and impact of each alternate. Bidder must fill in alternate amounts for each alternate. If no dollar impact is determined indicate such below. (Note, indicate whether alternate is add or deduct.)

ALTERNATES: No Alternates

### 1.07 ALLOWANCES

Refer to section 012100 “Allowances” for description of Allowances where used. Allowances are to be included in base bid amount and are to be used for items not identified in the contract documents. Unit price costs will be used to add or delete scope from allowances when directed by the Owner or Architect of Record

### 1.08 UNIT PRICES

Refer to section 012200 “Unit Prices” for description of Unit prices. For Owner’s information and for changing quantities of work items from those indicated by the Contract Drawings, upon written instruction from the Architect or Construction Manager, the Contractor shall submit unit prices (which must include all accessories, hangers, labor, materials, fire stopping, terminations, etc.). Unit prices include mark up, profit and overhead. Changes to the work shall be in accordance with the General Conditions (00 72 00).

A. Unit Price No. GC-1 – Remove and Dispose of Asbestos Containing Material

a. Pipe Insulation

Unit of Measure – per lineal foot \$ \_\_\_\_\_

b. ACM/Mud fitting removal

Unit of Measure – per fitting \$ \_\_\_\_\_

c. Vinyl asbestos tile and mastic

Unit of Measure – per square foot \$ \_\_\_\_\_

B. Unit Price No. GC-2 – Patch, prep and infill existing corridor wall penetrations

a. Patch, prep and infill existing corridor wall penetrations

Unit of Measure – Allowance \$ 7,500 \_\_\_\_\_

C. Unit Price No. GC-3 – Construction Manager Office Supplies and Equipment

a. Construction Manager Office Supplies and Equipment

Unit of Measure – Allowance \$ 7,500 \_\_\_\_\_

SUBMITTED on \_\_\_\_\_ . 20 \_\_\_\_\_

A. If Bidder is an Individual

Name (*typed or printed*) \_\_\_\_\_

By: \_\_\_\_\_  
(*Individual's Signature*)

Business Address \_\_\_\_\_  
\_\_\_\_\_

Phone No. \_\_\_\_\_ FAX No. \_\_\_\_\_

B. If Bidder is a Partnership

Partnership Name (*typed or printed*) \_\_\_\_\_

By: \_\_\_\_\_  
(*Signature of general partner – attach evidence of authority to sign*)

Business Address \_\_\_\_\_  
\_\_\_\_\_

Phone No. \_\_\_\_\_ Fax No. \_\_\_\_\_

C. If Bidder is a Corporation

Corporation Name (*typed or printed*) \_\_\_\_\_

State of Incorporation \_\_\_\_\_

Type (General Business, Professional, Service, Limited Liability) \_\_\_\_\_

By: \_\_\_\_\_  
(*Signature – attach evidence of authority to sign*)

Name (*typed or printed*) \_\_\_\_\_

Title \_\_\_\_\_

Attest \_\_\_\_\_  
(Signature of Corporate Secretary)

Business address \_\_\_\_\_

\_\_\_\_\_

Phone No. \_\_\_\_\_ FAX No. \_\_\_\_\_

Date of Qualification to do business is \_\_\_\_\_

CORPORATE SEAL

PLEASE TYPE:

LEGAL NAME OF FIRM: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

PHONE NUMBER \_\_\_\_\_

EMAIL ADDRESS: \_\_\_\_\_

END OF SECTION 004110

**SECTION 004120 - BID FORM – CONTRACT 202 – MECHANICAL (HVAC)**

**1.01    GENERAL**

- A.     Pursuant to and in compliance with your Invitation to Bidders and the Information to Bidders relative thereto and all of the Contract Documents including any Addenda issued by the Architect and mailed to the undersigned prior to the opening of Bids whether received by the undersigned or not, we

---

*(Name of Company)*

hereby propose to furnish all plant, labor, supplies, materials and equipment incidental to MECHANICAL (HVAC) as required by and in strict accord with the applicable provisions of the Drawings and Specifications entitled HILTON CENTRAL SCHOOL DISTRICT, CAPITAL PROJECTS 2023 – PHASE 2A, all to the satisfaction and approval of the Architect and the Owner in accordance with the terms and conditions of the Contract Documents.

- B.     The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner to perform all Work as specified or indicated in the Bidding Documents for the Contract Prices and within the Contract Times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.
- C.     The Bid will remain subject to acceptance for 45 days after the Bid opening, except as noted otherwise, or for such longer period of time that Bidder may agree to in writing upon request of Owner. Bidder will sign and submit the agreement with the Bonds and other documents required by the Bidding Requirements within ten (10) days after the date of Owner's Notice of Award
- D.     Bidder has familiarized itself with the nature and extent of the Contract Documents, work, site, locality, and all local conditions and all federal, state, and local Laws and Regulations that in any manner may affect cost, progress, performance or furnishing of the work.
- E.     Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
- F.     Bidder has given Architect written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by Architect is acceptable to Bidder.

**1.02    TIME OF COMPLETION**

The Bidder agrees that after receipt of a Notice to Award and a consummation of an Agreement between the Owner and the Contractor in accordance with the terms of the Contract Documents, he will start work within five (5) calendar days of the date of "Notice to Proceed," and fully complete the Work in \_\_\_\_\_ consecutive calendar days.

### 1.03 BID SECURITY

Attached hereto is a Bid Security in the amount of five percent (5%) of the Base Bid.

### 1.04 NON-COLLUSIVE BIDDING STATEMENT

By submission of this bid/proposal, each bidder and each person signing on behalf of any bidder/proposer, certifies, and in case of a joint bid/proposal, each party hereto certifies as to its own organization, under penalty of perjury, that to the best of his/her/their knowledge and belief:

1. The prices in this bid/proposal have been arrived at independently without collusion, consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other Bidder/Proposer or with any competitor.
2. Unless otherwise required by law, the prices which have been quoted in this package have not been knowingly disclosed by the Bidder/Proposer prior to the opening, directly or indirectly, to any other bidder/proposer or to any competitor; and
3. No attempt has been made or will be made by the Bidder/Proposer to induce any other person, partnership, or corporation to submit or not to submit a bid/proposal for the purpose of restricting competition.

\_\_\_\_\_  
Name of Bidder/Proposer

\_\_\_\_\_  
Address

By \_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

\_\_\_\_\_  
FEIN

## 1.05 ADDENDA ACKNOWLEDGEMENT

The undersigned acknowledges the receipt of the following Addenda, but he agrees that he is bound by all Addenda whether or not listed herein:

## ADDENDUM NUMBERS AND DATES

Number 1 - dated	
Number 2 - dated	
Number 3 - dated	
Number 4 - dated	
Number 5 - dated	
Number 6 - dated	

## 1.06 BASE BID AND ALTERNATE PRICES

The Bidder will complete all the Work in accordance with the Contract Documents for the following price:

CONTRACT NO. 202  
MECHANICAL (HVAC) WORK

BASE BID AMOUNT \$ \_\_\_\_\_  
(figures)

ALLOWANCE HVAC-1	\$ 25,000
	(figures)

(Words)

Bidders are to verify scope and impact of each alternate. Bidder must fill in alternate amounts for each alternate. If no dollar impact is determined indicate such below. (Note, indicate whether alternate is add or deduct.)

ALTERNATES: No Alternates

**1.07 ALLOWANCES**

Refer to section 012100 “Allowances” for description of Allowances where used. Allowances are to be included in base bid amount and are to be used for items not identified in the contract documents. Unit price costs will be used to add or delete scope from allowances when directed by the Owner or Architect of Record

**1.08 UNIT PRICES**

Refer to section 012200 “Unit Prices” for description of Unit prices. For Owner’s information and for changing quantities of work items from those indicated by the Contract Drawings, upon written instruction from the Architect or Construction Manager, the Contractor shall submit unit prices (which must include all accessories, hangers, labor, materials, fire stopping, terminations, etc.). Unit prices include mark up, profit and overhead. Changes to the work shall be in accordance with the General Conditions (00 72 00).

A. Unit Price No. HVAC-1 – DDC Control Upgrades

a. DDC Control Upgrades

Unit of Measure – Allowance                      \$ 25,000

SUBMITTED on \_\_\_\_\_ . 20\_\_\_\_

A. If Bidder is an Individual

Name (*typed or printed*) \_\_\_\_\_

By: \_\_\_\_\_  
(*Individual’s Signature*)

Business Address \_\_\_\_\_

\_\_\_\_\_

Phone No. \_\_\_\_\_ FAX No. \_\_\_\_\_



B. If Bidder is a Partnership

Partnership Name (*typed or printed*) \_\_\_\_\_

By: \_\_\_\_\_  
(*Signature of general partner – attach evidence of authority to sign*)

Business Address \_\_\_\_\_

\_\_\_\_\_

Phone No. \_\_\_\_\_ Fax No. \_\_\_\_\_

C. If Bidder is a Corporation

Corporation Name (*typed or printed*) \_\_\_\_\_

State of Incorporation \_\_\_\_\_

Type (General Business, Professional, Service, Limited Liability) \_\_\_\_\_

By: \_\_\_\_\_  
(*Signature – attach evidence of authority to sign*)

Name (*typed or printed*) \_\_\_\_\_

Title \_\_\_\_\_

Attest \_\_\_\_\_  
(*Signature of Corporate Secretary*)

Business address \_\_\_\_\_

\_\_\_\_\_

Phone No. \_\_\_\_\_ FAX No. \_\_\_\_\_

Date of Qualification to do business is \_\_\_\_\_

CORPORATE SEAL

PLEASE TYPE:

LEGAL NAME OF FIRM: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

PHONE NUMBER \_\_\_\_\_

EMAIL ADDRESS: \_\_\_\_\_

END OF SECTION 004120

**SECTION 004130 - BID FORM – CONTRACT 204 – PLUMBING**

**1.01    GENERAL**

- A.     Pursuant to and in compliance with your Invitation to Bidders and the Information to Bidders relative thereto and all of the Contract Documents including any Addenda issued by the Architect and mailed to the undersigned prior to the opening of Bids whether received by the undersigned or not, we

---

*(Name of Company)*

hereby propose to furnish all plant, labor, supplies, materials and equipment incidental to PLUMBING WORK as required by and in strict accord with the applicable provisions of the Drawings and Specifications entitled HILTON CENTRAL SCHOOL DISTRICT CAPITAL PROJECTS 2023 – PHASE 2A, all to the satisfaction and approval of the Architect and the Owner in accordance with the terms and conditions of the Contract Documents.

- B.     The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner to perform all Work as specified or indicated in the Bidding Documents for the Contract Prices and within the Contract Times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.
- C.     The Bid will remain subject to acceptance for 45 days after the Bid opening, except as noted otherwise, or for such longer period of time that Bidder may agree to in writing upon request of Owner. Bidder will sign and submit the agreement with the Bonds and other documents required by the Bidding Requirements within ten (10) days after the date of Owner's Notice of Award
- D.     Bidder has familiarized itself with the nature and extent of the Contract Documents, work, site, locality, and all local conditions and all federal, state, and local Laws and Regulations that in any manner may affect cost, progress, performance or furnishing of the work.
- E.     Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
- F.     Bidder has given Architect written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by Architect is acceptable to Bidder.

**1.02    TIME OF COMPLETION**

The Bidder agrees that after receipt of a Notice to Award and a consummation of an Agreement between the Owner and the Contractor in accordance with the terms of the Contract Documents, he will start work within five (5) calendar days of the date of "Notice to Proceed," and fully complete the Work in \_\_\_\_\_ consecutive calendar days.

### 1.03 BID SECURITY

Attached hereto is a Bid Security in the amount of five percent (5%) of the Base Bid.

### 1.04 NON-COLLUSIVE BIDDING STATEMENT

By submission of this bid/proposal, each bidder and each person signing on behalf of any bidder/proposer, certifies, and in case of a joint bid/proposal, each party hereto certifies as to its own organization, under penalty of perjury, that to the best of his/her/their knowledge and belief:

1. The prices in this bid/proposal have been arrived at independently without collusion, consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other Bidder/Proposer or with any competitor.
2. Unless otherwise required by law, the prices which have been quoted in this package have not been knowingly disclosed by the Bidder/Proposer prior to the opening, directly or indirectly, to any other bidder/proposer or to any competitor; and
3. No attempt has been made or will be made by the Bidder/Proposer to induce any other person, partnership, or corporation to submit or not to submit a bid/proposal for the purpose of restricting competition.

\_\_\_\_\_  
Name of Bidder/Proposer

\_\_\_\_\_  
Address

By \_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

\_\_\_\_\_  
FEIN

### 1.05 ADDENDA ACKNOWLEDGEMENT

The undersigned acknowledges the receipt of the following Addenda, but he agrees that he is bound by all Addenda whether or not listed herein:

## ADDENDUM NUMBERS AND DATES

Number 1 - dated	
Number 2 - dated	
Number 3 - dated	
Number 4 - dated	
Number 5 - dated	
Number 6 - dated	

## 1.06 BASE BID AND ALTERNATE PRICES

The Bidder will complete all the Work in accordance with the Contract Documents for the following price:

CONTRACT NO. 204  
PLUMBING WORK

BASE BID AMOUNT \$ \_\_\_\_\_  
(figures)

(Words) \_\_\_\_\_

Bidders are to verify scope and impact of each alternate. Bidder must fill in alternate amounts for each alternate. If no dollar impact is determined indicate such below. (Note, indicate whether alternate is add or deduct.)

ALTERNATES: No Alternates

## 1.07 ALLOWANCES

Refer to section 012100 "Allowances" for description of Allowances where used. Allowances are to be included in base bid amount and are to be used for items not identified in the contract documents. Unit price costs will be used to add or delete scope from allowances when directed by the Owner or Architect of Record

**1.08 UNIT PRICES**

Refer to section 012200 “Unit Prices” for description of Unit prices. For Owner’s information and for changing quantities of work items from those indicated by the Contract Drawings, upon written instruction from the Architect or Construction Manager, the Contractor shall submit unit prices (which must include all accessories, hangers, labor, materials, fire stopping, terminations, etc.). Unit prices include mark up, profit and overhead. Changes to the work shall be in accordance with the General Conditions (00 72 00).

A. None

SUBMITTED on \_\_\_\_\_ . 20\_\_\_\_\_

A. If Bidder is an Individual

Name (*typed or printed*) \_\_\_\_\_

By: \_\_\_\_\_  
(*Individual’s Signature*)

Business Address \_\_\_\_\_

\_\_\_\_\_

Phone No. \_\_\_\_\_ FAX No. \_\_\_\_\_

B. If Bidder is a Partnership

Partnership Name (*typed or printed*) \_\_\_\_\_

By: \_\_\_\_\_  
(*Signature of general partner – attach evidence of authority to sign*)

Business Address \_\_\_\_\_

\_\_\_\_\_

Phone No. \_\_\_\_\_ Fax No. \_\_\_\_\_

C. If Bidder is a Corporation

Corporation Name (*typed or printed*) \_\_\_\_\_

State of Incorporation \_\_\_\_\_

Type (General Business, Professional, Service, Limited Liability) \_\_\_\_\_

By: \_\_\_\_\_  
(*Signature – attach evidence of authority to sign*)

Name (*typed or printed*) \_\_\_\_\_

Title \_\_\_\_\_

Attest \_\_\_\_\_  
(*Signature of Corporate Secretary*)

Business address \_\_\_\_\_

\_\_\_\_\_

Phone No. \_\_\_\_\_ FAX No. \_\_\_\_\_

Date of Qualification to do business is \_\_\_\_\_

CORPORATE SEAL

PLEASE TYPE:

LEGAL NAME OF FIRM: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

PHONE NUMBER: \_\_\_\_\_

EMAIL ADDRESS: \_\_\_\_\_

END OF SECTION 004130



**SECTION 004140 - BID FORM – CONTRACT 205- ELECTRICAL**

**1.01     GENERAL**

- A.     Pursuant to and in compliance with your Invitation to Bidders and the Information to Bidders relative thereto and all of the Contract Documents including any Addenda issued by the Architect and mailed to the undersigned prior to the opening of Bids whether received by the undersigned or not, we

---

*(Name of Company)*

hereby propose to furnish all plant, labor, supplies, materials and equipment incidental to ELECTRICAL WORK as required by and in strict accord with the applicable provisions of the Drawings and Specifications entitled HILTON CENTRAL SCHOOL, CAPITAL PROJECTS 2023 – PHASE 2A, all to the satisfaction and approval of the Architect and the Owner in accordance with the terms and conditions of the Contract Documents.

- B.     The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner to perform all Work as specified or indicated in the Bidding Documents for the Contract Prices and within the Contract Times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.
- C.     The Bid will remain subject to acceptance for 45 days after the Bid opening, except as noted otherwise, or for such longer period of time that Bidder may agree to in writing upon request of Owner. Bidder will sign and submit the agreement with the Bonds and other documents required by the Bidding Requirements within ten (10) days after the date of Owner's Notice of Award
- D.     Bidder has familiarized itself with the nature and extent of the Contract Documents, work, site, locality, and all local conditions and all federal, state, and local Laws and Regulations that in any manner may affect cost, progress, performance or furnishing of the work.
- E.     Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
- F.     Bidder has given Architect written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by Architect is acceptable to Bidder.

**1.02     TIME OF COMPLETION**

The Bidder agrees that after receipt of a Notice to Award and a consummation of an Agreement between the Owner and the Contractor in accordance with the terms of the Contract Documents, he will start work within five (5) calendar days of the date of "Notice to Proceed," and fully complete the Work in \_\_\_\_\_ consecutive calendar days.

1.03 BID SECURITY

Attached hereto is a Bid Security in the amount of five percent (5%) of the Base Bid.

1.04 NON-COLLUSIVE BIDDING STATEMENT

By submission of this bid/proposal, each bidder and each person signing on behalf of any bidder/proposer, certifies, and in case of a joint bid/proposal, each party hereto certifies as to its own organization, under penalty of perjury, that to the best of his/her/their knowledge and belief:

1. The prices in this bid/proposal have been arrived at independently without collusion, consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other Bidder/Proposer or with any competitor.
2. Unless otherwise required by law, the prices which have been quoted in this package have not been knowingly disclosed by the Bidder/Proposer prior to the opening, directly or indirectly, to any other bidder/proposer or to any competitor; and
3. No attempt has been made or will be made by the Bidder/Proposer to induce any other person, partnership, or corporation to submit or not to submit a bid/proposal for the purpose of restricting competition.

\_\_\_\_\_  
Name of Bidder/Proposer

\_\_\_\_\_  
Address

By \_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

\_\_\_\_\_  
FEIN



### 1.08 UNIT PRICES

Refer to section 012200 “Unit Prices” for description of Unit prices. For Owner’s information and for changing quantities of work items from those indicated by the Contract Drawings, upon written instruction from the Architect or Construction Manager, the Contractor shall submit unit prices (which must include all accessories, hangers, labor, materials, fire stopping, terminations, etc.). Unit prices include mark up, profit and overhead. Changes to the work shall be in accordance with the General Conditions (00 72 00).

#### A. Unit Price EC-1 – Fire Alarm Manual Pull Station at an Exterior Entrance Door

- a. Provide One (1) Fire alarm manual pull station at an exterior entrance door.

Cost to provide one (1) manual pull station \$ \_\_\_\_\_

SUBMITTED on \_\_\_\_\_ . 20 \_\_\_\_\_

#### A. If Bidder is an Individual

Name (*typed or printed*) \_\_\_\_\_

By: \_\_\_\_\_  
(*Individual’s Signature*)

Business Address \_\_\_\_\_  
\_\_\_\_\_

Phone No. \_\_\_\_\_ FAX No. \_\_\_\_\_

B. If Bidder is a Partnership

Partnership Name (*typed or printed*) \_\_\_\_\_

By: \_\_\_\_\_  
(*Signature of general partner – attach evidence of authority to sign*)

Business Address \_\_\_\_\_

\_\_\_\_\_

Phone No. \_\_\_\_\_ Fax No. \_\_\_\_\_

C. If Bidder is a Corporation

Corporation Name (*typed or printed*) \_\_\_\_\_

State of Incorporation \_\_\_\_\_

Type (General Business, Professional, Service, Limited Liability) \_\_\_\_\_

By: \_\_\_\_\_  
(*Signature – attach evidence of authority to sign*)

Name (*typed or printed*) \_\_\_\_\_

Title \_\_\_\_\_

Attest \_\_\_\_\_  
(*Signature of Corporate Secretary*)

Business address \_\_\_\_\_

\_\_\_\_\_

Phone No. \_\_\_\_\_ FAX No. \_\_\_\_\_

Date of Qualification to do business is \_\_\_\_\_

CORPORATE SEAL

PLEASE TYPE:

LEGAL NAME OF FIRM: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

PHONE NUMBER \_\_\_\_\_

EMAIL ADDRESS: \_\_\_\_\_

END OF SECTION 004140

**SECTION 004150 - BID FORM – CONTRACT 206 – CABLING**

**1.01     GENERAL**

- A.     Pursuant to and in compliance with your Invitation to Bidders and the Information to Bidders relative thereto and all of the Contract Documents including any Addenda issued by the Architect and mailed to the undersigned prior to the opening of Bids whether received by the undersigned or not, we

---

*(Name of Company)*

hereby propose to furnish all plant, labor, supplies, materials and equipment incidental to CABLING as required by and in strict accord with the applicable provisions of the Drawings and Specifications entitled HILTON CENTRAL SCHOOL DISTRICT CAPITAL PROJECTS 2023 – PHASE 2A, all to the satisfaction and approval of the Architect and the Owner in accordance with the terms and conditions of the Contract Documents.

- B.     The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner to perform all Work as specified or indicated in the Bidding Documents for the Contract Prices and within the Contract Times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.
- C.     The Bid will remain subject to acceptance for 45 days after the Bid opening, except as noted otherwise, or for such longer period of time that Bidder may agree to in writing upon request of Owner. Bidder will sign and submit the agreement with the Bonds and other documents required by the Bidding Requirements within ten (10) days after the date of Owner's Notice of Award
- D.     Bidder has familiarized itself with the nature and extent of the Contract Documents, work, site, locality, and all local conditions and all federal, state, and local Laws and Regulations that in any manner may affect cost, progress, performance or furnishing of the work.
- E.     Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
- F.     Bidder has given Architect written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by Architect is acceptable to Bidder.

**1.02     TIME OF COMPLETION**

The Bidder agrees that after receipt of a Notice to Award and a consummation of an Agreement between the Owner and the Contractor in accordance with the terms of the Contract Documents, he will start work within five (5) calendar days of the date of "Notice to Proceed," and fully complete the Work in \_\_\_\_\_ consecutive calendar days.

1.03 BID SECURITY

Attached hereto is a Bid Security in the amount of five percent (5%) of the Base Bid.

1.04 NON-COLLUSIVE BIDDING STATEMENT

By submission of this bid/proposal, each bidder and each person signing on behalf of any bidder/proposer, certifies, and in case of a joint bid/proposal, each party hereto certifies as to its own organization, under penalty of perjury, that to the best of his/her/their knowledge and belief:

1. The prices in this bid/proposal have been arrived at independently without collusion, consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other Bidder/Proposer or with any competitor.
2. Unless otherwise required by law, the prices which have been quoted in this package have not been knowingly disclosed by the Bidder/Proposer prior to the opening, directly or indirectly, to any other bidder/proposer or to any competitor; and
3. No attempt has been made or will be made by the Bidder/Proposer to induce any other person, partnership, or corporation to submit or not to submit a bid/proposal for the purpose of restricting competition.

\_\_\_\_\_  
Name of Bidder/Proposer

\_\_\_\_\_  
Address

By \_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

\_\_\_\_\_  
FEIN



### 1.05 ADDENDA ACKNOWLEDGEMENT

The undersigned acknowledges the receipt of the following Addenda, but he agrees that he is bound by all Addenda whether or not listed herein:

#### ADDENDUM NUMBERS AND DATES

Number 1 - dated	_____
Number 2 - dated	_____
Number 3 - dated	_____
Number 4 - dated	_____
Number 5 - dated	_____
Number 6 - dated	_____

### 1.06 BASE BID AND ALTERNATE PRICES

The Bidder will complete all the Work in accordance with the Contract Documents for the following price:

CONTRACT NO. 206  
Cabling Work

BASE BID AMOUNT \$ \_\_\_\_\_  
(figures)

(Words) \_\_\_\_\_

Bidders are to verify scope and impact of each alternate. Bidder must fill in alternate amounts for each alternate. If no dollar impact is determined indicate such below. (Note, indicate whether alternate is add or deduct.)

ALTERNATES: No Alternates

### 1.07 ALLOWANCES

Refer to section 012100 "Allowances" for description of Allowances where used. Allowances are to be included in base bid amount and are to be used for items not identified in the contract documents. Unit price costs will be used to add or delete scope from allowances when directed by the Owner or Architect of Record

### 1.08 UNIT PRICES

Refer to section 012200 “Unit Prices” for description of Unit prices. For Owner’s information and for changing quantities of work items from those indicated by the Contract Drawings, upon written instruction from the Architect or Construction Manager, the Contractor shall submit unit prices (which must include all accessories, hangers, labor, materials, fire stopping, terminations, etc.). Unit prices include mark up, profit and overhead. Changes to the work shall be in accordance with the General Conditions (00 72 00).

A. None

SUBMITTED on \_\_\_\_\_ . 20 \_\_\_\_\_

A. If Bidder is an Individual

Name (*typed or printed*) \_\_\_\_\_

By: \_\_\_\_\_  
(*Individual’s Signature*)

Business Address \_\_\_\_\_  
\_\_\_\_\_

Phone No. \_\_\_\_\_ FAX No. \_\_\_\_\_

B. If Bidder is a Partnership

Partnership Name (*typed or printed*) \_\_\_\_\_

By: \_\_\_\_\_  
(*Signature of general partner – attach evidence of authority to sign*)

Business Address \_\_\_\_\_  
\_\_\_\_\_

Phone No. \_\_\_\_\_ Fax No. \_\_\_\_\_

C. If Bidder is a Corporation

Corporation Name (*typed or printed*) \_\_\_\_\_

State of Incorporation \_\_\_\_\_

Type (General Business, Professional, Service, Limited Liability) \_\_\_\_\_

By: \_\_\_\_\_  
(Signature – attach evidence of authority to sign)

Name (typed or printed) \_\_\_\_\_

Title \_\_\_\_\_

Attest \_\_\_\_\_  
(Signature of Corporate Secretary)

Business address \_\_\_\_\_

\_\_\_\_\_

Phone No. \_\_\_\_\_ FAX No. \_\_\_\_\_

Date of Qualification to do business is \_\_\_\_\_

CORPORATE SEAL

PLEASE TYPE:

LEGAL NAME OF FIRM: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

PHONE NUMBER \_\_\_\_\_

EMAIL ADDRESS: \_\_\_\_\_

END OF SECTION 004150



## BID PROPOSAL CERTIFICATIONS

Firm Name \_\_\_\_\_

Business Address \_\_\_\_\_

Telephone Number \_\_\_\_\_ Date of Bid \_\_\_\_\_

**I. General Bid Certification**

The bidder certifies that he will furnish, at the prices herein quoted, the materials, equipment and/or services as proposed on this bid.

**II. Non-Collusive Bidding Certification**

By submission of this bid proposal, the bidder certifies that he is complying with Section 103-d of the General Municipal Law as follows:

Statement of non-collusion in bids and proposals to political subdivision of the state. Every bid or proposal hereafter made to a political subdivision of the state or any public department, agency or official thereof where competitive bidding is required by statute, rule, regulation, or local law, for work or services performed or to be performed or goods sold or to be sold, shall contain the following statement subscribed by the bidder and affirmed by such bidder as true under the penalties of perjury: Non-collusive bidding certification.

a) By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of knowledge and belief:

- 1) The prices in this bid have been arrived at independently without collusion, consultation, communication or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor.
- 2) Unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly disclosed by the bidder and will not knowingly be disclosed by the bidder prior to opening, directly or indirectly, to any other bidder or to any competitor; and
- 3) No attempt has been made or will be made by the bidder to induce any other person, partnership or corporation to submit or not to submit a bid for the purpose restricting competition.

- b) A bid shall not be considered for award nor shall any award be made where (a) (1) (2) and (3) above have not been complied with; provided, however, that if in any case the bidder cannot make the foregoing certification, the bidder shall so state and shall furnish with the bid a signed statement which sets forth in detail the reasons therefor. Where (a) (1) (2) and (3) above have not been complied with, the bid shall not be considered for award nor shall any award be made unless the head of the purchasing unit of the political subdivision, public department, agency or official thereof to which the bid is made, or his designee, determines that such disclosure was not made for the purpose of restricting competition.

The fact that a bidder (a) has published price lists, rates, or tariffs covering items being procured, (b) has informed prospective customers of proposed or pending publication of new or revised price lists for such items, or (c) has sold the same items to other customers at the same prices being bid, does not constitute, without more, a disclosure within the meaning subparagraph one (a).

2. Any bid hereafter made to any political subdivision of the state or any public department, agency or official thereof by a corporate bidder for work or services performed or to be performed or goods sold or to be sold, where competitive bidding is required by statute, rule, regulation, or local law, and where such bid contains the certification referred to in subdivision one of the section, shall be deemed to have been authorized by the board of directors of the bidder, and such authorization shall be deemed to include the signing and submission of the bid and the inclusion therein of the certificate as to non-collusion as the act and deed of the corporation.

Signature (Authorized) \_\_\_\_\_

Title \_\_\_\_\_  
Bid-003



**SECTION 005200 – STANDARD FORM OF AGREEMENT BETWEEN OWNER AND  
CONTRACTOR – CONSTRUCTION MANAGER AS ADVISOR EDITION**

**PART 1 -GENERAL**

**1.1 SUMMARY**

- A. The attached AIA Document A132 - 2019, Standard Form of Agreement between Owner and Contractor – Construction Manager as Advisor Edition, is a part of this project and is incorporated herein fully as is set forth.
- B. This Agreement is final except for information provided by the bidding and award process.

**PART 2 -PRODUCTS (Not Applicable)**

**PART 3 - EXECUTION (Not Applicable)**

**END OF SECTION 005200**





# DRAFT AIA® Document A132™ – 2019

## Standard Form of Agreement Between Owner and Contractor, Construction Manager as Adviser Edition

AGREEMENT made as of the « » day of « » in the year « »  
(In words, indicate day, month, and year.)

BETWEEN the Owner:  
(Name, legal status, address, and other information)

Hilton Central School District  
225 West Avenue  
Hilton, NY 14468

and the Contractor:  
(Name, legal status, address, and other information)

« »  
« »  
« »  
« »

for the following Project:  
(Name, location, and detailed description)

Hilton Central School District  
Capital Projects 2023 - Phase 2A

The Construction Manager:  
(Name, legal status, address, and other information)

Campus Construction Management Group, Inc.  
1221 Pittsford-Victor Road  
Pittsford, NY 14534

The Architect:  
(Name, legal status, address, and other information)

LaBella Associates, D.P.C  
300 State Street, Suite 201  
Rochester, NY 14614

The Owner and Contractor agree as follows.

### ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An Additions and Deletions Report that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

This document is intended to be used in conjunction with AIA Documents A232™-2019, General Conditions of the Contract for Construction, Construction Manager as Adviser Edition; B132™-2019, Standard Form of Agreement Between Owner and Architect, Construction Manager as Adviser Edition; and C132™-2019, Standard Form of Agreement Between Owner and Construction Manager as Adviser. AIA Document A232™-2019 is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

**ELECTRONIC COPYING** of any portion of this AIA® Document to another electronic file is prohibited and constitutes a violation of copyright laws as set forth in the footer of this document.

## TABLE OF ARTICLES

- 1 THE CONTRACT DOCUMENTS
- 2 THE WORK OF THIS CONTRACT
- 3 DATE OF COMMENCEMENT AND DATES OF SUBSTANTIAL COMPLETION
- 4 CONTRACT SUM
- 5 PAYMENTS
- 6 DISPUTE RESOLUTION
- 7 TERMINATION OR SUSPENSION
- 8 MISCELLANEOUS PROVISIONS
- 9 ENUMERATION OF CONTRACT DOCUMENTS

### EXHIBIT A INSURANCE AND BONDS

### EXHIBIT B DETERMINATION OF THE COST OF THE WORK

## ARTICLE 1 THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary, and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement, and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. An enumeration of the Contract Documents, other than Modifications, appears in Article 9.

## ARTICLE 2 THE WORK OF THIS CONTRACT

The Contractor shall fully execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others.

## ARTICLE 3 DATE OF COMMENCEMENT AND DATES OF SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be:

*(Check one of the following boxes.)*

☐ The date of this Agreement.

☐ A date set forth in a notice to proceed issued by the Owner.

☐ Established as follows:

*(Insert a date or a means to determine the date of commencement of the Work.)*

☐

If a date of commencement of the Work is not selected, then the date of commencement shall be the date of this Agreement.

§ 3.2 The Contract Time shall be measured from the date of commencement of the Work.

### § 3.3 Substantial Completion of the Project or Portions Thereof

§ 3.3.1 Subject to adjustments of the Contract Time as provided in the Contract Documents, the date of Substantial Completion of the Work of all of the Contractors for the Project will be:

*(Insert the date of Substantial Completion of the Work of all Contractors for the Project.)*

§ 3.3.2 Subject to adjustments of the Contract Time as provided in the Contract Documents, if portions of the Work of all of the Contractors for the Project are to be completed prior to Substantial Completion of the entire Work of all of the Contractors for the Project, the Contractors shall achieve Substantial Completion of such portions by the following dates:

Portion of Work	Substantial Completion Date

**§ 3.4 When the Work of this Contract, or any Portion Thereof, is Substantially Complete**

§ 3.4.1 Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall substantially complete the entire Work of this Contract:

(Check one of the following boxes and complete the necessary information.)

☐ Not later than  (  ) calendar days from the date of commencement of the Work.

☐ By the following date:

§ 3.4.2 Subject to adjustments of the Contract Time as provided in the Contract Documents, if portions of the Work of this Contract are to be substantially complete prior to when the entire Work of this Contract shall be substantially complete, the Contractor shall substantially complete such portions by the following dates:

Portion of Work	Date to be substantially complete

§ 3.4.3 If the Contractor fails to substantially complete the Work of this Contract, or portions thereof, as provided in this Section 3.4, liquidated damages, if any, shall be assessed as set forth in Section 4.5.

**ARTICLE 4 CONTRACT SUM**

§ 4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be one of the following:

(Check the appropriate box.)

☐ Stipulated Sum, in accordance with Section 4.2 below

☐ Cost of the Work plus the Contractor's Fee, in accordance with Section 4.3 below

☐ Cost of the Work plus the Contractor's Fee with a Guaranteed Maximum Price, in accordance with Section 4.4 below

(Based on the selection above, complete Section 4.2, 4.3 or 4.4 below.)

**§ 4.2 Stipulated Sum**

§ 4.2.1 The Contract Sum shall be  (\$  ), subject to additions and deductions as provided in the Contract Documents.

**§ 4.2.2 Alternates**

§ 4.2.2.1 Alternates, if any, included in the Contract Sum:

Item	Price

§ 4.2.2.2 Subject to the conditions noted below, the following alternates may be accepted by the Owner following execution of this Agreement. Upon acceptance, the Owner shall issue a Modification to this Agreement.

(Insert below each alternate and the conditions that must be met for the Owner to accept the alternate.)

Item	Price	Conditions for Acceptance

§ 4.2.3 Allowances, if any, included in the Contract Sum:  
(Identify each allowance.)

Item	Price

§ 4.2.4 Unit prices, if any:  
(Identify the item and state the unit price, and quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price per Unit (\$0.00)

#### § 4.3 Cost of the Work Plus Contractor's Fee without a Guaranteed Maximum Price

§ 4.3.1 The Cost of the Work is as defined in Exhibit B, Determination of the Cost of the Work.

§ 4.3.2 The Contractor's Fee:  
(State a lump sum, percentage of Cost of the Work or other provision for determining the Contractor's Fee.)

« »

§ 4.3.3 The method of adjustment of the Contractor's Fee for changes in the Work:

« »

§ 4.3.4 Limitations, if any, on a Subcontractor's overhead and profit for increases in the cost of its portion of the Work:

« »

§ 4.3.5 Rental rates for Contractor-owned equipment shall not exceed « » percent ( « » %) of the standard rental rate paid at the place of the Project.

§ 4.3.6 Unit prices, if any:  
(Identify the item and state the unit price and quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price per Unit (\$0.00)

§ 4.3.7 The Contractor shall prepare and submit to the Construction Manager, within 14 days of executing this Agreement, a written Control Estimate for the Owner's review and approval. The Control Estimate shall include the items in Section B.1 of Exhibit B, Determination of the Cost of the Work.

#### § 4.4 Cost of the Work Plus Contractor's Fee with a Guaranteed Maximum Price

§ 4.4.1 The Cost of the Work is as defined in Exhibit B, Determination of the Cost of the Work.

§ 4.4.2 The Contractor's Fee:  
(State a lump sum, percentage of Cost of the Work or other provision for determining the Contractor's Fee.)

« »

§ 4.4.3 The method of adjustment of the Contractor's Fee for changes in the Work:

« »

§ 4.4.4 Limitations, if any, on a Subcontractor's overhead and profit for increases in the cost of its portion of the Work:

« »

§ 4.4.5 Rental rates for Contractor-owned equipment shall not exceed « » percent ( « » %) of the standard rental rate paid at the place of the Project.

§ 4.4.6 Unit Prices, if any:

*(Identify the item and state the unit price and quantity limitations, if any, to which the unit price will be applicable.)*

Item	Units and Limitations	Price per Unit (\$0.00)

§ 4.4.7 Guaranteed Maximum Price

§ 4.4.7.1 The Contract Sum is guaranteed by the Contractor not to exceed « » (\$ « » ), subject to additions and deductions by Change Order as provided in the Contract Documents. This maximum sum is referred to in the Contract Documents as the Guaranteed Maximum Price. Costs which would cause the Guaranteed Maximum Price to be exceeded shall be paid by the Contractor without reimbursement by the Owner.

§ 4.4.7.2 Alternates

§ 4.4.7.2.1 Alternates, if any, included in the Guaranteed Maximum Price:

Item	Price

§ 4.4.7.2.2 Subject to the conditions noted below, the following alternates may be accepted by the Owner following execution of this Agreement. Upon acceptance, the Owner shall issue a Modification to this Agreement.

*(Insert below each alternate and the conditions that must be met for the Owner to accept the alternate.)*

Item	Price	Conditions for Acceptance

§ 4.4.7.3 Allowances, if any, included in the Guaranteed Maximum Price:

*(Identify each allowance.)*

Item	Price

§ 4.4.7.4 Assumptions, if any, upon which the Guaranteed Maximum Price is based:

*(Identify each assumption.)*

« »

§ 4.4.8 To the extent that the Contract Documents are anticipated to require further development, the Guaranteed Maximum Price includes the costs attributable to such further development consistent with the Contract Documents and reasonably inferable therefrom. Such further development does not include changes in scope, systems, kinds and quality of materials, finishes, or equipment, all of which, if required, shall be incorporated by Change Order.

§ 4.4.9 The Owner shall authorize preparation of revisions to the Contract Documents that incorporate the agreed-upon assumptions contained in Section 4.4.7.4. The Owner shall promptly furnish such revised Contract Documents to the Contractor. The Contractor shall notify the Owner and Architect of any inconsistencies between the agreed-upon assumptions contained in Section 4.4.7.4 and the revised Contract Documents.

§ 4.5 Liquidated damages, if any:

*(Insert terms and conditions for liquidated damages, if any, to be assessed in accordance with Section 3.4.)*

« »

§ 4.6 Other:

*(Insert provisions for bonus, cost savings or other incentives, if any, that might result in a change to the Contract Sum.)*

<< >>

## ARTICLE 5 PAYMENTS

### § 5.1 Progress Payments

§ 5.1.1 Based upon Applications for Payment submitted to the Construction Manager by the Contractor, and Certificates for Payment issued by the Construction Manager and Architect, the Owner shall make progress payments on account of the Contract Sum, to the Contractor, as provided below and elsewhere in the Contract Documents.

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

<< >>

§ 5.1.3 Provided that an Application for Payment is received by the Construction Manager not later than the <> day of a month, the Owner shall make payment of the amount certified to the Contractor not later than the <> day of the <> month. If an Application for Payment is received by the Construction Manager after the application date fixed above, payment of the amount certified shall be made by the Owner not later than <> ( <> ) days after the Construction Manager receives the Application for Payment.

*(Federal, state or local laws may require payment within a certain period of time.)*

### § 5.1.4 Progress Payments Where the Contract Sum is Based on a Stipulated Sum

§ 5.1.4.1 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form, and supported by such data to substantiate its accuracy, as the Construction Manager and Architect may require. This schedule of values shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 5.1.4.2 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

§ 5.1.4.3 In accordance with AIA Document A232™–2019, General Conditions of the Contract for Construction, Construction Manager as Adviser Edition, and subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

§ 5.1.4.3.1 The amount of each progress payment shall first include:

- .1 That portion of the Contract Sum properly allocable to completed Work;
- .2 That portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction, or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing; and
- .3 That portion of Construction Change Directives that the Architect determines, in the Architect's professional judgment, to be reasonably justified.

§ 5.1.4.3.2 The amount of each progress payment shall then be reduced by:

- .1 The aggregate of any amounts previously paid by the Owner;
- .2 The amount, if any, for Work that remains uncorrected and for which the Architect has previously withheld a Certificate for Payment as provided in Article 9 of AIA Document A232–2019;
- .3 Any amount for which the Contractor does not intend to pay a Subcontractor or material supplier, unless the Work has been performed by others the Contractor intends to pay;
- .4 For Work performed or defects discovered since the last payment application, any amount for which the Architect may withhold payment, or nullify a Certificate of Payment in whole or in part, as provided in Article 9 of AIA Document A232–2019; and
- .5 Retainage withheld pursuant to Section 5.1.7.

**§ 5.1.5 Progress Payments Where the Contract Sum is Based on the Cost of the Work without a Guaranteed Maximum Price**

**§ 5.1.5.1** With each Application for Payment, the Contractor shall submit the cost control information required in Exhibit B, Determination of the Cost of the Work, along with payrolls, petty cash accounts, receipted invoices, or invoices with check vouchers attached, and any other evidence required by the Owner, Construction Manager or Architect to demonstrate that payments already made by the Contractor on account of the Cost of the Work equal or exceed progress payments already received by the Contractor, plus payrolls for the period covered by the present Application for Payment, less that portion of the payments attributable to the Contractor's Fee.

**§ 5.1.5.2** Applications for Payment shall show the Cost of the Work actually incurred by the Contractor through the end of the period covered by the Application for Payment and for which the Contractor has made or intends to make actual payment prior to the next Application for Payment.

**§ 5.1.5.3** In accordance with AIA Document A232-2019 and subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

**§ 5.1.5.3.1** The amount of each progress payment shall first include:

- .1 The Cost of the Work as described in Exhibit B, Determination of the Cost of the Work;
- .2 That portion of Construction Change Directives that the Architect determines, in the Architect's professional judgment, to be reasonably justified; and
- .3 The Contractor's Fee computed upon the Cost of the Work described in the preceding Section 5.1.5.3.1.1 at the rate stated in Section 4.3.2; or if the Contractor's Fee is stated as a fixed sum in Section 4.3.2 an amount which bears the same ratio to that fixed-sum Fee as the Cost of the Work included in Section 5.1.5.3.1.1 bears to a reasonable estimate of the probable Cost of the Work upon its completion.

**§ 5.1.5.3.2** The amount of each progress payment shall then be reduced by:

- .1 The aggregate of any amounts previously paid by the Owner;
- .2 The amount, if any, for Work that remains uncorrected and for which the Architect has previously withheld a Certificate for Payment as provided in Article 9 of AIA Document A232-2019;
- .3 Any amount for which the Contractor does not intend to pay a Subcontractor or material supplier, unless the Work has been performed by others the Contractor intends to pay;
- .4 For Work performed or defects discovered since the last payment application, any amount for which the Architect may withhold payment, or nullify a Certificate of Payment in whole or in part, as provided in Article 9 of AIA Document A232-2019;
- .5 The shortfall, if any, indicated by the Contractor in the documentation required by Section 5.1.5.1 to substantiate prior Applications for Payment, or resulting from errors subsequently discovered by the Owner's auditors in such documentation; and
- .6 Retainage withheld pursuant to Section 5.1.7.

**§ 5.1.5.4** The Owner, Construction Manager and Contractor shall agree upon a mutually acceptable procedure for review and approval of payments to Subcontractors and the percentage of retainage held on Subcontracts, and the Contractor shall execute subcontracts in accordance with those agreements.

**§ 5.1.5.5** In taking action on the Contractor's Applications for Payment, the Construction Manager and Architect shall be entitled to rely on the accuracy and completeness of the information furnished by the Contractor, and such action shall not be deemed to be a representation that (1) the Construction Manager and Architect have made a detailed examination, audit or arithmetic verification of the documentation submitted in accordance with Article 5 or other supporting data; (2) that the Construction Manager and Architect have made exhaustive or continuous on-site inspections; or (3) that the Construction Manager and Architect have made examinations to ascertain how or for what purposes the Contractor has used amounts previously paid on account of the Contract. Such examinations, audits and verifications, if required by the Owner, will be performed by the Owner's auditors acting in the sole interest of the Owner.

**§ 5.1.5.6** Except with the Owner's prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

**§ 5.1.5.7** If final completion of the Work is materially delayed through no fault of the Contractor, then the Owner shall pay the Contractor any additional amounts in accordance with Article 9 of AIA Document A232-2019.



**§ 5.1.6 Progress Payments Where the Contract Sum is Based on the Cost of the Work with a Guaranteed Maximum Price**

**§ 5.1.6.1** With each Application for Payment, the Contractor shall submit payrolls, petty cash accounts, receipted invoices or invoices with check vouchers attached, and any other evidence required by the Owner, Construction Manager or Architect to demonstrate that payments already made by the Contractor on account of the Cost of the Work equal or exceed progress payments already received by the Contractor plus payrolls for the period covered by the present Application for Payment, less that portion of the progress payments attributable to the Contractor's Fee.

**§ 5.1.6.2** Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Guaranteed Maximum Price among: (1) the various portions of the Work; (2) any contingency for costs that are included in the Guaranteed Maximum Price but not otherwise allocated to another line item or included in a Change Order; and (3) the Contractor's Fee.

**§ 5.1.6.2.1** The schedule of values shall be prepared in such form, and supported by such data to substantiate its accuracy, as the Construction Manager and Architect may require. This schedule of values shall be used as a basis for reviewing the Contractor's Applications for Payment.

**§ 5.1.6.2.2** The allocation of the Guaranteed Maximum Price under this Section 5.1.6.2 shall not constitute a separate guaranteed maximum price for the Cost of the Work of each individual line item in the schedule of values.

**§ 5.1.6.2.3** When the Contractor allocates costs from a contingency to another line item in the schedule of values, the Contractor shall submit supporting documentation to the Architect and Construction Manager.

**§ 5.1.6.3** Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment. The percentage of completion shall be the lesser of (1) the percentage of that portion of the Work which has actually been completed; or (2) the percentage obtained by dividing (a) the expense that has actually been incurred by the Contractor on account of that portion of the Work and for which the Contractor has made payment or intends to make payment prior to the next Application for Payment by (b) the share of the Guaranteed Maximum Price allocated to that portion of the Work in the schedule of values.

**§ 5.1.6.4** In accordance with AIA Document A232-2019, and subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

**§ 5.1.6.4.1** The amount of each progress payment shall first include:

- .1 That portion of the Guaranteed Maximum Price properly allocable to completed Work as determined by multiplying the percentage of completion of each portion of the Work by the share of the Guaranteed Maximum Price allocated to that portion of the Work in the most recent schedule of values;
- .2 That portion of the Guaranteed Maximum Price properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction or, if approved in writing in advance by the Owner, suitably stored off the site at a location agreed upon in writing;
- .3 That portion of Construction Change Directives that the Architect determines, in the Architect's professional judgment, to be reasonably justified; and
- .4 The Contractor's Fee, computed upon the Cost of the Work described in the preceding Sections 5.1.6.4.1.1 and 5.1.6.4.1.2 at the rate stated in Section 4.4.2 or, if the Contractor's Fee is stated as a fixed sum in that Section, an amount that bears the same ratio to that fixed-sum fee as the Cost of the Work included in Sections 5.1.6.4.1.1 and 5.1.6.4.1.2 bears to a reasonable estimate of the probable Cost of the Work upon its completion.

**§ 5.1.6.4.2** The amount of each progress payment shall then be reduced by:

- .1 The aggregate of any amounts previously paid by the Owner;
- .2 The amount, if any, for Work that remains uncorrected and for which the Architect has previously withheld a Certificate for Payment as provided in Article 9 of AIA Document A232-2019;
- .3 Any amount for which the Contractor does not intend to pay a Subcontractor or material supplier, unless the Work has been performed by others the Contractor intends to pay;



- .4 For Work performed or defects discovered since the last payment application, any amount for which the Architect may withhold payment, or nullify a Certificate of Payment in whole or in part, as provided in Article 9 of AIA Document A232-2019;
- .5 The shortfall, if any, indicated by the Contractor in the documentation required by Section 5.1.6.1 to substantiate prior Applications for Payment, or resulting from errors subsequently discovered by the Owner's auditors in such documentation; and
- .6 Retainage withheld pursuant to Section 5.1.7.

§ 5.1.6.5 The Owner and the Contractor shall agree upon a mutually acceptable procedure for review and approval of payments to Subcontractors and the percentage of retainage held on Subcontracts, and the Contractor shall execute subcontracts in accordance with those agreements.

§ 5.1.6.6 In taking action on the Contractor's Applications for Payment, the Construction Manager and Architect shall be entitled to rely on the accuracy and completeness of the information furnished by the Contractor and such action shall not be deemed to be a representation that (1) the Construction Manager or Architect have made a detailed examination, audit, or arithmetic verification of the documentation submitted in accordance with Section 5.1.6.1 or other supporting data; (2) that the Construction Manager or Architect have made exhaustive or continuous on-site inspections; or (3) that the Construction Manager or Architect have made examinations to ascertain how or for what purposes the Contractor has used amounts previously paid on account of the Contract. Such examinations, audits, and verifications, if required by the Owner, will be performed by the Owner's auditors acting in the sole interest of the Owner.

§ 5.1.6.7 Except with the Owner's prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

§ 5.1.6.8 If final completion of the Work is materially delayed through no fault of the Contractor, then the Owner shall pay the Contractor any additional amounts in accordance with Article 9 of AIA Document A232-2019.

#### § 5.1.7 Retainage

§ 5.1.7.1 For each progress payment made prior to when the Work of this Contract is substantially complete, the Owner may withhold the following amount, as retainage, from the payment otherwise due:

*(Insert a percentage or amount to be withheld as retainage from each Application for Payment. The amount of retainage may be limited by governing law.)*

« »

§ 5.1.7.1.1 The following items are not subject to retainage:

*(Insert any items not subject to the withholding of retainage, such as general conditions, insurance, etc.)*

« »

§ 5.1.7.2 Reduction or limitation of retainage, if any, shall be as follows:

*(If the retainage established in Section 5.1.7.1 is to be modified prior to when the entire Work of this Contract is substantially complete, including modifications for completion of portions of the Work as provided in Section 3.4.2, insert provisions for such modifications.)*

« »

§ 5.1.7.3 Except as set forth in this Section 5.1.7.3, when the Work of this Contract is substantially complete, the Contractor may submit an Application for Payment that includes the retainage withheld from prior Applications for Payment pursuant to this Section 5.1.7. The Application for Payment submitted when the Work of this Contract is substantially complete shall not include retainage as follows:

*(Insert any other conditions for release of retainage when the Work of this Contract is substantially complete, or upon Substantial Completion of the Work of all Contractors on the Project or portions thereof.)*

« »

## § 5.2 Final Payment

### § 5.2.1 Final Payment Where the Contract Sum is Based on a Stipulated Sum

§ 5.2.1.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

- .1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Article 12 of AIA Document A232–2019, and to satisfy other requirements, if any, which extend beyond final payment; and
- .2 a final Certificate for Payment or Project Certificate for Payment has been issued by the Architect.

§ 5.2.1.2 The Owner's final payment to the Contractor shall be made no later than 30 days after the issuance of the final Certificate for Payment or Project Certificate for Payment, or as follows:

« »

### § 5.2.2 Final Payment Where the Contract Sum is Based on the Cost of the Work with or without a Guaranteed Maximum Price

§ 5.2.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

- .1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Article 12 of AIA Document A232–2019, and to satisfy other requirements, if any, which extend beyond final payment;
- .2 the Contractor has submitted a final accounting for the Cost of the Work, pursuant to Exhibit B, Determination of the Cost of the Work and a final Application for Payment; and
- .3 a final Certificate for Payment or Project Certificate for Payment has been issued by the Architect in accordance with Exhibit B, Determination of the Cost of the Work.

§ 5.2.2.2 The Owner's final payment to the Contractor shall be made no later than 30 days after the issuance of the final Certificate for Payment or Project Certificate for Payment, or as follows:

« »

§ 5.3 Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located. *(Insert rate of interest agreed upon, if any.)*

« » % « »

## ARTICLE 6 DISPUTE RESOLUTION

### § 6.1 Initial Decision Maker

The Architect will serve as Initial Decision Maker pursuant to Article 15 of AIA Document A232–2019, unless the parties appoint below another individual, not a party to this Agreement, to serve as Initial Decision Maker.

*(If the parties mutually agree, insert the name, address and other contact information of the Initial Decision Maker, if other than the Architect.)*

« »

« »

« »

« »

### § 6.2 Binding Dispute Resolution

For any Claim subject to, but not resolved by, mediation pursuant to Article 15 of AIA Document A232–2019, the method of binding dispute resolution shall be as follows:

*(Check the appropriate box.)*

[ « » ] Arbitration pursuant to Article 15 of AIA Document A232–2019.

[ « » ] Litigation in a court of competent jurisdiction.

[ « » ] Other: *(Specify)*

« »

If the Owner and Contractor do not select a method of binding dispute resolution, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, Claims will be resolved by litigation in a court of competent jurisdiction.

## **ARTICLE 7 TERMINATION OR SUSPENSION**

### **§ 7.1 Where the Contract Sum is a Stipulated Sum**

**§ 7.1.1** The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A232–2019.

**§ 7.1.1.1** If the Contract is terminated for the Owner’s convenience in accordance with Article 14 of AIA Document A232–2019, then the Owner shall pay the Contractor a termination fee as follows:  
*(Insert the amount of, or method for determining, the fee, if any, payable to the Contractor following a termination for the Owner’s convenience.)*

« »

**§ 7.1.2** The Work may be suspended by the Owner as provided in Article 14 of AIA Document A232–2019.

### **§ 7.2 Where the Contract Sum is Based on the Cost of the Work with or without a Guaranteed Maximum Price**

#### **§ 7.2.1 Termination**

**§ 7.2.1.1** The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A232–2019.

#### **§ 7.2.1.2 Termination by the Owner for Cause**

**§ 7.2.1.2.1** If the Owner terminates the Contract for cause as provided in Article 14 of AIA Document A232–2019, the Owner shall then only pay the Contractor an amount as follows:

- .1 Take the Cost of the Work incurred by the Contractor to the date of termination;
- .2 Add the Contractor’s Fee, computed upon the Cost of the Work to the date of termination at the rate stated in Section 4.3.2 or 4.4.2, as applicable, or, if the Contractor’s Fee is stated as a fixed sum in that Section, an amount that bears the same ratio to that fixed-sum Fee as the Cost of the Work at the time of termination bears to a reasonable estimate of the probable Cost of the Work upon its completion;
- .3 Subtract the aggregate of previous payments made by the Owner; and
- .4 Subtract the costs and damages incurred, or to be incurred, by the Owner under Article 14 of AIA Document A232–2019.

**§ 7.2.1.2.2** When the Contract Sum is based on the Cost of the Work with a Guaranteed Maximum Price, if the Owner terminates the Contract for cause as provided in Article 14 of AIA Document A232–2019, the amount, if any, to be paid to the Contractor under Article 14 of AIA Document A232–2019 shall not cause the Guaranteed Maximum Price to be exceeded, nor shall it exceed the amount calculated in Section 7.2.1.2.1.

**§ 7.2.1.2.3** The Owner shall also pay the Contractor fair compensation, either by purchase or rental at the election of the Owner, for any equipment owned by the Contractor that the Owner elects to retain and that is not otherwise included in the Cost of the Work under Section 7.2.1.2.1.1. To the extent that the Owner elects to take legal assignment of subcontracts and purchase orders (including rental agreements), the Contractor shall, as a condition of receiving the payments referred to in this Article 7, execute and deliver all such papers and take all such steps, including the legal assignment of such subcontracts and other contractual rights of the Contractor, as the Owner may require for the purpose of fully vesting in the Owner the rights and benefits of the Contractor under such subcontracts or purchase orders. All Subcontracts, purchase orders and rental agreements entered into by the Contractor will contain provisions allowing for assignment to the Owner as described above.

#### **§ 7.2.1.3 Termination by the Owner for Convenience**

If the Owner terminates the Contract for convenience in accordance with Article 14 of AIA Document A232–2019, then the Owner shall pay the Contractor a termination fee as follows:

*(Insert the amount of or method for determining the fee, if any, payable to the Contractor following a termination for the Owner's convenience.)*

<< >>

### § 7.3 Suspension

The Work may be suspended by the Owner as provided in Article 14 of AIA Document A232–2019; in such case, the Contract Sum and Contract Time shall be increased as provided in Article 14 of AIA Document A232–2019, except that the term “profit” shall be understood to mean the Contractor’s Fee as described in Section 4.3.2 or 4.4.2, as applicable, of this Agreement.

## ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A232–2019 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 The Owner’s representative:

*(Name, address, email address, and other information)*

<< >>  
<< >>  
<< >>  
<< >>  
<< >>  
<< >>

§ 8.3 The Contractor’s representative:

*(Name, address, email address, and other information)*

<< >>  
<< >>  
<< >>  
<< >>  
<< >>  
<< >>

§ 8.4 Neither the Owner’s nor the Contractor’s representative shall be changed without ten days’ prior notice to the other party.

### § 8.5 Insurance and Bonds

§ 8.5.1 The Owner and the Contractor shall purchase and maintain insurance as set forth in AIA Document A132™–2019, Standard Form of Agreement Between Owner and Contractor, Construction Manager as Adviser Edition, Exhibit A, Insurance and Bonds, and elsewhere in the Contract Documents.

§ 8.5.2 The Contractor shall provide bonds as set forth in AIA Document A132™–2019, Exhibit A, and elsewhere in the Contract Documents.

§ 8.6 Notice in electronic format, pursuant to Article 1 of AIA Document A232–2019, may be given in accordance with AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, if completed, or as otherwise set forth below:

*(If other than in accordance with AIA Document E203–2013, insert requirements for delivering notice in electronic format such as name, title, and email address of the recipient and whether and how the system will be required to generate a read receipt for the transmission.)*

<< >>

### § 8.7 Relationship of the Parties

Where the Contract is based on the Cost of the Work plus the Contractor’s Fee, with or without a Guaranteed Maximum Price, the Contractor accepts the relationship of trust and confidence established by this Agreement and covenants with

the Owner to cooperate with the Architect and exercise the Contractor's skill and judgment in furthering the interests of the Owner; to furnish efficient business administration and supervision; to furnish at all times an adequate supply of workers and materials; and to perform the Work in an expeditious and economical manner consistent with the Owner's interests. The Owner agrees to furnish and approve, in a timely manner, information required by the Contractor and to make payments to the Contractor in accordance with the requirements of the Contract Documents.

**§ 8.8 Other provisions:**

« »

**ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS**

**§ 9.1** This Agreement is comprised of the following documents:

- .1 AIA Document A132™–2019, Standard Form of Agreement Between Owner and Contractor, Construction Manager as Adviser Edition
- .2 AIA Document A132™–2019, Exhibit A, Insurance and Bonds Exhibit
- .3 AIA Document A232™–2019, General Conditions of the Contract for Construction, Construction Manager as Adviser Edition
- .4 AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, dated as indicated below:  
(Insert the date of the E203-2013 incorporated into this Agreement.)

« »

- .5 Drawings

Number	Title	Date

- .6 Specifications

Section	Title	Date	Pages

- .7 Addenda, if any:

Number	Date	Pages

Portions of Addenda relating to bidding or proposal requirements are not part of the Contract Documents unless the bidding or proposal requirements are also enumerated in this Article 9.

- .8 Other Exhibits:

(Check all boxes that apply and include appropriate information identifying the exhibit where required.)

[ ☐ ] AIA Document A132™–2019, Exhibit B, Determination of the Cost of the Work

[ ☐ ] AIA Document E235™–2019, Sustainable Projects Exhibit, Construction Manager as Adviser Edition, dated as indicated below:  
(Insert the date of the E235-2019 incorporated into this Agreement.)

« »

[ ☐ ] The Sustainability Plan:

Title	Date	Pages

[ « » ] Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages

**.9** Other documents, if any, listed below:

*(List here any additional documents that are intended to form part of the Contract Documents. AIA Document A232–2019 provides that the advertisement or invitation to bid, Instructions to Bidders, sample forms, the Contractor's bid or proposal, portions of Addenda relating to bidding or proposal requirements, and other information furnished by the Owner in anticipation of receiving bids or proposals, are not part of the Contract Documents unless enumerated in this Agreement. Any such documents should be listed here only if intended to be part of the Contract Documents.)*

« »

This Agreement is entered into as of the day and year first written above.

\_\_\_\_\_  
**OWNER** (Signature)

« »« »

\_\_\_\_\_  
(Printed name and title)

\_\_\_\_\_  
**CONTRACTOR** (Signature)

« »« »

\_\_\_\_\_  
(Printed name and title)

**SECTION 007200 – GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION -  
CONSTRUCTION MANAGER AS ADVISOR EDITION**

**PART 1 -GENERAL**

**1.1 SUMMARY**

- A. The attached AIA Document A232 - 2019, General Conditions of the Contract for Construction, Construction Manager as Advisor Edition, is a part of this project and is incorporated herein fully as is set forth.
- B. These conditions have been substantially modified from the original AIA version.
- C. If there is a conflict between the drawings and the specifications, Contractor to carry the more expensive of the two.

**PART 2 -PRODUCTS (Not Applicable)**

**PART 3 - EXECUTION (Not Applicable)**

**END OF SECTION 007200**





# DRAFT AIA® Document A232™ – 2019

## **General Conditions of the Contract for Construction, Construction Manager as Adviser Edition**

### **for the following PROJECT:**

*(Name, and location or address)*

Hilton Central School District  
Capital Projects 2023 – Phase 2A

### **THE CONSTRUCTION MANAGER:**

*(Name, legal status, and address)*

Campus Construction Management Group  
1221 Pittsford-Victor Road  
Pittsford, NY 14534

### **THE OWNER:**

*(Name, legal status, and address)*

Hilton Central School District  
225 West Avenue  
Hilton, NY 14468

### **THE ARCHITECT:**

*(Name, legal status, and address)*

LaBella Associates, D.P.C.  
300 State Street, Suite 201  
Rochester, NY 14614

#### **ADDITIONS AND DELETIONS:**

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

This document is intended to be used in conjunction with AIA Documents A132™-2019, Standard Form of Agreement Between Owner and Contractor, Construction Manager as Adviser Edition; B132™-2019, Standard Form of Agreement Between Owner and Architect, Construction Manager as Adviser Edition; and C132™-2019, Standard Form of Agreement Between Owner and Construction Manager as Adviser.

**ELECTRONIC COPYING** of any portion of this AIA® Document to another electronic file is prohibited and constitutes a violation of copyright laws as set forth in the footer of this document.

## TABLE OF ARTICLES

1	GENERAL PROVISIONS
2	OWNER
3	CONTRACTOR
4	ARCHITECT AND CONSTRUCTION MANAGER
5	SUBCONTRACTORS
6	CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS
7	CHANGES IN THE WORK
8	TIME
9	PAYMENTS AND COMPLETION
10	PROTECTION OF PERSONS AND PROPERTY
11	INSURANCE AND BONDS
12	UNCOVERING AND CORRECTION OF WORK
13	MISCELLANEOUS PROVISIONS
14	TERMINATION OR SUSPENSION OF THE CONTRACT
15	CLAIMS AND DISPUTES
16	CONFORMANCE TO THE LAWS OF THE STATE OF NEW YORK



## ARTICLE 1 GENERAL PROVISIONS

### § 1.1 Basic Definitions

**§ 1.1.1 The Contract Documents.** The Contract Documents comprise (1) the Agreement between the Owner and Contractor (“Agreement”), (2) Advertisement for Bids, (3) Instructions to Bidders, (4) these General Conditions, (5) Supplementary or other Conditions, if any, (6) Drawings, (7) Specifications, (8) Addenda issued prior to receipt of bids, (9) The Contractor’s Bid, (10) Modifications issued after execution of the Agreement, (11) the Contractor’s Performance and Payment Bonds, (12) other documents listed in the Agreement, if any. A Modification is (1) a written amendment to the Contract Documents signed by both parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by the Architect. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. Unless specifically enumerated in the Agreement, the Contract Documents do not include other documents.

**§ 1.1.2 The Contract.** The Contract Documents form the Contract for Construction (“Contract”). The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect’s consultants, (2) between the Owner and the Construction Manager or the Construction Manager’s consultants, (3) between the Owner and the Architect or the Architect’s consultants, (4) between the Contractor and the Construction Manager or the Construction Manager’s consultants, (5) between the Owner and a Subcontractor (except in the event the Owner accepts an assignment under Section 5.4) or Sub-subcontractor, (6) between the Construction Manager and the Architect, or (7) between any persons or entities other than the Owner and Contractor. The Construction Manager and Architect are, however, entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of their duties.

**§ 1.1.3 The Work.** The term “Work” means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment, and services provided or to be provided by the Contractor to fulfill the Contractor’s obligations. The Work may constitute the whole or a part of the Project.

**§ 1.1.4 The Project.** The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by other Contractors, and by the Owner’s own forces and Separate Contractors.

**§ 1.1.5 Contractors.** Contractors are persons or entities, other than the Contractor or Separate Contractors, who perform Work under contracts with the Owner that are administered by the Architect and Construction Manager.

**§ 1.1.6 Separate Contractors.** Separate Contractors are persons or entities who perform construction under separate contracts with the Owner not administered by the Architect and Construction Manager.

**§ 1.1.7 The Drawings.** The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules, and diagrams.

**§ 1.1.8 The Specifications.** The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

**§ 1.1.9 Instruments of Service.** Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect’s consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

**§ 1.1.10 Initial Decision Maker.** The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2. The Initial Decision Maker shall not show partiality to the Owner or Contractor and shall not be liable for results of interpretations or decisions rendered in good faith.

## **§ 1.1.11 MISCELLANEOUS DEFINITIONS**

**§ 1.1.11.1** The term “product” as used herein includes materials, systems and equipment.

**§ 1.1.11.2** The word “Provide” is used herein as a term contraction and unless otherwise specifically noted is to mean “furnish, install, connect up complete, test, place in operation and service.”

**§ 1.1.11.3** "Approved," "approved equal," "approved equivalent," "equal to," "equivalent to," "as directed," and "as required" all include "to the satisfaction of the Architect and Construction Manager."

**§ 1.1.11.4** "Remove" means "dismantle and take away from premises without added cost to Owner."

**§ 1.1.11.5** "Supply" means "purchase and deliver to jobsite."

**§ 1.1.11.6** The terms “install” or furnish all labor” are used herein as term contractions and unless specifically noted otherwise are to mean “perform “all operations connected with installation of work including unloading materials to be installed, supplying all necessary equipment and rigs to do the work, test, place in operation and service.

**§ 1.1.11.7** "Extract" means "carefully dismantle and store where directed by Architect or reinstall as indicated on drawings or as described in the Specifications."

**§ 1.1.11.8** "Review" and "reviewed" include the qualification "for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents."

**§ 1.1.11.9** The terms “Furnish” or Furnish all material” are used herein as term contractions and unless specifically noted otherwise are to mean “supply and deliver to the job site all materials and/or equipment so specified.

**§ 1.1.11.10** The word “Replace” is used herein as a term contraction and unless otherwise specifically noted is to mean “remove existing and provide new.

## **§ 1.2 Correlation and Intent of the Contract Documents**

**§ 1.2.1** The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor must be consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any work, materials or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result will be furnished and performed whether or not specifically called for. When words or phrases which have a well-known technical or construction industry or trade meaning are used to describe work, materials, or equipment, such words or phrases shall be interpreted in accordance with the meaning. Even if items are missing from the Drawings or Specifications, but are normally required for proper operation of architectural, plumbing, mechanical, electrical, and other systems, or to complete otherwise incomplete construction, or to meet governing code requirements, they must be included by the Contractor, unless the Contractor sought and received contradictory interpretation or clarification from the Architect.

**§ 1.2.1.1** The invalidity of any provision of the Contract Documents shall not invalidate the Contract or its remaining provisions. If it is determined that any provision of the Contract Documents violates any law, or is otherwise invalid or unenforceable, then that provision shall be revised to the extent necessary to make that provision legal and enforceable. In such case the Contract Documents shall be construed, to the fullest extent permitted by law, to give effect to the parties’ intentions and purposes in executing the Contract.

**§ 1.2.1.2** The Contractor and its Subcontractors shall evaluate and satisfy themselves as to the conditions and limitations under which the Work is to be performed, including without limitation (1) location, layout, and nature of the Project site and surrounding areas, (2) existing building and site conditions, (3) anticipated labor supply and costs, (4) availability and cost of materials, tools, equipment, (5) Owner occupancy requirements and constraints, (6) site safety logistics plan and any phased construction plan and (7) other similar issues. The Owner assumes no responsibility or liability for the physical condition or safety of the Project site, or any improvements located on the

Project site. The Contractor shall be sole responsible for providing a safe place for the performance of the Work. The Owner shall not be required to make any adjustment in either the Contract Sum or Contract Time in connection with any failure by Contractor or any Subcontractor to comply with the requirements of this Section 1.2.1.2.

**§ 1.2.2** Organization of the Specifications into divisions, sections, and articles, and arrangement of Drawings do not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade. Instructions and other information furnished in the Specifications, including, without limitation items in connection with prefabricated or pre-finished items, are not intended to supersede work agreements between employers and employees. Should the Specifications conflict with such work agreements, the work agreements must be followed, provided such items are furnished as specified. No such conflict gives rise to an adjustment in the Contract Sum or Contract Time.

**§ 1.2.2.1** The Work on the Project will be separated into individual and separate contracts. It is the intent of these requirements to include all items of Work for a complete Project in the separate contracts. Each Contractor shall be responsible for understanding and knowing under which contract each item of Work is included.

**§ 1.2.2.2** Each section or division of the Specifications has been assigned to one of the contract scopes. Where a section of the Specification is referenced in the contract scope, then any and all items necessary for the proper and normal installation of the item referenced in the Specification section shall be included whether specifically indicated in the Contract Documents or not.

**§ 1.2.2.3** The reference of the “Specifications” regarding the division or separation of the work among types of trades or occupations is only for the suggested purpose of coordinating the work of the different trades, but it shall be the Contractor’s entire responsibility for the proper coordination and completion of all the Work described in the “Specifications” whether performed by the Contractor or its Subcontractors, if any.

**§ 1.2.2.4** The Contractor acknowledges that the coordination requirements and construction schedule of this Project will require close cooperation and coordination between all Contractors on the Project site.

**§ 1.2.3** Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

**§ 1.2.3.1** In the event of conflicts or discrepancies among the Contract Documents, interpretations will be based on the following priorities, from highest to lowest:

- .1 Change Orders.
- .2 Agreement.
- .3 Addenda, with those of later date having precedence over those of earlier date.
- .4 Supplementary, Special, or other Conditions, other than the General Conditions, as may be part of the Contract Documents.
- .5 General Conditions of the Contract for Construction.
- .6 Specifications.
- .7 Drawings

In case of an inconsistency between Drawings and Specifications or within other Documents not clarified by addendum the better quality or greater quantity of Work shall be provided in accordance with the Architect’s interpretation. The Architect’s determination shall be final.

**§ 1.2.4** Notwithstanding Section 1.2.3.1, in the case of any inconsistency with respect to the quality or quantity of Work required by the Project Manual, Drawings and/or Specifications, or within any of these documents, which have not been clarified by addenda, the higher quality standard and/or greater quantity of Work must be provided, unless the Architect decides another interpretation is more consistent with the intent of the Project and issues a written clarification to that effect. The Architect’s interpretations and decisions with respect to these issues are final.

**§ 1.2.5** The Contract Drawings are intended to show the general arrangement, design, and extent of the Work and are partly diagrammatic. They are not intended to be scaled for any purpose, or to serve as shop drawings. All Contractors and Subcontractors shall cooperate in determining the construction of systems, running of pipe, and locating equipment.

**§ 1.2.5.1** Any necessary variations in routing or installation must be made to conform to the intent of the Contract Documents without additional costs to the Owner. Where there are intersections or obstructions involving ducts, piping, or any other equipment requiring offsets, the Contractor acknowledges that it gave particular consideration to clearances in advance of submitting its bid, and that no additional costs to the Owner for these issues will be considered.

**§ 1.2.5.2** If conflicting conditions or interferences develop, the trades involved shall confer with other trades whose work is affected to determine a solution acceptable to all interested parties. The suggested solution must be submitted to the Architect and Construction Manager for comment and, if necessary, written approval.

**§ 1.2.5.3** The Contractor agrees that the failure to repeat typical details, figures, or notes on all Contract Drawings or in other Contract Documents is not a basis for claims for additional cost or time.

**§ 1.2.6** The Contract Documents intend a finished product of such character and quality as described in and reasonably inferred from the Contract Documents, and the Contractor shall include sufficient allowance to make its Work complete and operable, fitting with the work of other contractors and the Owner, and in compliance with standard construction practices and the ordinances, codes, and regulations of all bodies or persons having governmental or regulatory authority over the Contractor and its Work.

**§ 1.2.7** Certain portions of the Specifications are written in condensed outline form and omitted words are to be supplied by inference. Naming of an article or operation shall have the effect of stating “Contractor shall furnish, install and complete” said operation or article unless it is further qualified in the context in which it appears.

**§ 1.2.8** When reference is made to specifications of a manufacturer, trade association, governmental agency, reference standard or similar source (such as ASTM, ASA, AISC, ACI, etc) such is made part of these specifications, having the force and effect as though reproduced herein, and upon entering into the Contract the Contractor acknowledges his familiarity with those pertaining to his work.

### **§ 1.3 Capitalization**

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles, or (3) the titles of other documents published by the American Institute of Architects.

### **§ 1.4 Interpretation**

In the interest of brevity the Contract Documents frequently omit modifying words such as “all” and “any” and articles such as “the” and “an,” but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

### **§ 1.5 Ownership and Use of Drawings, Specifications, and Other Instruments of Service**

**§ 1.5.1** The Architect and the Architect’s consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and retain all common law, statutory, and other reserved rights in their Instruments of Service, including copyrights. The Contractor, Subcontractors, sub-subcontractors, and suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as publication in derogation of the Architect’s or Architect’s consultants’ reserved rights.

**§ 1.5.2** The Contractor, Subcontractors, Sub-subcontractors, and suppliers are authorized to use and reproduce the Instruments of Service provided to them, subject to any protocols established pursuant to Sections 1.7 and 1.8, solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and suppliers may not use the Instruments of Service on other projects or for additions to the Project outside the scope of the Work without the specific written consent of the Owner, Architect, and the Architect’s consultants.

**§ 1.5.3** The Contractor may not reproduce the Contract Documents in whole or in part for use as a shop drawing backgrounds without the prior written consent of the Architect. If consent is given, the Architect shall determine the extent that the Contract Documents may be used in the preparation of shop drawings, as well as the fee that the Architect will be paid, if any and in the Architect’s sole discretion, by the Contractor for such use of copyrighted documents.



## **§ 1.6 Notice**

**§ 1.6.1** Except as otherwise provided in Section 1.6.2, where the Contract Documents require one party to notify or give notice to the other party, such notice shall be provided in writing to the designated representative of the party to whom the notice is addressed and shall be deemed to have been duly served if delivered in person, by mail, by courier providing proof of delivery, or by electronic transmission if a method for electronic transmission is set forth in the Agreement.

**§ 1.6.2** Notice of Claims as provided in Section 15.1.3 shall be provided in writing and shall be deemed to have been duly served only if delivered to the designated representative of the party to whom the notice is addressed by certified or registered mail, or by courier providing proof of delivery.

## **§ 1.7 Digital Data Use and Transmission**

The parties shall agree upon protocols governing the transmission and use of Instruments of Service or any other information or documentation in digital form. The parties will use AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, to establish the protocols for the development, use, transmission, and exchange of digital data.

## **§ 1.8 Building Information Models Use and Reliance**

Any use of, or reliance on, all or a portion of a building information model without agreement to protocols governing the use of, and reliance on, the information contained in the model and without having those protocols set forth in AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, and the requisite AIA Document G202™–2013, Project Building Information Modeling Protocol Form, shall be at the using or relying party's sole risk and without liability to the other party and its contractors or consultants, the authors of, or contributors to, the building information model, and each of their agents and employees.

## **ARTICLE 2 OWNER**

### **§ 2.1 General**

**§ 2.1.1** The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The Construction Manager is the Owner's representative with authority to act on behalf of the Owner but only to the extent provided for in the Agreement between the Construction Manager and the Owner.

**§ 2.1.2** The Owner shall furnish to the Contractor, within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of, or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.

**§ 2.1.3** The Owner, Construction Manager, and Architect shall not supervise, direct or have control of authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction of the safety precautions and programs incident, or for any failure of Contractor to comply with Laws and Regulations applicable to the furnishing or performance of the work. Owner, Construction Manager, and Architect will not be responsible for Contractor's failure to perform or furnish the Work in accordance with the Contract Documents.

**§ 2.1.4** The Owner shall have the right to contract with other contractors to perform other work related to the Project. The Contractor will coordinate its Work with the work of other contractors without claims for damages or delay in prosecution of the Contractor's Work.

### **§ 2.2 Evidence of the Owner's Financial Arrangements**

**§ 2.2.1** Prior to commencement of the Work, and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. The Contractor shall have no obligation to commence the Work until the Owner provides such evidence. If commencement of the Work is delayed under this Section 2.2.1, the Contract Time shall be extended appropriately.

§ 2.2.2 Not used.

§ 2.2.3 Not used.

§ 2.2.4 Not used.

### § 2.3 Information and Services Required of the Owner

§ 2.3.1 All permits and fees, approvals, easements, assessments and charges required for construction, use or occupancy of the permanent structures or for permanent changes in the existing facilities are the responsibility of the Contractor under the Contract Documents with the exception of the building permit, which the Owner will obtain from the New York State Education.

§ 2.3.2 The Owner shall retain an architect lawfully licensed to practice architecture, or an entity lawfully practicing architecture, in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 2.3.3 The Owner shall retain a construction manager adviser lawfully practicing construction management in the jurisdiction where the Project is located. That person or entity is identified as the Construction Manager in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 2.3.4 Not used.

§ 2.3.5 The Owner shall furnish surveys describing physical characteristics, legal limitations, and utility locations for the site of the Project, and a legal description of the site. Notwithstanding the foregoing, information furnished by the Owner in the form of surveys, subsurface investigation reports, soil borings, and other material of a similar nature, is for general information only and is not a guarantee of the completeness or accuracy of such information, unless specifically noted otherwise in the Contract Documents. The Contractor shall verify all existing grades, conditions, and dimensions of existing physical conditions and structures and shall report any inconsistencies in writing to the Architect and Construction Manager. The Contractor shall establish all lines and levels required to execute the Work and shall bear all costs involved and shall be responsible for their accuracy and maintenance.

§ 2.3.6 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

§ 2.3.7 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor (1) one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.

§ 2.3.8 The Owner shall forward all communications to the Contractor through the Construction Manager. Other communication shall be made as set forth in Section 4.2.6.

### § 2.4 Owner's Right to Stop the Work

If the Contractor (1) fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or (2) fails to carry out Work in accordance with the Contract Documents as determined by the Owner, Architect or Construction Manager, or (3) fails or refuses to provide a sufficient amount of properly supervised and coordinated labor, materials or equipment so as to be able to complete the Work within the Contract Time, or (4) fails to remove and discharge (within seven (7) days) any lien filed upon Owner's property by anyone claiming by, through, or under Contractor, (5) disregards the instructions of the Architect, Owner or Construction Manager, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3. Such order or stoppage by the Owner shall not constitute grounds for termination by the Contractor under Article 14 and shall not be a basis for an extension of the Contract Time under Section 8.3.



## **§ 2.5 Owner's Right to Carry Out the Work**

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a (3) three-day period after receipt of notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such default or neglect. Such action by the Owner and amounts charged to the Contractor are both subject to review by the Construction Manager and prior approval of the Architect, and the Construction Manager or Architect may, pursuant to Section 9.5.1, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Construction Manager's and Architect's and their respective consultants' additional services made necessary by such default, neglect, or failure. If current and future payments are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. If the Contractor disagrees with the actions of the Owner or the Architect, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 15.

## **ARTICLE 3 CONTRACTOR**

### **§ 3.1 General**

**§ 3.1.1** The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

**§ 3.1.2** The Contractor shall perform the Work in accordance with the Contract Documents.

**§ 3.1.3** The Contractor shall not be relieved of its obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Construction Manager or Architect in their administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

### **§ 3.2 Review of Contract Documents and Field Conditions by Contractor**

**§ 3.2.1** Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with visually observable conditions under which the Work is to be performed and correlated personal observations with requirements of the Contract Documents. The Contractor and each Subcontractor shall evaluate and satisfy themselves as to the conditions and limitations under which the Work is to be performed, including without limitation (1) the location, condition, layout and nature of the Project site and surrounding areas, (2) generally prevailing climactic conditions, (3) anticipated labor supply and costs, and (4) availability and cost of materials, tools, and equipment. Except for paying the Contract Sum, the Owner assumes no responsibility or liability for the physical condition or safety of the Project site, or any improvements located on the Project site. The Contractor is solely responsible for providing a safe place for the performance of the Work. The Owner is not required to make any adjustment in either the Contract Sum or the Contract Time in connection with any failure by the Contractor or any Subcontractor to comply with the requirements of this Section 3.2.1.

**§ 3.2.1.1** The Contractor shall carefully study and compare the Contract Documents with each other and with information furnished by the Owner pursuant to Section 2.2.3 and shall at once report in writing to the Construction Manager and Architect errors, inconsistencies or omissions discovered. The Contractor will not be liable to the Owner, Construction Manager or Architect for damage resulting from errors, inconsistencies, or omissions in the Contract Documents unless the Contractor knew or reasonably should have known of such error, inconsistency or omission and failed to report it as required by this section to the Construction Manager and Architect. If the Contractor performs any construction activity knowing it involves, or reasonably should have known it involves, a recognized error, inconsistency, or omission in the Contract Documents without such notice to the Construction Manager and Architect, the Contractor shall assume full responsibility for such performance and shall bear sole responsibility for the costs for correction.

**§ 3.2.2** The Contractor shall, before starting each portion of the Work, (1) carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.2.3, (2) take field measurements of any existing conditions related to that portion of the Work, and (3) observe any conditions at the site affecting it. The Contractor shall promptly report to the Architect and the Construction Manager any errors, inconsistencies or omissions, or any discrepancy with applicable laws, statutes, ordinances, codes, rules, regulations, or lawful orders of public authorities ascertained by, discovered by, or made

known to the Contractor, as a Request for Information (“RFI”) in such form as the Architect may require and as described in Section 3.2.6. It is recognized that the Contractor’s review is made in the Contractor’s capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

**§ 3.2.3** Failure by the Contractor to promptly report any errors, inconsistencies, or omissions in the Contract Documents, or any discrepancy with applicable laws, statutes, ordinances, codes, rules, and regulations, or lawful orders of public authorities, ascertained by, discovered by, or made known the Contractor, or which the Contractor reasonably should have known, constitutes a waiver by the Contractor of any claim that otherwise might result in a change in the Contract Sum or Contract Time.

**§ 3.2.4** If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor’s notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall make Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor is not liable to the Owner or Architect for damages resulting from errors, inconsistencies, or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules, regulations, and lawful orders of public authorities.

**§ 3.2.5** The Contractor shall take field measurements and verify field conditions and shall carefully compare such field measurements and conditions and other information known to the Contractor with the Contract Documents before commencing activities. Errors, inconsistencies or omissions discovered shall be reported to the Architect and Construction Manager at once. The exactness of grades, elevations, dimensions, or locations given on any Drawings issued by the Architect, or the work installed by other contractors, is not guaranteed by the Architect or Owner. The Contractor shall, therefore, satisfy itself as to the accuracy of all grades, elevations, dimensions, and locations. In all cases of interconnection of its Work with existing or other work, it shall verify at the site all dimensions relating to such existing or other work. Any errors due to the Contractor’s failure to so verify grades, elevations, dimensions, or locations must be promptly rectified by the Contractor without any additional cost to the Owner.

**§ 3.2.6 Requests for Information.** The Contractor may submit RFIs to the Architect and Construction Manager to help facilitate the Contractor’s performance of the work. Prior to submitting each RFI, the Contractor shall first carefully study and compare the Contract Documents, field conditions, other Owner provided information, Contractor prepared Coordination Drawings, and prior Project correspondence and documentation to determine that the information to be requested is not reasonably obtainable from such sources. The Contractor shall submit each RFI sufficiently in advance of the date by which such information is required in order to allow the Architect and Construction Manager sufficient time to permit adequate review and response and to permit Contractor compliance with the latest construction schedule. The Contractor shall reimburse the Owner amounts charged by the Architect or Construction Manager for RFI responses that in the opinion of the Architect and Construction Manager were available from a careful review of the Contract Documents, field conditions, other Owner-provided information, Contractor-prepared Coordination Drawings, and prior Project correspondence and documentation.

**§ 3.2.7** The location of existing features shown on plans is intended for general information only. The Contractor, alone, is responsible for accurate determination of the location of all structures and is not entitled to any extra payment due to any unforeseen difficulties or distances encountered in the Work.

**§ 3.2.8 Underground Conditions.** The locations, depths, and data as to underground conditions were obtained from records, surface indications, and data furnished by others. Information furnished is solely for the convenience of the Contractor without any warranty, express or implied, as to its accuracy or completeness. The Contractor cannot make a Claim with respect to the accuracy or completeness of such information if it is erroneous, or if the conditions found at the time of construction are different from those as indicated, unless the conditions constitute a material difference under Section 3.2.11.

**§ 3.2.9 Construction Stresses.** The Contractor is solely responsible for conditions that develop during construction and in the event any structure is dislocated, overstrained, or damaged so as to affect its usefulness, the Contractor is

solely responsible. The Contractor shall take whatever steps necessary to strengthen, relocate, or rebuild the structure to meet requirements of the Contract Documents.

**§ 3.2.10 Restoration and Repair of Damaged Property.** The Contractor is responsible for restoration and/or repair of utilities, private property, buildings, pavement, walkways, roads, or other property damaged by its activities under the Contract Documents.

**§ 3.2.11** Not used.

**§ 3.2.12** Not used.

**§ 3.2.13** Whenever the Drawings show existing or other construction not required as part of the Contract Work, it is understood that it is so shown as a matter of information and that the Owner, and Architect, while believing such information to be substantially correct, assumes no responsibility thereof.

**§ 3.2.14** If the Contractor performs any construction activity knowing it involves a recognized error, inconsistency or omission in the Contract Documents without such notice to the Architect, the Contractor shall assume full responsibility for such performance and shall bear full responsibility for the attributable costs for correction.

### **§ 3.3 Supervision and Construction Procedures**

**§ 3.3.1** The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract, unless the Contract Documents give other specific instruction concerning these matters. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences or procedures, the Contractor shall evaluate the jobsite safety as to such instructions and, except as stated below, is fully and solely responsible for the jobsite safety of such means, methods, techniques, sequences, or procedures. If the Contractor determines that such means, methods, techniques, sequences, or procedures may not be safe, the Contractor shall give timely written notice to the Owner, the Construction Manager, and the Architect with specific objections and proposed changes, and shall not proceed with that portion of the Work without further written instructions from the Architect. If the Contractor is then instructed to proceed with the required means, methods, techniques, sequences, or procedures without acceptance of changes proposed by the Contractor or reaching agreement with the Architect as to resolution of the safety issues, the Contractor is not responsible for any loss or damage relating to safety arising solely from the required means, methods, techniques, sequences, or procedures to which the Contractor objected.

**§ 3.3.1.1** The Contractor's obligations under the Contract Documents include, without limitation:

- .1 Review of all specified construction and installation procedures, including, without limitation, those recommended by manufacturers.
- .2 Advising the Construction Manager and Architect:
  - .1 if a specified procedure deviates from standard construction practice;
  - .2 if following a procedure will affect any warranties, including the Contractor's general warranty; or
  - .3 of any objections the Contractor may have to a procedure;
- .3 Proposing alternative procedures, as appropriate, which procedures shall be covered by the Contractor's warranty in Section 3.5; and
- .4 Organizing and conducting pre-installation meetings, coordinated with the Architect and Construction Manager.

**§ 3.3.2** The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

**§ 3.3.3** The Contractor shall be responsible for inspection of portions of the Project already performed to determine that such portions are in proper condition to receive subsequent Work.

**§ 3.3.4** Where equipment lines, piping, ductwork, and/or conduit are shown diagrammatically, the Contractor is responsible for the coordination and orderly arrangement of the various lines of piping and conduit included in the Work of its Contract. The Contractor shall coordinate the work of its Subcontractors and prevent all interferences between or among equipment, lines of piping, and architectural features, and avoid any unsightly arrangements in

exposed areas. This section shall not be construed as limiting any obligation of the Contractor under any other provision of the Contract Documents.

**§ 3.3.5** The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Construction Manager or Architect in their administration of the Contract, or by tests, inspections or approvals required or performed by persons other than the Contractor.

**§ 3.3.6** The Contractor, his employees and Subcontractors shall be subject to such rules and regulations for the conduct of the Work as the Owner may establish. The Contractor shall be responsible for the enforcement among his employees of the Owner's requirements.

#### **§ 3.4 Labor and Materials**

**§ 3.4.1** Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

**§ 3.4.2** Except in the case of minor changes in the Work approved by the Architect in accordance with Section 3.12.8 or ordered by the Architect in accordance with Section 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect, in consultation with the Construction Manager, and in accordance with a Change Order or Construction Change Directive.

**§ 3.4.3** The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

**§ 3.4.3.1** Persons whose work is unsatisfactory to the Owner or Architect, or who is reasonably considered by them to be unskilled or otherwise objectionable, may be immediately dismissed from the Project site upon notice to the Contractor. Any persons so dismissed shall be immediately replaced by the Contractor so as not to delay the progress of the Work.

#### **§ 3.5 Warranty**

**§ 3.5.1** The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents specifically require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements will be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance by persons other than the Contractor or its Subcontractors, improper operation by persons other than the Contractor or its Subcontractors, normal wear and tear, and normal usage. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment provided for the Work. The Contractor, at its expense, shall remove and replace materials not meeting specifications or failing to meet warranties by manufacturers, regardless of whether incorporated into the Work. The Contractor shall promptly replace or correct any of the Work the Architect rejects as failing to conform to the requirements of the Contract Documents. The foregoing warranty obligations are not limited by the provisions of Article 12 and are in addition to and not in limitation of any other warranty set forth in the Contract Documents or required by law. All warranties and guarantees specifically called for by the Specifications shall expressly run to the benefit of Owner. If required by Architect, Contractor shall furnish satisfactory evidence (including reports of required tests) as to be the kind and quality of materials and equipment. All materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with instructions of the applicable Supplier, except as otherwise provided in the Contract Documents.

**§ 3.5.2** The Contractor shall perform all warranty obligations and responsibilities for the Work under the Contract Documents. Upon completion of the Work, the Contractor shall assign and provide to the Owner all written warranties and guarantees from Subcontractors, suppliers, and material or equipment manufacturers. The Contractor shall fully cooperate with the Owner in the event the Owner pursues remedies under any warranties or guarantees assigned to the Owner. The Contractor acknowledges that its obligations to the Owner under this Section 3.5.2 are joint and several during the Warranty Period with its Subcontractors, suppliers, vendors and manufacturers of all

materials and equipment supplied on account of the Work. Any notice given to the Contractor by the Owner, Architect, or Construction Manager regarding any deficiency in the Work covered by this Section 3.5 and Article 12 will toll the corrections period under Article 12 until all corrections or remedial actions necessary are taken with respect to such deficiency. The Contractor is responsible for all harm caused by its failure to maintain equipment and materials installed through the Contractor's completion of its Work. The requirements of this Section 3.5 will continue notwithstanding termination of the Contractor for any reason. The foregoing warranty obligations are not limited by the provisions of Article 12 and are in addition to and not in limitation of any other warranty set forth in the Contract Documents or required by law.

**§ 3.5.3** No warranties or guarantees by the Contractor will deprive the Owner of any cause of action, right, or remedy otherwise available for breach of any of the provisions of the Contract Documents, nor do any corrections period limit the time in which the Owner may pursue any such action, right, or remedy.

**§ 3.5.4** Contractor shall be responsible for all maintenance of the Work through Substantial Completion or assignment of applicable warranties, whichever is later.

**§ 3.5.5** Neither final payment nor any provision in Contract Documents nor partial or entire occupancy of premises by Owner shall constitute an acceptance of work not done in accordance with Contract Documents or relieve the Contractor of liability in respect to any express warranties or responsibility for faulty materials or workmanship.

**§ 3.5.6** In emergencies occurring during the guarantee period, the Owner may correct any defect immediately and charge the cost to the Contractor. The Owner shall at once notify the Contractor, who may take over the Work and make any corrections remaining after his forces arrive at the Work.

**§ 3.5.7** The Contractor shall obtain and furnish to the Architect written Manufacturer's Warranties for all major materials, systems and equipment. The terms of the warranty shall be as individually specified in the Contract Documents for the item; if no term is specified, the terms shall be a minimum of one (1) year, but not less than the standard period of the Manufacturer's Warranty for the item.

## **§ 3.6 Taxes**

**§ 3.6.1** The Owner is exempt from payment of federal, state, and local taxes, and from payment of sales and compensating use taxes of the State of New York and its cities and counties on all materials and supplies sold to the Owner pursuant to the provisions of the Contract, and the Contractor warrants and represents that these taxes were not included in the amount of its bid or the Contract Sum. This exemption does not, however, apply to tools, machinery, equipment, or other property purchased or leased by or to the Contractor or a Subcontractor. The Contractor and its Subcontractors are responsible for any and all applicable taxes, including sales and compensating use taxes, on such purchased or leased tools, machinery, equipment or other property, and the Contractor warrants and represents that such taxes were included in the amount of its bid and the Contract Sum.

**§ 3.6.2** The Contractor accepts full and exclusive liability for payment of any and all contributions, assessments, or taxes now or hereafter imposed by the Government of the United States, and/or by any city, town, village, other municipality, county, or state, that are measured by salaries, wages, or other remuneration of employees of the Contractor, Subcontractors, and Sub-subcontractors for performance of the Work.

## **§ 3.7 Permits, Fees, Notices, and Compliance with Laws**

**§ 3.7.1** Unless otherwise provided in the Contract Documents, the Owner, assisted by the Construction Manager, shall secure and pay for the building permit. The Contractor shall secure and pay for other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

**§ 3.7.2** The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

**§ 3.7.3** If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.



**§ 3.7.4 Concealed or Unknown Conditions.** If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner, Construction Manager, and the Architect before conditions are disturbed and in no event later than 14 days after first observance of the conditions. The Architect and Construction Manager will promptly investigate such conditions and, if the Architect, in consultation with the Construction Manager, determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend that an equitable adjustment be made in the Contract Sum or Contract Time, or both. If the Architect, in consultation with the Construction Manager, determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner, Construction Manager, and Contractor, stating the reasons. If the Owner or Contractor disputes the Architect's determination or recommendation, either party may submit a Claim as provided in Article 15. No adjustment in the Contract Time or Contract Sum will occur, however, in connection with a concealed or unknown condition that does not differ materially from those conditions disclosed in the Contract Documents or that reasonably should have been disclosed by the Contractor's (1) prior inspections, tests, and reviews, or (2) inspections, tests, and reviews the Contractor had the opportunity to make or should have performed in connection with the Project.

**§ 3.7.5** If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner, Construction Manager, and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

### **§ 3.8 Allowances**

**§ 3.8.1** The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

**§ 3.8.2** Unless otherwise provided in the Contract Documents:

- .1 allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;
- .2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit, and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and
- .3 whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

**§ 3.8.3** Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

### **§ 3.9 Superintendent**

**§ 3.9.1** The Contractor shall employ a competent project manager and superintendent and necessary assistants who shall be in attendance at the Project site at all times during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent are as binding as if given to the Contractor. The Contractor's project manager and superintendent shall attend all project meetings, regardless of whether held prior to or following Substantial Completion of the Work.

**§ 3.9.2** The Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner and Architect, through the Construction Manager, the name and qualifications of its proposed superintendent. The

Construction Manager will reply within fourteen (14) days to the Contractor in writing stating (1) whether the Owner, the Construction Manager, or the Architect has reasonable objection to the proposed superintendent, or (2) that any of them require additional time to review the qualifications. Failure of the Construction Manager to reply either way within the 14-day period constitutes notice of no reasonable objection. The Contractor shall not change the Project Manager during the course of construction without prior written notification to the Architect and Owner at least 30 days prior to the proposed date of change.

**§ 3.9.3** The Contractor shall not employ a proposed project manager or superintendent to whom the Owner, Construction Manager, or Architect makes reasonable and timely objection.

### **§ 3.10 Contractor's Construction and Submittal Schedules**

**§ 3.10.1** The Contractor, promptly, but in no event later than fifteen (15) working days, after being awarded the Contract, shall prepare and submit for the Owner's and Architect's information and the Construction Manager's approval a Contractor's construction schedule for the Work. The schedule shall not exceed time limits current under the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work and Project, shall be related to the entire Project schedule to the extent required by the Contract Documents and shall provide for expeditious and practicable execution of the Work. The Contractor shall cooperate with the Construction Manager in scheduling and performing the Contractor's Work to avoid conflict with, and as to cause no delay in, the work or activities of other Multiple Prime Contractors or the construction or operations of the Owner's own forces. The schedule shall be revised at appropriate intervals as required by the conditions of the Work and Project.

**§ 3.10.1.1** The Work must be performed continuously and without interruption, in accordance with the approved construction schedule, so that all Work can be completed in the time set forth in the Contract Documents.

**§ 3.10.1.2** The sequence of the Work must be scheduled with the Owner so as to minimize interference with the Owner's use of existing structures, and the Owner's approval must be obtained in writing prior to starting of the Work.

**§ 3.10.1.3** All Work must be completed on or before the dates established in the Contract Documents and in accordance with the approved construction schedule.

**§ 3.10.2** The Contractor, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, shall submit a submittal schedule for the Construction Manager's and Architect's approval. The Architect and Construction Manager's approval shall not be unreasonably delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Construction Manager and Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, or fails to provide submittals in accordance with the approved submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

**§ 3.10.3** The Contractor shall prepare a construction schedule comprising a schedule as described in Section 3.10.3.1. The Contractor must provide copies of all electronic schedule documents to the Construction Manager for review. The schedule must contain time-scaled logic diagrams and all other data specified in Section 3.10.3.1. The diagrams must show activities of the Project in detail and in summary format. The diagrams must also show the order and interdependence of activities and the sequence in which the Work will be accomplished, incorporating the schedule summary activities and milestone dates indicated, and as further planned by the Contractor. All logical relationships must be identified. The use of imposed start dates will also be limited. The retained logic mode must be used for calculations. The construction schedule must be provided within fifteen (15) days of the date of the Notice to Proceed.

**§ 3.10.3.1** In addition to construction activities, the schedule must include, without limitation:

- .1 Testing activities/required inspections (where applicable).
- .2 Subcontractor selections and approvals (proposed major subcontractors to be submitted within 48 hours following the date of opening of the Contractor's bid to the Owner).

- .3 Shop drawing preparation and approval activities. Contractor must sequence submissions to provide sufficient time for the coordination of shop drawings of one trade that impact other trades, mock-ups, and pre-installation meetings.
- .4 Procurement schedule (order dates, fabrication, deliveries, and long lead items).
- .5 Requirements for any on-site shutdowns that may impact work.
- .6 Training and/or instruction of Owner personnel.

**§ 3.10.3.2** The Contractor shall participate with other Contractors, the Construction Manager, and the Owner in producing and coordinating all schedules for incorporation into the overall Project schedule assembled by the Construction Manager. The Contractor shall make revisions to its construction schedule and its submittal schedule as deemed necessary by the Construction Manager and Architect to conform to the Project schedule.

**§ 3.10.4** In the event the Owner determines that the performance of Work has not progressed to the level of completion required of the Contract Documents or that the Contractor has failed to maintain the construction schedule, the Owner shall have the right to order the Contractor to take corrective measures necessary to expedite the progress of construction including without limitations, additional shifts, overtime, additional manpower or equipment as well as other similar measures (hereinafter referred to collectively as “extraordinary measures”). Such extraordinary measures shall continue until the progress of Work complies with milestone dates set forth in the Contract Documents and the Project schedule. The Contractor shall not be entitled to an adjustment in Contract Sum or Contract Time in connection with extraordinary measures required by the Owner.

**§ 3.10.5** The Contractor shall participate with other Contractors, the Construction Manager and Owner in reviewing and coordinating all schedules for incorporation into the Project schedule that is prepared by the Construction Manager. The Contractor shall make revisions to the construction schedule and submittal schedule as deemed necessary by the Construction Manager to conform to the Project schedule.

**§ 3.10.6** The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner, Construction Manager and Architect and incorporated into the approved Project schedule. The Contractor shall monitor the progress of the Work for conformance with the requirements of the construction schedule and Project schedule and shall promptly advise the Owner of any delays or potential delays.

**§ 3.10.7** The Owner reserves the right to withhold payment until such time as the Contractor submits a recovery plan and daily schedule to complete all necessary (including, as necessary, acceleration of the Work by means of overtime, additional crews, additional shifts, additional equipment and/or re-sequencing of the Work) to achieve completion of the remaining milestone dates in the construction schedule and Project schedule. The cost of preparing and performing the recovery schedule shall be borne solely by the Contractor.

### **§ 3.11 Documents and Samples at the Site**

The Contractor shall make available, at the Project site, the Contract Documents, including Change Orders, Construction Change Directives, and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and the approved Shop Drawings, Product Data, Samples, and similar required submittals. These shall be in electronic form or paper copy, available to the Construction Manager, Architect, and Owner, and delivered to the Construction Manager for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

### **§ 3.12 Shop Drawings, Product Data, and Samples**

**§ 3.12.1** Shop Drawings are drawings, diagrams, schedules, and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier, or distributor to illustrate some portion of the Work.

**§ 3.12.2** Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

**§ 3.12.3** Samples are physical examples that illustrate materials, equipment, or workmanship, and establish standards by which the Work will be judged.



§ 3.12.4 Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents. Their purpose is to demonstrate how the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect and Construction Manager is subject to the limitations of Sections 4.2.10 through 4.2.12. Informational submittals upon which the Construction Manager and Architect are not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Construction Manager or Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve, and submit to the Construction Manager, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents, in accordance with the Project submittal schedule approved by the Construction Manager and Architect or, in the absence of an approved Project submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of other Contractors, Separate Contractors, or the Owner's own forces. The Contractor shall cooperate with the Construction Manager in the coordination of the Contractor's Shop Drawings, Product Data, Samples, and similar submittals with related documents submitted by other Contractors.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner, Construction Manager, and Architect, that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples, or similar submittals, until the respective submittal has been reviewed and approved by the Architect. Resubmission of rejected documents shall be performed with 10 calendar days, or sooner if required by the progress of construction. No claim for delay or cost shall be accepted as a result of rejected submittal documents. If the Architect is required to review the Contractor's submittal more than twice, the Contractor shall bear the cost and expense associated with such addition review as set forth in the project Manual.

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from the requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples, or similar submittals, unless the Contractor has specifically notified the Construction Manager and Architect in writing of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals, by the Architect's approval thereof.

§ 3.12.8.1 Contractor's Expense: All data to be provided by Contractor in support of any proposed "or-equal" or substitute item will be at Contractor's expense.

§ 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples, or similar submittals, to revisions other than those requested by the Construction Manager and Architect on previous submittals. In the absence of such notice, the Architect's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures. The Contractor shall not be required to provide professional services in violation of applicable law.

§ 3.12.10.1 If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall be entitled to rely upon the adequacy and accuracy of the performance and design criteria provided in the Contract Documents. The Contractor shall cause such services or certifications to be provided by an appropriately licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings, and other submittals prepared by such professional. Shop Drawings, and other submittals related to the

Work, designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner, the Architect, and the Construction Manager shall be entitled to rely upon the adequacy and accuracy of the services, certifications, and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor the performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review and approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Construction Manager shall review submittals for sequencing, constructability, and coordination impacts on other Contractors.

**§ 3.12.10.2** If the Contract Documents require the Contractor's design professional to certify that the Work has been performed in accordance with the design criteria, the Contractor shall furnish such certifications to the Construction Manager and Architect at the time and in the form specified by the Architect.

### **§ 3.13 Use of Site**

**§ 3.13.1** The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

**§ 3.13.2** The Contractor shall coordinate the Contractor's operations with, and secure the approval of, the Construction Manager before using any portion of the site.

**§ 3.13.3** Only materials and equipment to be used directly in the Work may be brought to and stored on the Project site by the Contractor. After equipment is no longer required for the Work, it must be promptly removed from the Project site. Protection of construction materials and equipment stored at the Project site from weather, theft, damage, and all other adversity is solely the responsibility of the Contractor. The Contractor shall ensure that the Work, at all times, is performed in a manner that affords reasonable access, both vehicular and pedestrian, to the site of the Work and all adjacent areas. The Work must be performed, to the fullest extent reasonably possible, in such a manner that public areas adjacent to the site of the Work are free from all debris, building materials, and equipment likely to cause hazardous conditions.

### **§ 3.14 Cutting and Patching**

**§ 3.14.1** The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting, or patching shall be restored to the condition existing prior to the cutting, fitting, or patching, unless otherwise required by the Contract Documents.

**§ 3.14.2** The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner, Separate Contractors, or of other Contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter construction by the Owner, Separate Contractors, or by other Contractors except with written consent of the Construction Manager, Owner, and such other Contractors or Separate Contractors. Consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold, from the Separate Contractors, other Contractors, or the Owner, its consent to cutting or otherwise altering the Work.

### **§ 3.15 Cleaning Up**

**§ 3.15.1** The Contractor shall keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus materials from and about the Project, and shall remove all Work-related stains, spots, marks, dirt, mortar smears, plaster smears, paint smears, caulking smears, and other foreign materials from exposed surfaces, leaving no residue or evidence of such foreign materials on the exposed surfaces.

**§ 3.15.2** If the Contractor fails to clean up as provided in the Contract Documents, the Owner, or Construction Manager with the Owner's approval, may do so and the Owner shall be entitled to reimbursement from the Contractor for such work.

### **§ 3.16 Access to Work**

The Contractor shall provide the Owner, Construction Manager, and Architect with access to the Work in preparation and progress wherever located. Federal, state, and local governmental agencies with jurisdiction over

the Project must at all times have access to the Work for their official functions wherever it is in preparation or progress.

### **§ 3.17 Royalties, Patents and Copyrights**

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner, Construction Manager, and Architect harmless from loss on account thereof, but shall not be responsible for defense or loss when a particular design, process, or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications, or other documents prepared by the Owner, Architect, or Construction Manager. However, if an infringement of a copyright or patent is discovered by, or made known to, the Contractor, the Contractor shall be responsible for the loss unless the information is promptly furnished to the Architect through the Construction Manager.

### **§ 3.18 Indemnification**

**§ 3.18.1 Personal Injury and Property Damage.** To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Construction Manager, Architect, and their respective directors, trustees, officers, employees, agents, consultants, interim administrators, authorized volunteers and committee members, student, teachers, auxiliary instructors, and members of the Board of Education (collectively "Indemnitees") from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, when such claim, damage, loss or expense is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself, and including loss of use), but only to the extent caused, in whole or in part, by the acts or omissions, or other culpable conduct, of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by an Indemnitee.

The Contractor agrees to include the following indemnity provision in each and every contract it enters into with a subcontractor, and to require that subcontractor to include such provision in each contract it enters into with any lower tier subcontractor: "To the fullest extent permitted by law, Subcontractor shall indemnify and hold harmless the Contractor, Owner, Construction Manager, Architect, and each of their respective representatives, employees, directors, officers, consultants and agents, from and against any and all claims, suits, actions, debts, damages, fines, penalties, costs, charges and expenses, including attorneys' fees and court costs, arising out of, relating to or resulting from the performance of this Subcontract, including, but not limited to, bodily injury and/or property damage, to the extent caused, in whole or in part, by acts, actions, omissions, fault or breach of the Subcontractor, its employees, agents, subcontractors, suppliers and/or materialmen, regardless of whether or not such claim is caused in part by a party indemnified hereunder."

**§ 3.18.2 Employee Personal Injuries.** In claims against any Indemnitee by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 is not limited by a limitation on the amount or type of damages, compensation, or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts, or other employee benefit acts.

**§ 3.18.3 Claims by Governmental Authorities.** To the fullest extent permitted by law, the Contractor shall defend, indemnify, and hold harmless the Indemnitees from and against claims, damages, losses, and expenses arising out of any claims made against the Indemnitees under the laws of federal, state, or other governmental bodies having jurisdiction over the Work, including but not limited to claims arising from violation of public ordinances and other requirements of governing authorities, due to the Contractor's method of execution of the Work or implementation of any of the Contractor's other obligations under the Contract Documents.

**§ 3.18.4 Liens and Security Interests.** To the fullest extent permitted by law, the Contractor shall defend, indemnify, and hold harmless the Indemnitees from and against any actions, lawsuits, or other proceedings brought against Indemnitees as a result of liens or security interests of any type arising from the Work and filed against the Work, the site of any of the Work, the Project site and any improvements thereon, payments due the Contractor, or any property of any of the Indemnitees.

**§ 3.18.5 Intellectual Property.** The Contractor shall defend, indemnify, and hold harmless the Indemnitees from and against any claims or demands for patent fees, copyright fees, license fees, royalties, damages from infringements, or injunctive relief on account of legal protection of any invention, machine, article, process, patent, copyright,

design, or product used by the Contractor in performing the Work, unless such use is required by the Contract Documents or where alleged violations are contained in Drawings, Specifications, or other documents prepared by the Architect. In the event of any injunction or legal action regarding such claims or demands result in stopping the Work in whole or part, the Owner has the right to direct the Contractor to change the manner of performance of the Work to avoid such stoppage, all costs and expenses occasioned by such direction shall be borne solely by the Contractor, unless the work stoppage results solely from the Contractor employing a use required by the Contract Documents or when alleged violations are contained in Drawings, Specifications, or other documents prepared by the Architect. However, if the Contractor, prior to any such claims or demands, has reason to believe that a required use infringes a copyright, patent, or other legal protection, the Contractor must promptly so advise the Architect and Construction Manager, and in the absence of such advice will be liable to the Owner to the extent such advice would have prevented additional costs to the Owner arising from such claims or demands.

**§ 3.18.6 Other Claims.** For any claims not specifically identified elsewhere in this Section 3.18, the Contractor shall defend, indemnify, and hold harmless the Indemnitees from and against any and all liability, claims, damages, losses, suits, demands, costs, charges, attorney's fees, and expenses of whatever kind or nature that the Indemnitees may directly or indirectly incur, suffer, or be required to pay by reason of, or in consequence of, the intentional conduct, negligent acts or omissions, breach of contract, or other fault of the Contractor or its Subcontractors.

**§ 3.18.7 Enforcement Costs.** The Contractor shall further indemnify and hold harmless the Indemnitees from and against any costs and expenses (including reasonable attorneys' fees) incurred by any of the Indemnitees in enforcing any of the Contractor's defense, indemnity, and hold harmless obligations under this Section 3.18 or as may otherwise be provided elsewhere in the Contract Documents.

**§ 3.18.8 Full Defense.** Subject to Section 3.18.9, all obligations of the Contractor under this Section 3.18 to defend the Indemnitees are obligations to provide full defenses at the sole cost and expense of the Contractor, regardless of any alleged culpability on the part of any Indemnitee or any ultimate determination of relative shares of liability of any Indemnitee and the Contractor.

**§ 3.18.9 Conformance to Law.** To the extent any defense, indemnity, or hold harmless obligations under this Section 3.18 are made void or otherwise impaired by any law controlling their construction (including but not limited to laws limiting such obligations to the extent of the portion of damages caused by an indemnitor), such obligations are deemed to conform to the greatest rights to defense and indemnity permitted by such law, including but not limited to New York State General Obligations Law Section 5-322.1.

**§ 3.18.10 Survival and Other Bases for Defense and Indemnity Obligations.** All provisions of this Section 3.18 will survive termination of the Agreement for any reason, or Final Completion. No obligations under this Section 3.18 negate, abridge, or reduce other rights or obligations to defense and indemnity, including but not limited to common law indemnity, that exist as to a party or person described in this Section 3.18.

**§ 3.18.11 Other Contractors and Subcontractors.** The Owner is not liable to the Contractor or any Subcontractor for damages caused by any breach of contract, delay in performance, intentional conduct, negligence, act, or omission by other contractors or subcontractors with contracts for performance of any portion of the Work on the Project, and the Contractor waives all claims for such damages.

## **§ 3.22 PHOTO ID**

**§ 3.22.1** The Contractor shall provide reasonable and visible photographic identification for each employee, subcontractor, or other person at the Project site, and shall, upon request of the Owner, make available a list of names of those employees, subcontractors, or others working under the direction of the contractor at the Project site. Any such identification shall be reasonably visible to the Architect and to Owner's personnel at all times to allow the Owner to maintain the safety and security of Owner's buildings, property and persons under its control. Contractors failing to abide by this requirement shall be prohibited from working at the site and shall be responsible for any consequent delays or added costs to the owner as result of such noncompliance.

## **ARTICLE 4 ARCHITECT AND CONSTRUCTION MANAGER**

### **§ 4.1 General**

**§ 4.1.1** The Architect is the person or entity retained by the Owner pursuant to Section 2.3.2 and identified as such in the Agreement.

§ 4.1.2 The Construction Manager is the person or entity retained by the Owner pursuant to Section 2.3.3 and identified as such in the Agreement.

§ 4.1.3 Duties, responsibilities, and limitations of authority of the Construction Manager and Architect as set forth in the Contract Documents shall not be restricted, modified, or extended without written consent of the Owner, Construction Manager, Architect, and Contractor. Consent shall not be unreasonably withheld.

## § 4.2 Administration of the Contract

§ 4.2.1 The Construction Manager and Architect will provide administration of the Contract as described in the Contract Documents and will be the Owner's representatives during construction until the date the Architect issues the final Certificate for Payment. The Construction Manager and Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. On the basis of the site visits, the Architect will keep the Owner and the Construction Manager reasonably informed about the progress and quality of the portion of the Work completed, and promptly report to the Owner and Construction Manager known deviations from the Contract Documents and defects and deficiencies observed in the Work.

§ 4.2.3 The Construction Manager shall provide one or more representatives who shall be in attendance at the Project site whenever the Work is being performed. The Construction Manager will determine in general if the Work observed is being performed in accordance with the Contract Documents, will keep the Owner and Architect reasonably informed of the progress of the Work, and will promptly report to the Owner and Architect known deviations from the Contract Documents and the most recent Project schedule, and defects and deficiencies observed in the Work.

§ 4.2.4 The Construction Manager will schedule and coordinate the activities of the Contractor and other Contractors in accordance with the latest approved Project schedule. Upon issuance of the Project construction schedule, each Contractor will assume full responsibility for the execution of their Work in the allotted duration times.

§ 4.2.5 The Construction Manager, except to the extent required by Section 4.2.4, and Architect will not have control over, charge of, or responsibility for, the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents, and neither will be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. Neither the Construction Manager nor the Architect will have control over or charge of, or be responsible for acts or omissions of, the Contractor, Subcontractors, or their agents or employees, or of any other persons or entities performing portions of the Work.

§ 4.2.6 **Communications.** The Owner shall communicate with the Contractor and the Construction Manager's consultants through the Construction Manager about matters arising out of or relating to the Contract Documents. The Owner and Construction Manager shall include the Architect in all communications that relate to or affect the Architect's services or professional responsibilities. The Owner shall promptly notify the Architect of the substance of any direct communications between the Owner and the Construction Manager otherwise relating to the Project. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and suppliers shall be through the Contractor. Communications by and with other Contractors shall be through the Construction Manager. Communications by and with the Owner's own forces and Separate Contractors shall be through the Owner. The Contract Documents may specify other communication protocols.

§ 4.2.7 The Construction Manager and Architect will review and certify all Applications for Payment by the Contractor, in accordance with the provisions of Article 9.

§ 4.2.8 The Architect and Construction Manager have authority to reject Work that does not conform to the Contract Documents, and will notify each other about the rejection. Whenever the Construction Manager considers it necessary or advisable, the Construction Manager will have authority to require inspection or testing of the Work in accordance with Sections 13.4.2 and 13.4.3, upon written authorization of the Owner, whether or not the Work is



fabricated, installed or completed. The foregoing authority of the Construction Manager will be subject to the provisions of Sections 4.2.18 through 4.2.20 inclusive, with respect to interpretations and decisions of the Architect. However, neither the Architect's nor the Construction Manager's authority to act under this Section 4.2.8 nor a decision made by either of them in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect or the Construction Manager to the Contractor, Subcontractors, suppliers, their agents or employees, or other persons performing any of the Work.

**§ 4.2.9** Utilizing the submittal schedule provided by the Contractor, the Construction Manager shall prepare, and revise as necessary, a Project submittal schedule incorporating information from other Contractors, the Owner, Owner's consultants, Owner's Separate Contractors and vendors, governmental agencies, and participants in the Project under the management of the Construction Manager. The Project submittal schedule and any revisions shall be submitted to the Architect for approval.

**§ 4.2.10** The Construction Manager will receive and promptly review for conformance with the submittal requirements of the Contract Documents, all submittals from the Contractor such as Shop Drawings, Product Data, and Samples. Where there are other Contractors, the Construction Manager will also check and coordinate the information contained within each submittal received from the Contractor and other Contractors, and transmit to the Architect those recommended for approval. By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Construction Manager represents to the Owner and Architect that the Construction Manager has reviewed and recommended them for approval. The Construction Manager's actions will be taken in accordance with the Project submittal schedule approved by the Architect or, in the absence of an approved Project submittal schedule, with reasonable promptness while allowing sufficient time to permit adequate review by the Architect.

**§ 4.2.11** The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data, and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Upon the Architect's completed review, the Architect shall transmit its submittal review to the Construction Manager.

**§ 4.2.12** Review of the Contractor's submittals by the Construction Manager and Architect is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Construction Manager and Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5, and 3.12. The Construction Manager and Architect's review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences, or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

**§ 4.2.13** The Construction Manager will prepare Change Orders and Construction Change Directives.

**§ 4.2.14** The Construction Manager and the Architect will take appropriate action on Change Orders or Construction Change Directives in accordance with Article 7, and the Architect will have authority to order minor changes in the Work as provided in Section 7.4. The Architect, in consultation with the Construction Manager, will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

**§ 4.2.15** Utilizing the documents provided by the Contractor, the Construction Manager will maintain at the site for the Owner one copy of all Contract Documents, approved Shop Drawings, Product Data, Samples, and similar required submittals, in good order and marked currently to record all changes and selections made during construction. These will be available to the Architect and the Contractor, and will be delivered to the Owner upon completion of the Project.

**§ 4.2.16** The Construction Manager will assist the Architect in conducting inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion in conjunction with the Architect pursuant to Section 9.8; and receive and forward to the Owner written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10. The

Construction Manager will forward to the Architect a final Application and Certificate for Payment or final Project Application and Project Certificate for Payment upon the Contractor's compliance with the requirements of the Contract Documents.

§ 4.2.17 If the Owner and Architect agree, the Architect will provide one or more Project representatives to assist in carrying out the Architect's responsibilities at the site. The Owner shall notify the Construction Manager of any change in the duties, responsibilities and limitations of authority of the Project representatives.

§ 4.2.18 The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of the Construction Manager, Owner, or Contractor through the Construction Manager. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.19 Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either, and will not be liable for results of interpretations or decisions so rendered in good faith.

§ 4.2.20 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

§ 4.2.21 The Construction Manager will receive and review requests for information from the Contractor, and forward each request for information to the Architect, with the Construction Manager's recommendation. The Architect will review and respond in writing, through the Construction Manager, to requests for information about the Contract Documents. The Construction Manager's recommendation and the Architect's response to each request will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

## **ARTICLE 5 SUBCONTRACTORS**

### **§ 5.1 Definitions**

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include other Contractors or Separate Contractors or the subcontractors of other Contractors or Separate Contractors.

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

### **§ 5.2 Award of Subcontracts and Other Contracts for Portions of the Work**

§ 5.2.1 Unless otherwise stated in the Contract Documents, the Contractor, as soon as practicable after award of the Contract, shall notify the Construction Manager, for review by the Owner, Construction Manager and Architect, of the persons or entities proposed for each principal portion of the Work, including those who are to furnish materials or equipment fabricated to a special design. Within 14 days of receipt of the information, the Construction Manager may notify the Contractor whether the Owner, the Construction Manager or the Architect (1) has reasonable objection to any such proposed person or entity or, (2) requires additional time for review. Failure of the Construction Manager to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 5.2.1.1 Time is of the essence for this Project and under the Contract. Prime Contractors shall award subcontracts to entities capable of maintaining the Project schedule.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner, Construction Manager or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

**§ 5.2.3** If the Owner, Construction Manager or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner, Construction Manager or Architect has no reasonable objection. No increase in the Contract Sum or Contract Time is allowed as a result of objection to any proposed person or entity. The Owner and Architect reserve the right to contact the proposed persons or entities after award of contract as required to expedite the project.

**§ 5.2.4** The Contractor shall not substitute a Subcontractor, person, or entity for one previously selected if the Owner, Construction Manager or Architect makes reasonable objection to such substitution.

### **§ 5.3 Subcontractual Relations**

By appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work, that the Contractor, by these Contract Documents, assumes toward the Owner, Construction Manager and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner, Construction Manager and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies, and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

### **§ 5.4 Contingent Assignment of Subcontracts**

**§ 5.4.1** Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

- .1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor; and
- .2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

**§ 5.4.2** Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

**§ 5.4.3** Upon assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor Contractor or other entity.

## **ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS**

### **§ 6.1 Owner's Right to Perform Construction with Own Forces and to Award Other Contracts**

**§ 6.1.1** The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, which include persons or entities under separate contracts not administered by the Construction Manager, and to award other contracts in connection with other portions of the Project or other construction or operations on the site under terms and conditions identical or substantially similar to those governing the Contract Documents, including those portions related to insurance and waivers of subrogation.

**§ 6.1.2** When the Owner performs construction or operations with the Owner's own forces, or through persons or entities under separate contracts not administered by the Construction Manager, the Owner shall provide for coordination of such forces with the Work of the Contractor, who shall cooperate with them.



§ 6.1.3 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces or with Separate Contractors, the Owner or its Separate Contractors shall have the same obligations and rights that the Contractor has under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6, and Articles 10, 11, and 12.

## § 6.2 Mutual Responsibility

§ 6.2.1 The Contractor shall afford the Owner's own forces, Separate Contractors, Construction Manager and other Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner's own forces, Separate Contractors or other Contractors, the Contractor shall, prior to proceeding with that portion of the Work, promptly notify the Construction Manager and Architect of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor or other Contractors that would render it unsuitable for proper execution and results of the Contractor's Work. Failure of the Contractor to notify the Construction Manager and the Architect of apparent discrepancies or defects prior to proceeding with the Work shall constitute an acknowledgment that the Owner's or Separate Contractor's or other Contractors' completed or partially completed construction is fit and proper to receive the Contractor's Work. The Contractor shall not be responsible for discrepancies or defects in the construction or operations by the Owner or Separate Contractors or other Contractors that are not apparent.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs, including costs that are payable to a Separate Contractors or to other Contractors, because of the Contractor's delays, improperly timed activities or defective construction.

§ 6.2.4 The Contractor shall promptly remedy damage that the Contractor wrongfully causes to completed or partially completed construction, or to property of the Owner, Separate Contractors, or other Contractors as provided in Section 10.2.5. In the event of such damages, the Contractor shall promptly attempt to resolve any dispute with the damaged party. If such a damaged party makes any claim or commences a legal proceeding against the Owner, Construction Manager, or Architect, the Contractor shall defend, indemnify, and hold them harmless against and from such claim or proceeding at the Contractor's sole expense.

§ 6.2.5 The Owner, Separate Contractors, and other Contractors shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

## § 6.3 Owner's Right to Clean Up

If a dispute arises among the Contractor, Separate Contractors, other Contractors, and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Construction Manager, with notice to the Architect, will allocate the cost among those responsible.

## ARTICLE 7 CHANGES IN THE WORK

### § 7.1 General

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Construction Manager, Architect and Contractor. A Construction Change Directive requires agreement by the Owner, Construction Manager and Architect and may or may not be agreed to by the Contractor. An order for a minor change in the Work may be issued by the Architect alone.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents. The Contractor shall proceed promptly with changes in the Work, unless otherwise provided in the Change Order, Construction Change Directive, or order for a minor change in the Work.

## **§ 7.2 Change Orders**

**§ 7.2.1** A Change Order is a written instrument prepared by the Construction Manager and signed by the Owner, Construction Manager, Architect, and Contractor, stating their agreement upon all of the following:

- .1 The change in the Work;
- .2 The amount of the adjustment, if any, in the Contract Sum; and
- .3 The extent of the adjustment, if any, in the Contract Time.

**§ 7.2.2** Agreement on any Change Order constitutes a final settlement of all matters related to the change in Work that is the subject of the Change Order, including, but not limited to, all direct and indirect costs associated with such change and any and all adjustments to the Contract Sum and the Contract Time. In the event a Change Order increases the Contract Sum, the Contractor shall include the Work covered by such Change Orders in Applications for Payments as if such Work were originally part of the Contract Documents.

## **§ 7.3 Construction Change Directives**

**§ 7.3.1** A Construction Change Directive is a written order prepared by the Construction Manager and signed by the Owner, Construction Manager and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

**§ 7.3.2** A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order. Pending agreement on a Change Order, the Contractor shall provide the Construction Manager such information and documentation as the Construction Manager requires to substantiate adjustment to the Contract Sum in accordance with Section 7.3.3. The Contractors' proposal for such adjustment must be accompanied by a complete itemization of anticipated costs, including labor, materials, and subcontracts.

**§ 7.3.3** If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

- .1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
- .2 Unit prices stated in the Contract Documents or subsequently agreed upon;
- .3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
- .4 As provided in Section 7.3.4.

**§ 7.3.4** If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Construction Manager shall determine the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Construction Manager may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.4 shall be limited to the following:

- .1 Costs of labor, including applicable payroll taxes, fringe benefits required by agreement or custom, workers' compensation insurance, and other employee costs approved by the Construction Manager and Architect;
- .2 Costs of materials, supplies, and equipment, including cost of transportation, whether incorporated or consumed;
- .3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;
- .4 Costs of premiums for all bonds and insurance, permit fees, and sales, use, or similar taxes, directly related to the change; and
- .5 Costs of supervision and field office personnel directly attributable to the change.
- .6 Costs of Bonds shall be limited to 1% of the total additional cost. A 1% Bond credit shall be applied to all credit proposals. Bond premiums and/or credits shall be invoiced per Change Order. Lump sum bond premium requests will not be considered at the end of the project.

§ 7.3.5 If the Contractor disagrees with the adjustment in the Contract Time, the Contractor may make a Claim in accordance with applicable provisions of Article 15.

§ 7.3.6 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Construction Manager of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.7 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Construction Manager and Architect., without applying any percentage for overhead or profit. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Construction Manager and Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Construction Manager and Architect determine to be reasonably justified. The interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Construction Manager and Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Construction Manager shall prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.3.11 The allowance for combined overhead and profit includes supervision, taxes, insurance, field office and all other general expenses and shall be included in the total cost to the Owner based on the following schedule:

- .1 For the Contractor, for Work performed by the Contractor's own forces, fifteen percent (15%) of the cost.
- .2 For the Contractor, for Work performed by the Contractor's Subcontractor, a combined maximum of fifteen percent (15%) of the amount due between Prime Contractor and Subcontractor.
- .3 In order to facilitate checking of quotations for extras and credits, all proposals, except those so minor that their propriety can be seen by inspection, shall be accompanied by a complete itemization of costs including labor, material, and subcontracts. Labor and material shall be itemized in the manner prescribed above. Where major cost items are Subcontracts, they shall be itemized also.
- .4 Costs of Bonds shall be limited to one percent (1%) of the total additional cost. A one percent (1%) Bond credit shall be applied to all credit proposals. Bond premiums and/or credits shall be invoiced per per Change Order. Lump sum bond premium requests will not be considered at the end of the project.
- .5 Overhead and profit shall include, but not limited to, the following:
  - .1 home office expenses;
  - .2 field office expense;
  - .3 supervision;
  - .4 project management & estimation;
  - .5 small tools & equipment;
  - .6 research & layout;
  - .7 inspections & permits
  - .8 material handling;
  - .9 record drawings; and
  - .10 safety and cleanup

#### § 7.4 Minor Changes in the Work

The Architect may order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. The Architect's order

for minor changes shall be in writing. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Construction Manager and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Architect's order for a minor change without prior notice to the Construction Manager that such change will affect the Contract Sum or Contract Time, the Contractor waives any adjustment to the Contract Sum or extension of the Contract Time.

## **ARTICLE 8 TIME**

### **§ 8.1 Definitions**

**§ 8.1.1** Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

**§ 8.1.2** The date of commencement of the Work is the date established in the Agreement.

**§ 8.1.3** The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

**§ 8.1.4** The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

### **§ 8.2 Progress and Completion**

**§ 8.2.1** Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

**§ 8.2.2** The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, commence the Work prior to the effective date of insurance required to be furnished by the Contractor and Owner. The date of commencement of the Work will not be changed by the effective date of insurance required of the Contractor. In the event the effective date of insurance required of the Owner is later than the latest effective date of insurance required of the Contractor, the date of commencement will be adjusted accordingly. The work can not start until required insurance and bonds are provided and the contract has been executed.

**§ 8.2.3** The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time. The Contractor agrees that the Work will be prosecuted regularly, diligently, and uninterruptedly at such rate of progress as will ensure full completion within the time specified. It is expressly agreed by the Contractor that the time for completion of the Work is a reasonable time for its completion, taking into consideration the average climatic range and usual weather conditions prevailing in the Project's locality.

**§ 8.2.4** In no case may the Contractor delay the progress of the Work, in whole or part, on account of changes in the work or disputes caused by proposed or ordered changes in the work, or any disputes or disagreements as to the equitable value of changes.

**§ 8.2.5** If the Contractor does not achieve Substantial Completion within the Contract Time established in the Agreement, the Contractor shall reimburse the Owner for payments made to the Architect and Construction Manager for additional services rendered by either of them from the end of the Contract Time until Substantial Completion is achieved. The Owner will pay the Architect and the Construction Manager in accordance with its agreements with each of them, and the Owner will back charge the Contractor through an appropriate Modification.

### **§ 8.3 Delays and Extensions of Time**

**§ 8.3.1** If the Contractor is delayed at any time in the commencement or progress of the Work by (1) an act or neglect of the Owner, Architect, Construction Manager, or an employee of any of them, or of the Owner's own forces, Separate Contractors, or other Contractors; (2) by changes ordered in the Work; (3) by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, adverse weather conditions documented in accordance with Section 15.1.6.2, or other causes beyond the Contractor's control; (4) by delay authorized by the Owner pending mediation and binding dispute resolution; or (5) by other causes that the Contractor asserts and the Architect, based on the recommendation of the Construction Manager, determines justify delay, then the Contract Time shall be extended by Change Order to the extent such delay will prevent the Contractor from achieving Substantial Completion within the Contract Time, provided that the performance of the Work is not, was not, or would not have been delayed by any other cause for which the Contractor is not entitled to an extension of the Contract Time under the Contract Documents. The Contractor further acknowledges and agrees that adjustments in the Contract Time will be permitted for a delay only to the extent such delay (1) is not caused or could not have been anticipated by the

Contractor, (2) could not be limited or avoided by the Contractor's timely notice to the Owner of the delay or reasonable likelihood that delay will occur, and (3) is of a duration of more than one (1) day. Nothing contained in this Section 8.3.1 entitles the Contractor to compensation for damages due to hindrance or delay from any cause in the progress of the Work, unless and limited to the extent such delay is caused by the active interference of the Owner, Architect, or Construction Manager, and no claim for compensation may be made by the Contractor or paid by the Owner except to the extent caused by such active interference, and in that event further only to the extent such causation continues after the Contractor furnishes the Architect and Construction Manager with written notice of such causation. The Owner's exercise of any of its rights or remedies under the Contract Documents (including, without limitation, ordering changes in the Work, or direction suspension, rescheduling, or correction of the Work), regardless of the extent or frequency of the Owner's exercise of such rights or remedies, will not be construed as active interference with the Contractor's performance of the Work. The extension of time provided under this Section 8.3.1 is the Contractor's exclusive remedy, except as otherwise provided and limited in the is Section 8.3.1.

§ 8.3.1.1 Extension of time, if requested in writing by the Contractor, will only be considered after the Contractor has made reasonable effort to recover the lost time.

§ 8.3.1.2 The Contractor is not entitled to receive a separate extension of time for each one of several causes of delay operating concurrently.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 Notwithstanding anything to the contrary in the Contract Documents, an extension of the Contract Time, to the extent permitted under Paragraph 8.3.1 shall be the sole remedy of the Contractor for any (1) delay in the commencement, prosecution or completion of the Work, (2) hindrance or obstruction in the performance of the Work, (3) loss of productivity; or (4) any delay-related claim (collectively referred in this subparagraph 8.3.3 as "Delay") whether or not such Delay is foreseeable. In no event shall the Contractor be entitled to any compensation or recovery of any damages, in connection with any Delay, including, without limitation, consequential damages, lost opportunity cost, impact damaged, labor inefficiency damages, or overhead costs.

§ 8.3.4 When the Contract Time has been extended, as provided under this Section 8.3, such extension of time shall not be considered as justifying extra compensation to the Contractor for administrative costs or other similar reason.

## ARTICLE 9 PAYMENTS AND COMPLETION

### § 9.1 Contract Sum

§ 9.1.1 The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 9.1.2 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed so that application of such unit prices to the actual quantities causes substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

### § 9.2 Schedule of Values

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit a schedule of values to the Construction Manager, but not later than thirty (30) days after receiving a Notice of Award following bidding, before the first Application for Payment, allocating the entire Contract Sum to the various portions of the Work. The schedule of values shall be prepared in the form, and supported by the data to substantiate its accuracy, required by the Construction Manager and the Architect. This schedule, unless objected to by the Construction Manager or Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment. The Construction Manager shall forward to the Architect the Contractor's schedule of values. Any changes to the schedule of values shall be submitted to the Construction Manager and supported by such data to substantiate its accuracy as the Construction Manager and the Architect may require, and unless objected to by the Construction Manager or the Architect, shall be used as a basis for reviewing the Contractor's subsequent Applications for Payment. Each Schedule of Values forwarded to the Owner by the Construction Manager, or the Architect shall be subject to audit and approval by the Owner in accordance with the Owner's normal audit procedures.



### **§ 9.3 Applications for Payment**

**§ 9.3.1** At least fifteen days before the date established for each progress payment, the Contractor shall submit to the Construction Manager an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. The application shall be notarized, if required, and supported by all data substantiating the Contractor's right to payment that the Owner, Construction Manager or Architect require, such as copies of requisitions, and releases of waivers of lien from Subcontractors and suppliers, and shall reflect retainage if provided for in the Contract Documents. Each Application for Payment forwarded to the Owner by the Construction Manager, or the Architect shall be subject to audit and approval by the Owner in accordance with the Owner's normal audit procedures.

**§ 9.3.1.1** As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Construction Manager and Architect, but not yet included in Change Orders.

**§ 9.3.1.2** Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or supplier, unless such Work has been performed by others whom the Contractor intends to pay.

**§ 9.3.1.3** Until Substantial Completion, The Owner shall pay ninety-five percent (95%) of the amount due the Contractor on account of progress payments, less an amount necessary to satisfy any claims, liens or judgements against the entire amount retained from previous progress payments less two (2) times the amount required to complete items identified in a list prepared in accordance with Paragraph 9.8.2 and the amount required to satisfy any outstanding claims, liens or judgements against the Contractor.

**§ 9.3.2** Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage, and transportation to the site, for such materials and equipment stored off the site only if such storage is for other than the convenience of the Contractor and not necessary to maintain the contractor's schedule and shall not increase the Contract Sum.

**§ 9.3.2.1** When payment for materials and equipment stored off site is requested by the Contractor, copies of Bills of Lading and vendor invoices shall accompany Contractor's request for payment. Procedures required by Owner shall include, but are not necessarily limited to, submission by the Contractor to the Architect or Construction Manager of bills of sale and bills of lading for such materials and equipment, provision of opportunity for Architect's or Construction Manager's visual verification and photos that such materials and equipment are in fact in storage, and, if stored off-site, submission by the Contractor of verification that such materials and equipment are stored in a bonded warehouse.

**§ 9.3.2.2** All such materials and equipment, including materials and equipment stored on-site but not yet incorporated into the Work, upon which partial payments have been made shall remain the responsibility of the Contractor until incorporation into the work, including, without limitation, maintaining insurance coverage on replacement cost basis without voluntary deductible.

**§ 9.3.3** The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information, and belief, be free and clear of liens, claims, security interests, or encumbrances, in favor of the Contractor, Subcontractors, suppliers, or other persons or entities that provided labor, materials and equipment relating to the Work.

**§ 9.3.2.3** All Contractors are required to submit certified payroll information to the Owner in accordance with New York State Law.

**§ 9.3.2.4** The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information, and belief, be free and clear of liens, claims, security interests, or encumbrances, in favor of the Contractor, Subcontractors, suppliers, or other persons or entities that provided labor, materials and equipment relating to the Work.

#### **§ 9.4 Certificates for Payment**

**§ 9.4.1** Where there is only one Contractor, the Construction Manager will, within seven days after the Construction Manager's receipt of the Contractor's Application for Payment, review the Application, certify the amount the Construction Manager determines is due the Contractor, and forward the Contractor's Application and Certificate for Payment to the Architect. Within seven days after the Architect receives the Contractor's Application for Payment from the Construction Manager, the Architect will either (1) issue to the Owner a Certificate for Payment, in the full amount of the Application for Payment, with a copy to the Construction Manager; or (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Construction Manager and Owner of the Architect's reasons for withholding certification in part as provided in Section 9.5.1; or (3) withhold certification of the entire Application for Payment, and notify the Construction Manager and Owner of the Architect's reason for withholding certification in whole as provided in Section 9.5.1. The Construction Manager will promptly forward to the Contractor the Architect's notice of withholding certification.

**§ 9.4.2** Where there is more than one Contractor performing portions of the Project, the Construction Manager will, within seven days after the Construction Manager receives all of the Contractors' Applications for Payment: (1) review the Applications and certify the amount the Construction Manager determines is due each of the Contractors; (2) prepare a Summary of Contractors' Applications for Payment by combining information from each Contractor's application with information from similar applications for progress payments from the other Contractors; (3) prepare a Project Application and Certificate for Payment; (4) certify the amount the Construction Manager determines is due all Contractors; and (5) forward the Summary of Contractors' Applications for Payment and Project Application and Certificate for Payment to the Architect.

**§ 9.4.2.1** Within seven days after the Architect receives the Project Application and Project Certificate for Payment and the Summary of Contractors' Applications for Payment from the Construction Manager, the Architect will either (1) issue to the Owner a Project Certificate for Payment, with a copy to the Construction Manager; or (2) issue to the Owner a Project Certificate for Payment for such amount as the Architect determines is properly due, and notify the Construction Manager and Owner of the Architect's reasons for withholding certification in part as provided in Section 9.5.1; or (3) withhold certification of the entire Project Application for Payment, and notify the Construction Manager and Owner of the Architect's reason for withholding certification in whole as provided in Section 9.5.1. The Construction Manager will promptly forward the Architect's notice of withholding certification to the Contractors.

**§ 9.4.3** The Construction Manager's certification of an Application for Payment or, in the case of more than one Contractor, a Project Application and Certificate for Payment, shall be based upon the Construction Manager's evaluation of the Work and the data in the Application or Applications for Payment. The Construction Manager's certification will constitute a representation that, to the best of the Construction Manager's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is, or Contractors are, entitled to payment in the amount certified.

**§ 9.4.4** The Architect's issuance of a Certificate for Payment or, in the case of more than one Contractor, Project Application and Certificate for Payment, shall be based upon the Architect's evaluation of the Work, the recommendation of the Construction Manager, and data in the Application for Payment or Project Application for Payment. The Architect's certification will constitute a representation that, to the best of the Architect's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is, or Contractors are, entitled to payment in the amount certified.

**§ 9.4.5** The representations made pursuant to Sections 9.4.3 and 9.4.4 are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion, and to specific qualifications expressed by the Construction Manager or Architect.

**§ 9.4.6** The issuance of a Certificate for Payment or a Project Certificate for Payment will not be a representation that the Construction Manager or Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work; (2) reviewed construction means, methods, techniques, sequences, or procedures; (3) reviewed copies of requisitions received from Subcontractors and suppliers and other data requested by the Owner to substantiate the Contractor's right to payment; or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

## **§ 9.5 Decisions to Withhold Certification**

**§ 9.5.1** The Construction Manager or Architect may withhold a Certificate for Payment or Project Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Construction Manager's or Architect's opinion the representations to the Owner required by Section 9.4.3 and 9.4.4 cannot be made. If the Construction Manager or Architect is unable to certify payment in the amount of the Application, the Construction Manager will notify the Contractor and Owner as provided in Section 9.4.1 and 9.4.2. If the Contractor, Construction Manager and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment or a Project Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Construction Manager or Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment or Project Certificate for Payment previously issued, to such extent as may be necessary in the Construction Manager's or Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from the acts and omissions described in Section 3.3.2 because of

- .1 defective Work not remedied;
- .2 third party claims filed or reasonable evidence indicating probable filing of such claims, unless security acceptable to the Owner is provided by the Contractor;
- .3 failure of the Contractor to make payments properly to Subcontractors or suppliers for labor, materials or equipment;
- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- .5 damage to the Owner or a Separate Contractor or other Contractor;
- .6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- .7 repeated failure to carry out the Work in accordance with the Contract Documents.
- .8 failure to comply with applicable federal, state, or local statutes, laws, rules, regulations, codes, ordinances, or other governmental requirements, including, without limitation, laws regarding provision of certified payrolls.

**§ 9.5.2** When either party disputes the Architect's decision regarding a Certificate for Payment under Section 9.5.1, in whole or in part, that party may submit a Claim in accordance with Article 15.

**§ 9.5.3** When the reasons for withholding certification are removed, certification will be made for amounts previously withheld.

**§ 9.5.4** If the Architect or Construction Manager withholds certification for payment under Section 9.5.1, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or supplier to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Construction Manager, and both will reflect such payment on the next Certificate for Payment.

**§ 9.5.5** Notwithstanding anything above to the contrary, the Owner has the right to withhold payment to protect itself against damages incurred or which may be incurred as a result of the Contractor's breach or negligence, including, but not limited to, the items set forth in Article 9.5.1. With respect to any Liens, claims, or other circumstances for which the Owner is entitled to withhold a sum equal to twice the stated amounts of such Liens or claims, or, where there is not stated amount, twice the amount determined by the Architect to be necessary to protect the interests of the Owner. The Owner will release payments withheld due to Liens provided that the Contractor obtains a discharge of record of such lien, by bonding or otherwise. By posting a lien discharge bond, however, the Contractor shall not be relieved of any responsibilities or obligations under the Agreement, including, without limitation, the duty to defend, indemnify, and hold harmless the Indemnitees. The cost of any premiums or other expenses incurred in



connection with such bonds or other means of discharge of record shall be the sole responsibility of the Contractor and shall not be part of, or cause any adjustment to, the Contract Sum.

## **§ 9.6 Progress Payments**

**§ 9.6.1** After the Architect has issued a Certificate for Payment or Project Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Construction Manager and Architect.

**§ 9.6.2** Payments received by the Contractor for Work properly performed by Subcontractors and suppliers will be held in trust by the Contractor for those Subcontractors or suppliers who provided labor, furnished materials, or both, under contracts with the Contractor for which payment was made by the Owner. The Contractor shall strictly comply with any common law, statutory, or decisional law trust fund requirements in the State of New York (including without limitation the requirements of New York Lien Law Article 3-A) and agrees that the Owner has the same rights as any beneficiary of such trusts to examine the books and records of the Contractor to determine such compliance, from time to time and at the Owner's sole discretion. The Contractor shall pay each Subcontractor, no later than seven days after receipt of payment from the Owner, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner. The Contractor shall pay each Subcontractor, no later than seven days after receipt of payment from the Owner, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

**§ 9.6.2.1** Payments by the Contractor to its Subcontractors and suppliers is governed by New York State General Municipal Law Section 106-b (2). To the extent there is any conflict between that statutory section, as now in effect or as subsequently amended, and the provisions of this section 9.6.2.1, the provisions of the statute will prevail. Within seven (7) days of receipt of a payment from the Owner, the Contractor shall pay each of his Subcontractors and suppliers for work performed and/or materials furnished by them as reflected in the payment from the Owner, less an amount necessary to satisfy any outstanding claims, liens, or judgements and less a retained amount of not more than 5%, except that the Contractor may retain not more than 10% provided that prior to entering into a subcontract agreement with the Contractor, the Subcontractor is unable or unwilling to provide a performance bond and labor and material bond both in the full amount of the Subcontractor at the request of the Contractor. The Contractor shall not retain portions of the proceeds owed any Subcontractor or supplier from the Owner's payment to the Contractor for the balance of the Contract Sum. Similar provisions apply to the Subcontractors and suppliers paying each of their Sub-subcontractors and materialmen. Nothing in this section creates in the Owner any obligation to pay, or to ensure that the Contractor pays, any Subcontractor or supplier, or any relationship in contract or otherwise, express or implied, between any Subcontractor or supplier and the Owner (except in the event the Owner accepts an assignment under Section 5.4). The Owner agrees that it shall comply with the payment requirements of Section 106-b (2) of the New York General Municipal Law, as amended, and that to the extent here is any conflict between that statutory section and the provisions of this Section 9.6.2.1 the provisions of the statute shall prevail.

**§ 9.6.3** The Contractor will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Owner, Construction Manager and Architect on account of portions of the Work done by such Subcontractor.

**§ 9.6.4** The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors and suppliers to ascertain whether they have been properly paid. Neither the Owner, Construction Manager nor Architect shall have an obligation to pay, or to see to the payment of money to, a Subcontractor or supplier, except as may otherwise be required by law.

**§ 9.6.5** The Contractor's payments to suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

**§ 9.6.6** A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

**§ 9.6.7** Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors or provided by suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, create any fiduciary liability or tort liability on the part of the Contractor for breach of trust, or entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

**§ 9.6.8** Not used.

## **§ 9.7 Failure of Payment**

If the Construction Manager and Architect do not issue a Certificate for Payment or a Project Certificate for Payment, through no fault of the Contractor, within fourteen days after the Construction Manager's receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents, the amount certified by the Construction Manager and Architect or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' notice to the Owner, Construction Manager and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately, and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided for in the Contract Documents.

**§ 9.7.1** If the Owner is entitled to reimbursement of payment from the Contractor under or pursuant to the Contract Documents, such payment shall be made promptly upon demand by the Owner. Notwithstanding anything contained in the Contract Documents to the contrary, if the Contractor fails to promptly make any payment due the Owner, or the Owner incurs any costs or expenses to cure any default of the Contractor or to correct defective work, the Owner shall have the absolute right to offset such amount against the Contract Sum and may, in the Owner's sole discretion, elect either to (1) deduct an amount equal to that which the Owner is entitled from any payment then or thereafter due the Contractor from the Owner, or (2) issue a written notice to the Contractor reducing the Contract Sum by an amount equal to that which the Owner is entitled.

## **§ 9.8 Substantial Completion**

**§ 9.8.1** Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so the Owner can occupy or utilize the Work for its intended use. Substantial Completion shall not be deemed to have been reached any earlier than the date the Owner receives a Certificate of Occupancy for the Project. Substantial Completion will not be certified unless the Work remaining to be completed can ordinarily be completed within thirty (30) day period. Warranties called for by the Agreement or by the Drawings and Specifications shall commence on the date of Substantial Completion of the Project or designated portion thereof. This date shall be established by a Certificate of Substantial Completion issued by the Architect, signed by the Owner and Contractor, which shall state their respective responsibilities for security, maintenance, heat, utilities, and damage to the Work, and insurance. This certificate may also include a list of items to be completed or corrected within thirty (30) days together with a price for each item and a time for their completion and correction. The form of the certificate will be AIA Document G734-2019, "Certificate of Substantial Completion, CMa Edition."

**§ 9.8.2** When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall notify the Construction Manager, and the Contractor and Construction Manager shall jointly prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

**§ 9.8.3** Upon receipt of the list, the Architect, assisted by the Construction Manager, will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended

use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect, assisted by the Construction Manager, to determine Substantial Completion.

**§ 9.8.4** When the Architect, assisted by the Construction Manager, determines that the Work of all of the Contractors, or designated portion thereof, is substantially complete, the Construction Manager will prepare, and the Construction Manager and Architect shall execute, a Certificate of Substantial Completion that shall establish the date of Substantial Completion; establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance; and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

**§ 9.8.5** The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in the Certificate. Upon such acceptance, and consent of surety if any, the Owner shall make payment of retainage applying to the Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

**§ 9.8.5.1** In conformance with New York General Municipal Law 106-b (1)(a), upon proper execution of Certificate of Substantial Completion of Work, Contractor shall submit a requisition for payment of the remaining amount of the Contract Sum. Upon certification of payment by Architect, Owner will approve and promptly pay the remaining amount of the Contract Sum less two times value of any remaining items to be completed and/or corrected and less an amount necessary to satisfy any claims, liens or judgements against Contractor which have not been suitably discharged. Such payment shall be made under terms and conditions governing final payment except that the Owner's making of such payment shall not constitute the Owner's waiver of any objection to all or any portion of the Work performed by the Contractor or any claims the Owner may then have against the Contractor.

**§ 9.8.5.2** Neither the requisition for payment stipulated nor any portion of retained percentage shall become due until the Contractor submits to the Architect:

1. an affidavit that all payrolls, bills for materials and equipment, and other indebtedness connected with the work for which Owner or Owner's property might in any way be responsible, have been paid or otherwise satisfied, the form of which will be AIA Document G706-1994, "Contractor's Affidavit of Payment of Debts and Claims";
2. consent of all sureties, if any, to such payment, the form of which will be AIA Document G707A-1994 "Consent of Surety to Reduction in or Partial Release of Retainage," but which will not be required if the amount withheld exceeds the amount of retainage; and
3. if required by Owner, other data establishing payment or satisfaction of all such obligations, such as receipts, releases, and waivers of liens arising out of contract to such extent and in such form as may be designated by Owner.
4. If any Subcontractor, material supplier, or other party refuses to furnish a release or waiver required by the Owner, the Owner may demand that the Contractor furnish a bond satisfactory to the Owner to indemnify the Owner against a lien or claim by such Subcontractor, material supplier, or other party. The Contractor must obtain such bond within seven (7) days of such demand. If such lien or claim remains unsatisfied after payments are made, the Contractor shall reimburse the Owner for all costs the Owner may incur in discharging or satisfying such lien or claim, including attorneys' fees.

## **§ 9.9 Partial Occupancy or Use**

**§ 9.9.1** The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor and Construction Manager shall jointly prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement

between the Owner and Contractor or, if no agreement is reached, by decision of the Architect after consultation with the Construction Manager.

**§ 9.9.2** Immediately prior to such partial occupancy or use, the Owner, Construction Manager, Contractor, and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

**§ 9.9.3** Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

#### **§ 9.10 Final Completion and Final Payment**

**§ 9.10.1** Upon completion of the Work, the Contractor shall forward to the Construction Manager a notice that the Work is ready for final inspection and acceptance and shall also forward to the Construction Manager a final Contractor's Application for Payment. Upon receipt, the Construction Manager shall perform an inspection to confirm the completion of Work of the Contractor. The Construction Manager shall make recommendations to the Architect when the Work of all of the Contractors is ready for final inspection and shall then forward the Contractors' notices and Application for Payment or Project Application for Payment, to the Architect, who will promptly make such inspection. When the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Construction Manager and Architect will promptly issue a final Certificate for Payment or Project Certificate for Payment stating that to the best of their knowledge, information and belief, and on the basis of their on-site visits and inspections, the Work has been completed in accordance with the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. In the event the Architect determines the Work subject to final inspection is not complete or acceptable, any additional costs the Owner incurs for subsequent inspections by Architect will be deducted from the final payment to the Contractor. The Construction Manager's and Architect's final Certificate for Payment or Project Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled. If the Architect is required to perform additional final inspections because the Work fails to comply with the certifications of the Contractor, the amount of compensation paid to the Architect by the Owner for additional services shall be deducted from the final payment to the Contractor.

**§ 9.10.1.1** In addition to any other conditions or requirements contained in the Contract Documents, the Contractor is not entitled to final payment and Final Completion is not deemed to occur until all of the following occur:

1. Substantial completion as described in Section 9.8;
2. the Contractor provides to the Owner three (3) compilations of operating instructions, equipment manuals, guarantees, and warranties bound in a loose-leaf binder;
3. the Contractor provides to the Owner as-built drawings verified by the Architect to reflect the final as-built conditions;
4. the Contractor removes from the Project site any temporary facilities and equipment, including but not limited to temporary utility lines, tools and equipment;
5. the Contractor removes from the Project site materials not used, debris, and rubbish;
6. the Contractor performs all clean-up and site restoration obligations on the Project site; and
7. all other requirements contained in the Contract Documents are completed by the Contractor except for those obligations that expressly survive final payment.

**§ 9.10.2** Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect through the Construction Manager (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect, (3) a written statement that the Contractor knows of no reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment (5) documentation of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, and (6), if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts and releases and waivers of liens, claims, security interests, or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien, claim, security interest, or encumbrance. If a lien, claim, security interest, or encumbrance remains unsatisfied after payments are

made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging the lien, claim, security interest, or encumbrance, including all costs and reasonable attorneys' fees.

**§ 9.10.3** If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Construction Manager and Architect so confirm, the Owner shall, upon application by the Contractor and certification by the Construction Manager and Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed, corrected, and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of the surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect through the Construction Manager prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

**§ 9.10.4** The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

- .1 liens, Claims, security interests, or encumbrances arising out of the Contract and unsettled;
- .2 failure of the Work to comply with the requirements of the Contract Documents;
- .3 terms of special warranties required by the Contract Documents; or
- .4 audits performed by the Owner, if permitted by the Contract Documents, after final payment.

**§ 9.10.5** Acceptance of final payment by the Contractor, a Subcontractor, or a supplier, shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment. Owner has the right to demand such waiver in writing from contractor as a condition precedent to making final payment.

**§ 9.10.6** The Contractor shall achieve Final Completion not later than thirty (30) days following the date of Substantial Completion. In the event the Contractor fails to achieve Final Completion with that time, the Contractor and the Contractor's surety, if any, are liable for and shall reimburse the Owner for any and all fees paid to the Architect and Construction Manager and any costs of labor or materials, and other expenses made necessary by the Contractor's failure. Additional fees and expenses will be charged by the Owner against any Final Payment due, or which becomes due to the Contractor, and the Contractor shall promptly pay or refund the Owner the excess, if any, upon the Owner's written request.

**§ 9.10.7** At any time a lien is filed against the Project funds by a Subcontractor, Sub-subcontractor, supplier, lessor, or other vendor providing labor, materials, or services to the Contractor for the Project, the Owner may demand that the Contractor discharge said lien of record, through bonding or otherwise, and the Contractor must obtain the discharge of such lien within seven (7) days of such demand.

**§ 9.10.8** The Contractor's warranty and correction obligations under Section 3.5 and 12.2, respectively, as well as any other warranty or correction obligations in the Contract Documents, do not deprive the Owner of any cause of action, right, or remedy otherwise available for breach of any of the provisions of the Contract Documents. No time periods as to any such obligations are limitations on the time within which the Owner may pursue any such cause of action, right, or remedy.

## **ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY**

### **§ 10.1 Safety Precautions and Programs**

The Contractor shall be responsible for initiating, implementing, directing, controlling, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract. The Contractor shall submit the Contractor's safety program to the Construction Manager for review and coordination with the safety programs of other Contractors. The Construction Manager's responsibilities for review and coordination of safety programs shall not extend to direct control over or charge of the acts or omissions of the Contractors, Subcontractors, agents or employees of the Contractors or Subcontractors, or any other persons performing portions of the Work for or on behalf of the Contractor or Subcontractor, even if not directly employed by either.

### **§ 10.2 Safety of Persons and Property**

**§ 10.2.1** The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury, or loss to



- .1 employees on the Work and other persons who may be affected ; it;
- .2 the Work and materials and equipment to be incorporated ~~therein~~, into the Work, whether in storage on or off the site, under care, custody, or control of the Contractor, a Subcontractor, or a Sub-subcontractor;
- .3 other property at the site or adjacent -to the project site, such as trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction; and
- .4 construction or operations by the Owner, Separate Contractors, or other Contractors.
- .5 the existing buildings and premises in the vicinity of or affected by the Contractor's operations.

**§ 10.2.2** The Contractor shall comply with, and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities, bearing on safety of persons or property or their protection from damage, injury, or loss.

**§ 10.2.2.1** The Contractor acknowledges that the Labor Law of the State of New York, and rules and regulations promulgated under the Labor Law, place upon both the Owner and the Contractor certain duties that liability for failure to perform those duties is imposed on both the Owner and the Contractor regardless of their respective fault. The contractor agrees that, as between the Owner and Contractor, the Contractor is solely responsible for the compliance with all such laws, rules, and regulations imposed for the protection of persons performing the Contract. The Contractor, subject to any applicable limitations in Section 3.18, shall defend, indemnify, and hold harmless the Owner and Construction Manager of and from any and all liability of violation of such laws, rules and regulations, and shall defend any claims or actions that may be brought against the Owner and the Construction Manager as a result of such violations. In the event the Contractor fails or refuses to defend any such action, the Contractor is liable to the Owner and the Construction Manager for all costs of the Owner arising from such action, including the costs of defending against such action, including without limitation, attorneys' fees incurred in recovering such defense costs from the Contractor.

**§ 10.2.2.2** All laborers, workers, and mechanics employed in the performance of the Work of this Project shall be certified as having successfully completed a course in construction safety and health approved by the United States Department of Labor's Occupational Safety and Health Administration that is at least 10 hours in duration. The Contractor and its Subcontractors shall conduct their operation in accordance with the Safety Guides for Construction, and the Contractor's safety program.

**§ 10.2.2.3** All safety equipment including hard hats and weather protective gear required for the Contractor to perform its Work are to be supplied by the Contractor and/or its Subcontractors. Within the designated construction areas, the Contractor's employees, superintendents, and/or other agents, and its Subcontractors, employees, superintendents, and/or other agents are required to wear hard hats and other required and/or essential safety equipment. Each person seen without a hard hat, or otherwise failing to comply with this requirement, will be ordered to leave the Project. No prior warnings will be given by the Owner, Construction Manager or Architect. The Contractor and its Subcontractors shall be solely responsible for making up and paying for any loss of production or required progress resulting from the removal of personnel from the Project as set forth herein including any costs incurred by the Owner in connection with the work of other contractors.

**§ 10.2.3** The Contractor shall implement, erect, and maintain, as required by existing conditions and the Contract Documents; reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards; promulgating safety regulations; and notifying the owners and users of adjacent sites and utilities of the safeguards. The Contractor is also responsible for all measures necessary to protect any property adjacent to the Project and improvements upon such property. The cost of such measures does not serve as a basis for any increase in the Contract Sum. Any damage to adjacent property or improvements will be promptly repaired by the Contractor at its own expense.

**§ 10.2.4** When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

**§ 10.2.5** The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents under Article 11) to property referred to in Sections 10.2.1.2,

10.2.1.3, 10.2.1.4, and 10.2.1.5 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2, 10.2.1.3, 10.2.1.4, and 10.2.1.5. The Contractor may make a Claim for the cost to remedy the damage or loss to the extent such damage or loss is attributable to acts or omissions of the Owner, Construction Manager or Architect or anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18 and shall not be limited by such damage or loss being insured under property insurance required by the Contract Documents.

**§ 10.2.6** The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner, Construction Manager and Architect.

**§ 10.2.7** The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

**§ 10.2.8 Injury or Damage to Person or Property**

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, written notice of such injury or damage, whether or not insured, must be given to the other party within a reasonable time, but in any event not exceeding 21 days after discovery. The notice must provide sufficient detail to enable the other party to investigate the matter and must be provided to the Architect and Construction Manager at the same time as provided to the other party.

If during the construction, public or private property is damaged or destroyed as a consequence of its Work, the Contractor responsible shall, at its own expense, restore such property to a condition equal to that existing before such damage or injury was done, by repairing, rebuilding or replacing it, or otherwise making good such damage or destruction in an acceptable manner.

**§ 10.3 Hazardous Materials**

**§ 10.3.1** The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials or substances. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and notify the Owner, Construction Manager and Architect of the condition in writing.

**§ 10.3.2** Upon receipt of the Contractor's notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor, Construction Manager and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of the material or substance or who are to perform the task of removal or safe containment of the material or substance. The Contractor, the Construction Manager and the Architect will promptly reply to the Owner in writing stating whether or not any of them has reasonable objection to the persons or entities proposed by the Owner. If the Contractor, Construction Manager or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor, the Construction Manager and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately, and the Contract Sum shall be increased by the amount of the Contractor's reasonable additional costs of shutdown, delay, and start-up, except to the extent any delay or additional costs result from the acts or omissions of the Contractor, its Subcontractors or of anyone else for whose acts or omissions any of them may be liable.

**§ 10.3.3** To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Construction Manager, Architect, their consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim,

damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss, or expense is due to the fault or negligence of the party seeking indemnity.

**§ 10.3.4** The Owner shall not be responsible under this Section 10.3 for injury or damages arising from the Contractors' handling, storage, use, removal and disposal of hazardous materials or substances the Contractor brings to the site, whether required by the Contract Documents or otherwise. The Contractor must notify the Owner, Architect, and Construction Manager in writing of any hazardous materials it intends to bring to the Project site not required by the Contract Documents, including written advice as to the intended handling, storage, use, removal, and disposal of such materials, and demonstrate that its liability insurance provides coverage for any injury or damages resulting from such materials.

**§ 10.3.5** The Contractor shall indemnify the Owner for the cost and expense the Owner incurs (1) for remediation of materials or substances the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

**§ 10.3.6** If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall indemnify the Contractor for all cost and expense incurred as a direct result of such liability.

**§ 10.3.7** The Contractor covenants that material furnished contain no asbestos.

**§ 10.3.8** The Contractor shall notify the Owner of any storage, use, or discovery of hazardous material on the Project site which the Contractor knows or reasonably should know could cause bodily injury or death and of any injury or death attributable to any such hazardous material.

**§ 10.3.9** The Contractor shall take all reasonable precautions and measures to prevent any contamination by or spread or disturbance of hazardous or potentially hazardous substances or materials stored, used, or discovered on the Project site.

## **§ 10.4 Emergencies**

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury, or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

## **ARTICLE 11 INSURANCE AND BONDS**

### **§ 11.1 Contractor's Insurance and Bonds**

**§ 11.1.1 General Requirements.** The Contractor agrees to secure and maintain, at Contractor's own expense, all insurance coverage required in this Article 11 from one or more insurance companies licensed and admitted to write such insurance in New York State or that are eligible non-admitted insurers, pursuant to the current Excess Line Association of New York's official list. Insurers must carry an A.M. Best Financial Strength Rating B+ or higher. The Contractor's insurance must include the following, without limitation, and must be written with limits no less than specified in Section 11.1.2: claims under workers' compensation, disability benefit, and other similar employees benefit acts applicable to the Work to be performed, including, without limitation, claims by the employees of private entities performing Work at the site that are exempt from workers' compensation insurance coverage requirements on account of number of employees or occupation, which entities must maintain voluntary compensation coverage at the same limits specified for mandatory coverage for the duration of the Project;

1. claims for damages because of bodily injury, occupational sickness or disease, or death of the Contractor's employees;
2. claims for damages because of bodily injury, sickness, disease, or death of any person other than the Contractor's employees;
3. claims for damages insured by usual personal injury liability coverage sustained (1) by a person as a result of an offense directly or indirectly related to employment of such person by the Contractor, or (2) by another person;
4. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including resulting loss of use resulting;



5. claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance, or use of a motor vehicle;
6. claims involving contractual liability applicable to the Contractor's obligations under Section 3.18; and
7. Contractor's Liability coverage shall not contain an exclusion or restriction of coverage for claims involving New York Labor Law.

**§ 11.1.2 Required Policies.** Coverages, whether written on an occurrence or claims-made basis, must be maintained without interruption from the date of commencement of the Work until the date of final payment and termination of the any coverage required to be maintained after final payment. Claims-made coverage will only be allowed when the Contractor demonstrates that occurrence-based coverage is not available for a specific type of required coverage. The insurance required by Section 11.1.1 must be written for not less than the following limits, or greater limits as may be required by law, and include the following terms:

**.1 Commercial General Liability.** Occurrence-based Commercial General Liability coverage to include bodily injury, person injury, and property damage applicable to ongoing operations, products and completed operations, and contractual liability, all with a per-project aggregate endorsement. No XCU exclusion is allowed for explosion, collapse, and underground operations. Products and Completed Operations coverage must be maintained in force for a minimum of one (1) year following Final Completion of the project.

- (a) The coverage limits applicable shall be the greater of the amounts indicated below or the amounts carried by the Contractor:

\$2,000,000	General Aggregate
\$2,000,000	Products and Completed Operations Aggregate
\$1,000,000	Personal and Advertising injury
\$1,000,000	Each Occurrence
\$ 50,000	Fire Damage (any one fire)
\$ 5,000	Medical Expense (any one person)

If the Contractor's work on this project in any way involves the use of **unmanned aircraft**, the Contractor's General Liability policy must include for GC 24 50 06 15 or equivalent providing coverage for this project.

**.2 Automobile Liability.** Bodily injury and Property Damage coverage for the Contractor as the owner or lessee of automobiles, trucks, trailers, self-propelled Contractor's equipment, and all other owned and non-owned vehicles registered for use on the public highway and/or used in operations relating to the Contractor's Work, with a minimum Combined Single Limit of \$1,000,000. If any such vehicles are to be used to transport hazardous materials, the Contractor shall also provide pollution liability broadened coverage evidenced by ISO Form CA 99 48.

**.3 Excess Liability and/or Umbrella Liability.** Applicable to Commercial General and Automobile Liability Policies, The Excess Liability and/or Umbrella Liability coverage limits applicable shall be the greater of the amounts indicated below or the amounts carried by the Contractor:

\$5,000,000	Each Occurrence
\$5,000,000	Aggregate

#### **.4 Workers' Compensation**

**.1 Workers' Compensation Requirements.** To comply with the New York State Workers' Compensation Law, the Contractor must (1) be legally exempt from obtaining workers' compensation insurance coverage, or (2) obtain such coverage from insurance carriers, or (3) be self-insured or participate in an authorized group self-insurance plan.

**.2 Workers' Compensation Coverage Evidence.** To demonstrate compliance with the New York State Workers' Compensation Law, the Contractor must provide **one** of the following Forms to the Owner:

1. **Either** CE-200, "Affidavit For New York entities and any Out of State entities with no employees, that New York State Workers' Compensation and /or Disability Benefits Insurance Coverage is not required"; **or** CE-200, "Affidavit that an Out-of-State or Foreign Employer working in New York State does not require specific New York State Workers' Compensation and/or Disability Benefits Insurance Coverage" (either Affidavit must be stamped as received by the New York State Workers' Compensation Board); **or**

- .2 Either** C-105.2, “Certificate of NYS Workers’ Compensation Insurance Coverage” (for employers insured for workers’ compensation through a private insurance carrier - the Contractor’s insurance carrier must send this form to the Owner), **or** U-26.3, “New York State Insurance Fund Certificate of Workers’ Compensation Coverage” (for Employers insured for workers’ compensation through the State Insurance Fund); **or**
- .3 Either** SI-12, “Certificate of Workers’ Compensation Self Insurance,” **or** GSI-105-2, “Certificate of Participation in Workers’ Compensation Group Self-Insurance (for Employers participating in group self-insurance for workers’ compensation – the Contractor’s Group Self-Insurance Administrator must send this form to the Owner).

#### **.5 Employer’s Liability/Disability**

**.1 Disability Benefits Requirements.** To comply with the New York State Disability Benefits Law, the Contractor must (1) be legally exempt from obtaining disability benefits insurance Coverage, (2) obtain such coverage from insurance carriers, or (3) be self-insured.

**.2 Disability Benefits Coverage Evidence.** To demonstrate compliance with New York State Disability Benefits Law, the Contractor must provide **one** of the following forms to the Owner:

- .1 Either** CE-200, “Affidavit for New York entities and any Out-of-State entities with No employees, that New York State Worker’ Compensation and /or Disability Benefits Insurance coverage is not required” or CE-200, “Affidavit that an Out-of-State or Foreign Employer working in New York State does not require specific New York State Workers’ Compensation and/or Disability Benefits Insurance Coverage” (either Affidavit must be stamped as received by the New York State Workers’ Compensation Board); **or**
- .2 Either** DB-120.1, “Certificate of Disability Benefits,” **or** DB-820/829, “Certificate/ Cancellation of insurance” (the Contractor’s insurance carrier must send either form to The Owner); **or**
- .3 DB-155 (3/04), “Certificate of Disability Benefits Self-Insurance.”**

**.6 Hazardous Materials.** If the Contractor’s Work involves handling or disturbance of asbestos or other hazardous materials, the Contractor shall provide bodily injury and property damage liability insurance applicable to such operations, covering both ongoing operations and products & completed operations. Products and Completed Operations coverage must be maintained in force for a minimum of one (1) year following Final Completion of the Project. Coverage must be for limits not less than:

- .1** If covered by the Contractor’ umbrella/excess liability policy:
- |             |                              |
|-------------|------------------------------|
| \$1,000,000 | General Aggregate            |
| \$1,000,000 | Each Occurrence or Incident: |
- .2** If not covered by the Contractor’s umbrella/excess liability policy:
- |             |                              |
|-------------|------------------------------|
| \$6,000,000 | General Aggregate            |
| \$6,000,000 | Each Occurrence or Incident: |

**.7 Owner’s Protective Liability Policy.** The XCU exclusion must be deleted, and the Named Insureds will be **“Owner name”**. Minimum limits are:

- |             |                 |
|-------------|-----------------|
| \$2,000,000 | Each Occurrence |
| \$4,000,000 | Aggregate       |

**§ 11.1.3 Certificates of Insurance and Copies of Policies.** Certificates of insurance acceptable to the Owner, together with copies of all insurance policies procured by the Contractor pursuant to this Article 11, including, without limitation, terms, conditions, declarations, riders, and endorsements, must be submitted to the Construction Manager for transmittal to the Owner, with copies to the Architect, prior to commencement of the Work. If any of the foregoing insurance coverages are required to remain in force after final payment, an additional certificate evidencing continuation of such coverage must be submitted with the final Application for Payment as required by Section 9.10.2. Information concerning reduction of coverage must be furnished by the Contractor with reasonable promptness. In addition to the Certificates of Insurance and accompanying document, the Contractor shall provide to the Certificate Holders, on a timely basis, copies of any subsequently issued endorsements that amend any coverages or limits. In addition:

- .1 "Certificate Holder" is the **Owner**
- .2 Coverages reflected in certificates of insurance and underlying policies must comply with all requirements of this Article 11.
- .3 All insurance documents must be executed with *authorized* signatures.
- .4 All required liability policies must be endorsed to provide that any Notice of Cancellation or Notice of Non-Renewal given to the First Named Insured must also be given to the Additional Insureds identified in Section 11.1.4. **Copies of such endorsements must be furnished to the Certificate Holders.**
- .5 Failure of the Owner to object to the Contractor's failure to furnish a certificate or other evidence of required insurance coverages, or to object to any defect in such certificate or other evidence, or to demand receipt of such certificate or other evidence, is not a waiver of the Contractor's obligation to furnish the required insurance coverages. Furthermore, nothing contained in this Article 11 imposes on the Owner a duty or obligation to review any certificates or other evidence of insurance coverages or to issue any formal approval or acceptance of such evidence, the duty and obligation of the Contractor being to provide insurance meeting the requirements of this Article 11 regardless of any review or lack of review by the Owner of the Contractor's evidence of insurance.
- .6 The Contractor's liability to and indemnification of the Owner is not relieved or diminished by the Contractor securing insurance coverage in accordance with this Article 11. Any acknowledgement of receipt of, or lack of objection by the Owner to, the Contractor's evidence of required insurance coverage is not acceptance in any way of any deficiencies in the Contractor's insurance coverage.

#### § 11.1.4 Additional Insureds

§ 11.1.4.1 Policies of insurance required under Sections 11.1.2.1 (Commercial General Liability), 11.1.2.2 (Automobile Liability), 11.1.2.3 (Excess Liability and/or Umbrella Liability), and 11.1.2.6 (Hazardous Materials – if applicable) must also apply to the following as Additional Insureds on a primary and non-contributory basis, with the following designation, unaltered:

The Owner and their respective employees, interim administrators, authorized volunteers, committee members, student teachers, auxiliary instructors, members of the Board of Education, and consultants (the "District Indemnitees"); Architect and/or Engineer and its consultants ("Designers"), and Campus Construction Management Group, Inc. ("Construction Manager"), during both ongoing and completed operations. The additional insured coverage provided shall not preclude coverage in favor of the any District Indemnitees, Designers, or Construction Manager, based on its lack of privity with Contractor of other third-party additional insured. Further, such coverage shall not exclude or deny coverage to District Indemnitees, Designers, or the Construction Manager on the basis that the named insured Contractor's Work or operations are not performed directly for the District Indemnitees, Designers, or Construction Manager or other third-party additional insured.

§ 11.1.4.2 **Coverage Evidence.** Additional Insured coverage must be affected through the use of **either** ISO Form CG 20 10 11 85 **or** Forms CG 20 10 04 13 **and** CG 20 37 04 13 **together**. Form CG 20 10 04 13 alone is not acceptable. Certificates of Insurance must clearly state how coverage is affected in the Excess/Umbrella Liability layer. Certificate of Insurance must show the form numbers used to affect all the Additional Insured coverages. A copy of the actual policy language or endorsement that effects this coverage in each policy must be provided to the Owner and the Construction Manager with the Certificate of Insurance.

§ 11.1.4.3 **No Reliance on "Following Form."** The Contractor acknowledges that "Following Form" wording generally does not meet the primary and non-contributory coverage requirement for Additional Insureds, and that the coverage primacy aspect of Additional Insured coverage is typically addressed in the "Other Insurance" provisions of a policy's "Conditions" section, and often requires an amending endorsement to effect coverage on a primary and non-contributory basis. The Contractor therefore must provide such endorsements to the Owner, or other documentation acceptable to the Owner evidencing that the primary and non-contributory coverage requirements are met as to all policies for which they are required under Section 11.4.1.1.

§ 11.1.5 **Normal Expiration/Renewal.** When any required insurance is to expire due to a normal expiration or renewal date, the Contractor shall supply the Owner, at least thirty (30) days prior to either such date, in addition to Certificates of Insurance, with either (1) copies of all renewed insurance policies, including, without limitation, terms, conditions, declarations, riders, and endorsements evidencing continuation of all coverages in the same manner, limits of protection, and scopes of coverage as was provided by the previous policy, or (2) if acceptable to

the Owner, all declaration pages, mandatory riders, and/or endorsements that clearly evidence the continuation of all coverages in the same manner, limits of protection, and scope of coverage as provided by the previous policy.

**§ 11.1.6 Subcontractors.** The Contractor shall cause each Subcontractor to (1) procure insurance reasonably satisfactory to the Owner and written by companies meeting the same criteria as required under Section 11.1.1, and (2) cause the issuers of those insurance policies to name the Additional Insureds as Additional Insureds under each Subcontractor's comprehensive general, automobile, excess/umbrella, and hazardous materials liability policies. The Additional Insured endorsement included in each such Subcontractor's policies must state that coverage is afforded to all Additional Insureds with respect to any and all claims arising out of operations performed by or on behalf of the Contractor. If the Additional Insureds have other insurance otherwise applicable to a loss, such other insurance will only apply, if at all, on an excess or contingent basis. The amount of each Subcontractor's insurers' liability under each such insurance policy will not be reduced by the existence of such other insurance.

**§ 11.1.7 Owner Insurer Loss Payments.** In the event the Owner's insurer(s) make(s) any payment toward any loss covered under any policy of insurance the Contractor is required to procure under this Article 11, the Owner's insurer(s) are subrogated to all of the Contractor's rights of recovery against any person or organization including, but not limited to, the Contractor's insurer(s), and the Contractor shall execute and deliver all instruments, papers, and whatever else is necessary to secure those rights. The Contractor shall do nothing after the payment of any damages to prejudice those rights.

## **§ 11.2 Owner's Liability Insurance**

**§ 11.2.1** The Owner shall purchase and maintain the Owner's usual insurance of the types and limits of liability, The Owner may also, at its sole option, purchase and maintain other insurance for protection against claims that may arise from operations under the Contract Documents. The Contractor is not responsible for purchasing and maintaining such optional Owner's liability insurance unless specifically required in the Contract Documents. Neither the Owner's usual liability insurance nor any other insurance obtained by the Owner reduces or otherwise affects the Contractor's insurance requirements under Section 11.1

## **§ 11.3 Property Insurance**

**§ 11.3.1** Unless otherwise provided, the Owner shall purchase and maintain, in a company or companies lawfully authorized to do business in the State of New York, property insurance on a replacement cost basis. Such property insurance will be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment is made as provided in Section 9.10 or until no person or entity other than the Owner has an insurable interest in the property required by this Section 11.3 to be covered, whichever is later. This insurance will include interests of the Owner, Contractor, Subcontractors, and Sub-subcontractors in the Project.

**§ 11.3.1.1** Property insurance will be on a builder's risk, "all-risk," or equivalent policy form and include, without limitation, insurance against the perils of fire (with extended coverage) and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, earthquake, flood, windstorm, falsework, testing and startup, temporary buildings, and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and will cover reasonable compensation for the Architect's, Contractor's, and Construction Manager's services and expenses required as a result of such insured loss. Coverage for other perils is not required unless otherwise provided in the Contract Documents.

**§ 11.3.1.2** Contractor is responsible for all tools, equipment, materials, Work, etc., until Substantial Completion and possession by Owner. Contractor shall provide insurance for theft as he may require for himself, his subcontractors, and his employees' protection. The insurance coverage referred to in this subparagraph shall be in accordance with a standard Builder's Risk Policy used in the State of New York.

**§ 11.3.1.3** The Contractor shall provide insurance coverage for portions of the Work stored off the site, in transit and stored on the site but not incorporated into the Work as full replacement cost basis without voluntary deductible. The Contractor shall provide Certificate copies to the Construction Manager showing the coverage for their materials in transit or stored off site.

**§ 11.3.1.4** If the property insurance requires deductibles, the Owner shall pay costs not covered because of such deductibles.

§ 11.3.1.5 The property insurance will cover portions of the Work stored off the site, and also portions of the Work in transit. The insurance required by this Section 11.3 will not, however, cover machinery, tools, equipment, vehicles, shanties, tool houses, trailers, or other temporary or permanent structures owned or rented by the Contractor, a Subcontractor, or a Sub-subcontractor, or their employees, utilized in performance of the Work but not incorporated into the permanent improvements. The Contractor is solely responsible for all such items of its own and any under its control. The Contractor shall, at the Contractor's own expense, provide insurance coverage for all of the items described in this Section 11.3.1.4, which is subject to the provisions of Section 11.3.7.

§ 11.3.1.6 Partial occupancy or use in accordance with Section 9.9 may not commence until the insurance company or companies providing property insurance consent to such partial occupancy or use by endorsement or otherwise. The Owner and the Contractor shall take reasonable steps to obtain consent of the insurance company or companies and shall, without mutual written consent, take no action with respect to partial occupancy or use that would cause cancellation, lapse, or reduction of insurance.

§ 11.3.1.7 Owner shall not be responsible to or for the Contractor or Subcontractor against any loss by fire, lightning, extended coverage, all risk, theft or vandalism and malicious mischief, or any tools, equipment, vehicles, shanties, tool houses, trailers or other temporary or permanent structures wherever located and owned by the Contractor, Subcontractors, their employees, or agents.

§ 11.3.1.8 The form of policy for the coverage required by 11.3.1 shall be Completed Value.

§ 11.3.2 **Boiler and Machinery Insurance.** The Owner, if applicable to the Work and at its sole option, may purchase and maintain boiler and machinery insurance or shall do so if required by law, which shall specifically cover such insured objects during installation and until final acceptance by the Owner. This insurance will include interests of the Owner, Construction Manager, Contractor, Subcontractors and Sub-subcontractors in the Work.

§ 11.3.3 Not used.

§ 11.3.4 If the Contractor requests in writing that insurance for risks other than those described in this Section 11.3 or other special causes of loss be included in the property insurance policy, the Owner shall, if possible, include such insurance, and the cost for it will be charged to the Contractor by appropriate Change Order.

§ 11.3.5 Not used.

§ 11.3.6 Not used.

§ 11.3.7 **Waivers of Subrogation.** The Owner and Contractor waive all rights against (1) each other and any of their respective subcontractors, sub-subcontractors, agents and employees, and (2) the Construction Manager, Construction Manager's consultants, Architect, Architect's consultants, separate contractors described in Article 6, if any, and any of their respective subcontractors, sub-subcontractors, agents, and employees, for damages caused by fire or other causes of loss to the extent of proceeds under property insurance obtained pursuant to this Section 11.3 or other property insurance applicable to the Work, except such rights as the Owner and Contractor may have to the proceeds of such insurance held by the Owner. The Owner or Contractor, as appropriate, shall require of the Construction Manager, Construction Manager's consultants, Architect, Architect's consultants, Owner's separate contractors described in Article 6, if any, and any of their respective subcontractors, sub-subcontractors, agents, and employees, by appropriate written agreements, similar waivers each in favor of other parties enumerated in this Section 11.3.7. The policies must provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation is effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity has an insurable interest in the property damaged.

§ 11.3.8 A loss insured under the Owner's property insurance will be adjusted by the Owner and made payable to the Owner for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.3.10. The Contractor shall pay Subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate written agreements shall require Subcontractors to make payments to their Sub-subcontractors in similar manner.



§ 11.3.9 If required in writing by a party in interest, the Owner shall, upon occurrence of an insured loss, give a bond for proper performance of the Owner's duties. The cost of the bond will be charged against proceeds received. The Owner shall deposit in a separate account proceeds so received, which the Owner shall distribute in accordance with such agreement as the parties in interest may reach, or as determined in accordance with the method of binding dispute resolution selected in the Agreement. If after such loss no other special agreement is made, and unless the Owner terminates the Contract for convenience, replacement of damaged property will be performed by the Contractor after notification of a Change in the Work in accordance with Article 7.

§ 11.3.10 The Owner will adjust and settle a loss with insurers unless one of the parties in interest objects in writing within five days after occurrence of loss to the Owner's exercise of this power; if such objection is made, the dispute will be resolved in the manner selected as the method of binding dispute resolution in the Agreement. Nothing in this Agreement calls for the name of any party other than the Owner as loss payee on the Owner's insurance and no draft or other instrument in payment of any loss will name any other party as a joint payee.

§ 11.3.11 The Contractor's Insurance Company shall acknowledge in writing to the Construction Manager that they have read and will comply with all requirements under Indemnification Section 3.18 of the General Conditions.

#### § 11.4 Performance Bond and Payment Bond

§ 11.4.1 The Contractor shall furnish bonds covering faithful performance of the Contract and payment of obligations arising under it. Bonds must be obtained from a surety company or companies satisfactory to the Owner, licensed to do business in the State of New York, and listed in the latest issue of U.S. Treasury Circular 570. The amount of each bond will be equal to one hundred (100) percent of the Contract Sum. Each bond must be maintained throughout the duration of the Project, and subsequently to the extent the Contractor has ongoing performance and payment obligations following completion of the Project.

§ 11.4.2 Bonds must be prepared on the forms of AIA Documents A312-2010 - Performance Bond and A312-2010 - Payment Bond, without modifications other than (1) a mandatory statement in Section 16 of the Performance Bond that it is given as a statutory or other legally required bond and that Section 13 of the Performance Bond applies in full, without exception, (2) a mandatory statement in Section 16 of the Performance Bond that it includes performance by the Contractor of any correction and warranty obligations in the Contract Documents, including such performance after the dates of Substantial and Final Completion, and (3) a mandatory statement in Section 18 of the Payment Bond that it is given as a statutory or other legally required bond and that Section 14 of the Payment Bond applies in full, without exception. The cost of the bonds is included in and will not increase the Contract Sum.

- .1 The Contractor shall deliver the required bonds to the Owner not later than 7 days following the date the Agreement is entered into and before commencing any of the Work.
- .2 The Contractor shall require any attorney-in-fact who executes the required bonds on behalf of the surety to affix to the bonds a certified and current copy of their power of attorney authorizing him or her to sign the bond.
- .3 The bonds must specifically name the Owner as Oblige.

§ 11.4.3 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

## ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

### § 12.1 Uncovering of Work

§ 12.1.1 If a portion of the Work is covered contrary to the Construction Manager's or Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by either, be uncovered for their examination and be replaced at the Contractor's expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work is covered that the Construction Manager or Architect did not specifically request to observe prior to its being covered, the Construction Manager or Architect may request to see such Work and it will be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, costs of uncovering and replacement will, by appropriate Change Order, be at the Owner's expense. If such Work is not in accordance with the Contract Documents, such costs and the cost of correction will be at the Contractor's expense.

unless the condition was caused by the Owner or one of the other contractors, in which event the Owner is responsible for payment of such costs.

## **§ 12.2 Correction of Work**

### **§ 12.2.1 Before Substantial Completion**

The Contractor shall promptly correct Work rejected by the Construction Manager or Architect or failing to conform to the requirements of the Contract Documents, whether discovered before or after Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Construction Manager's and Architect's services and expenses made necessary by the rejection, will be at the Contractor's expense.

### **§ 12.2.2 After Substantial Completion**

**§ 12.2.2.1** In addition to the contractor's obligations under Section 3.5, if, within one (1) year after the date of Substantial Completion of the Work or a designated portion of the Work, or the date of acceptance of a portion of the Work that is subject to correction or completion after the date of Substantial Completion of the Work, whichever is later, or after the date for commencement of warranties established under Section 9.9.1, or by terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the Owner to do so unless the Owner previously gave the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one (1) year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the right to require correction by the Contractor and to make a claim for breach of this Section 12.2.2. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.4.

**§ 12.2.2.2** The one (1) year period will be extended with respect to portions of the Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

**§ 12.2.2.3** The one (1) year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

**§ 12.2.3** The Contractor shall bear the cost of correcting destroyed or damaged construction, whether completed or partially completed, of the Owner, separate contractors, or other Multiple Prime Contractors caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents, or in consequence of work performed in fulfilling warranties or guarantees.

**§ 12.2.4** Not used.

**§ 12.2.5** Nothing contained in this Section 12.2.2 establishes a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one (1) year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

**§ 12.2.6** If the Contractor fails to correct nonconforming Work within a reasonable time, not to exceed fifteen (15) days from the date the Contractor received written notice from the Owner per subparagraph 12.2.2, the Owner may correct it in accordance with Section 2.4. If the Contractor does not proceed with correction of such nonconforming Work within a reasonable time fixed by written notice from the Architect issued through the Construction Manager, the Owner may remove it and store the salvable materials or equipment at the Contractor's expense. If the Contractor does not pay costs of such removal and storage within ten days after written notice, the Owner may upon ten additional days' written notice sell such materials and equipment at auction or at private sale and shall account for the proceeds thereof, after deducting costs and damages that should have been borne by the Contractor, including compensation for the Construction Manager's and Architect's services and expenses made necessary thereby. If such proceeds of sale do not cover costs which the Contractor should have borne, the Contract Sum shall be reduced by

the deficiency. If payments then or thereafter due the Contractor are not sufficient to cover such amount, the Contractor shall pay the difference to the Owner, and the Owner shall be permitted to instruct the bonding company to reimburse or pay any amount remaining unpaid to the extent the Contractor has not paid the difference to the Owner within the ten-day period described above. The obligations of the Contractor under the terms and provisions of the Contract Documents shall not, however, be limited to the amount of any surety bond provided by the Contractor.

### **§ 12.3 Acceptance of Nonconforming Work**

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

**§ 12.3.1.** For this Section 12.3 to apply, the Owner must accept non-conforming Work in writing, specifying the non-conforming Work being accepted. Notwithstanding any acceptance of Work by the Owner, not initially deemed non-conforming, if the Owner subsequently discovers that such Work is non-conforming, the Owner, at its sole option, may either expressly accept such Work in writing, or demand that the Contractor correct such Work under Article 12.

**§ 12.3.2** If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Architect's recommendation of final payment, also Architects) prefers to accept it, Owner may do so. Contractor shall pay all claims, costs, losses and damages attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Architect as to reasonableness). If any such acceptance occurs prior to Architect's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

## **ARTICLE 13 MISCELLANEOUS PROVISIONS**

### **§ 13.1 Governing Law**

The Contract is governed by the laws of the State of New York, excluding principles of conflicts of law.

### **§ 13.2 Successors and Assigns**

**§ 13.2.1** The Owner and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to covenants, agreements, acknowledgments, representations, and all other ~~and~~ obligations contained in the Contract Documents. Except as provided in Article 13, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

### **§ 13.3 Rights and Remedies**

**§ 13.3.1** Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights, and remedies otherwise imposed or available by law.

**§ 13.3.2** No action or failure to act by the Owner, Construction Manager, Architect, or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed upon in writing.

**§ 13.3.3** Written notice is deemed duly served if delivered in person to the individual, to a member of the firm or entity, or to an officer of the corporation for which it is intended; or if delivered at or sent by registered or certified mail or by courier service providing proof of delivery to the last business address known to the party giving notice.

### **§ 13.4 Tests and Inspections**

**§ 13.4.1** Tests, inspections, and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules, and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections, and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and will bear all related costs of tests, inspections, and approvals. The Contractor shall give the Construction Manager and Architect timely notice of when and where tests and inspections are to be made so that the Construction Manager and Architect may be present for such procedures. The Owner shall bear costs of (1) tests, inspections, or



approvals that do not become requirements until after bids are received and (2) tests, inspections, or approvals where building codes or applicable laws or regulations prohibit the Owner from delegating their cost to the Contractor.

§ 13.4.2 If the Construction Manager, Architect, Owner, or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection, or approval not included under Section 13.4.1, the Construction Manager and Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection, or approval, by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Construction Manager and Architect of when and where tests and inspections are to be made so that the Construction Manager and Architect may be present for such procedures. Costs of such additional testing, inspection, or approval, except as provided in Section 13.6, will be at the Owner's expense.

§ 13.4.3 If procedures for testing, inspection, or approval under Sections 13.4.1 and 13.4.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure, including those of repeated procedures and compensation for the Construction Manager's and Architect's services and expenses, shall be at the Contractor's expense.

§ 13.4.4 Required certificates of testing, inspection, or approval shall, unless otherwise required by the Contract Documents, must be secured by the Contractor and promptly delivered to the Construction Manager for transmittal to the Architect.

§ 13.4.5 If the Construction Manager or Architect is to observe tests, inspections, or approvals required by the Contract Documents, the Construction Manager or Architect will do so promptly and, where practicable, at the normal place of testing.

§ 13.4.6 Tests or inspections conducted pursuant to the Contract Documents must be made promptly to avoid unreasonable delay in the Work.

§ 13.4.7 Any materials to be furnished shall be subject to inspections and tests in the shop and field by the Architect. Shop inspection shall not relieve the Contractor of the responsibility to furnish satisfactory materials, and the right is reserved to reject any material at any time before final acceptance of the Work, when in the opinion of the Architect the materials and workmanship do not conform to the Specification requirements.

§ 13.4.8 Test specimens will be submitted to an independent laboratory designated by the Architect. Test data will be furnished to the Contractor by the Architect.

### § 13.5 Interest

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at the New York Statutory Rate applicable to the obligations of the School Districts.

### § 13.6 Time Limits on Claims

§ 13.6.1 As between the Owner and Contractor:

1. **Before Substantial Completion.** As to acts or failures to act occurring prior to the date of Substantial Completion of all of the Work, any applicable statute of limitations commences to run and any alleged cause of action accrues in any and all events on the date of Substantial Completion;
2. **Between Substantial Completion and the Final Certificate for Payment.** As to acts or failures to act occurring subsequent to the date of Substantial Completion of all of the Work and prior to issuance of the final Certificate for Payment, any applicable statute of limitations commences to run and any alleged cause of action accrues in any and all events on the date of issuance of the final Certificate for Payment; and
3. **After the Final Certificate for Payment.** As to acts or failures to act occurring after the date of issuance of the final Certificate for Payment, any applicable statute of limitations commences to run and any alleged cause of action accrues in any and all events on the date of any act or failure to act by the Contractor pursuant to any warranty provided under Section 3.5, or on the date of any correction of the Work or failure to correct the Work by the Contractor under Section 12.2, or on the date of actual commission of any other act or failure to perform any duty or obligation by the Contractor or Owner.

**§ 13.6.2** Nothing contained in Section 13.7 relieves the Contractor from any time limitations or notice requirements set forth in Article 15 or as provided in New York State Education Law Section 3618 as conditions precedent to instituting any proceeding for binding dispute resolution.

**§ 13.7 No Oral Modification or Constructive Changes** The provisions of the Contract Documents may not be changed, amended, waived, or otherwise modified in any respect except by a writing signed by the Owner and Contractor. No person or entity, including the Architect and Construction Manager, is authorized on behalf of the Owner to orally change, amend, waive, or otherwise modify the terms of the Contract Documents or any of the Contractor's duties or obligations under or arising out of the Contract Documents. Any change, waiver, approval, or consent granted to the Contractor is limited to the specific matters stated in the writing signed by the Owner and Contractor and does not relieve the Contractor of any other duties and obligations under the Contract Documents. No "constructive" changes are allowed.

**§ 13.9 Notices Regarding Liens.** The Contractor shall provide to the Owner copies of all notices of any type regarding liens received from Subcontractors, Sub-subcontractors, or suppliers.

**§ 13.10 Storage Facilities.** The Contractor is responsible for providing storage facilities approved by the Owner for materials and equipment for which payment is received by the Contractor from the Owner, and which is stored off or on the Project site and not yet incorporated into the Work. Such material and equipment must be covered by the Contractor's insurance, identified as property of the Owner, and the Owner has the right to periodic inspection. In addition, materials and equipment stored off-site must be secured in locked enclosures within storage facilities separate from non-Project materials and equipment and must remain in storage until ready for use on the Project. Copies of bills of lading and vendor invoices for such materials and equipment must accompany the Contractor's Applications for Payment.

**§ 13.11 Equal Opportunity and Anti-Discrimination**

**§ 13.11.1** The Contractor, Subcontractors, and Sub-Subcontractors shall not discriminate against or intimidate any applicant for employment or employee because of age, race, national origin, color, creed, religion, sex, sexual orientation, marital status, non-disqualifying disability, or other legally protected characteristic (collectively "Protected Characteristics"). The Contractor shall take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to Protected Characteristics, including actions related to, without limitation, employment, promotion, demotion, transfer; recruitment, recruitment advertising; layoff, termination, rates of pay or other forms of compensation; and selection for training, including apprenticeship.

**§ 13.11.2** The Contractor, Subcontractors, and Sub-subcontractors shall, in all solicitations or advertisements for employees placed by them or on their behalf, state that all qualified applicants will receive consideration for employment without regard to Protected Characteristics.

**§ 13.11.3** The Contractor will post and keep posted in conspicuous places, for employees and applicants for employment, notices obtained by the Contractor from the New York State Division of Human Rights as set forth in the General Regulations of that Division at 9 NYCRR 466.1(a), such conspicuous places to be as defined in 9 NYCRR 466.1(b), and such other postings as that Division may require with respect to New York State's laws, codes, rules, and regulations governing discrimination in employment.

**§ 13.11.4** There may be deducted from amounts otherwise payable to the Contractor by the Owner a penalty in the form of a statutory monetary fine for each person for each calendar day during which such person is discriminated against or intimidated in violation of this Section 13.11 and applicable law.

**§ 13.11.5** The Contract may be terminated by the Owner and all monies due or to become due the Contractor may be forfeited for a second or any subsequent violation of the terms or conditions of this Section 13.11.

**§ 13.12 New York State Labor Law Requirements**

**§ 13.12.1 General**

The Contractor shall comply with all applicable provisions of the New York Labor Law ("Labor Law"), including, without limitation, the requirements under the specific provisions cited in this Section 13.12.

### **§ 13.12.2 Working Hours**

**§ 13.12.2.1** The Contractor specifically agrees as required by Labor Law Sections 220 and 220-d, as amended, that no laborer, worker, or mechanic in the employ of the Contractor, Subcontractors, Sub-subcontractors, or other persons or entities doing or contracting to do the whole or any part of the Work, will be permitted or required to work more than eight (8) hours in any one calendar day or more than five (5) days in any one week, except to the extent permitted in the case of extraordinary emergencies described in the Labor Law.

### **§ 13.12.3 Wage Rates**

**§ 13.12.3.1** The wages paid to each laborer, worker, or mechanic in the employ of the Contractor, Subcontractors, Sub-subcontractors, or other persons or entities doing or contracting to do all or any part of the Work for a legal day's work will not be less than the prevailing rate of wages as defined by the Labor Law and as issued by the State of New York Department of Labor for the location and duration of the Project. No change in such prevailing rates during the duration of the Project will form the basis for a change in the Contract Sum.

**§ 13.12.3.2** Each laborer, workman, or mechanic employed by the Contractor, Subcontractors, Sub-subcontractors, or other persons or entities doing or contracting to do all or any part of the Work will be provided the supplements required by Article 8 of the Labor Law.

**§ 13.12.3.3** The Contractor, Subcontractors, and Sub-subcontractors shall comply with all requirements of Labor Law Section 220-a, as amended, regarding mandatory submission of certified payroll records, which must be included with each Application for Payment and which are a condition precedent to the to the Owner's payment of any sums due and owing to the Contractor with respect to the Project.

**§ 13.12.3.4** The Contractor specifically agrees, as provided by the Labor Law, that the Contract may be forfeited and no sum paid for any work done under it on a second conviction for willfully paying less than:

- .1 the prevailing wage rates as provided in Labor Law Section 220(3), as amended; or
- .2 the minimum wage rates as provided in Labor Law Section 220-d, as amended.

### **§ 13.13 CONTRACT DEEMED EXECUTORY**

The Contractor agrees that the Contract shall be deemed executory to the extent of the monies available and that no liability shall be incurred by the Owner beyond the monies available therefor.

## **ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT**

### **§ 14.1 Termination by the Contractor**

**§ 14.1.1** The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, for any of the following reasons:

- .1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
- .2 An act of government, such as a declaration of national emergency, that requires all Work to be stopped; or
- .3 The Construction Manager does not certify an Application for Payment, or the Architect does not issue a Certificate for Payment and does not notify the Contractor of the reason for withholding certification as provided in Sections 9.4 and 9.5, or because the Owner does not make payment on a Certificate for Payment within the time stated in the Contract Documents. However, the Contractor, following the thirty-day stoppage and as a condition precedent to termination under this Section 14.1.1.3, must notify the Owner, Architect, and Construction Manager of occurrence of any of the foregoing events as to certification or payment as a basis for termination, in writing, and its intent to terminate the Contract as a result seven (7) days following receipt of such notice by the Owner if there is no cure of the occurrence within that seven (7) day period.
- .4 Not used.

Notwithstanding the preceding or anything else in the Contract Documents, the Contractor shall not cease or delay the progress of the Work for any reason other than one set forth in Section 9.7.1, it being agreed that monetary damages shall be an adequate remedy for the Contractor for any breach of this Agreement or the Contract Documents by the Owner.

**§ 14.1.2** Subject to Section 14.1.5, The Contractor may terminate the Contract if, through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, the agents or employees of any of them, or any other persons or

entities performing portions of the Work under direct or indirect contracts with the Contractor, repeated suspensions, delays, or interruptions of the entire Work by the Owner as described in Section 14.3 constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

**§ 14.1.3** Subject to Section 14.1.5, If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' written notice to the Owner, Construction Manager, and Architect, terminate the Contract and recover from the Owner payment for Work executed including reasonable overhead and profit and direct costs incurred by reason of such termination, but Contractor shall make no Claim nor seek to recover overhead lost anticipated profit or damages in contract for Work not performed by Contractor.

**§ 14.1.4** Subject to Section 14.1.5, If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, the agents or employees of any of them, or any other persons performing portions of the Work under contracts with the Contractor because the Owner repeatedly fails to fulfill the Owner's obligations under the Contract Documents with respect to material matters important to the progress of the Work, the Contractor may, upon seven additional days' written notice to the Owner, Construction Manager, and Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

**§ 14.1.5** Any delay, suspension, or interruption under Sections 14.1.1 through 14.1.4 hereof shall not constitute grounds for the Contractor's termination of this Agreement or for additional compensation or payments so long as delay, interruption, or suspension of the Project is caused by or arises out of acts of God, weather, earth movement, lockout or labor trouble, unforeseen restrictive governmental laws, regulations, recommendations, acts or omissions, executive orders, acts or directives of public officials or authorities, public declarations of emergency, epidemics, or acts of war or terrorism which directly or indirectly affect the Project and/or the facilities and services of the Owner, without fault and beyond the reasonable control of the Owner (each, a "Force Majeure Event").

## **§ 14.2 Termination by the Owner for Cause**

**§ 14.2.1** The Owner may terminate the Contract if the Contractor

- .1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- .2 fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;
- .3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- .4 otherwise is guilty of substantial breach of a provision of the Contract Documents.
- .5 is substantially behind schedule as determined by the Architect, Construction Manager and Owner;
- .6 breaches any warranty made by the Contractor under or pursuant to the Contract Documents; or
- .7 fails to furnish the Owner with assurances satisfactory to the Owner evidencing the Contractor's ability to complete the work in compliance with all the requirements of the Contract Documents; or
- .8 repeatedly disregards applicable present and future federal, state, and local government orders, Executive Orders, statutes, ordinances, codes, regulations, recommendations, and guidance relating to safety and health.

**§ 14.2.2** When any of the reasons described in Section 14.2.1 exist, after consultation with the Construction Manager, and upon certification by the Architect that sufficient cause exists to justify such action, the Owner may, without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

- .1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
- .2 Accept assignment of subcontracts pursuant to Section 5.4; and
- .3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

**§ 14.2.3** When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor will not be entitled to receive further payment until the Work is finished.

**§ 14.2.4** If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Construction Manager's and Architect's services and expenses made necessary by the Owner's termination of

the Contract, and other damages incurred by the Owner and not expressly waived, such excess will be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, will, upon application, be certified by the Initial Decision Maker after consultation with the Construction Manager, and this obligation for payment will survive termination of the Contract.

### **§ 14.3 Suspension by the Owner for Convenience**

**§ 14.3.1** The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work, in whole or in part for such period of time as the Owner may determine.

**§ 14.3.2** The Contract Sum and the Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay, or interruption under Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent:

- .1 that performance is, was, or would have been, so suspended, delayed, or interrupted, by another cause for which the Contractor is responsible; or
- .2 that an equitable adjustment is made or denied under another provision of this Contract.

### **§ 14.4 Termination by the Owner for Convenience**

**§ 14.4.1** The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

**§ 14.4.2** Upon receipt of notice from the Owner of such termination for the Owner's convenience, the Contractor shall

- .1 cease operations as directed by the Owner in the notice;
- .2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and
- .3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.
- .4 complete performance of the Work required under portions of the Contract not terminated, if any.

**§ 14.4.3** In case of such termination for the Owner's convenience, the Contractor is entitled to receive payment for Work executed, for direct costs incurred by reason of such termination and for proven loss with respect to materials, equipment, tools and construction equipment and machinery, including reasonable overhead, profit and damages on the Work performed to the date of termination; but Contractor shall make no Claim nor seek to recover overhead, lost anticipated profit or damages in contract for Work not performed by Contractor. The Contractor waives all other claims for payment and damages, including, without limitation, claims for consequential damages, including lost profits, arising from termination for the Owner's convenience.

## **ARTICLE 15 CLAIMS AND DISPUTES**

### **§ 15.1 Claims**

**§ 15.1.1 Definition.** A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, a change in the Contract Time, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim. This Section 15.1.1 does not require the Owner to file a Claim in order to impose liquidated damages in accordance with the Contract Documents.

### **§ 15.1.2 Time Limits on Claims**

The Owner and Contractor shall commence all Claims and causes of action against the other and arising out of or related to the Contract, whether in contract, tort, breach of warranty or otherwise, in accordance with the requirements of the binding dispute resolution method selected in the Agreement and within the period specified by applicable law, but in any case, not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all Claims and causes of action not commenced in accordance with this Section 15.1.2.



### **§ 15.1.3 Notice of Claims**

**§ 15.1.3.1** Claims by either the Owner or Contractor must be initiated by written notice to the other party and to the Initial Decision Maker with a copy sent to the Construction Manager and Architect if the Architect is not serving as the Initial Decision Maker. Claims by either party must be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the Claimant first recognizes the condition giving rise to the Claim, whichever is later.

**§ 15.1.3.2** All written claims for damages or extra work shall include time of occurrence, location and other identifying factors and shall be supported if so required by Architect, by letters, journals, or diaries, instructions, vouchers, or other pertinent or applicable records

**§ 15.1.3.3** Owner shall not be liable to any Contractor or Subcontractor for damages caused by any breach of Contract, delay in performance or other act of neglect by other Contractors or Subcontractors having Contracts for performance of any portion of work.

**§ 15.1.3.2** Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party. In such event, no decision by the Initial Decision Maker is required.

### **§ 15.1.4 Continuing Contract Performance**

**§ 15.1.4.1** Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents. The Construction Manager will prepare Change Orders and the Architect will issue a Certificate for Payment in accordance with the decisions of the Initial Decision Maker.

**§ 15.1.4.2** The Contract Sum and Contract Time shall be adjusted in accordance with the Initial Decision Maker's decision, subject to the right of either party to proceed in accordance with this Article 15. The Architect will issue Certificates for Payment in accordance with the decision of the Initial Decision Maker.

**§ 15.1.5 Claims for Additional Cost.** If the Contractor intends to make a Claim for an increase in the Contract Sum, written notice must be given before proceeding to execute any work that may be the basis for the Claim. However, such work must proceed following the Contractor giving that notice. The basis for a Claim for additional cost may include, but is not limited to, (1) a written interpretation from the Architect, (2) an order by the Owner to stop the Work where the Contractor was not at fault, (3) a written order for a minor change in the Work issued by the Architect, (4) failure of payment by the Owner, (5) termination of the Contract by the Owner, or (6) a Construction Change Directive not executed by the Contractor. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4. Each written Claim for Additional Cost must include specific information setting forth the circumstances giving rise to the Claim, and must be supported, if so required by the Architect, by letters, journals, diaries, instructions, vouchers, or other pertinent or applicable records. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.3.

### **§ 15.1.6 Claims for Additional Time**

**§ 15.1.6.1** If the Contractor intends to make a Claim for an increase in the Contract Time, written notice must be given specifying the additional time needed, and the reasons why needed. The Contractor's Claim must include an estimate of cost and of probable effect of delay on progress of the Work. Each written claim for Additional Time must be supported, if so required by the Architect, by letters, journals, diaries, instructions, vouchers, or other pertinent or applicable records. To the extent the Contractor seeks an increase in the Contract Sum in connection with a Claim for an increase in the Contract Time, the Contractor must also comply with the provisions of Section 15.1.4. A new Claim for an increase in the Contract Time is necessary in the event of a continuing delay beyond the additional time previously claimed as needed.

**§ 15.1.6.2** If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated and had an adverse effect on the scheduled construction.

**§ 15.1.7 Waiver of Claims for Consequential Damages.** The Contractor waives Claims against the Owner for consequential damages arising out of or relating to the Contract. This waiver includes damages incurred by the Contractor for principal office expenses, including the compensation of personnel stationed there, for losses of

financing, business and reputation, and for loss of profit. This waiver is applicable, without limitation, to all consequential damages due to termination of the Contractor in accordance with Article 14.

## **§ 15.2 Initial Decision**

**§ 15.2.1** Claims, excluding those arising under Sections 10.3, 10.4, 11.3.9, and 11.3.10, must be referred to the Initial Decision Maker for an initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, a written claim made in accordance with this Article and an initial decision are required as a condition precedent to mediation of any Claim arising prior to the date final payment is due, unless 30 days pass after the Claim is referred to the Initial Decision Maker with no decision being rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

**§ 15.2.2** The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

**§ 15.2.3** In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

**§ 15.2.4** If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of the request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished, or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

**§ 15.2.5** The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties, the Construction Manager, and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.

**§ 15.2.6** Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

**§ 15.2.6.1** Either party may, within 30 days from the date of receipt of an initial decision, demand in writing that the other party file for mediation. If such a demand is made and the party receiving the demand fails to file for mediation within 30 days of receipt thereof, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

**§ 15.2.7** In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

**§ 15.2.8** If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

## **§ 15.3 Mediation**

The parties hereto at the time any claim or dispute arises between them may, in their sole personal discretion, agree to submit the same to non-bonding mediation upon such terms and conditions as may be agreed at the time; but the

decision to do so must be unanimous between them and must be in writing in advance thereof. The request for mediation is not deemed a condition precedent to any other right or remedy of the aggrieved party, all of which rights and remedies are expressly reserved by the parties.

**§ 15.3.1** Claims, disputes, or other matters in controversy arising out of or related to the Contract, except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.7, shall be subject to mediation as a condition precedent to binding dispute resolution.

**§ 15.3.2** Mediation will be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation must be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation will proceed in advance of binding dispute resolution proceedings, which will be stayed pending completion of mediation. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

**§ 15.3.3** The parties shall share the mediator's fee and any filing fees equally. The mediation will be held in the place where the Project is located. Agreements reached in mediation are enforceable as settlement agreements in any court with proper jurisdiction.

**§ 15.3.4** The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

## **§ 15.4 Arbitration**

**§ 15.4.1** If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. The Arbitration shall be conducted in the place where the Project is located, unless another location is mutually agreed upon. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

**§ 15.4.1.1** A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

**§ 15.4.2** The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

**§ 15.4.3** The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement, shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

## **§ 15.4.4 Consolidation or Joinder**

**§ 15.4.4.1** Either party, at its sole discretion, may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

**§ 15.4.4.2** Either party, at its sole discretion, may demand joinder of persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, and who are under contract with that party with respect to the Project under agreements containing arbitration provisions that do not prohibit such joinder. Any other persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration may be joined by their consent in writing to such joinder. Consent to arbitration involving an additional person or entity does not constitute consent by



that additional person or entity to arbitration of any claim, dispute or other matter in question not described in the written consent.

**§ 15.4.4.3** The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as those of the Owner and Contractor under this Agreement.

#### **ARTICLE 16 CONFORMANCE TO THE LAWS OF THE STATE OF NEW YORK**

**§ 16.1** The parties agree that each is bound to the provisions of the laws of the State of New York governing bidding and contracting for public improvement projects, including but not limited to applicable provisions of the General Obligations Law, Labor Law, Education Law, State Finance Law, and General Municipal Law. To the extent any provisions in the Contract Documents conflict with any provisions of New York Law, the statutory provisions prevail and the conflicting provisions in the Contract Documents are deemed to conform to the statutory provisions.

**§ 16.2** To the extent the laws of the State of New York governing bidding and contracting for public improvement projects mandate inclusion of specific terms in contracts for such improvements, but which are not already included in these General Conditions or elsewhere in the Contract Documents, such terms are deemed incorporated into these General Conditions.





SECTION 007410 - S.E.D. COMMISSIONER'S 155.5 REGULATIONS

PART 1 - GENERAL

1.01 Uniform Safety Standards for School Construction and Maintenance Projects:

- A. The occupied portion of any school building shall always comply with the minimum requirements necessary to maintain a Certificate of Occupancy.
- B. All school areas to be disturbed during renovation or demolition have been tested for lead and asbestos by the School District. Contractors may obtain a copy of test results from the School District.
- C. All construction materials shall be stored in a safe and secure manner. Coordinate locations with the School District's project representative.
- D. Fences around construction supplies or debris shall be maintained.
- E. Gates shall always be locked unless a worker is in attendance to prevent unauthorized entry.
- F. During exterior renovation work, overhead protection shall be provided for any sidewalks or areas immediately beneath the work site or such areas shall be fenced off and provided with warning signs to prevent entry.
- G. Workers shall be required to wear photo-identification badges at all times for identification and security purposes while working at occupied sites. Contractors shall provide each worker in their employ with photo-identification badges approved by the School District.
- H. Separation of construction areas from occupied spaces: Construction areas which are under the control of a contractor and therefore not occupied by District Staff or students shall be separated from occupied areas. Provisions shall be made to prevent the passage of dust and contaminants into occupied parts of the building. Periodic inspection and repairs of the containment barriers must be made to prevent exposure to dust or contaminants. Gypsum board must be used in exit ways or other areas that require fire rated separation. Heavy-duty plastic sheeting may be used only for a vapor, fine dust or air infiltration barrier, and shall not be used to separate occupied spaces from construction areas.
  - 1. A specific stairwell and/or elevator should be assigned for construction worker use during work hours. In general, workers may not use corridors, stairs or elevators designated for students or school staff.
  - 2. Large amounts of debris must be removed by using enclosed chutes or a similar sealed system. There shall be no movement of debris through halls of occupied spaces of the building. No material shall be dropped or thrown outside the walls of the building.
  - 3. All occupied parts of the building affected by renovation activity shall be cleaned by each contractor working in that area at the close of each workday. School buildings occupied during a construction project shall maintain required health, safety, and educational capabilities at all times that classes are in session.

- I. All existing exits shall be maintained throughout the project. See code compliance drawing LE/K1.0 plan 3 for temporary exit requirements at new addition.
- J. All existing ventilation systems shall be maintained throughout the project.
- K. Construction and maintenance operations shall not produce noise in excess of 60 DBA in occupied spaces or shall be scheduled for times when the building or affected building spaces are not occupied or acoustical abatement measures shall be taken.
- L. Each contractor shall be responsible for the control of chemical fumes, gases, and other contaminants produced by welding, gasoline or diesel engines, roofing, paving, painting, etc. to ensure they do not enter occupied portions of the building or air intakes.
- M. Each contractor shall be responsible to ensure that activities and materials which result in "off-gassing" of volatile organic compounds such as glues, paints, furniture, carpeting, wall covering, drapery, etc. are scheduled. Cured or ventilated in accordance with manufacturers recommendations before a space can be occupied.
- N. Large and small asbestos abatement projects as defined by 12NYCRR56 shall not be performed while the building is occupied. The term "building", as referenced in this section, means a wing or section of a building that can be completely isolated from the rest of the building, including exits and ventilation systems, with sealed non-combustible construction.
- O. All asbestos abatement projects shall comply with all applicable Federal and State laws including but not limited to New York State Department of Labor Industrial Code Rule 56 (12NYCRR56) and the Federal Asbestos Hazard Emergency Response Act (AHERA), 90 CFR Part 763 1998 Edition. Final clearance shall be by TEM.
- P. All lead based paint abatement shall comply with protocols detailed in the guidelines for evaluation and control of lead based paint hazards in housing (June 1995, U.S. Department of Housing and Urban Development, Washington, DC 20410).

END OF SECTION 007410

SECTION 008100 - PREVAILING WAGE RATES

PART 1 - GENERAL

1.1 GENERAL

- A. Contractor shall conform to NYS Prevailing Wage Rates. BIDDERS are cautioned to anticipate prevailing rate revisions during the project period. All such revisions shall be considered and included in the Bid. No additional compensation will be allowed.

**REQUIREMENTS OF ARTICLE 8 (SECTION 220-223) OF  
THE NEW YORK STATE LABOR LAW**

- B. Prospective bidders can access the NYS prevailing wage rate schedule for this project by visiting the DOL website at <http://www.labor.ny.gov/workerprotection/publicwork/PWContents.shtm>.
- C. On the website in the third group down, entitled Prevailing Wage Schedule Links, you will find a link for the following topic: View of Previously Requested Prevailing Wage Schedule using **(PRC# 2025000527)** you will be able to access the updated wage rates.

END OF SECTION 008100



## SECTION 008200 - STATUTORY REQUIREMENTS

- 1.01 Pursuant to the Requirements of the New York State Labor Law, the following conditions and stipulations shall be included within the Contract, and shall form a part of the Contract Documents:
- A. No laborer, workman or mechanic in the employ of the Contractor, Subcontractor or other person doing or contracting to do the whole or a part of the work contemplated by the Contract shall be permitted or required to work more than eight (8) hours in any one (1) calendar day or more than five (5) days in any one (1) week except in cases of extraordinary emergency including fire, flood or danger to life or property.
  - B. Each laborer, workman or mechanic, employed by the Contractor, Subcontractor or other person about or upon the work shall be paid the wages herein provided.
  - C. Each laborer, workman or mechanic, employed by the Contractor, Subcontractor or other person about or upon the work shall be provided the supplements as required by Article 220 of the New York State Labor Law.
  - D. The following Wage Rate Schedule contains the minimum hourly rate of wage which can be paid and the minimum supplement that can be provided, as has been designated by the Industrial Commissioner, to the laborers, working men or mechanics, employed in the performance of the Contract, either by Contractor, Subcontractor or the person doing or contracting to do the whole or part of the work contemplated by the Contract. Such laborers, workmen or mechanics shall be paid not less than such hourly minimum rate of wage and provided supplements not less than the prevailing supplements.
  - E. In the hiring of employees for the performance of work under this Contract or any Subcontract hereunder, no Contractor, Subcontractor, nor any person acting on behalf of such Contractor or Subcontractor, shall by reason of race, creed, color or national origin discriminate against any citizen of the State of New York who is qualified and available to perform the work to which the employment relates.
  - F. No Contractor, Subcontractor, nor any person on his behalf shall in any manner, discriminate against or intimidate any employee hired for the performance of work under this Contract on account of race, creed, color or national origin.
  - G. There may be deducted from the amount payable to the Contractor by Owner under this Contract a penalty of Five Dollars (\$5.00) for each person for each calendar day during which such person was discriminated against or intimidated in violation of the provisions of the Contract.
  - H. This Contract may be canceled or terminated by Owner, and all money due or to become due hereunder may be forfeited, for a second or subsequent violation of the terms or conditions of this section of the Contract.
  - I. The aforesaid provisions of this section covering every Contract for or on behalf of the State or municipality for the manufacture, sale or distribution of materials, equipment or supplies shall be limited to operations performed within the territorial limits of the State of New York.

- J. Preference in employment shall be given to citizens of the State of New York who have been residents for at least six (6) consecutive months immediately prior to the commencement of their employment. Persons other than citizens of the State of New York may be employed when such citizens are not available. If the Requirements of Section 222 concerning preference in employment to citizens of the State of New York are not complied with, this Contract shall be void.
- K. If a harmful dust hazard is created for which appliances or methods for the elimination of harmful dust have been approved by the Board of Standards and Appeals, such appliances or methods shall be installed and maintained and effectively operated by the Contractor. If the provisions of Section 222-a concerning harmful dust hazards are not complied with, the Contract shall be void.
- L. It is hereby agreed by and between the parties hereto that every Contractor and Subcontractor engaged in the public work described in this Contract shall post and maintain, at each of his establishments and at all places at which the public work described hereunder is being conducted, the Notice of the State Commission Against Discrimination indicating the substantive provision of the Law Against Discrimination, where complaints may be filed, and other pertinent information. Such Notice shall be posted in easily accessible and well-lighted places customarily frequented by employees and applicants for employment.
- M. Requirements for OSHA 10 Compliance – Chapter 282 of the Laws of 2007 as Labor Law 220-h that have taken effect on July 18, 2008. The statute provides as follows:  
The advertised specifications for every contract for public work of \$ 250,000.00 or more must contain a provision requiring every worker employed in the performance of a public work contract shall be certified as having completed an OSHA 10 safety training course. The clear intent of this provision is to require that all employees of public work contractors receive such training “prior to performing any work on the project”.

All contractors and sub-contractors shall attach a copy of proof of completion of the OSHA 10 course to the first certified payroll submitted to the contracting agency and on each succeeding payroll where any new or additional employee is first listed in accordance with the Bureau enforcement of the above referenced statute.

Proof of completion may include but is not limited to:

1. Copies of bona fide course completion card.
2. Training roster, attendance record of other documentation from the certified trainer pending issuance of the card.
3. Other valid proof.

**\*\*** Note – A certification by the employer attesting that all employees have completed such course is not sufficient proof that the course has been completed.

Any questions regarding this statute may be directed to the New York State Department of Labor, Bureau of Public Work at 518-485-5696.

END OF SECTION 008200



## SECTION 010150–PROJECT SCHEDULE

### 1.1 SUMMARY

- A. This section includes administrative and procedural requirements for creating and maintaining project schedules required for the proper performance of the Work. This section includes:
1. Construction Schedules
  2. Milestone Schedule
  3. Prime Contractor Schedule Development
  4. Recovery Schedules
  5. Schedule Compilation Meetings
  6. Work Sequence
  7. Phasing Plan
  8. Contractor's use of premises.
  9. Owner occupancy.

### 1.2 CONSTRUCTION SCHEDULES

- A. Each Contractor shall provide and maintain CPM Construction Schedule that assists the construction Manager in managing the timely completion of work.
- B. Each Prime Contractor's Project Schedule shall be generated and maintained in Critical Path format.
- C. Each Contractor shall prepare a Construction Schedule to:
1. Assure adequate Contractor planning, procurement, and execution of the Work of all trades So that the Work will be completed within the time allotted by the Contract. The Construction Manager shall prepare and maintain a construction schedule with input provided by contractors, based on a network analysis system using the Critical Path Method (CPM).
  2. Anticipate adequate time for all construction and construction related activities. These activities include but are not limited to the following permit approvals, shop drawing submittals, coordination drawing preparation, weather, shipping times, code inspections, utility work, utility connections, punch listing and correction of the Work, Architect, Mechanical, Electrical and Code Official review of the Work, and an expeditious closeout. Work activities of all Prime Contractors and all subcontractors by trade shall be represented on the schedule. The Contractor shall insure staffing, hours worked and materials are furnished in adequate quantities and at appropriate intervals to insure timely completion of the Work.
  3. Obtain input from all other Prime Contractors and subcontractors regarding their portion of the Work, obtain manning requirements, work durations, materials and equipment delivery lead times, delivery time and installation times.
- D. Intent: The intent of the construction schedule requirement for this Work is:
1. To provide for a logical sequencing of the Work with adequate time allotted for all trades to complete their portion of the Work, so that the entire Project is completed within the time allotted by the Contract.
  2. To provide a logical sequence for ordering and procuring materials for incorporation into the Work, so that the entire Project is completed within the time allotted by the Contract.
  3. To prevent interruptions in the flow of the Work.

E. Schedule Format:

1. Tabular Activity Listing: Listing shall be in chronological order according to the early start date for each activity.
2. CPM Bar Chart with a scale and spacing to allow for notations and revisions.
  - a. The activities shown on schedule are to include:
    - 1) Activity identification number.
    - 2) Description of the Work.
    - 3) Duration in workdays.
    - 4) The number of man-hours that workers will be required to complete each activity (Man-hour loading).
    - 5) The number of workers that will be required to complete each activity.
    - 6) The cost load associated with each activity (labor and material). Costs associated with construction activity shall coordinate with corresponding line items provided in The Contractor's Schedule of Values.
    - 7) Name of Contractor/Subcontractor responsible for completing activity.

1.3 MILESTONESCHEDULE

1. A project milestone schedule has been established to conform to the Owner's requirements.
2. Time is of the essence for this project.
3. It is the responsibility of the Contractors to plan and coordinate their work as to comply with the project schedule.
4. The Contractors hereby agree to carry out the work, in full cooperation with the Owner, Architect/Engineer, Construction Manager and Agencies of Jurisdiction.
5. At no extra charge to the Owner, the Contractors shall employ the number of workers, supervisory personnel and shall work the number of legal shifts each day (including weekends, if necessary) in order for the Contractors to complete the work in accordance with the project schedule and attain substantial completion within the time period indicated in the project schedule.
6. The specific dates in the project schedule may be subject to change by the Owner,
7. All prime contractors should use the below milestone date information in conjunction with the phasing schedule and drawings.

Schedule of Milestone Dates: High School

Construction Activity for Building Occupancies	Start Date	Finish Date
East Entrance Walk Replacement	Summer 2025	Summer 2025

Schedule of Milestone Dates: Quest Elementary School

Construction Activity for Building Occupancies	Start Date	Finish Date
North Pole Classroom Wing Renovations (see phasing plan)	July 1, 2025	Nov 30, 2026
Bldg Fire Alarm Replacement	Spring 2025	Fall 2026
Emergency Generator	Summer 2026	Summer 2026
New transformer, electrical upgrades, MDU	Summer 2026	Fall 2026
Boiler, pump, water heater, DHW	Summer 2026	Fall 2026

**Schedule of Milestone Dates: Districtwide Technology Upgrades**

Construction Activity for Building Occupancies	Start Date	Finish Date
CER Data Closets – sequence of schools as follows: Quest Elementary, Merton Williams Middle School, Northwood Elementary, High School, Village Elementary	Summer 2025	Summer 2027

**1.4 PRIME CONTRACTOR SCHEDULE DEVELOPMENT**

1. Within 30 days of contract award notification, all prime contractors will be required to submit to the construction manager a detailed construction schedule, broken out by Hilton Central School District building and/or work area, that covers the work of each of their appropriate disciplines based on the milestone schedule dates found within this specification section. These schedules will then be reviewed by the Construction Manager and implemented into a master construction schedule to be signed and approved by all Prime Contractors for use throughout the project.
2. Assemble all necessary information and dates concerning the contractor's activities, and those of his Subcontractors and Suppliers, and submit such information in a format required by applicable portions of this section. Each Prime Contractor shall submit the following schedule information to the Construction Manager as a minimum:
  - a. A list of all activities contained in the Contractor's Scope of Work. This list shall include activity descriptions and durations for all activities in workdays (as opposed to Calendar day) for shop drawings, fabrication, delivery and installation of products, Materials, and equipment. The activities on the schedule must be at a level of detail approved by the Construction Manager and agree with the terminology and building sequencing established by the Construction Manager.
  - b. Identification of precedent relationships between the Contractor's activities and those of other Contractors based on a thorough review of the Contract Drawings and details showing interface between Contracts.
  - c. Graphic diagrams indicating the proposed direction of work whenever applicable or if requested by the Construction Manager.
  - d. Assumed crew size, equipment, production rates, and similar data used to arrive at adequate durations and sequences.
  - e. Shortly after receipt of this information, the Construction Manager shall convene the Schedule Compilation Meetings referenced in hereafter.
3. In collaboration with the Prime Contractors associated with the Work, the Construction Manager will compile all Contractor information and develop a project master construction schedule, which integrates activities of Architect, Construction Manager, Prime Contractors, Sub contractors, and Suppliers and meets the time requirements. The sequence of all work activities shall be determined by the Construction Manager and reviewed by all Prime Contractors. This schedule will become the project plan for construction.
4. All contractors must dedicate personnel necessary to provide information, attend meetings, and cooperate as necessary to that end. Award status of purchase orders, subcontracts, etc. will not be an acceptable reason for delay of schedule information.
5. The project construction schedule will be provided by the Construction Manager, consistent with the guideline schedule and utilizing the Contractors' input as possible.
  - a. Contractor shall provide the Construction Manager with information and data to prepare a working day construction schedule and sequence of events for each work activity included in his bid category within seven days after the Preconstruction Meeting. The

- Contractor shall cooperate with the Construction Manager in establishing a final overall project schedule, which meets the specified completion date.
- b. After the project schedule has been established, the Contractors shall work overtime, nights and weekends, as necessary, to maintain their portions of the schedule. Time is of the essence.
  - c. Shift work, overtime, night, and weekend work will be at no additional cost to the Owner.
  - d. Failure of any Contractor to maintain his portion of the schedule will be grounds for the Owner to withhold all or part of any payments, which may become due the Contractor until such work is completed.
  - e. The contractor is responsible to expedite all approvals and deliveries of material so as not to delay job progress.
  - f. The Contractor shall begin all phases of his work as quickly as physically possible, But not to impede or jeopardize the work of other Contractors.
  - g. Phases of the work may be started prior to the scheduled start dates if coordinated with other Contractors, and, if approved through the Construction Manager.
  - h. The Contractor shall cooperate fully with the Construction Manager in the coordination of the work with all other Contractors and the convenience of the Owner as indicated in the Contract Specifications.
6. Each Contractor's work shall be executed at such a rate as to ensure meeting the specified milestone and dates for Substantial Completion. By execution of the Contract, a Contractor represents he has analyzed the Work, the materials and methods involved, the systems of the building, availability of qualified mechanics and unskilled labor, restrictions of the site, constraints imposed, his own work load and capacity to perform the Work and agrees that the specified dates are reasonable considering the existing conditions prevailing in the locality of the Work, including weather conditions, and other factors with reasonable allowance for variations from average or ideal conditions.
  7. The Construction Manager will utilize the project master construction schedule to plan, coordinate, and manage all construction activities of Contractors, Subcontractors, and Suppliers. All Contractors are to complete all Work in accordance with this schedule.
  8. The Construction Manager will hold regular progress meetings at the job site. Field supervisors from each Contractor working on the site are to attend all such meetings. Each Contractor is to provide services of responsible personnel to provide necessary scheduling and manpower information. Each Contractor shall be responsible to be familiar with the schedule, how it will affect or modify his operations including his coordination with the activities of other Contractors. Each Contractor shall prepare a short interval schedule generally covering a 2 week period to coordinate with the activities of other Contractors. Each Contractor shall prepare a short interval schedule generally covering a 2 week period to coordinate the detailed activities of subcontractors and suppliers. The short interval schedules shall be prepared in bar chart form and be submitted 24 hours prior to the job progress meetings, or as required by the Construction Manager. The Construction Manager will update the project master construction schedule, display the current schedule at the job site and prepare progress reports accordingly.
  9. Whenever it becomes apparent that any activity completion date may not be met, the responsible Contractor(s) are to take some or all of the following actions at no additional cost to the Owner or Owners Agent.
    - a. Increase construction manpower to put the project back on schedule.
    - b. Increase number of working hours per shift, shifts per working day, working days per week, amount of construction equipment, or any combination, which will place the project back on schedule.
  10. If the Contractor fails to take any of the above actions, the Owner may take action to attempt to put the project back on schedule and deduct cost of such actions from monies due or to

become due the Contractor in accordance with Subparagraph 2.4.1 of the General and Supplementary Conditions.

#### 1.5 RECOVERY SCHEDULES

- A. Recovery Schedule: A recovery schedule shall be prepared by the Prime Contractor with input from all trades to accelerate progress, if a milestone is missed, a single duration work activity is incomplete for ten (10) work days, or overall work progress is deemed insufficient by the Construction Manager.
  - 1. Recovery Schedule: Submit revised diagram and Tabular Activity Listing approved by all Prime Contractors / subcontractors (submitting same number of copies as original schedule).
  - 2. Prime Contractor at fault shall add staff and/or work overtime as necessary to bring the Project back on schedule using the recovery schedule. Accelerated Work and additional overhead necessary to keep the Project on schedule is included in the Contract. Prime Contractor at fault will be responsible for all costs from other Prime Contractors to maintain the recovery schedule.

#### 1.6 SCHEDULE COMPILATION MEETINGS

- A. The purpose of this series of meetings is to compile a detailed Master Schedule in compliance requirements set forth by the Contract Documents in a timely fashion.
- B. Advanced written notice of the Schedule Compilation Meeting dates, time, and place will be sent to the Prime Contractors by the Construction Manager. The Schedule Compilation Meetings Shall commence shortly after issuance of a Letter of Intent to the Prime Contracts and be held, until a schedule acceptable to the Owners Agent is completed. Once the project schedule is completed and the Draft copy is reviewed by all parties, all prime contractors will be required to sign the “Master Schedule Approval Form” which notes that the schedule is understood by all, and that all contractors are in agreement that it will be met without exception.
- C. The schedule diagram shall show a statement that all Prime Contractors have participated in the preparation of the schedule and reviewed this final printing and that each signature indicates approval thereof.
- D. The Master Schedule must be compiled and agreed upon by each Prime Contractor before the second Application for Payment from each contractor can be processed.
- E. Each Prime Contractor shall be required to attend each of the Schedule Compilation Meetings without fail. Failure to cooperate in the scheduling process may be considered Breech of Contract subject to the Terms and Conditions of the Contract.
- F. Each Prime Contractor or must address all work within their scope regardless of the status of award of lower tier subcontracts or purchase orders. Inability to involve such lower tier subcontractors and/or suppliers is not acceptable reason to delay cooperation in the assembly of the schedule or to defer providing required information. Each Prime Contractor or Supplier may involve lower tier subcontractors or Suppliers in the Schedule Compilation Meetings at their option.
- G. The timing of these meetings cannot be altered to meet the needs of any individual Prime Contractor. Each must dedicate resources to attend the meetings as they are scheduled by the Owners Agent until the scheduling process is completed.

H. Neither the acceptance, review, nor approval of the Contractor's schedule or other data submitted by the Contractor pursuant to this section, nor any other action on the part of the Owners Agent under this section, shall in any way be deemed as a representation by the Owner that the Contractor can or will be permitted to follow a particular schedule or sequence, he can or will complete the work by the time(s) required by the Contract or by any other time(s). Nor shall the approval of the contractually required Work by the time(s) required in the Contract, even though such schedule approved may be inconsistent with such completion.

I. Any approval under this section shall be construed merely to mean that the Owners Agent knew of no good reason at that time to object thereto. No acceptance. Review or approval or any other action under this section shall limit, affect or impair the Contractor's obligation to perform all Work by time(s) required by the Contract and in accordance with all other provisions of the Contract.

#### 1.7 WORK SEQUENCE

A. Project Start:

1. Commence construction activity at the site as soon after contract award as required to comply with specified Construction Schedule, unless otherwise specified in Construction Schedule below:
2. Schedule material deliveries to correspond with starting dates so that materials are on site on required start date.
3. Color Selection: Within 30 days after contract award, submit complete list of Proposed manufacturers and complete product designations (i.e., model, grade, series, product line, etc.) for each item requiring color selection by Architect.

B. Coordination:

1. Schedule all construction activities at Site with Architect, Owner, and other prime contractors through the Construction Manager to avoid, to maximum extent, interference with Owner's operations and to meet specified completion dates. It is responsibility of all Prime Contractors to meet Completion Schedule within Owner's Educational Schedule.
2. Coordinate construction activities through the construction manager with school calendar to avoid interference with owner's educational process and operations within building.
  - a. Review contract documents requirements in relationship to requirements for other prime contractors and owner's educational schedule.
3. Construction Manager provide approval of proposed schedule that may cause interruptions or shut-down from Architect and Owner.
  - a. If, in Owner's opinion, any such interruption or shut-down will affect life safety of building occupants, schedule interruption or shutdowns at time acceptable to owner, at time when classes are not in session, or after normal working hours. Coordinate all such changes through the Construction Manager.
  - b. Extra payment for over-time outside normal working hours required by any such interruption or shut-down will not be made by Owner. Prime contractor requiring overtime shall do so at his own cost, and shall be responsible for extra costs incurred by other Prime Contractors as a result.
  - c. Insure all equipment, fittings, pipe and similar items required are on hand before interrupting or shutting-down existing systems.
  - d. Notify all inspectors and representatives of utility companies, village officials, Construction Manager, Architect, Owner and similar parties by letter in

advance of required change-over, tie-ins, removals, and other similar operations.

C. Construction Schedules: Comply with phasing.

#### 1.8 PHASING PLAN

A. See Section 011000 “Summary” for working times and exiting restrictions.

B. SED CR 155 requirements must also be strictly adhered to without exception -See Section 007320 Health and Safety Requirements.

C. A project schedule has been established to conform to the Owner’s requirements.

D. Time is of the essence for this project.

E. It is the responsibility of the Contractors to plan and coordinate their work so as to comply with the project schedule.

F. The Contractors hereby agree to carry out the work, in full cooperation with the Owner, Architect, Construction Manager and Agencies of Jurisdiction.

G. At no extra charge to the Owner, the Contractors shall employ the number of workers, supervisory personnel and shall work the number of legal shifts each day (including weekends, if necessary) in order for the Subcontractors to complete the work in accordance with the project schedule and attain substantial completion within the time period indicated in the project schedule.

H. The specific dates in the project schedule may be subject to change by the Owner.

I. All prime contractors should use the below phasing plan information in conjunction with the phasing drawings that are provided in the contract document drawing set.

J. Phasing Plan: See attached

NOTE: The entire Scope of Work for all Contracts is not represented in the Phasing Plan. All work must be completed by the Project Milestone Schedule date.

L. General Phasing Notes:

1. Contractors are reminded that NYS Safety Code #155 is to be strictly adhered to.
2. The Owner desires the least possible disruption to their daily schedule. Contractors shall coordinate all schedules for construction and material deliveries with the Owner’s representative and Architect prior to performing work. All temporary barrier walls shall be installed while building is unoccupied and shall be erected and operational prior to commencing with work. The Phasing Plan & notes have been developed to allow district occupancy.
3. All reconstruction work in normally occupied areas shall be completed while the building is unoccupied or shall be separated from occupied areas with temporary Walls. Coordinate time the building will be unoccupied (after school hour, holiday, vacations and weekends) with the Construction Manager prior to scheduling work. Schedule deliveries with Construction Manager. No deliveries can be made during bus drop off or pick up.
4. All existing exits, including rescue windows, shall remain clear and unobstructed at

All times the building is occupied during construction. Work shall not impede or diminish existing exiting. Any revisions to the existing exit patterns shall be coordinated and verified with the Architect prior to commencing work.

5. The Phasing Drawings provided in Contract Document Drawing Set were prepared based upon information supplied by the Construction Manager including all references to Prime Contractor scoping. See Specification Section 01 12 00 for additional scoping requirements for all Prime Contracts.
6. See Section 015000 for additional information and requirements.
7. All temporary partitions shall be built of metal studs and gypsum wall board to meet UL design No: U465 (1-hour rating). Include waterproof and thermal material where exposed to weather. Surfaces exposed to occupied areas are to be finished and painted. See Specification Section 015000.
8. When directed, work in Owner occupied areas shall be performed on second shift when building is unoccupied.
9. The Phasing Drawings shall not be used for Quantity takeoff.
10. All exits to remain open for student egress unless shown as part of the construction Barrier.
11. Primary purpose of the Phasing Drawings is to clarify the maintenance of student exiting and construction separation requirements.
12. Contractors must stock work areas prior to start of classes each day (no movement of materials during school hours).
13. The General Trades Contractor is responsible to lock all construction gates at the end of each work day. The General Trades Contractor is also responsible to secure all windows in the construction work areas at the end of work day.

#### 1.9 CONTRACTOR'S USE OF PREMISES

- A. Access to Building - All Prime Contractors: Schedule all construction activities with Owner through Construction Manager to allow Owner's full use of building areas and systems for normal educational process.
  1. Owner acknowledges prime contractors will require access to owner occupied areas, rooms and systems, and intends to cooperate in making rooms and systems available for construction
  2. Notify construction manager in advance of any requirements for access to any existing building outside normal working hours and days.
- B. Building Security: Owner will maintain building security at all times for his sole benefit. Each prime contractor retains full responsibility for security and protection of work of his prime contract until final acceptance by owner.
- C. Maintenance of Building Circulation and Exits: Maintain circulation corridors, exits and exit stairs unobstructed from equipment and materials, except in areas of construction activity enclosed by temporary partitions.

#### 1.10 OWNER OCCUPANCY

- A. Normal School Year: Owner intends to maintain full educational program the normal school year throughout duration of project, and will make full use of buildings and sites, unless otherwise specified.
  1. School and special activities may be conducted within buildings and on sites, unless otherwise specified.



2. Free access by Owner's personnel to building and site areas not scheduled for alteration or dimensional change shall be maintained by all prime contractors.
3. Owner's personnel will perform normal custodial and maintenance services for building areas and systems not involved in construction activities, unless otherwise indicated.

PART2-PRODUCTS  
NOT USED





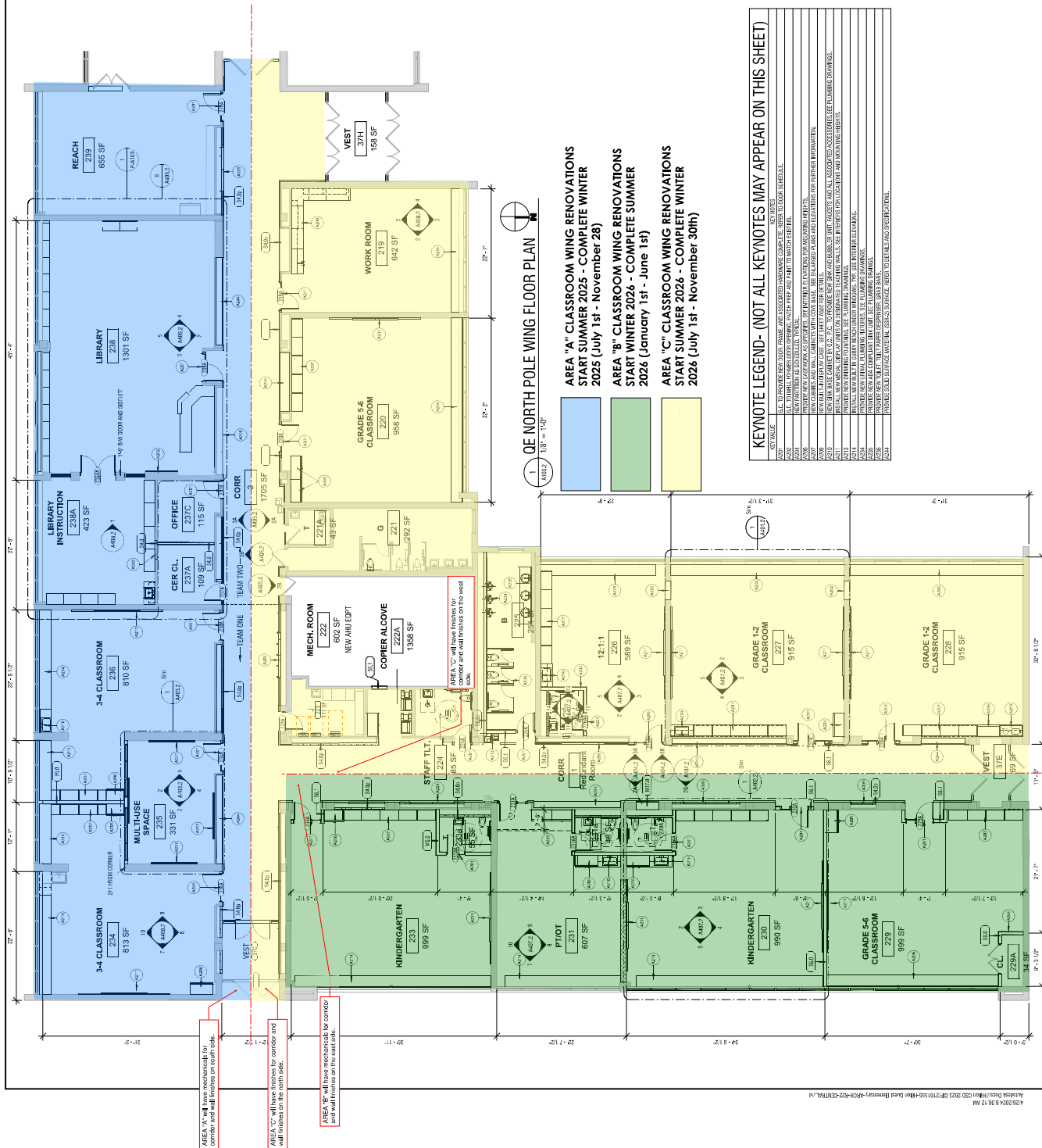
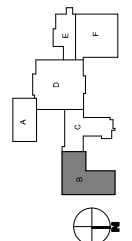
NO	DATE	DESCRIPTION
01/01/08		

FILE NO.	26-11-01-06-0-001-020
PROJECT NUMBER	2221581.02
ISSUED FOR	CONSTRUCTION
DATE	JULY 2024
SIGNATURE	

[illegible]

VISIBLE ITEMS \_\_\_\_\_  
 CENTER LINE OR COLUMN GRID \_\_\_\_\_  
 HIDDEN OR NOT IN CONTRACT \_\_\_\_\_  
 BREAK LINE \_\_\_\_\_  
 OVERHEAD \_\_\_\_\_

EXISTING WALL CONSTRUCTION  
NEW WALL CONSTRUCTION



**KEYNOTE LEGEND- (NOT ALL KEYNOTES MAY APPEAR ON THIS SHEET)**

[illegible]



**SECTION 01 10 00 – SUMMARY OF WORK**

PART 1 – GENERAL

1.01     RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.02     SUMMARY

- A. This section includes:
1. Design/Management Identification.
  2. Work covered by Contract Documents.
  3. Work Sequence.
  4. Contractor Use of Premises.
  5. Occupancy Requirements.
  6. Coordination.
  7. Contract Documents.
  8. Additional Notes to Contract Documents
  9. Prime Contractors Scope of Work.
- B. Related Sections:
1. Section 011215 – Project Schedule
  2. Section 012200 – Unit Pricing
  3. Section 012300 – Alternates
  4. Section 015000 – Temporary Facilities and Controls.

1.03     DESIGN/MANAGEMENT IDENTIFICATION

OWNER

Board of Education  
Hilton Central School District  
225 West Avenue  
Hilton, New York 14468  
(585) 392-2000

ARCHITECT/ENGINEER

LaBella Associates, P.C.  
300 State Street  
Rochester, NY 14614  
(585) 454-6110

CONSTRUCTION MANAGER

Campus Construction Management Group, Inc.  
1221 Pittsford–Victor Road  
Pittsford, New York 14534  
Cell: (585) 236-6804  
Contact: Michelle Stark

1.04 WORK COVERED BY CONTRACT DOCUMENTS

- A. Project Description
  - 1. High School
  - 2. Middle School
  - 3. Northwood Elementary
  - 4. Quest Elementary
  - 5. Village Elementary
- B. Contract Documents, dated July 2024, Issued January 2025 were prepared for the Project by LaBella Associates, 300 State Street - Suite 201 Rochester, New York 14614
- C. The Work will be constructed under multiple Prime Contractor Agreements. One set of contract documents are issued covering the multiple Prime Contracts. Prime Contracts are separate contracts between the Owner and independent contractors representing significant construction activities. Each Prime Contract is performed concurrently and closely coordinated with construction activities performed on the Project under other Prime contracts.

Prime Contracts for this Project include:

CONTRACT 201:	SITE WORK
CONTRACT 202:	GENERAL TRADES/GENERAL CONSTRUCTION WORK
CONTRACT 203:	MECHANICAL (HVAC)
CONTRACT 204:	PLUMBING
CONTRACT 205:	ELECTRICAL
CONTRACT 206:	CABLING CONTRACTOR

- D. Drawing Index (see enumeration of drawings) on index page for the listing of drawings. Each drawing included is integral to every Prime Contract.
- E. Definition of Extent of Prime Contract Work: The Contract Documents indicate the extent of each prime contract. Except where the Contract Drawings contain a more specific description, general names and terminology on the Drawing and in the Specification Sections determine which prime contract includes a specific element of the Project. Any reference to G.C. or General Contractor is the same contract as General Trades. Any reference to Abatement Contractor, A.C., or A.A.C is to be referenced to the related scope of work in Section 2.0 of this specification section. All scoping notes in the Summary of Work supersede scoping notes on the drawings.

1.05 WORK SEQUENCE

- A. All Work will be conducted in several continuous phases (refer to Construction Phasing Plan attached hereto) structured to minimize interference with the activities of the District's personnel, while permitting the facilities to be occupied during construction and renovations at the existing school buildings. Work that has been phased for times other than the summer recess must be performed in a manner that minimizes interference with normal school operations in a manner that complies with the requirements of NYSED 155.5 "Unified Safety Standards for School Construction and Maintenance Projects".
  - 1. Each Prime Contractor is responsible for providing adequate manpower as needed throughout the course of the Project to maintain the overall construction schedule and milestone dates.
  - 2. See Specification Section 011215 for specific requirements.
- B. Work areas of the existing buildings outside of school recess shall generally be available for construction between 2:30 PM and 11:00 PM daily, Monday through Friday. No work shall be performed in occupied areas of the existing building unless the work area is isolated from the occupied area in accordance with NYSED 155.5 Unified Safety Standards for School Construction and Maintenance Projects. Unoccupied

areas of existing buildings during school holidays and breaks shall generally be available for construction 24 hours daily. All work to be coordinated with and approved by the District through the Construction Manager. Activity and access shall be confined to the designated staging and construction areas. All exits and escape windows shall always be maintained. Activity in the staging area shall be conducted in a manner that causes minimal disruption to District operations. Any Work that requires disruption to existing building occupants, entries, exits, utilities, etc. shall be coordinated with and approved by the District through the Construction Manager.

- C. All additional costs for overtime or second or third shift Work required by any Contractor to ensure Work completion in accordance with the project completion dates below will be the responsibility of the Contractor.
- D. Each Bidder shall plan labor, materials (including long lead items), equipment and subcontractors as needed to complete Work in accordance with the following project completion schedule, including punch list completion. See the Phased Construction Milestone Schedule Matrix in Section 02015 for area specific completion requirements at each building site.
- E. PROJECT SCHEDULE- Refer to Section 010150
  - 1. Each Bidder shall review Section 010150 (Schedule) for milestone completion dates. Each contractor shall provide sufficient manpower, including extended hours, premium/multiple shifts hours, weekend and holiday hours to assure that the work of each Prime Contractor is substantially complete and ready for the owner's beneficial occupancy with the Project Schedule Matrix. Each Contractor shall provide sufficient resources including office and field management necessary to facilitate simultaneous completion schedules on all three project sites.

1.06 PRIME CONTRACTOR USE OF PREMISES

- A. General: The Contractors shall limit their use of the premises to the Work areas indicated in the Contract documents.
- B. Use of the Site: Limit use of the premises to Work areas indicated in the Contract documents. Confine operations to areas within Contract limits indicated. Do not disturb portions of the site beyond the areas in which the Work is indicated.
  - 1. District Occupancy: Allow for District occupancy and use of the existing building and by the public during construction. The District will continue to occupy portions of the building throughout holiday, conference days, workshop days, community activities and summer breaks throughout the duration of the construction project. The District will occupy the site and existing buildings during the normal school year and will continue to occupy certain portions of the building during recess. Contractor work will be coordinated with the District through the Construction Manager to facilitate Contractor access to occupied areas of the existing Hilton CSD buildings during these summertime periods.
  - 2. Driveways and Entrances: Driveways and entrances serving the premises must always be kept clear and available to the District, the District's employees and emergency vehicles. Do not use these areas for parking or storage of materials. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
  - 3. Before the start of construction, Contractors will be directed to a designated staging and parking area(s) and is noted in the contract documents.
  - 4. Construction vehicles and delivery vehicles shall not be allowed on roadways due to bus schedules at the following times and locations:

**High School:** 7:00-7:35am; 11:00am-12:00pm; 1:30-1:45pm; 2:00-2:30pm

**Middle School:** 7:10-7:35am, 1:45-2:35pm

**Northwood Elementary:** 7:55-8:25 am; 2:50-3:20 pm

**Quest Elementary:** 8:25-8:50am; 3:25-3:45pm

**Village Elementary:** 7:55-8:25 am; 2:50-3:20 pm

- C. Use of Existing Buildings: Maintain the existing buildings in a serviceable and weather tight condition throughout the construction period. Repair damage caused by construction operations. Take all precautions necessary to protect the building and its occupants during the construction period.

1.07 OCCUPANCY REQUIREMENTS

- A. District Occupancy: The District needs to occupy the completed facilities in the completion sequence described herein. The District will occupy the site and existing buildings during and throughout the school year. Contractor work will be coordinated with the District through the Construction Manager to facilitate Contractor access to occupied areas of the building during these summertime periods. Cooperate fully with the District during construction operations to minimize conflicts and facilitate District usage. Perform the work so as not to interfere with the District's operations.
- B: Partial Owner Occupancy: The Owner reserves the right to occupy, as well as to place and install equipment in completed areas of the building prior to Substantial Completion, provided such occupancy does not interfere with completion of the Work. Such placing of equipment and partial occupancy shall not constitute acceptance of the total Work. Cooperate fully with the District or its representative during construction operations to minimize conflicts and to facilitate Owner usage. Perform the work so as not to interfere with the District's operation.
1. Prior to partial Owner occupancy, mechanical and electrical systems shall be fully operational. Required inspections and tests shall have been successfully completed. Upon occupancy, the Owner will operate and maintain mechanical and electrical systems serving occupied portions of the building.
  2. Upon occupancy, the Owner will assume responsibility for maintenance and custodial service for occupied portions of the building. However, the District will not clean up behind contractors; responsibility for any debris caused by contractor operations remains with the Prime Contractor.

1.08 COORDINATION

- A. The General Trades Contractor shall cooperate with and coordinate the Contractors who will, under separate Contract with the District provide certain equipment and materials. The General Trades Contractor shall schedule the work of the Contractors to avoid any delays in the overall completion of the schedule that may result from the inability of the other Contractors or Suppliers to access the building or site to properly install their equipment within the time frame of the Construction Schedule.

1.09 CONTRACT DOCUMENTS

The following documents are hereby defined as contract documents, and are specifically included and defined as integral to each Prime Contract:

DIVISION 0 - BIDDING REQUIREMENTS, CONTRACT FORMS & CONDITIONS OF THE CONTRACT

See Table of Contents

DIVISION 1- GENERAL REQUIREMENTS

Drawing Index: Each Prime Contractor is responsible for information provided in the Contract Drawings. Information may be indicated on one drawing or across many different drawings. Consequently, each and every Prime Contractor is responsible for information on each and every drawing so listed on the enumeration of drawings on sheet number "Index" entitled drawing index.

All Federal, New York State, Town of Parma, Village of Hilton or local government or School District laws, codes, standards, rules and regulations including, but not limited to, zoning, planning, fire, health, tax, insurance, safety,



OSHA, criminal, building code, plumbing code, HVAC code, electrical code, utility company, traffic, labor, transportation, environmental, and education.

1.10 ADDITIONAL NOTES TO CONTRACT DOCUMENTS

A. The following notes are integral to **each** Prime Contract:

1. All bidders are forewarned to review all information in the Contract documents.
2. All scoping notes in the Summary of Work supersede scoping notes on the drawings.
3. All Bidders shall visit the site to verify and review existing conditions before estimating the cost of the project
4. Review Section 010150 for project schedule.
5. Review Section 015000 for work requirements of temporary construction activities in each Prime Contractor's Scope of Work.
6. Each apparent low bidder shall complete and return the pre-award questionnaire, which is included at the end of this Section. The questionnaire must be completed and returned within (48) hours, after the bid opening.
7. All Contractors are responsible for the layout and survey of their own Work, unless otherwise noted elsewhere in the Contract Documents
8. Contractors must make the site and building for use by the District on or before the dates listed in the Construction Milestone Schedule. All Contractors shall cooperate fully with the intentions of the plan. All Prime Contractors are specifically forewarned that any delays caused directly or indirectly by their acts, omissions, and/or failure to perform will result in the District, or its agents, completing the Prime Contractor's Work by whatever means are needed to complete the Work. The Prime Contractor causing the delay will be responsible for any and all costs associated with such issues including, but not limited to, District, Architectural, Construction Management, Legal, and Inspections costs, plus costs submitted by Contractors hired to complete the Prime Contractor's Work-in specific areas.
9. All payment applications (SOV's) shall reflect the following: All work broken down by labor and material by item under each building or SED number. IN addition to the 5% retainage the following will also be identified – 1% submittals, 1% O&M, 1% daily cleaning, 1% final cleaning, 1% closeout documentation, 1% warranty/attic stock.
10. All Contractors are responsible, individually and collectively, for maintaining safe-working conditions at all times including the maintenance of workers safety and compliance with OSHA safety regulations.
11. Service shutdowns, utility transfers, work in occupied spaces when necessary to be completed nights, weekends, holidays etc. costs shall be borne by the contractor.
12. Dust Control must be maintained at all times. The Acoustical Contractor to provide negative air-conditions in areas to minimize any exposure to dust and/or contaminants to other areas of school. This is in conjunction with poly sheeting and conventional dust protection. District property must be protected where construction work may produce any construction dust. This required protection is provided by the contractor producing the construction dust.
13. Contractors are required to turn in O&M's, warranties, guarantees, as-builts, training sign in sheets (as per contract) and test reports (as per contract) within 15 working days of substantial completion or the C.M. claims the right to refuse to review pencil copies and/or hold payments.
14. Any original deficiency list or punch list distributed by the C.M. or the architect must be returned showing completion of each item within 10 working days of receipt of such list. Any deficiency or punch list item not done to the owner's satisfaction, the C.M. claims the right to refuse to review pencil copies and/or hold payments.
15. All contractors are responsible to replace ceilings and ceiling tiles they damage. The C.M. will be final arbitrator of the extent to which each contractor shall be responsible for replacement of ceiling tiles damaged. All ceilings and ceiling tiles will be replaced to match original. If contractors cannot agree to their level of responsibility, deduct change orders will be issued to each responsible contractor for the cost of replacement shared equally.
16. Additionally, it is the responsibility of all Prime Contractors to coordinate their own work with the work of the other primes. All Prime Contractors will assist the Acoustical Contractor with

- coordination of all work. All Prime Contractors will ensure materials are on site and ready for installation in accordance with the construction schedule so as not to delay other contractors' work.
17. All Contractors are responsible for the safety of their own Workers, Subcontractors and other personnel on site. Each and every Contractor is responsible for maintaining a safe work site, and for maintaining safe work procedures. Protect all District facilities, personnel, students, and activity areas
  18. A project specific SDS file shall be maintained on-site at the C.M.'s office. The contractor must submit a copy of the SDS's for those compounds to be used on-site. All SDS sheets shall be on file prior to those compounds being allowed on-site.
  19. Each Contractor is required to implement and maintain a project specific safety program. Each Contractor shall submit their safety program to the Construction Manager for review, prior to the start of the Work of their Contract. The program shall include company safety philosophy, history, action plan, manuals, hazardous communications sheets, OSHA filings, meeting minutes and a reporting system for any accidents or injuries
  20. For identification and security purposes, workers are always required to wear photo-identification badges while present at District occupied sites. Each Contractor is responsible for control, maintenance and updating of the badges worn by their personnel. The District will provide the equipment and process for creating photo-identification badges.
  21. The Acoustical Contractor shall be responsible for snow removal, plowing, salting as necessary to insure a safe and unhindered work site until substantial completion of each project location as clarified in Section 01500. Areas including but limited to staging areas, sidewalks, parking areas, and exterior vestibules in areas where construction is taking place as determined by the Construction Manager.
  22. Painting of exposed piping, HVAC ductwork and conduit in occupied spaces shall be by the Acoustical Contractor unless otherwise noted. Painting of exposed piping, HVAC ductwork and conduit in Mechanical Rooms/Boiler Rooms shall be by the installing Contractor as noted on the Contract Documents.
  23. All Prime Contractors are required to clean their own work area at the end of each workday. All Prime Contractors shall provide daily debris removal. Failure to comply with cleaning requirements will activate Owner remedies.
  24. The Acoustical Contractor will contract a professional cleaning company independent of the Acoustical Contractor to perform the final cleaning service before the facilities are turned over to the District for their use.
  25. All Prime Contractors performing sub-grade work shall request public utility underground location stakeout immediately upon award of contract. A private Underground Utility Locating Contractor shall be hired by the Prime Contractor performing subgrade work to locate the District's private underground utilities within the work area. Contractors shall be responsible for maintaining these stakeout location marks throughout construction and submitting an as-built drawing showing location of all located underground utilities, whether public or private, at the end of construction. Backfilling and compaction of excavations required to perform subgrade work shall be the responsibility of the Contractor requiring the excavation. Coordinate backfilling and compaction with the Construction Manager to assure proper scheduling of required testing.
  26. Cutting, removal and patching of concrete slabs is the responsibility of the Contractor requiring the slab removals, unless otherwise noted on the Contract Documents. This includes both partial and/or total slab removals that are required for the work of the Contract.
  27. The District has the right of first refusal for any equipment and/or materials being disposed of and that the Contractor to move at their own expense, any equipment and/or materials to a location designated by the District.
  28. Each Contractor shall be responsible for restoration of selective demolition of floors to approximately -1/8" of final finished floor elevation, unless otherwise noted in the Contract Documents. Walls shall be restored to a smooth uniform surface condition after selective demolition of items such as signs, tack strips, clocks, light fixtures, etc.
  29. The Construction Manager will receive copies of all Prime Contractors daily reports on a weekly basis, listing daily activities and listing daily manpower by trade.
  30. Contractors are prohibited from using District toilet room facilities.
  31. All Personal Protective Equipment (PPE) is required as per the Contractor Safety Plan.

32. NYS Law mandates that there is no use of tobacco products included e-cigs and vapes on school property.
33. Time and Material tickets for additional approved work must be submitted for verification of time and material within 2 weeks after completion of the work.
34. Alcohols, drugs, tobacco products, firearms, and pornography are strictly forbidden from the project. There is a zero tolerance for the use of any such products. Possession or use of such will result in an immediate termination and permanent discharge from the project.
35. Each Prime Contractor's Contract is active and will remain so, until the Architect authorizes a signed Substantial Completion Certificate.
36. All contractors are responsible to undergo New York State Education Department background checks. Background checks are arranged through the school district and contractors will comply.
37. If there are scope-related conflicts between Section 011000 and other portions of the contract documents, the scope description in Section 011000 will be provided by the Prime Contractors. If there are other conflicts in the contract documents, the Prime Contractors shall provide the most expensive option, if required by the Construction Manager.
38. Each Contractor is responsible to remove and replace/patch existing ceilings to facilitate their work, unless ceilings are shown to be demolished and/or replaced, which would be the responsibility of the Acoustical Contractor. The Contractor doing the work is responsible for replacement of any ceiling tile or grid damaged in the act of removing or reinstalling existing ceiling tile, or while working above the ceiling.
39. All Prime Contractors shall maintain within their field office, as well as each gang box at each school; a current and complete set of Contract Documents (including any Addenda, Change Orders or Modifications thereto), approved shop drawings, samples, color schedules and other data pertinent to the Project.
40. Each Prime Contractor is to survey existing work and conditions and submit to the Construction Manager a written list of damaged areas (e.g.: ceiling tiles) prior to commencing work. Any damaged areas not identified prior to start of work shall be the responsibility of the Contractor/Contractors working in that area. Each Prime Contractor shall return areas disturbed by their work activities to the condition prior to start of Work.
41. Each Prime Contractor must have a decision-making representative present at each weekly Progress Meeting. Other periodic meetings may also be scheduled, which will be attended by the contractor's onsite supervisor.
42. The State Education Department has established a rule that noise levels due to construction activity cannot exceed 60dba, when measured with type 2 sound level meter, in areas occupied by school students or the school's staff. All Prime Contractors need to anticipate construction activities that will produce noise levels above 60dba and schedule this work accordingly, when students and staff are not present. Any construction noise that exceeds 60dba, in school occupied areas, will be shut down by the CM and the responsible Prime Contractor will be asked to perform the operation when the area is not occupied by the school. No additional compensation will be allowed for compliance with this regulation. Start of workday where noise is generated and disruptive to adjoining neighborhoods start time will be subject to local noise ordinances at no costs for compliance shall be passed onto the district. Contractors are subject to start and finish times of equipment in accordance with local noise ordinances and contractors are responsible for associated costs and maintain the schedule.
43. There will be NO contact between the Contractor or their personnel and any of the school's students or staff. The Contractors are not to take direction from anyone but the Construction Manager.
44. Lockdown/Lockout and fire drills by the District must be followed by all of the contractors.
45. Each Prime contractor shall provide a competent field superintendent at all times/shifts.
46. Each Prime Contractor shall provide a dumpster for the scope of their work until the completion of

punch list work and acceptance by the CM, Owner, and Architect. The dumpster area shall be kept clean at all times. Haul legal disposal of construction debris off site.

47. Each Prime Contractor must take pictures of all existing conditions in the scope of their contract prior to beginning their work. Failure to photograph existing conditions will result in forfeiture of credibility in change order negotiations.
48. Each Prime Contractor shall be required to have sheeting on site for placement under lifts and heavy equipment at all times. All existing and new floor areas need to be protected while moving equipment, including but not limited to lifts, pallet jacks, baker scaffolds, etc.
49. A representative from each Prime and Sub Contractor must sign Form 004001 – Sexual Harrassment Training Certification and Form 004000 – Iran Divestment Act Certification, included in Bid Documents.

## 2.0 PRIME CONTRACTORS SCOPE OF WORK

Each prime contract is summarized, and the scope of work for this project includes the following:

### **A) Contract #201 – Site Work**

Includes architectural, civil, structural, and mechanical construction. Provide all material, labor, equipment, supervision, management, and administration required for the total performance of the work of this contract including:

1. Work of the following Divisions and Specification Sections:

#### **DIVISION 00 – BIDDING REQUIREMENTS (All)**

#### **DIVISION 01 – GENERAL REQUIREMENTS (All)**

#### **DIVISION 02 – EXISTING CONDITIONS (For the Work of this Contract)**

Section 022800 –	Asbestos Removal and Disposal
Section 020810 –	Protection of Workers Lead Containing Materials
Section 022200 -	Existing Hazardous Materials Information
Section 022900 -	Abatement of Lead Containing Materials
Section 024119 -	Selective Demolition
Section 024300 -	Petroleum Impacted Soil
Attachments –	Merton Williams Middle School - RBM Report
	Northwood Elementary School - RBM Report
	Quest Elementary School - RBM Report
	Village Elementary School - RBM Report

#### **DIVISION 31 – EARTHWORK**

Section 311000	Site Clearing
Section 312000	Earth Moving
Section 312319	Dewatering
Section 312500	Erosion Control

#### **DIVISION 32 – EXTERIOR IMPROVEMENTS**

Section 320105	Maintenance and Protection of Traffic
Section 321216	Asphalt Concrete Pavement
Section 321313	Concrete Pavement, Sidewalks and Curbing

Section 321640     Granite Curbing  
Section 329200     Turf and Grasses

**DIVISION 33 - UTILITIES**

Section 330513     Precast Manhole  
Section 334100     Storm Utility Drainage Piping

2. Notes to Site Work Contract:

The General Trades Contractor must review and adhere to ADDITIONAL NOTES TO CONTRACT DOCUMENTS (Section 1.10) in addition to the following notes specific to the Site Contract.

- a. Review Section 012300 for alternates for work of this contract
- b. Review Section 015000 for work requirements of Temporary Construction activities in the prime contractor's scope of work.
- c. The Site Work Contractor is responsible for the protection of all excavated openings, if excavation requires opening stoned areas, the prime requiring the excavation shall provide road plates rated to withstand a fully loaded 14 wheeled dump-truck throughout the course of construction, so that the Owner's property is not damaged.
- d. The Site Work Contractor is responsible for proper removal & disposal of all spoils created by their contract unless otherwise noted or directed.
- e. This Contractor shall pay all costs and fees associated with permitting for their work.
- f. The Sitework Contractor is to review all geo-technical information of the site.
- g. Site dust control is the responsibility of the Sitework Contractor throughout construction, including the supply of water used for dust control and when directed by the Construction Manager.
- h. The Sitework Contractor includes all site demolition such as utilities, paving, fencing, curbing, stone etc., and offsite legal disposal of same and the protection and maintenance of all existing utilities throughout construction, including those to be relocated or replaced unless otherwise noted.
- i. The Sitework Contractor is responsible to provide a dumpster for the disposal of this contract's debris.
- j. All curbs are the responsibility of Sitework Contractor as identified on the drawings.
- k. The Site Work Contractor is responsible for all exterior concrete up to the building limits except for any mechanical, plumbing, or electrical pads.
- l. Each contractor requiring utility installation is responsible for their own excavation and backfill.
- m. Sitework Contractor will be responsible for all backfilling, compaction, testing, and grading outside the building pad, including up to all foundation and perimeter walls and seed landscape unless otherwise noted. This contract must coordinate with owner's testing agency.
- n. Field engineering is the responsibility of the Sitework Contractor for work of this contract.
- o. The Sitework Contractor shall maintain traffic including all temporary signage and is solely responsible for safety throughout the length and duration of the work of the project. Temporary traffic lanes must be a minimum of 12' wide and the temporary stone sidewalk as identified in the staging and logistics specification section shall be a minimum of 3' wide.
- p. The Sitework Contractor shall coordinate with Construction Manager and Owner locations of signs, cones, and flag-persons as necessary to maintain proper traffic control for the duration of this project. The Site Contractor is required to implement the use of temporary traffic control signals if necessary.
- q. The Sitework Contractor shall keep roads clean of mud and debris for this contracts scope of work. This includes but is not limited to scraping, sweeping, and washing. No materials to be tracked off site. If materials are tracked off site, it shall be cleaned up immediately.
- r. The Site Contractor will be responsible for backfilling voids left from all removals with structural or engineered fill.

- s. All site storage needs shall be provided by the Site Work Contractor for the scope of this contract. Storage locations shall be coordinated and approved by the owner and construction manager prior to commencing work at each project site.
- t. Provide geo-fabric and crusher run stone in all areas of lawn and temporary construction roads that are needed to complete staging and temporary protection. After construction is complete all lawn, paved and concrete areas are to be returned to original condition unless otherwise noted.
- u. The Site Contractor is to protect and preserve all property corners, monuments, markers etc. The contractor shall replace as necessary at their own expense.
- v. The Site contractor shall protect and maintain at all times, drainage swales, pipes, tiles etc. and install erosion measures prior to the start of construction.
- w. The site contractor shall be responsible for installing and maintaining erosion control devices until a permanent cover of vegetation has been established.

**B) Contract #202 – General Trades/General Construction Work**

Includes architectural, civil, structural, and mechanical construction. Provide all material, labor, equipment, supervision, management, and administration required for the total performance of the work of this contract including:

1. Work of the following Divisions and Specification Sections:

**DIVISION 00 – BIDDING REQUIREMENTS (All)**

**DIVISION 01 – GENERAL REQUIREMENTS (All)**

**DIVISION 02 – EXISTING CONDITIONS**

Section 022800 –	Asbestos Removal and Disposal
Section 020810 –	Protection of Workers Lead Containing Materials
Section 022200 –	Existing Hazardous Materials Information
Section 022900 –	Abatement of Lead Containing Materials
Section 024119 –	Selective Demolition
Section 024300 –	Petroleum Impacted Soil
Attachments –	Merton Williams Middle School - RBM Report
	Northwood Elementary School - RBM Report
	Quest Elementary School - RBM Report
	Village Elementary School - RBM Report

**DIVISION 03 – CONCRETE - STRUCTURAL /AND/OR ARCHITECTURAL**

Section 030130 –	Maintenance of Cast-in-Place Concrete
Section 031000 –	Concrete Forming and Accessories
Section 032000 –	Concrete Reinforcing
Section 033000 –	Cast-in-Place Concrete
Section 035416 –	Hydraulic Cement Underlayment

**DIVISION 04 – MASONRY – STRUCTURAL /AND/OR ARCHITECTURAL**

Section 040120 –	Maintenance of Unit Masonry
Section 042000 –	Unit Masonry
Section 042201 –	Cast Stone Concrete Masonry Veneer
Section 042900 –	Engineered Unit Masonry

---

**DIVISION 05 – METALS – STRUCTURAL /AND/OR ARCHITECTURAL**

- Section 051200 - Structural Steel Framing
- Section 054000 - Cold Formed Metal Framing
- Section 055000 - Metal Fabrications

**DIVISION 06 – WOOD, PLASTICS, AND COMPOSITES**

- Section 061000 – Rough Carpentry
- Section 061053 – Miscellaneous Rough Carpentry
- Section 064010 - Interior Architectural Millwork

**DIVISION 07 – THERMAL AND MOISTURE PROTECTION (For the Work of this Contract)**

**DIVISION 08 – OPENINGS**

- Section 081113 - Hollow Metal Doors and Frames
- Section 081416 – Flush Wood Doors
- Section 081743 – FRP-Alum Hybrid Doors & FRP Frames
- Section 084113 - Aluminum-Framed Entrances and Storefronts
- Section 085100 - Steel Windows
- Section 085113 - Aluminum Windows
- Section 087100 – Door Hardware
- Section 087101 – Door Hardware Index
- Section 088000 - Glazing
- Section 088730 - Safety and Security Window Film

**DIVISION 09 – FINISHES**

- Section 090561 - Common Work Results for Flooring Preparation
- Section 092216 - Non-Structural Metal Framing
- Section 092900 – Gypsum Board
- Section 093000 – Tiling
- Section 095113 – Acoustical Panel Ceilings
- Section 096513 - Resilient Base and Accessories
- Section 096519 - Resilient Tile Flooring
- Section 096623 - Resinous Matrix Terrazzo Flooring
- Section 096723 - Resinous Flooring
- Section 097710 - FRP Wall Panels
- Section 098433 - Sound Absorbing Wall Units
- Section 099113 - Exterior Painting
- Section 099123 - Interior Painting
- Section 099600 - High Performance Coatings

**DIVISION 10 – SPECIALTIES**

- Section 101100 – Visual Display Units
- Section 101200 – Display Cases
- Section 101400 – Interior Signage
- Section 101419 – Dimensional Letter Signage
- Section 102113 - Toilet Compartments
- Section 102600 – Corner Guards
- Section 102800 – Toilet Accessories
- Section 104300 – LED Signage

Section 104413 - Fire Extinguisher Cabinets  
Section 104416 - Fire Extinguishers

**DIVISION 12 – FURNISHINGS**

Section 122413 - Roller Window Shades  
Section 123353 - Manufactured Wood Casework  
Section 123623.13 Plastic-Laminate Clad Countertops  
Section 123661.16 - Solid Surfacing Countertops  
Section 124813 - Entrance Floor Mats and Frames

2. Notes to General Trades Contract:

The General Trades Contractor must review and adhere to ADDITIONAL NOTES TO CONTRACT DOCUMENTS (Section 1.10) in addition to the following notes specific to the General Trades Contract.

- a. The General Trades Contractor is responsible to provide all required closeout documentation including reports of legal disposal of all debris removed off site. General Trades Contractor shall provide the District and Architect with a written agreement and stipulated legal compliance to properly dispose of material off site.
- b. Review Section 012200 for unit pricing of cost item per work of this contract.
- c. Review Section 012300 for alternate items pertaining to the Work of this Contract.
- d. Review Section 015000 for field temp facilities and controls requirements. General Construction Contractor is responsible for establishing and maintaining building lines and levels, paragraph 3.03D, throughout construction.
- e. Field engineering is the responsibility of General Trades Contractor, for work of this contract.
- f. All snow removal, plowing, salting as necessary to insure a safe and unhindered work site is the responsibility of the General Trades Contractor, unless noted otherwise. The General Trades Contractor is responsible for all snow removal and maintenance including but limited to staging areas, sidewalks, parking areas, and exterior vestibules in areas where construction is taking place as determined by the Construction Manager.
- g. The General Trades Contractor shall coordinate all selective demolition with the work of other Prime Contractors.
- h. The Mechanical Contract shall provide the General Trades Contract with all auxiliary embedded items that need to be installed including lintels, sleeves, access doors, etc. Provide the products on a timely basis to avoid any delays in the scheduled completion of each phase.
- i. Review Section 024119 for selective demolition requirements in Prime Contractor's scope of work. Contract specific selective demolition:
  1. Surfaces scheduled to receive new finishes per the room finish schedule are to be patched and ready to receive the new finish.
  2. Removal of all abandoned material, equipment and pads *for scope of this work*.
  3. All interior and exterior building demolition complete, including but not limited to concrete, masonry, structural and miscellaneous steel, decking, doors and frames, specialties, equipment types, furnishings, casework (wood or metal), partitions, floors, flooring, ceilings, bleachers, etc. unless defined in other Prime Contractor's scope of work.
  4. All patching to match finishes of surfaces affected by the demolition work of this Contract. Surfaces scheduled to receive new finishes per the room finish schedule are to



- be patched ready to receive the new finishes to be installed by other Prime Contractors or the General Trades Contractor.
5. Cutting and removal of structural members.
  6. Removal of existing materials and equipment called for removal and demolition, including but not limited to items on contract documents unless specifically noted elsewhere.
- j. The General Trades Contract shall provide concrete work per section 033000 for all work of this contract.
  - k. The General Trades Contractor shall be responsible for quality assurance of selective demolition performed under The General Trades Contractor and will be responsible for damage to the Owner's property or the work of others.
  - l. The General Trades Contractor shall provide Dumpster service for all building sites for the activities of all Contractors, prime or otherwise, until the completion of punch list Work and acceptance by the Architect. The General Trades Contractor shall clean and maintain all Dumpster areas and shall provide hauling and legal disposal of construction debris off site. Site Contractors provide its own dumpsters.
  - m. The General Trades Contractor shall provide all patching and scraping necessary to prepare existing walls for new finishes. Preparation shall include scraping of existing paint and or wallpaper where deemed necessary to receive new finish scheduled.
  - n. The General Trades Contractor shall provide all scribing, cutting, shimming, and patching for the work of this contract per Division 6.
  - o. Responsible to install any and all access panels and doors furnished by other contracts and if located in fire rated walls, ceilings etc. and doors must have equal rating. Access panels must be new and match finish colors.
  - p. This contract will fire caulk, fire safe etc.as necessary any place its contract penetrates a fire rated system, not limited to hangers, supports, duct, pipe etc.
  - q. All Prime Contractors are required to clean their own work area at the end of each workday. The General Trades Contractor shall provide daily debris removal. Failure to comply with cleaning requirements will activate owner remedies.
  - r. All Contractors shall provide any and all temporary shoring, bracing, support, or protection systems necessary to expedite their work requirements, including the maintenance of workers safety and compliance with OSHA safety regulations.
  - s. The General Trades Contractor shall provide all exterior wall openings for HVAC equipment.
  - t. The General Trades Contractor shall be responsible for quality assurance of selective demolition performed under The General Trades Contractor and will be responsible for damage to the Owner's property or the work of others.
  - u. The General Trades Contractor shall provide all rough carpentry blocking required for the project unless specifically defined in other prime contractor's scope of work.
  - v. The General Trades Contractor shall receive and install all auxiliary embedded items, furnished by other contractors, into concrete and masonry work, including lintels, sleeves, access doors, grouting of base plates etc., provided the products are delivered on a timely basis. If they are not provided on a timely basis, General Trades Contractor shall notify the Construction Manager in writing.
  - w. Include in contract temporary closure of all doorways with plywood and 2"x4" framing. Doors to include hinged openings and insulated on the inside. Maintenance of enclosures is in this contract.
  - x. The General Trades Contractor is responsible for checking, securing and locking all doors,

- gates, and temporary entrances for security purposes for all shifts.
- y. The General Trades Contractor shall provide the final cleaning of the project before the facilities are turned over to the District for their use. At that time, the General Trades Contractor will contract a professional cleaning service to perform the final cleaning service. The General Trades Contractor shall not self-perform final cleaning.
  - z. The General Trades Contractor shall provide all necessary floor patching and leveling to receive new floor finishes as indicated on the finish plans. The General Trades Contractor is responsible for PH and moisture testing and remediation as needed to be able to install new floors and meet manufacturer's requirements.
  - aa. The General Trades Contractor is responsible to build all emergency exit ways and temporary partition walls. Including but not limited to installation, maintenance, and removal of entire system. The General Trades Contractor is responsible for patching ALL finishes affected to match existing.
  - bb. The General Trades Contractor to provide an additional 300 Linear Feet of temporary fire separations from floor to deck in existing corridors as directed by the Construction Manager at no additional cost to the Owner. Each of these fire separations shall meet the following specifications:
    - Wall type Wall Type A entire width of the corridor.
    - Pair of 3'- 8" x 7' – 2" Hollow Metal Type "G" Doors with "C" label.
    - Hollow Metal Double Door Knockdown Frame with "C" label.
    - Hardware Set #1 (or similar) with two (2) Sentronic Holder/Closers with Fire Alarm System connection. Provide necessary panic egress hardware. Two (2) Exit Signs similar to Everlite SLX60 Series.
    - One (1) 60" x 12" Smoke Damper. Maintain 10-mil poly barrier at Fire Damper during daily construction activity. Remove poly barrier at the end of each working day.
  - cc. The General Trades Contractor is to provide all shop drawings (4) weeks after award of contract. Window/door submittals shall be provided within (2) weeks after award or contract.
  - dd. Provide early submittal on HM frames & doors in masonry walls.
  - ee. The General Trades Contractor shall provide caulking of all soffits, ceilings, joints, etc. as deemed necessary for work of this contract.
  - ff. The General Trades Contractor shall provide temporary protection for doors and hardware installed under General Trades Contractor until time of final cleaning.
  - gg. General Trades is responsible for the coordination of location of chalk, tack, and smart board standards and electric outlet locations.
  - hh. The General Trades Contractor shall provide all new doors and hardware sets complete as specified in the documents. Existing cores are to be reinstalled in new hardware for core change out at a later date.
  - ii. The General Trades contractor shall provide all glazing for all types of doors listed per division 8.
  - jj. The General Trades contractor is responsible to paint all surfaces; includes all painting interior and exterior, includes all mechanical, electrical and plumbing, the only exception is if noted otherwise by others.
  - kk. General Trades Contractor shall provide final interior and exterior cleaning of glazing and framing work performed under this contract at the time of final project cleaning.
  - ll. General Trades Contractor is responsible for disconnection and reconnection of any and all attached ceiling systems to the window systems. If the ceiling system is damaged,

- General Trades Contractor is responsible for replacement.
- mm. The General Trades Contractor shall submit a shoring plan prior to any structural or masonry work, new or existing.
  - nn. The General Trades Contractor shall provide all necessary custom fitted closure trim around any window installed in the contract. The General Trades Contractor is responsible for caulking of windows, interior and exterior.
  - oo. The General Trades Contractor is responsible for providing all loose batt insulation for all window and door details as noted in the contract drawings.
  - pp. The General Trades Contractor is responsible for all site restoration associated with the work of its contract. Restore all areas (including but not limited to, grass, asphalt, concrete, curbs, etc.) to the condition they were in prior to construction.
  - qq. The above list is presented for general guidance only and does not necessarily cover the entire requirements of the project as shown on the drawings, details, and/or as specified hereinafter. Contractors shall provide a complete system. Any discrepancies or ambiguities shall be submitted as a Pre-bid RFI.

**C) Contract #203 - Mechanical (HVAC)**

Includes architectural, structural, and electrical construction. Provide all material, labor, equipment, supervision, management, and administration required for the total performance of the work of this contract including:

1. Work of the following Divisions and Specification Sections:

**DIVISION 00 – BIDDING REQUIREMENTS (All)**

**DIVISION 01 – GENERAL REQUIREMENTS (All)**

**DIVISION 02 – EXISTING CONDITIONS (For the Work of this Contract)**

Section 022800 –	Asbestos Removal and Disposal
Section 020810 –	Protection of Workers Lead Containing Materials
Section 022200 –	Existing Hazardous Materials Information
Section 022900 –	Abatement of Lead Containing Materials
Section 024119 –	Selective Demolition
Section 024300 –	Petroleum Impacted Soil
Attachments –	Merton Williams Middle School - RBM Report
	Northwood Elementary School - RBM Report
	Quest Elementary School - RBM Report
	Village Elementary School - RBM Report

**DIVISION 07 – THERMAL AND MOISTURE PROTECTION**

Section 071900 –	Water Repellents
Section 072100 –	Insulation
Section 072613 –	Moisture Mitigation System
Section 075323 –	EPDM Roofing System
Section 076200 –	Sheet Metal Flashing and Trim
Section 077200 –	Roof Accessories
Section 078413 –	Penetration Firestopping
Section 079200 –	Joint Sealants

---

**DIVISION 23 – HEATING VENTILATING AND AIR CONDITIONING**

Section 230513	Common Motor Requirements for HVAC Equipment
Section 230514	Motor Controllers
Section 230517	Sleeves and Sleeve Seals for HVAC Piping
Section 230518	Escutcheons Seals for HVAC Piping
Section 230519	Meters and Gages for HVAC Piping
Section 230523.12	Ball Valves for HVAC Piping
Section 230523.13	Butterfly Valves for HVAC Piping
Section 230523.14	Check Valves for HVAC Piping
Section 230529	Hangers and Supports for HVAC Piping and Equipment
Section 230548.13	Vibration Controls for HVAC
Section 230550	Wind restraint for HVAC Systems
Section 230553	Identification for HVAC Piping and Equipment
Section 230593	Testing, Adjusting, and Balancing for HVAC
Section 230700	HVAC Insulation
Section 230800	Commissioning of HVAC
Section 230923	Direct Digital Control System for HVAC
Section 232113	Hydronic Piping
Section 232116	Hydronic Piping Specialties
Section 232123	Hydronic Pumps
Section 232300	Refrigerant Piping
Section 232513	Water Treatment for Closed Loop Hydronic Systems
Section 233113	Metal Ducts
Section 233300	Air Duct Accessories
Section 233423	HVAC Power Ventilators
Section 233713.13	Air Diffusers
Section 233713.23	Registers & Grilles
Section 233723	HVAC Gravity Ventilators
Section 235216	Condensing Boilers
Section 236200	Packaged Compressor and Condenser Units
Section 238232	Radiant Heating Ceiling Panels
Section 238239.13	Cabinet Unit Heaters
Section 238239.16	Propeller Unit Heaters

2. Notes to Mechanical Work Contract:

The Mechanical Contractor must review and adhere to ADDITIONAL NOTES TO CONTRACT DOCUMENTS (Section 1.10) in addition to the following notes specific to the Mechanical Work Contract.

- a. Review Section 012200 for Unit Pricing of cost item per work of this contract.
- b. Review Section 015000 for work requirements of Temporary Construction activities in the prime contractor's scope of work.
- c. The Mechanical Contract shall provide the General Trades Contract with all auxiliary embedded items that need to be installed including lintels, sleeves, access doors, etc. Provide the products on a timely basis to avoid any delays in the scheduled completion of each phase.
- d. Review Section selective demolition requirements in Prime Contractor's scope of work.  
Contract specific selective demolition:
  1. HVAC Contractor is responsible for coordination with the General Contractor for all penetrations and patching for work of its contract. HVAC Contractor shall layout all

- openings and penetrations required for work of this contract. This includes but is not limited to floor slabs, walls, roof decks, decks, and ceilings.
2. Removal of all abandoned material, equipment and pads for the scope of this contract.
  3. All HVAC demolition, including cut and patch to match to facilitate this Contract's scope of work or to meet code requirements.
  4. Coordinate with General Trades Contractor for any structural reinforcement needed.
- e. The Mechanical Contract shall provide concrete work per division 03 for all work of this contract.
  - f. The Mechanical Contract shall furnish and deliver all loose lintels for duct openings for installation by General Trades Contract and outdoor air intake openings.
  - g. The Mechanical Contract shall note the Mechanical equipment is intended to be provided in accordance with the completion dates indicated on the project schedule.
  - h. Responsible to provide any and all access panels and doors and if located in fire rated walls, ceilings etc. and doors must have equal rating. Access panels must be new and match existing finish colors.
  - i. This contract will fire caulk, fire safe etc.as necessary any place its contract penetrates a fire rated system, not limited to hangers, supports, duct, pipe etc.
  - j. The Mechanical (HVAC) Contractor shall provide adequate support and protection of the existing Mechanical (HVAC) systems until such time as the new systems are in place and ready for use by the District.
  - k. Coordinate all Mechanical (HVAC) electrical work with the Electrical Contractor and the Construction Manager.
  - l. The Mechanical (HVAC) Contractor shall provide early submission of coordination drawings and facilitate early construction of all boiler rooms, CER rooms, and Mechanical and Electrical rooms.
  - m. The General Contractor is responsible for patching and painting to match all damage resulting from removal of old thermostats, sensors, and other mechanical devices removed and/or relocated. Workmanship must be accepted by the CM.
  - n. The Mechanical (HVAC) Contractor is to provide all conduit, raceway, and wire mold to provide new controls at new locations. Surface mounting is only allowed where absolutely necessary and approved by CM and owner.
  - o. All shutdowns will be performed to accommodate the District's schedules, including any and all off hours work at the contractor's expense.
  - p. The Mechanical Contractor is responsible for permanent insulation on HVAC piping that will remain. This includes Mechanical hot water and steam lines.
  - q. The Mechanical Contractor shall provide new isolation valves at any new tie in points to existing systems (material & labor) at no additional cost to the owner. If system shutdown is required to install isolation valves, the Mechanical Contractor is to install valves during shutdown outside of the owners operating hours at no additional cost to the owner. As soon as isolation is complete to the work area, the owner's system is to be put back online and returned to existing levels of chemical treatment if needed.
  - r. The Mechanical Contractor is responsible for the removal of all mechanical equipment necessary for the completion of the project.
  - s. When welding, this contract shall use smoke eater ventilation units to eliminate any smell associated with using torches or welding equipment.
  - t. The Mechanical Contractor is required to coordinate with the Temperature Controls Contractor for installation of Controls, equipment startup, balancing of systems throughout the phased work and final commissioning.
  - u. The Mechanical Contractor is responsible for adjusting and balancing per Section 230593.
  - v. Mechanical Contractor is to provide all mechanical equipment submittals within (2) weeks after award of contract.
  - w. The Mechanical Contractor shall coordinate distribution of infrastructure wiring with the

- Architect/Engineer and the Construction Manager.
- x. The Mechanical Contractor shall remove all existing diffusers, returns, grilles, etc., to accommodate the General Trades work and reinstall/reconfigure as necessary after the General Trades work.
  - y. The Mechanical Contractor is responsible for protecting all existing to remain floors to facilitate mechanical demolition, replacement, repair, installation, commissioning and testing and balancing.
  - z. The MEP Contractor requiring roof penetrations and patches on existing roofs is required to coordinate with a qualified Roofing Contractor. This is included for but not limited to curb removals, curb installation, deck patches, roof penetrations, openings, structural steel supports, blocking and roofing patch to match existing roofing materials.
  - aa. When filling or refilling glycol systems, the Mechanical Contractor will provide glycol to achieve 40% mixture.
  - bb. The Mechanical Contractor is responsible for disconnection and/or reconnection of HVAC equipment, whether existing or new.
  - cc. The Mechanical Contractor is responsible for proper and legal evacuation of refrigerant from any equipment being removed, and installation of new refrigerant for any equipment being installed or reinstalled for work of its contract.
  - dd. The Mechanical Contractor is responsible to provide hoisting services for work of it's contract.
  - ee. The Mechanical Contractor is responsible to coordinate with the Controls Contractor to deliver a finished and functional system.
  - ff. The Mechanical Contractor is required to conduct a survey of existing equipment conditions that provides an accurate description of all equipment shown to remain on the documents, whether it is to be removed or is shown to remain. A survey report will be due to the Construction Manager and Engineer no more than 30 days after award of contract.
  - gg. The Mechanical Contractor is required to participate and coordinate with the activities of the Commissioning Agent as required in the Commissioning Plan.
  - hh. The Mechanical Contractor shall be responsible for snow removal on the roof for work of its contract.

#### **D). Contract #204 - Plumbing**

Includes architectural, civil, structural, and plumbing construction. Provide all material, labor, equipment, supervision, management, and administration required for the total performance of the work of this contract including:

1. Work of the following Divisions and Specification Sections:

##### **DIVISION 00 – BIDDING REQUIREMENTS (All)**

##### **DIVISION 01 – GENERAL REQUIREMENTS (All)**

##### **DIVISION 02 – EXISTING CONDITIONS (For the Work of this Contract)**

Section 022800 –	Asbestos Removal and Disposal
Section 020810 –	Protection of Workers Lead Containing Materials
Section 022200 -	Existing Hazardous Materials Information
Section 022900 -	Abatement of Lead Containing Materials
Section 024119 -	Selective Demolition
Section 024300 -	Petroleum Impacted Soil
Attachments –	Merton Williams Middle School - RBM Report
	Northwood Elementary School - RBM Report
	Quest Elementary School - RBM Report

Village Elementary School - RBM Report

**DIVISION 07 – THERMAL AND MOISTURE PROTECTION**

Section 071900 -	Water Repellents
Section 072100 -	Insulation
Section 072613 -	Moisture Mitigation System
Section 075323 -	EPDM Roofing System
Section 076200 -	Sheet Metal Flashing and Trim
Section 077200 -	Roof Accessories
Section 078413 -	Penetration Firestopping
Section 079200 -	Joint Sealants

**DIVISION 10 – SPECIALTIES (For the Work of this Contract)**

**DIVISION 22 – PLUMBING**

Section 220517	Sleeves and Sleeve Seals for Plumbing Piping
Section 220519	Meters and Gages for Plumbing Piping
Section 220523	General-Duty Valves for Plumbing Piping
Section 220529	Hangers and Supports for Plumbing Piping and Equipment
Section 220553	Identification for Plumbing Piping and Equipment
Section 220719	Plumbing Piping Insulation
Section 221005	Plumbing Piping
Section 221006	Plumbing Piping Specialties
Section 221123	Domestic Water Pumps
Section 223000	Plumbing Equipment
Section 224000	Plumbing Fixtures

**DIVISION 23 – HEATING VENTILATING AND AIR CONDITIONING (For the Work of this Contract)**

2. Notes to Plumbing Work Contract:

The Plumbing Contractor must review and adhere to ADDITIONAL NOTES TO CONTRACT DOCUMENTS (Section 1.10) in addition to the following notes specific to the Plumbing Work Contract.

- a. Review Section 015000 for work requirements of temporary construction activities.
- b. Review for selective demolition requirements in Prime Contractor's scope of work.  
Contract specific selective demolition:
  1. Plumbing Contractor is responsible for coordination with the General Contractor for all penetrations and patching for work of its contract. Plumbing Contractor shall layout all openings and penetrations required for work of this contract. This includes but is not limited to floor slabs, walls, roof decks, decks, and ceilings.
  2. All plumbing demolition, including cut and patch to match to facilitate this Contract's scope of work and to meet code requirements.
  3. Surfaces scheduled to receive new finishes per the room finish schedule are to be patched and ready to receive the new finish.
  4. Removal of all fixtures, equipment, materials and pads.
- c. The Plumbing Contractor shall provide concrete work per Section 033000 for all work of the Plumbing Contractor.
- d. The Plumbing Contract shall coordinate and install all plumbing fittings, faucets and components when furnished by other plus any furnished by this contract.

- e. The Plumbing Contract is responsible for all final connections to plumbing equipment and mechanical equipment regardless of who supplies the equipment.
- f. The Plumbing Contract shall note the plumbing equipment is intended to be provided in accordance with the completion dates indicated on the phasing schedules.
- g. Responsible to provide to the General Contractor for installation, any and all access doors and if located in fire rated walls, doors must have equal rating. Access doors are to be new and match existing finishes.
- h. This contract will fire caulk, fire safe etc. as necessary any place its contract penetrates a fire rated system, not limited to hangers, supports, duct, pipe etc.
- i. The Plumbing Contractor shall provide temporary protection for its work until time of final cleaning arranged by The General Trades Contractor.
- j. Plumbing Contractor will install all concrete and pre-cast pads necessary to place equipment installed by the Plumbing Contract.
- k. All shutdowns and temporary feeds are the responsibility of the Plumbing Contractor and must be coordinated in advance with CM.
- l. All shutdowns will be performed to accommodate the District's schedules, including any and all off hours work at the contractor's expense.
- m. The Plumbing Contractor will provide disconnection and reconnection for all new and/or existing equipment and all equipment being demolished either by others or for work of its contract.
- n. The Plumbing Contractor will provide all hangers as noted in the Contract drawings.
- o. This contract shall use smoke eater ventilator units to eliminate any smell associated with work using torches or welding equipment.
- p. The plumbing contractor is responsible for permanent insulation on all existing plumbing lines that will remain after abatement of existing insulation is complete.
- q. The MEP Contractor requiring roof penetrations and patches on existing roofs is required to coordinate with a qualified Roofing Contractor. This is included for but not limited to curb removals, curb installation, deck patches, roof penetrations, openings, structural steel supports, blocking and roofing patch to match existing roofing materials.
- r. The Plumbing Contractor is required to participate and coordinate with the activities of the Commissioning Agent as required in the Commissioning Plan.
- s. The Plumbing Contractor shall provide new isolation valves at any new tie in points to existing systems (material & labor) at no additional cost to the owner. If system shutdown is required to install isolation valves, the Plumbing Contractor is to install valves during shutdown outside of the owners operating hours at no additional cost to the owner. As soon as isolation is complete to the work area, the owner's system is to be put back online and returned to existing levels of chemical treatment if needed.

#### **E). Contract #205 - Electrical**

Includes architectural, civil, structural, and electrical construction. Provide all material, labor, equipment, supervision, management, and administration required for the total performance of the work of this contract including:

1. Work of the following Divisions and Specification Sections:

#### **DIVISION 00 – BIDDING REQUIREMENTS (All)**

#### **DIVISION 01 – GENERAL REQUIREMENTS (All)**

#### **DIVISION 02 – EXISTING CONDITIONS (For the Work of this Contract)**

Section 022800 – Asbestos Removal and Disposal

Section 020810 – Protection of Workers Lead Containing Materials



---

Section 022200 -	Existing Hazardous Materials Information
Section 022900 -	Abatement of Lead Containing Materials
Section 024119 -	Selective Demolition
Section 024300 -	Petroleum Impacted Soil
Attachments –	Merton Williams Middle School - RBM Report
	Northwood Elementary School - RBM Report
	Quest Elementary School - RBM Report
	Village Elementary School - RBM Report

**DIVISION 07 – THERMAL AND MOISTURE PROTECTION**

Section 071900 -	Water Repellents
Section 072100 -	Insulation
Section 072613 -	Moisture Mitigation System
Section 075323 -	EPDM Roofing System
Section 076200 -	Sheet Metal Flashing and Trim
Section 077200 -	Roof Accessories
Section 078413 –	Penetration Firestopping
Section 079200 –	Joint Sealants

**DIVISION 10 – SPECIALTIES (For the Work of this Contract)**

**DIVISION 23 – HEATING VENTILATING AND AIR CONDITIONING (For the Work of this Contract)**

**SECTION 26 – ELECTRICAL**

Section 260500	Basic Electrical Requirements
Section 260501	Basic Materials and Methods
Section 260526	Grounding
Section 262000	Electrical Distribution
Section 262713	Electric Service
Section 263213	Power Generation
Section 265000	Lighting

**DIVISION 27 – COMMUNICATIONS**

Section 270510	Communications General
Section 272100	Local Area Network System
Section 273200	Paging and Intercom System
Section 275313	Master Clock

**DIVISION 28 – ELECTRONIC SAFETY AND SECURITY**

Section 283102	Point Addressable Fire-Alarm System
----------------	-------------------------------------

2. Notes to Electrical Contract:

The Electrical Contractor must review and adhere to ADDITIONAL NOTES TO CONTRACT DOCUMENTS (Section 1.10) in addition to the following notes specific to the Electrical Work Contract.

- a. Review Section 015000 for work requirements of temporary construction activities.
- b. Review for selective demolition requirements in Prime Contractor's scope of work. Contract specific selective demolition:

1. All Electrical demolition, including cut and patch to match to facilitate this Contract's scope of work or to meet code requirements.
2. Surfaces scheduled to receive new finishes per the room finish schedule are to be patched and ready to receive the new finish.
- c. Electrical Contractor is responsible to provide raceway and or wire mold as needed for the installation of all power and lighting as well as fire alarm, data and security systems. Surface mounting is only allowed where absolutely necessary and approved by CM and owner.
- d. Electrical Contractor shall reinstall all existing devices that were temporary suspended by the Electrical Contract. Devices include but are not limited to lights, speakers, exit signs, fire alarm devices, security devices, etc. and orientate the fixtures to duplicate their original installation placement.
- e. The Electrical Contractor shall provide adequate support and protection of the electrical systems until such time as the new systems are in place and ready for use by the District. Maintain all existing systems including District requirements for power, lighting, safety and communication systems throughout the construction project.
- f. The Electrical Contractor shall remove all existing light fixtures, speakers, fire alarm devices, or any other device to accommodate the General Trades work. The Electrical contractor shall reinstall and reconfigure (if necessary) the said devices after the General Trade contractor is completed with their work. The Electrical contractor shall secure, as high as possible, including but not limited to all existing loose and suspended wiring, cabling, conduit, fiber optic, control wiring, etc. in all crawl spaces, basements and attics.
- g. The Electrical contract shall temporarily suspend and protect all light fixtures. The light fixtures shall be suspended in a sufficient manner that will have a uniform look and safe connection to the structure above.
- h. Where any electrically powered equipment is removed and not replaced, the electrical cabling shall be removed back to the source, not to the nearest connection point. No electrical cabling is to be abandoned in place.
- i. Where any electrically powered equipment is removed and not replaced, the conduit containing the cable feeds shall be removed as much as possible. Any abandoned junction boxes shall be labeled "abandoned".
- j. The Electrical Contractor is required to participate and coordinate with the activities of the Commissioning Agent as required in the Commissioning Plan.
- k. The Electrical Contractor shall contact the power company for all services, temporary or permanent and pay all fees, per the Contract Documents.
- l. All electrical work on the site drawings is the responsibility of the Electrical Contractor, including all final connections to the building services.
- m. The Electrical Contractor shall provide adequate support and protection of the existing electric services, telephone systems, and computer networks until such time as the new systems are in place and ready for use by the Owner.
- n. The Electrical Contract shall provide concrete work per division 03, for all equipment as necessary.
- o. The Electrical Contract shall coordinate and install all electrical fittings and components furnished by the General Trades Contract.
- p. The Electrical Contract is responsible for all electrical hook-ups and final connections needed for all equipment.
- q. The Electrical Contract shall note the Electrical Contract is intended to be

- provided in accordance with the completion dates indicated on the phasing schedules.
- r. The Electrical Contract shall be responsible for all electrical hookups for all new and existing equipment for this project, including but not limited to mechanical equipment and all associated patching.
  - s. Responsible to provide any and all access doors and if located in fire rated walls, doors must have equal rating. Access doors are to be new and match existing finishes.
  - t. This contract will fire caulk, fire safe etc. as necessary, any place its contract penetrates a fire rated system, not limited to hangers, supports, duct, pipe etc.
  - u. The electrical contractor shall furnish, maintain, and remove all power necessary for temporary heating, cooling, and dehumidification. Electrical Contractor will provide temporary power to all trades with no maximum amperage. All power connections will be relocated as deemed necessary by the Construction Manager at no additional cost to the owner.
  - v. The Electrical Contract shall be responsible for coordination of all systems changeovers. Submit plan for District approval. All shutdowns and changeovers shall occur at off hours. Coordinate all electrical work installations with the Construction Manager.
  - w. The Electrical Contract shall remove all temporary electrical systems at the end of construction.
  - x. For all ceiling work, the Electrical Contract shall remove, store and reinstall existing lighting, or add new lighting associated circuits back to nearest available circuit breaker including all conduit, conductors, connectors, breakers, hangers and labels, as required by the contract documents.
  - y. The Electrical Contract shall provide early submission and facilitate early construction of all boiler rooms, CER rooms, and Mechanical and Electrical rooms.
  - z. All shutdowns will be performed to accommodate the District's schedules, including any and all off hours work at the Contractor's expense.
  - aa. Electrical Contractor is responsible for all electrical work shown on all site drawings.
  - bb. Where removed items create holes, the Electrical Contractor is to install replacement cover plates that match existing color and finish or remove existing anchors, patch and finish to match. (For work of this contract).
  - cc. The Electrical Contractor shall update all panel directories on a weekly basis.
  - dd. Electrical Contractor is responsible for all site restoration associated with the work of its contract. Restore all areas (including but not limited to, grass, asphalt, concrete, curbs, etc.) to the condition they were in prior to construction.
  - ee. The MEP Contractor requiring roof penetrations and patches on existing roofs is required to coordinate with a qualified Roofing Contractor. This is included for but not limited to curb removals, curb installation, deck patches, roof penetrations, openings, structural steel supports, blocking and roofing patch to match existing roofing materials.
  - ff. The Electrical contract shall secure, as high as possible, including but not limited to all existing loose and suspended power and fire alarm cabling. All other cabling is the responsibility of the cabling contractor, in any area where ceilings are removed, ceilings are removed and reinstalled, ceiling replacement as described in ALL of the contract documents in all new and renovated areas. Coordinate so as not to interfere with new equipment and utility installations.
  - gg. The Electrical Contractor is responsible for all site related electrical pathways including but not limited to conduit, handholes, and precast bases.

## **F) Contract #206 – Cabling**

Includes architectural, civil, structural, and electrical construction. Provide all material, labor, equipment, supervision, management, and administration required for the total performance of the work of this contract including:

1. Work of the following Divisions and Specification Sections:

**DIVISION 00 – BIDDING REQUIREMENTS (All)**

**DIVISION 01 – GENERAL REQUIREMENTS (All)**

**SECTION 26 – ELECTRICAL**

Section 260500	Basic Electrical Requirements
Section 260501	Basic Materials and Methods
Section 260526	Grounding
Section 262000	Electrical Distribution
Section 262713	Electric Service
Section 263213	Power Generation
Section 265000	Lighting

**DIVISION 27 – COMMUNICATIONS**

Section 270510	Communications General
Section 272100	Local Area Network System
Section 273200	Paging and Intercom System
Section 275313	Master Clock

**DIVISION 28 – ELECTRONIC SAFETY AND SECURITY**

Section 283102	Point Addressable Fire-Alarm System
----------------	-------------------------------------

2. Notes to Cabling Contract:

The Cabling Contractor must review and adhere to ADDITIONAL NOTES TO CONTRACT DOCUMENTS (Section 1.10) in addition to the following notes specific to the Cabling Contract.

- a. Contract specific selective demolition:
  1. All low voltage Cabling demolition, including cut and patch to match to facilitate this Contract's scope of work or to meet code requirements.
  2. Surfaces scheduled to receive new finishes per the room finish schedule are to be patched and ready to receive the new finish.
- b. Cabling Contractor shall secure as high as possible including but not limited to all existing loose and suspended wiring, cabling, conduit, communication cabling, fiber optic, data cabling, etc. in any area where ceilings are removed, ceilings are removed and reinstalled, ceiling replacement as described in ALL of the contract documents in all new and renovated areas. Coordinate so as not to interfere with new equipment and utility installations.
- c. The Cabling Contractor shall provide adequate support and protection of the cabling systems until such time as the new systems are in place and ready for use by the District. Maintain all existing systems including District requirements for power, lighting, safety and communication systems throughout the construction project.
- d. The Cabling Contractor shall provide adequate support and protection of the existing telephone systems, and computer networks until such time as the new systems are in place and ready for use by the Owner.
- e. The Cabling Contract is responsible for all cabling hook-ups and final connections needed.
- f. The Cabling Contract shall note the Cabling Contract is intended to be provided in accordance with the completion dates indicated on the phasing schedules.

- g. The Cabling Contract shall be responsible for all cabling hookups for all new and existing equipment for this project.
- h. The Cabling Contract shall be responsible for coordination of all systems changeovers. Submit plan for District approval. All shutdowns and changeovers shall occur at off hours. Coordinate all electrical work installations with the Construction Manager.
- i. All shutdowns will be performed to accommodate the District's schedules, including any and all off hours work at the Contractor's expense.
- j. Cabling Contractor is responsible for all cabling work shown on all drawings.

End of Section



## SECTION 011100 - NYSED 155.5 REGULATIONS

### PART 1 - GENERAL

#### 1.1 INTRODUCTION

- A. The purpose of this Section is to present State Education requirements of the Contract Documents. In general, the requirements of all sections of the Contract Documents apply to any and all items therein.

#### 1.2 SAFETY / SECURITY

- A. In addition to all other safety requirements required by this contract and by all applicable laws and regulations, the following regulation shall apply:
  - 1. Section 155.5, "Uniform Safety Standards for School Construction and Maintenance Projects", enacted on October 7, 1999.
  - 2. ALL Contractors shall provide back ground checks of ALL employees who will be working on site. Background checks shall comply with New York State Education Department Regulations and Law and ALL contractors shall pay for the entire cost of back ground checks for its employees.
- B. The occupied portion of any school building shall always comply with the minimum requirements necessary to maintain a certificate of occupancy.
- C. General safety and security standards for construction projects.
  - 1. All construction materials shall be stored in a safe and secure manner.
  - 2. Fences around construction supplies or debris shall be maintained.
  - 3. Gates shall always be locked unless a worker is in attendance to prevent unauthorized entry.
  - 4. During exterior renovation work, overhead protection shall be provided for any sidewalks or areas immediately beneath the work site or such areas shall be fenced off and provided with warning signs to prevent entry.
  - 5. Workers shall be required to wear photo-identification badges at all times for identification and security purposes while working at occupied sites."
- D. Separation of construction areas from occupied spaces.
  - 1. Construction areas which are under the control of a contractor and therefore not occupied by district staff or students shall be separated from occupied areas. Provisions shall be made to prevent the passage of dust and contaminants into occupied parts of the building. Periodic inspection and repairs of the containment barriers must be made to prevent exposure to dust or contaminants. Gypsum board must be used in exit ways or other areas that require fire rated separation. Heavy duty plastic sheeting may be used only for a vapor, fine dust or air infiltration barrier, and shall not be used to separate occupied spaces from construction areas.
    - a. A specific stairwell and/or elevator should be assigned for construction worker use during work hours. In general, workers may not use corridors, stairs or elevators designated for students or school staff.
    - b. Large amounts of debris must be removed by using enclosed chutes or a similar sealed system. There shall be no movement of debris through halls of occupied

- spaces of the building. No material shall be dropped or thrown outside the walls of the building.
- c. All occupied parts of the building affected by renovation activity shall be cleaned at the close of each workday. School buildings occupied during a construction project shall maintain required health, safety and educational capabilities at all times that classes are in session.
- E. Construction and maintenance operations shall not produce noise in excess of 60 dba in occupied spaces or shall be scheduled for times when the building or affected building spaces are not occupied or acoustical abatement measures shall be taken.
- F. The contractor shall be responsible for the control of chemical fumes, gases, and other contaminants produced by welding, gasoline or diesel engines, roofing, paving, painting, etc. to ensure they do not enter occupied portions of the building or air intakes.
- G. The contractor shall be responsible to ensure that activities and materials which result in "off-gassing" of volatile organic compounds such as glues, paints, furniture, carpeting, wall covering, drapery, etc. are scheduled, cured or ventilated in accordance with manufacturers recommendations before a space can be occupied.
1. For all product to be incorporated into the finished work containing volatile organic compounds, the Contractor shall submit written statements from the manufacturers of such materials defining the precautions to be taken, including, if required, a period of time for off-gassing of these materials prior to safe occupancy of all spaces incorporating these materials. The manufacturer shall define the specific criteria used in making their recommendations, including actual testing for residual volatility that may negatively affect the health of the public. This shall be presented for review with the initial product/system submittal.
  2. This shall include all products with field or factory applied materials containing VOCs, including: Paint, wall covering and adhesive; carpeting and vinyl composition floor tile and all associated adhesives; cabinets, countertops (all particle boards and adhesives); glues; furniture and draperies; and any duct lining material and associated adhesives.
- H. Large and small asbestos abatement projects as defined by 12NYCRR56 shall not be performed while the building is occupied.
1. The term "building", as referenced in this section, means a wing or major section of a building that can be completely isolated from the rest of the building with sealed non combustible construction. The isolated portion of the building must contain exits that do not pass through the occupied portion and ventilation systems must be physically separated and sealed at the isolation barrier.
  2. Exterior work such as roofing, flashing, siding, or soffit work may be performed on occupied buildings provided proper variances are in place as required and complete isolation of ventilation systems and at windows is provided. Care must be taken to schedule work so that classes are not disrupted by noise or visual distraction.
- I. Surfaces that will be disturbed by reconstruction must have a determination made as to the presence of lead. The contractor shall refer to Sections 02092 – Lead Control Plan and Section 02089 – Worker Protection for provisions for occupant protection, worksite preparation, work methods, cleaning, and clearance testing.
- J. Each Contractor shall fully comply with all project specific safety and loss prevention procedures, and appoint a full time Safety Representative for the project to implement and



coordinate safety efforts, provide appropriate employee safety training and protective equipment, and fully cooperate with the Architect, the Owner, and other project contractors.

1. This Safety Representative shall participate upon request in the Owner's Health and Safety Committee to monitor the safety of the school at all times during the construction project.

### 1.3 SUBMITTALS

- A. Work Plan: The contractor shall prepare and submit a work plan following Section 01330 Submittals for review by the architect. Identify construction areas and proposed times of work for coordination with Owner's schedule. Work plan shall address times that work areas shall be unoccupied for work to be implemented and include "off-gassing" periods for applicable products. Work plan shall locate:
  1. Exiting and signage for temporary exiting measures.
  2. Storage areas.
  3. Construction separations and methods.
  4. Ventilation as applicable.
  5. The Contractor shall prepare and submit a work plan following Section 01330 Submittals for review by the Architect.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01101

## SECTION 012100 - ALLOWANCES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes administrative and procedural requirements governing allowances.
  - 1. Certain items are specified in the Contract Documents by allowances. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when direction will be provided to Contractor. If necessary, additional requirements will be issued by Change Order.
- B. Types of allowances include the following:
  - 1. Quantity allowances.
  - 2. Contingency allowances.
  - 3. Testing and inspecting allowances.
- C. Related Requirements:
  - 1. Section 012200 "Unit Prices" for procedures for using unit prices.
  - 2. Section 014000 "Quality Requirements" for procedures governing the use of allowances for testing and inspecting.

#### 1.3 SELECTION AND PURCHASE

- A. At the earliest practical date after award of the Contract, advise Architect of the date when final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.
- B. At Architect's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.
- C. Purchase products and systems selected by Architect from the designated supplier.

#### 1.4 ACTION SUBMITTALS

- A. Submit proposals for purchase of products or systems included in allowances, in the form specified for Change Orders.

1.5 INFORMATIONAL SUBMITTALS

- A. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.
- B. Submit time sheets and other documentation to show labor time and cost for installation of allowance items that include installation as part of the allowance.
- C. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

1.6 COORDINATION

- A. Coordinate allowance items with other portions of the Work. Furnish templates as required to coordinate installation.

1.7 LUMP-SUM ALLOWANCES

- A. Allowance shall include cost to Contractor of specific products and materials.

1.8 ADJUSTMENT OF ALLOWANCES

- A. Allowance Adjustment: To adjust allowance amounts, prepare a Change Order proposal based on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place where applicable. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.
  - 1. Include installation costs in purchase amount only where indicated as part of the allowance.
  - 2. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other margins claimed.
  - 3. Submit substantiation of a change in scope of work, if any, claimed in Change Orders related to unit-cost allowances.
  - 4. Owner reserves the right to establish the quantity of work-in-place by independent quantity survey, measure, or count.
- B. Submit claims for increased costs because of a change in scope or nature of the allowance described in the Contract Documents, whether for the purchase order amount or Contractor's handling, labor, installation, overhead, and profit.
  - 1. Do not include Contractor's or subcontractor's indirect expense in the Change Order cost amount unless it is clearly shown that the nature or extent of work has changed from what could have been foreseen from information in the Contract Documents.
  - 2. No change to Contractor's indirect expense is permitted for selection of higher- or lower-priced materials or systems of the same scope and nature as originally indicated.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

3.2 PREPARATION

- A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

3.3 SCHEDULE OF ALLOWANCES

Allowance No. GC-1: Unit Price Allowance in General Construction Contract:

- A. Quantity Allowance for Removal and Disposal of Asbestos containing material: Include the quantity for the removal and disposal of asbestos containing material in the **Base Bid Amount**. Include a unit price cost per linear foot.
  - 1. This allowance includes all material costs, receiving, handling, and installation, and Contractor overhead and profit.
  - 2. Coordinate quantity allowance adjustment with corresponding unit-price requirements in Section 012200 "Unit Prices."
  - 3. This quantity allowance multiplied by the unit price submitted by the Bidder shall be included in the Base Bid Amount.

Allowance No. GC-2: Unit Price Allowance in General Construction Contract:

- A. Quantity Allowance for patch, prep & and infill of existing corridor wall penetrations: Include a cost of \$7,500 for the patch, prep & and infill of the existing corridor wall penetrations in renovation areas to provide the required wall fire rating in the **Base Bid Amount**. Include a unit price cost per square foot.
  - 1. This allowance includes all material costs, receiving, handling, and installation, and Contractor overhead and profit.
  - 2. Coordinate quantity allowance adjustment with corresponding unit-price requirements in Section 012200 "Unit Prices."
  - 3. This quantity allowance multiplied by the unit price submitted by the Bidder shall be included in the Base Bid Amount.

Allowance No. GC-3: Unit Price Allowance in General Construction Contract:

- B. Quantity Allowance for the Construction Manager Office Supplies and Equipment: Include a cost of \$7,500 for the Construction Manager Office Supplies and Equipment in the **Base Bid Amount**. Include a lump sum unit price cost.
1. This allowance includes all material costs, receiving, handling, and installation, and Contractor overhead and profit.
  2. Coordinate quantity allowance adjustment with corresponding unit-price requirements in Section 012200 "Unit Prices."
  3. This quantity allowance multiplied by the unit price submitted by the Bidder shall be included in the Base Bid Amount.

Allowance No. HVAC-1: Unit Price Allowance in Mechanical Work Contract:

- A. Quantity Allowance for DDC Control Upgrades Include a cost of \$25,000 for DDC Control Upgrades in the **Base Bid Amount**. Include a lump sum unit price cost.
1. This allowance includes all material costs, receiving, handling, and installation, and Contractor overhead and profit.
  2. Coordinate quantity allowance adjustment with corresponding unit-price requirements in Section 012200 "Unit Prices."
  3. This quantity allowance multiplied by the unit price submitted by the Bidder shall be included in the Base Bid Amount.

Allowance No. EC-1: Unit Price Allowance in Electrical Work Contract:

- A. Quantity Allowance to provide One Fire Alarm Manual Pull Station at an Exterior Entrance Door in the **Base Bid Amount**. Include a unit price cost to provide one (1) manual pull station.
1. This allowance includes all material costs, receiving, handling, and installation, and Contractor overhead and profit.
  2. Coordinate quantity allowance adjustment with corresponding unit-price requirements in Section 012200 "Unit Prices."
  3. This quantity allowance multiplied by the unit price submitted by the Bidder shall be included in the Base Bid Amount.

END OF SECTION 012100



## SECTION 012200 - UNIT PRICES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for unit prices.
- B. Related Requirements:
  - 1. Section 012600 "Contract Modification Procedures" for procedures for submitting and handling Change Orders.
  - 2. Section 014000 "Quality Requirements" for general testing and inspecting requirements.

#### 1.3 DEFINITIONS

- A. Unit price is an amount incorporated in the Agreement, applicable during the duration of the Work as a price per unit of measurement for materials, equipment, or services, or a portion of the Work, added to or deducted from the Contract Sum by appropriate modification, if the scope of Work or estimated quantities of Work required by the Contract Documents are increased or decreased.

#### 1.4 PROCEDURES

- A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.
- B. Measurement and Payment: See individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.
- C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.
- D. List of Unit Prices: A schedule of unit prices is included in Part 3. Specification Sections referenced in the schedule contain requirements for materials described under each unit price.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF UNIT PRICES

A. CONTRACT 202 – GENERAL TRADES WORK

1. Unit Price No. GC-1 – Remove and Dispose of Asbestos containing material.
  - a. Provide cost for all equipment, materials, labor, tenting, containment, clean up, disposal, records, etc... for the complete removal of ACM containing materials. See description below of specific ACM building materials to be priced:
    - 1) Pipe insulation: Unit of measure: Per linear foot
    - 2) ACM / Mud fitting removal – Unit of measure: per fitting
    - 3) Vinyl asbestos tile and mastic – Unit of measure: Square foot
  - b. Unit of Measurement: Linear foot, based on quantities verified by Contractor.

B. CONTRACT 202 – GENERAL TRADES WORK

1. Unit Price No. GC-2 – Patch, prep & and infill of existing corridor wall penetrations.
  - a. Provide cost for all equipment, materials, labor, clean up, etc... for the complete patch, prep & and infill of existing corridor wall penetrations in renovation areas to provide the required wall fire rating See description below.
    - 1) Provide a base bid allowance cost of \$7,500 for patch, prep & and infill of existing corridor wall penetrations in renovation areas to provide the required wall fire rating. New CMU wall infill to match existing. Include the removal of existing mechanical items, louvers, grills, etc...

C. CONTRACT 202 – GENERAL TRADES WORK

1. Unit Price No. GC-3 – Construction Manager Office Supplies and Equipment.
  - a. Provide cost for the Construction Manager Office Supplies and Equipment See description below.
    - 1) Provide a base bid allowance cost of \$7,500 for the Construction Manager Office Supplies and Equipment.

D. CONTRACT 203 – MECHANICAL (HVAC) WORK

1. Unit Price No. HVAC-1 – DDC Control Upgrades.
  - a. Provide cost for DDC Control Upgrades.
    - 1) Provide a base bid allowance cost of \$25,000 for DDC Control Upgrades.



E. CONTRACT 205 – ELECTRICAL WORK

1. Unit Price No. EC-1 – Fire Alarm Manual Pull Station at an Exterior Entrance Door
  - a. Provide One Fire Alarm Manual Pull Station at an Exterior Entrance Door.  
Provide cost for all equipment, materials, wiring, labor, setup, installation and programming for the complete install of one manual pull station at an exterior entrance door.
    - 1) Provide a cost to provide one (1) manual pull station.



## SECTION 012300 - ALTERNATES

### GENERAL

### RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

### SUMMARY

Section includes administrative and procedural requirements for alternates.

### DEFINITIONS

**Alternate:** An amount proposed by bidders and stated on the Bid Form for certain work defined in the bidding requirements that may be added to or deducted from the base bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.

Alternates described in this Section are part of the Work only if enumerated in the Agreement. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

### PROCEDURES

**Coordination:** Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.

Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.

**Notification:** Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated revisions to alternates.

Execute accepted alternates under the same conditions as other work of the Contract.

**Schedule:** A schedule of alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PRODUCTS (Not Used)

EXECUTION

SCHEDULE OF ALTERNATES

CONTRACT #201 SITE WORK CONTRACT ALTERNATE

A. Alternate No. SW-1: Replace existing brick pavers on exterior stair landings

1. Base Bid: No Work
2. Alternate: Remove existing brick pavers on exterior stair landings as indicated on drawings. Turn pavers over to district for re-use. Provide new brick pavers on exterior stair landings as indicated on drawings. Contractor shall not disturb existing radiant heating snow melt system below grade in work areas.

END OF SECTION 012300

## SECTION 012500 - SUBSTITUTION PROCEDURES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for substitutions.
- B. Related Requirements:
  - 1. Section 016000 "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.

#### 1.3 DEFINITIONS

- A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
  - 1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
  - 2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

#### 1.4 ACTION SUBMITTALS

- A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
  - 1. Substitution Request Form: Use CSI Form 13.1A.
  - 2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
    - a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
    - b. Coordination information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.
    - c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable Specification Section.

Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.

- d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
  - e. Samples, where applicable or requested.
  - f. Certificates and qualification data, where applicable or requested.
  - g. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
  - h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
  - i. Research reports evidencing compliance with building code in effect for Project, from ICC-ES.
  - j. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
  - k. Cost information, including a proposal of change, if any, in the Contract Sum.
  - l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
  - m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Architect will notify Contractor through Construction Manager of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
- a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
  - b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

## 1.5 QUALITY ASSURANCE

- A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

## 1.6 PROCEDURES

- A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

## PART 2 - PRODUCTS

### 2.1 SUBSTITUTIONS

A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

- a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
- b. Requested substitution provides sustainable design characteristics that specified product provided.
- c. Substitution request is fully documented and properly submitted.
- d. Requested substitution will not adversely affect Contractor's construction schedule.
- e. Requested substitution has received necessary approvals of authorities having jurisdiction.
- f. Requested substitution is compatible with other portions of the Work.
- g. Requested substitution has been coordinated with other portions of the Work.
- h. Requested substitution provides specified warranty.
- i. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

B. Substitutions for Convenience: Architect will consider requests for substitution if received within 30 days after the Notice of Award. Requests received after that time may be considered or rejected at discretion of Architect.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

- a. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
- b. Requested substitution does not require extensive revisions to the Contract Documents.
- c. Requested substitution is consistent with the Contract Documents and will produce indicated results.
- d. Requested substitution provides sustainable design characteristics that specified product provided.
- e. Substitution request is fully documented and properly submitted.
- f. Requested substitution will not adversely affect Contractor's construction schedule.

- g. Requested substitution has received necessary approvals of authorities having jurisdiction.
- h. Requested substitution is compatible with other portions of the Work.
- i. Requested substitution has been coordinated with other portions of the Work.
- j. Requested substitution provides specified warranty.
- k. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

PART 3 - EXECUTION (Not Used)

END OF SECTION 012500



## SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for handling and processing Contract modifications.
- B. Related Requirements:
  - 1. Section 012500 "Substitution Procedures" for administrative procedures for handling requests for substitutions made after the Contract award.

#### 1.3 MINOR CHANGES IN THE WORK

- A. Architect will issue through Construction Manager supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710, "Architect's Supplemental Instructions." All changes must have a Campus CMG (Construction Manager) Issue Number.

#### 1.4 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Construction Manager will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
  - 1. Work Change Proposal Requests issued by Construction Manager are not instructions either to stop work in progress or to execute the proposed change.
  - 2. Within time specified in Proposal Request or 20 days, when not otherwise specified, after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
    - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
    - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
    - c. Include costs of labor and supervision directly attributable to the change.

- d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
  - e. Quotation Form: Use forms acceptable to Architect.
- B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Construction Manager.
  - 1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
  - 2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
  - 3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
  - 4. Include costs of labor and supervision directly attributable to the change.
  - 5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
  - 6. Comply with requirements in Section 012500 "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.
  - 7. Proposal Request Form: Use form acceptable to Architect.

#### 1.5 ADMINISTRATIVE CHANGE ORDERS

- A. Unit-Price Adjustment: See Section 012200 "Unit Prices" for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect measured scope of unit-price work.

#### 1.6 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Work Changes Proposal Request, Construction Manager will issue a Change Order for signatures of Owner and Contractor on AIA Document G701.

#### 1.7 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: Construction Manager may issue a Construction Change Directive on AIA Document G714. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
  - 1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

- B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
  - 1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012600



## SECTION 012900 - PAYMENT PROCEDURES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Requirements:
  - 1. Section 012200 "Unit Prices" for administrative requirements governing the use of unit prices.
  - 2. Section 012600 "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
  - 3. Section 013200 "Construction Progress Documentation" for administrative requirements governing the preparation and submittal of the Contractor's construction schedule.

#### 1.3 DEFINITIONS

- A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

#### 1.4 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule.
  - 1. A separate Schedule of Values indicating SED project number is required for each project site, by each Prime Contractor.
  - 2. Coordinate line items in the schedule of values with other required administrative forms and schedules, including the following:
    - a. Application for Payment forms with continuation sheets.
    - b. Submittal schedule.
    - c. Items required to be indicated as separate activities in Contractor's construction schedule.

3. Submit each schedule of values to Architect through Construction Manager at earliest possible date, but no later than seven days before the date scheduled for submittal of initial Applications for Payment.
  4. Subschedules for Separate Elements of Work: Where the Contractor's construction schedule defines separate elements of the Work, provide subschedules showing values coordinated with each element.
- B. Format and Content: Use Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.
1. Identification: Include the following Project identification on the schedule of values:
    - a. Project name and location.
    - b. Name of Architect.
    - c. Architect's project number.
    - d. Contractor's name and address.
    - e. Date of submittal.
  2. Arrange schedule of values consistent with format of AIA Document G703.
  3. Arrange the schedule of values in tabular form with separate columns to indicate the following for each item listed:
    - a. Related Specification Section or Division.
    - b. Description of the Work.
    - c. Name of subcontractor.
    - d. Name of manufacturer or fabricator.
    - e. Name of supplier.
    - f. Change Orders (numbers) that affect value.
    - g. Dollar value of the following, as a percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
      - 1) Labor.
      - 2) Materials.
      - 3) Equipment.
  4. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with Project Manual table of contents. Provide multiple line items for principal subcontract amounts in excess of five percent of the Contract Sum.
    - a. Include separate line items under Contractor and principal subcontracts for Project closeout requirements in an amount totaling five percent of the Contract Sum and subcontract amount.
  5. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
  6. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
    - a. Differentiate between items stored on-site and items stored off-site. If required, include evidence of insurance.

7. Provide separate line items in the schedule of values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
8. Allowances: Provide a separate line item in the schedule of values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
9. Purchase Contracts: Provide a separate line item in the schedule of values for each purchase contract. Show line-item value of purchase contract. Indicate owner payments or deposits, if any, and balance to be paid by Contractor.
10. Each item in the schedule of values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
  - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the schedule of values or distributed as general overhead expense, at Contractor's option.
11. Schedule Updating: Update and resubmit the schedule of values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

#### 1.5 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment following the initial Application for Payment shall be consistent with previous applications and payments as certified by Architect and Construction Manager and paid for by Owner.
  1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
- B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.
- C. Application for Payment Forms: Use AIA Document G702 and AIA Document G703 as form for Applications for Payment.
- D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Construction Manager will return incomplete applications without action.
  1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
  2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
  3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
  4. Indicate separate amounts for work being carried out under Owner-requested project acceleration.

- E. **Stored Materials:** Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.
1. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment, for stored materials.
  2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
  3. Provide summary documentation for stored materials indicating the following:
    - a. Value of materials previously stored and remaining stored as of date of previous Applications for Payment.
    - b. Value of previously stored materials put in place after date of previous Application for Payment and on or before date of current Application for Payment.
    - c. Value of materials stored since date of previous Application for Payment and remaining stored as of date of current Application for Payment.
- F. **Transmittal:** Submit three signed and notarized original copies of each Application for Payment to Construction Manager by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.
1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
- G. **Waivers of Mechanic's Lien:** With each Application for Payment, submit waivers of mechanic's liens from subcontractors, sub-subcontractors, and suppliers for construction period covered by the previous application.
1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
  2. When an application shows completion of an item, submit conditional final or full waivers.
  3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
  4. Submit final Application for Payment with or preceded by conditional final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
  5. **Waiver Forms:** Submit executed waivers of lien on forms, acceptable to Owner.
- H. **Initial Application for Payment:** Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
1. List of subcontractors.
  2. Schedule of values.
  3. Contractor's construction schedule (preliminary if not final).
  4. Combined Contractor's construction schedule (preliminary if not final) incorporating Work of multiple contracts, with indication of acceptance of schedule by each Contractor.
  5. Products list (preliminary if not final).
  6. Schedule of unit prices.
  7. Submittal schedule (preliminary if not final).



8. List of Contractor's staff assignments.
  9. List of Contractor's principal consultants.
  10. Copies of building permits.
  11. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
  12. Initial progress report.
  13. Report of preconstruction conference.
  14. Certificates of insurance and insurance policies.
  15. Performance and payment bonds.
  16. Data needed to acquire Owner's insurance.
- I. Application for Payment at Substantial Completion: After Architect issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
  2. This application shall reflect Certificate(s) of Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- J. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of Project closeout requirements.
  2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
  3. Updated final statement, accounting for final changes to the Contract Sum.
  4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
  5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
  6. AIA Document G707, "Consent of Surety to Final Payment."
  7. Evidence that claims have been settled.
  8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
  9. Final liquidated damages settlement statement.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012900



## SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
  - 1. General coordination procedures.
  - 2. Coordination drawings.
  - 3. Requests for Information (RFIs).
  - 4. Project meetings.
- B. Each contractor shall participate in coordination requirements. Certain areas of responsibility are assigned to a specific contractor.
- C. Related Requirements:
  - 1. Section 011000 "Summary of Work" for a description of the division of work among separate contracts and responsibility for coordination activities not in this Section.
  - 2. Section 013200 "Construction Progress Documentation" for preparing and submitting Contractor's construction schedule.
  - 3. Section 017300 "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
  - 4. Section 017700 "Closeout Procedures" for coordinating closeout of the Contract.

#### 1.3 DEFINITIONS

- A. RFI: Request from Owner, Construction Manager, Architect, or Contractor seeking information required by or clarifications of the Contract Documents.

#### 1.4 INFORMATIONAL SUBMITTALS

- A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Use CSI Form 1.5A. Include the following information in tabular form:
  - 1. Name, address, and telephone number of entity performing subcontract or supplying products.
  - 2. Number and title of related Specification Section(s) covered by subcontract.

3. Drawing number and detail references, as appropriate, covered by subcontract.

B. Key Personnel Names: Within 15 days of the Preconstruction Conference, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home, office, and cellular telephone numbers and e-mail addresses. Provide names, addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.

1. Post copies of list in project meeting room, in temporary field office, and by each temporary telephone. Keep list current at all times.

## 1.5 GENERAL COORDINATION PROCEDURES

A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
3. Make adequate provisions to accommodate items scheduled for later installation.

B. Coordination: Each contractor shall coordinate its construction operations with those of other contractors and entities to ensure efficient and orderly installation of each part of the Work. Each contractor shall coordinate its operations with operations, included in different Sections, that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
2. Coordinate installation of different components with other contractors to ensure maximum performance and accessibility for required maintenance, service, and repair.
3. Make adequate provisions to accommodate items scheduled for later installation.

C. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.

D. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of Contractor's construction schedule.
2. Preparation of the schedule of values.
3. Installation and removal of temporary facilities and controls.
4. Delivery and processing of submittals.
5. Progress meetings.
6. Preinstallation conferences.
7. Project closeout activities.
8. Startup and adjustment of systems.

E. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.

1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. See other Sections for disposition of salvaged materials that are designated as Owner's property.

## 1.6 COORDINATION DRAWINGS

A. Coordination Drawings, General: Prepare coordination drawings according to requirements in individual Sections, and additionally where installation is not completely shown on Shop Drawings, where limited space availability necessitates coordination, or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity.

1. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information, as applicable:
  - a. Use applicable Drawings as a basis for preparation of coordination drawings. Prepare sections, elevations, and details as needed to describe relationship of various systems and components.
  - b. Coordinate the addition of trade-specific information to the coordination drawings by multiple contractors in a sequence that best provides for coordination of the information and resolution of conflicts between installed components before submitting for review.
  - c. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
  - d. Indicate space requirements for routine maintenance and for anticipated replacement of components during the life of the installation.
  - e. Show location and size of access doors required for access to concealed dampers, valves, and other controls.
  - f. Indicate required installation sequences.
  - g. Indicate dimensions shown on the Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Architect indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.

B. Coordination Drawing Organization: Organize coordination drawings as follows:

1. Floor Plans and Reflected Ceiling Plans: Show architectural and structural elements, and mechanical, plumbing, fire-protection, fire-alarm, and electrical Work. Show locations of visible ceiling-mounted devices relative to acoustical ceiling grid. Supplement plan drawings with section drawings where required to adequately represent the Work.
  2. Plenum Space: Indicate subframing for support of ceiling and wall systems, mechanical and electrical equipment, and related Work. Locate components within ceiling plenum to accommodate layout of light fixtures indicated on Drawings. Indicate areas of conflict between light fixtures and other components.
  3. Mechanical Rooms: Provide coordination drawings for mechanical rooms showing plans and elevations of mechanical, plumbing, fire-protection, fire-alarm, and electrical equipment.
  4. Structural Penetrations: Indicate penetrations and openings required for all disciplines.
  5. Slab Edge and Embedded Items: Indicate slab edge locations and sizes and locations of embedded items for metal fabrications, sleeves, anchor bolts, bearing plates, angles, door floor closers, slab depressions for floor finishes, curbs and housekeeping pads, and similar items.
  6. Mechanical and Plumbing Work: Show the following:
    - a. Sizes and bottom elevations of ductwork, piping, and conduit runs, including insulation, bracing, flanges, and support systems.
    - b. Dimensions of major components, such as dampers, valves, diffusers, access doors, cleanouts and electrical distribution equipment.
    - c. Fire-rated enclosures around ductwork.
  7. Electrical Work: Show the following:
    - a. Runs of vertical and horizontal conduit 1-1/4 inches in diameter and larger.
    - b. Light fixture, exit light, emergency battery pack, smoke detector, and other fire-alarm locations.
    - c. Panel board, switch board, switchgear, transformer, busway, generator, and motor control center locations.
    - d. Location of pull boxes and junction boxes, dimensioned from column center lines.
  8. Fire-Protection System: Show the following:
    - a. Locations of standpipes, mains piping, branch lines, pipe drops, and sprinkler heads.
  9. Review: Architect will review coordination drawings to confirm that the Work is being coordinated, but not for the details of the coordination, which are Contractor's responsibility. If Architect determines that coordination drawings are not being prepared in sufficient scope or detail, or are otherwise deficient, Architect will so inform Contractor, who shall make changes as directed and resubmit.
  10. Coordination Drawing Prints: Prepare coordination drawing prints according to requirements in Section 013300 "Submittal Procedures."
- C. Coordination Digital Data Files: Prepare coordination digital data files according to the following requirements:
1. File Preparation Format: Same digital data software program, version, and operating system as original Drawings.

2. Architect will furnish Contractor one set of digital data files of Drawings for use in preparing coordination digital data files.
  - a. Architect makes no representations as to the accuracy or completeness of digital data files as they relate to Drawings.
  - b. Contractor shall execute a data licensing agreement in the form of Agreement acceptable to Owner and Architect.

#### 1.7 REQUESTS FOR INFORMATION (RFIs)

- A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.
  1. Architect will return RFIs submitted to Architect by other entities controlled by Contractor with no response.
  2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
- B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:
  1. Project name.
  2. Project number.
  3. Date.
  4. Name of Contractor.
  5. Name of Architect and Construction Manager.
  6. RFI number, numbered sequentially.
  7. RFI subject.
  8. Specification Section number and title and related paragraphs, as appropriate.
  9. Drawing number and detail references, as appropriate.
  10. Field dimensions and conditions, as appropriate.
  11. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
  12. Contractor's signature.
  13. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
    - a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.
- C. RFI Forms: AIA Document G716.
  1. Attachments shall be electronic files in Adobe Acrobat PDF format.
- D. Architect's and Construction Manager's Action: Architect and Construction Manager will review each RFI, determine action required, and respond. Allow seven working days for Architect's response for each RFI. RFIs received by Architect or Construction Manager after 1:00 p.m. will be considered as received the following working day.

1. The following Contractor-generated RFIs will be returned without action:
    - a. Requests for approval of submittals.
    - b. Requests for approval of substitutions.
    - c. Requests for approval of Contractor's means and methods.
    - d. Requests for coordination information already indicated in the Contract Documents.
    - e. Requests for adjustments in the Contract Time or the Contract Sum.
    - f. Requests for interpretation of Architect's actions on submittals.
    - g. Incomplete RFIs or inaccurately prepared RFIs.
  2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt of additional information.
  3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Section 012600 "Contract Modification Procedures."
    - a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect and Construction Manager in writing within 10 days of receipt of the RFI response.
- E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly. Include the following:
1. Project name.
  2. Name and address of Contractor.
  3. Name and address of Architect and Construction Manager.
  4. RFI number including RFIs that were returned without action or withdrawn.
  5. RFI description.
  6. Date the RFI was submitted.
  7. Date Architect's and Construction Manager's response was received.
- F. On receipt of Architect's and Construction Manager's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect and Construction Manager within seven days if Contractor disagrees with response.
1. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
  2. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.
  3. All RFI responses with a change to contract time and/or sum must have an issues number and associated CB (Construction Bulletin).
- 1.8 PROJECT MEETINGS
- A. General: Construction Manager will schedule and conduct meetings and conferences at Project site unless otherwise indicated.



1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.
  2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
  3. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner, Construction Manager, and Architect, within three days of the meeting.
- B. Preconstruction Conference: Construction Manager will schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than 15 days after execution of the Agreement.
1. Conduct the conference to review responsibilities and personnel assignments.
  2. Attendees: Authorized representatives of Owner, Construction Manager, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
  3. Agenda: Discuss items of significance that could affect progress, including the following:
    - a. Tentative construction schedule.
    - b. Phasing.
    - c. Critical work sequencing and long-lead items.
    - d. Designation of key personnel and their duties.
    - e. Lines of communications.
    - f. Procedures for processing field decisions and Change Orders.
    - g. Procedures for RFIs.
    - h. Procedures for testing and inspecting.
    - i. Procedures for processing Applications for Payment.
    - j. Distribution of the Contract Documents.
    - k. Submittal procedures.
    - l. Preparation of record documents.
    - m. Use of the premises and existing buildings.
    - n. Work restrictions.
    - o. Working hours.
    - p. Owner's occupancy requirements.
    - q. Responsibility for temporary facilities and controls.
    - r. Procedures for moisture and mold control.
    - s. Procedures for disruptions and shutdowns.
    - t. Construction waste management and recycling.
    - u. Parking availability.
    - v. Office, work, and storage areas.
    - w. Equipment deliveries and priorities.
    - x. First aid.
    - y. Security.
    - z. Progress cleaning.
  4. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.

- C. **Project Closeout Conference:** Construction Manager will schedule and conduct a project closeout conference, at a time convenient to Owner and Architect, but no later than 30 days prior to the scheduled date of Substantial Completion.
1. Conduct the conference to review requirements and responsibilities related to Project closeout.
  2. Attendees: Authorized representatives of Owner, Construction Manager, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the meeting. Participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
  3. Agenda: Discuss items of significance that could affect or delay Project closeout, including the following:
    - a. Preparation of record documents.
    - b. Procedures required prior to inspection for Substantial Completion and for final inspection for acceptance.
    - c. Submittal of written warranties.
    - d. Requirements for preparing operations and maintenance data.
    - e. Requirements for delivery of material samples, attic stock, and spare parts.
    - f. Requirements for demonstration and training.
    - g. Preparation of Contractor's punch list.
    - h. Procedures for processing Applications for Payment at Substantial Completion and for final payment.
    - i. Submittal procedures.
    - j. Coordination of separate contracts.
    - k. Owner's partial occupancy requirements.
    - l. Installation of Owner's furniture, fixtures, and equipment.
    - m. Responsibility for removing temporary facilities and controls.
  4. Minutes: Entity conducting meeting will record and distribute meeting minutes.
- D. **Progress Meetings:** Construction Manager will conduct progress meetings at regular intervals.
1. Coordinate dates of meetings with preparation of payment requests.
  2. Attendees: In addition to representatives of Owner, Construction Manager, and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
  3. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
    - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
      - 1) Review schedule for next period.

- b. Review present and future needs of each entity present, including the following:
  - 1) Interface requirements.
  - 2) Sequence of operations.
  - 3) Resolution of BIM component conflicts.
  - 4) Status of submittals.
  - 5) Deliveries.
  - 6) Off-site fabrication.
  - 7) Access.
  - 8) Site utilization.
  - 9) Temporary facilities and controls.
  - 10) Progress cleaning.
  - 11) Quality and work standards.
  - 12) Status of correction of deficient items.
  - 13) Field observations.
  - 14) Status of RFIs.
  - 15) Status of proposal requests.
  - 16) Pending changes.
  - 17) Status of Change Orders.
  - 18) Pending claims and disputes.
  - 19) Documentation of information for payment requests.
- 4. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.
  - a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.
- E. Coordination Meetings: Construction Manager will conduct Project coordination meetings at regular intervals. Project coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and preinstallation conferences.
  - 1. Attendees: In addition to representatives of Owner, Construction Manager, and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meetings shall be familiar with Project and authorized to conclude matters relating to the Work.
  - 2. Agenda: Review and correct or approve minutes of the previous coordination meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
    - a. Combined Contractor's Construction Schedule: Review progress since the last coordination meeting. Determine whether each contract is on time, ahead of schedule, or behind schedule, in relation to combined Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

- b. Schedule Updating: Revise combined Contractor's construction schedule after each coordination meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with report of each meeting.
  - c. Review present and future needs of each contractor present, including the following:
    - 1) Interface requirements.
    - 2) Sequence of operations.
    - 3) Resolution of BIM component conflicts.
    - 4) Status of submittals.
    - 5) Deliveries.
    - 6) Off-site fabrication.
    - 7) Access.
    - 8) Site utilization.
    - 9) Temporary facilities and controls.
    - 10) Work hours.
    - 11) Hazards and risks.
    - 12) Progress cleaning.
    - 13) Quality and work standards.
    - 14) Change Orders.
3. Reporting: Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100

## SECTION 013200 - CONSTRUCTION PROGRESS DOCUMENTATION

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
  - 1. Startup construction schedule.
  - 2. Contractor's construction schedule.
  - 3. Construction schedule updating reports.
  - 4. Daily construction reports.
  - 5. Material location reports.
  - 6. Site condition reports.
  - 7. Special reports.
- B. Related Requirements:
  - 1. Section 011200 "Summary of Work" for preparing a combined Contractor's construction schedule.
  - 2. Section 013300 "Submittal Procedures" for submitting schedules and reports.
  - 3. Section 014000 "Quality Requirements" for submitting a schedule of tests and inspections.

#### 1.3 DEFINITIONS

- A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
  - 1. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.
  - 2. Predecessor Activity: An activity that precedes another activity in the network.
  - 3. Successor Activity: An activity that follows another activity in the network.
- B. Cost Loading: The allocation of the schedule of values for the completion of an activity as scheduled. The sum of costs for all activities must equal the total Contract Sum unless otherwise approved by Architect.

- C. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.
- D. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.
- E. Event: The starting or ending point of an activity.
- F. Float: The measure of leeway in starting and completing an activity.
  - 1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.
  - 2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
  - 3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.
- G. Resource Loading: The allocation of manpower and equipment necessary for the completion of an activity as scheduled.

#### 1.4 INFORMATIONAL SUBMITTALS

- A. Format for Submittals: Submit required submittals in the following format:
  - 1. Working electronic copy of schedule file, where indicated.
  - 2. PDF electronic file.
  - 3. Two paper copies.
- B. Startup construction schedule.
  - 1. Approval of cost-loaded, startup construction schedule will not constitute approval of schedule of values for cost-loaded activities.
- C. Startup Network Diagram: Of size required to display entire network for entire construction period. Show logic ties for activities.
- D. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.
  - 1. Submit a working electronic copy of schedule, using software indicated, and labeled to comply with requirements for submittals. Include type of schedule (initial or updated) and date on label.
- E. CPM Reports: Concurrent with CPM schedule, submit each of the following reports. Format for each activity in reports shall contain activity number, activity description, cost and resource loading, original duration, remaining duration, early start date, early finish date, late start date, late finish date, and total float in calendar days.

1. Activity Report: List of all activities sorted by activity number and then early start date, or actual start date if known.
  2. Logic Report: List of preceding and succeeding activities for all activities, sorted in ascending order by activity number and then early start date, or actual start date if known.
  3. Total Float Report: List of all activities sorted in ascending order of total float.
- F. Construction Schedule Updating Reports: Submit with Applications for Payment.
- G. Daily Construction Reports: Submit at weekly intervals.
- H. Material Location Reports: Submit at weekly intervals.
- I. Site Condition Reports: Submit at time of discovery of differing conditions.
- J. Special Reports: Submit at time of unusual event.
- K. Qualification Data: For scheduling consultant.

## 1.5 COORDINATION

- A. Coordinate Contractor's construction schedule with the schedule of values, submittal schedule, progress reports, payment requests, and other required schedules and reports.
1. Secure time commitments for performing critical elements of the Work from entities involved.
  2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

## PART 2 - PRODUCTS

### 2.1 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

- A. Time Frame: Extend schedule from date established for the Notice to Proceed to date of final completion.
1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.
- B. Activities: Treat each story or separate area as a separate numbered activity for each main element of the Work. Comply with the following:
1. Activity Duration: Define activities so no activity is longer than 20 days, unless specifically allowed by Architect.
  2. Procurement Activities: Include procurement process activities for the following long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.

3. Submittal Review Time: Include review and resubmittal times indicated in Section 013300 "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's construction schedule with submittal schedule.
  4. Startup and Testing Time: Include no fewer than 15 days for startup and testing.
  5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's and Construction Manager's administrative procedures necessary for certification of Substantial Completion.
  6. Punch List and Final Completion: Include not more than 30 days for completion of punch list items and final completion.
- C. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.
1. Phasing: Arrange list of activities on schedule by phase.
  2. Work under More Than One Contract: Include a separate activity for each contract.
  3. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.
  4. Products Ordered in Advance: Include a separate activity for each product. Include delivery date indicated in Section 011000 "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
  5. Owner-Furnished Products: Include a separate activity for each product. Include delivery date indicated in Section 011000 "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
  6. Work Restrictions: Show the effect of the following items on the schedule:
    - a. Coordination with existing construction.
    - b. Limitations of continued occupancies.
    - c. Uninterruptible services.
    - d. Partial occupancy before Substantial Completion.
    - e. Use of premises restrictions.
    - f. Provisions for future construction.
    - g. Seasonal variations.
    - h. Environmental control.
  7. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:
    - a. Subcontract awards.
    - b. Submittals.
    - c. Purchases.
    - d. Mockups.
    - e. Fabrication.
    - f. Sample testing.
    - g. Deliveries.
    - h. Installation.
    - i. Tests and inspections.
    - j. Adjusting.
    - k. Curing.
    - l. Building flush-out.
    - m. Startup and placement into final use and operation.



8. Construction Areas: Identify each major area of construction for each major portion of the Work. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities to provide for the following:
    - a. Structural completion.
    - b. Temporary enclosure and space conditioning.
    - c. Permanent space enclosure.
    - d. Completion of mechanical installation.
    - e. Completion of electrical installation.
    - f. Substantial Completion.
  - D. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and final completion.
  - E. Upcoming Work Summary: Prepare summary report indicating activities scheduled to occur or commence prior to submittal of next schedule update. Summarize the following issues:
    1. Unresolved issues.
    2. Unanswered Requests for Information.
    3. Rejected or unreturned submittals.
    4. Notations on returned submittals.
    5. Pending modifications affecting the Work and Contract Time.
  - F. Recovery Schedule: When periodic update indicates the Work is 14 or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew sizes, and equipment required to achieve compliance, and date by which recovery will be accomplished.
  - G. Computer Scheduling Software: Prepare schedules using current version of a program that has been developed specifically to manage construction schedules.
    1. Use Microsoft Project, for current Windows operating system.
- 2.2 STARTUP CONSTRUCTION SCHEDULE
- A. Bar-Chart Schedule: Submit startup, horizontal, bar-chart-type construction schedule within seven days of date established for the Notice of Award.
  - B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line. Outline significant construction activities for first 90 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.
- 2.3 CONTRACTOR'S CONSTRUCTION SCHEDULE (GANTT CHART)
- A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal, Gantt-chart-type, Contractor's construction schedule within 30 days of date established for the Notice of Award.

Base schedule on the startup construction schedule and additional information received since the start of Project.

- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.
  - 1. For construction activities that require three months or longer to complete, indicate an estimated completion percentage in 10 percent increments within time bar.

## 2.4 CONTRACTOR'S CONSTRUCTION SCHEDULE (CPM SCHEDULE)

- A. General: Prepare network diagrams using AON (activity-on-node) format.
- B. Startup Network Diagram: Submit diagram within 14 days of date established for the Notice of Award. Outline significant construction activities for the first 90 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.
- C. CPM Schedule: Prepare Contractor's construction schedule using a time-scaled CPM network analysis diagram for the Work.
  - 1. Develop network diagram in sufficient time to submit CPM schedule so it can be accepted for use no later than 60 days after date established for the Notice of Award.
    - a. Failure to include any work item required for performance of this Contract shall not excuse Contractor from completing all work within applicable completion dates, regardless of Architect's approval of the schedule.
  - 2. Conduct educational workshops to train and inform key Project personnel, including subcontractors' personnel, in proper methods of providing data and using CPM schedule information.
  - 3. Establish procedures for monitoring and updating CPM schedule and for reporting progress. Coordinate procedures with progress meeting and payment request dates.
  - 4. Use "one workday" as the unit of time for individual activities. Indicate nonworking days and holidays incorporated into the schedule in order to coordinate with the Contract Time.
- D. CPM Schedule Preparation: Prepare a list of all activities required to complete the Work. Using the startup network diagram, prepare a skeleton network to identify probable critical paths.
  - 1. Activities: Indicate the estimated time duration, sequence requirements, and relationship of each activity in relation to other activities. Include estimated time frames for the following activities:
    - a. Preparation and processing of submittals.
    - b. Mobilization and demobilization.
    - c. Purchase of materials.
    - d. Delivery.
    - e. Fabrication.
    - f. Utility interruptions.

- g. Installation.
  - h. Work by Owner that may affect or be affected by Contractor's activities.
  - i. Testing and commissioning.
  - j. Punch list and final completion.
  - k. Activities occurring following final completion.
- 2. Critical Path Activities: Identify critical path activities, including those for interim completion dates. Scheduled start and completion dates shall be consistent with Contract milestone dates.
- 3. Processing: Process data to produce output data on a computer-drawn, time-scaled network. Revise data, reorganize activity sequences, and reproduce as often as necessary to produce the CPM schedule within the limitations of the Contract Time.
- E. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using a network fragment to demonstrate the effect of the proposed change on the overall project schedule.
- F. Initial Issue of Schedule: Prepare initial network diagram from a sorted activity list indicating straight "early start-total float." Identify critical activities. Prepare tabulated reports showing the following:
  - 1. Contractor or subcontractor and the Work or activity.
  - 2. Description of activity.
  - 3. Main events of activity.
  - 4. Immediate preceding and succeeding activities.
  - 5. Early and late start dates.
  - 6. Early and late finish dates.
  - 7. Activity duration in workdays.
  - 8. Total float or slack time.
  - 9. Average size of workforce.
  - 10. Dollar value of activity (coordinated with the schedule of values).
- G. Schedule Updating: Concurrent with making revisions to schedule, prepare tabulated reports showing the following:
  - 1. Identification of activities that have changed.
  - 2. Changes in early and late start dates.
  - 3. Changes in early and late finish dates.
  - 4. Changes in activity durations in workdays.
  - 5. Changes in the critical path.
  - 6. Changes in total float or slack time.
  - 7. Changes in the Contract Time.

## 2.5 REPORTS

- A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:
  - 1. List of subcontractors at Project site.
  - 2. List of separate contractors at Project site.

3. Approximate count of personnel at Project site.
4. Equipment at Project site.
5. Material deliveries.
6. High and low temperatures and general weather conditions, including presence of rain or snow.
7. Accidents.
8. Meetings and significant decisions.
9. Unusual events (see special reports).
10. Stoppages, delays, shortages, and losses.
11. Meter readings and similar recordings.
12. Emergency procedures.
13. Orders and requests of authorities having jurisdiction.
14. Change Orders received and implemented.
15. Construction Change Directives received and implemented.
16. Services connected and disconnected.
17. Equipment or system tests and startups.
18. Partial completions and occupancies.
19. Substantial Completions authorized.

- B. Material Location Reports: At weekly intervals, prepare and submit a comprehensive list of materials delivered to and stored at Project site. List shall be cumulative, showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for materials or items of equipment fabricated or stored away from Project site. Indicate the following categories for stored materials:

1. Material stored prior to previous report and remaining in storage.
2. Material stored prior to previous report and since removed from storage and installed.
3. Material stored following previous report and remaining in storage.

- C. Site Condition Reports: Immediately on discovery of a difference between site conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

## 2.6 SPECIAL REPORTS

- A. General: Submit special reports directly to Owner within one day(s) of an occurrence. Distribute copies of report to parties affected by the occurrence.
- B. Reporting Unusual Events: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.

### PART 3 - EXECUTION

#### 3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.
  - 1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
  - 2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
  - 3. As the Work progresses, indicate final completion percentage for each activity.
- B. Distribution: Distribute copies of approved schedule to Architect, Construction Manager, Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
  - 1. Post copies in Project meeting rooms and temporary field offices.
  - 2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION 013200



## SECTION 013300 - SUBMITTAL PROCEDURES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.
- B. Related Requirements:
  - 1. Section 012900 "Payment Procedures" for submitting Applications for Payment and the schedule of values.
  - 2. Section 013200 "Construction Progress Documentation" for submitting schedules and reports, including Contractor's construction schedule.
  - 3. Section 017823 "Operation and Maintenance Data" for submitting operation and maintenance manuals.
  - 4. Section 017839 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.
  - 5. Section 017900 "Demonstration and Training" for demonstration of equipment and training of Owner's personnel.

#### 1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require Architect's and Construction Manager's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."
- B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's and Construction Manager's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."
- C. Master Library: Communications protocol that enables transfer of files to and from another computer via the internet. Master Library is a cloud based system within which project team members are able to access and transmit project files and information. This system will be used for the submission and review of all project submittals (unless the Architect requires otherwise), RFIs, and various other project documents.
- D. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

#### 1.4 ACTION SUBMITTALS

- A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and Construction Manager and additional time for handling and reviewing submittals required by those corrections.
1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
  2. Initial Submittal: Submit concurrently with startup construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
  3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.
    - a. Submit revised submittal schedule to reflect changes in current status and timing for submittals.
  4. Format: Arrange the following information in a tabular format:
    - a. Scheduled date for first submittal.
    - b. Specification Section number and title.
    - c. Submittal category: Action; informational.
    - d. Name of subcontractor.
    - e. Description of the Work covered.
    - f. Scheduled date for Architect's and Construction Manager's final release or approval.
    - g. Scheduled date of fabrication.
    - h. Scheduled dates for purchasing.
    - i. Scheduled dates for installation.
    - j. Activity or event number.

#### 1.5 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

- A. Architect's Digital Data Files: Electronic digital data files of the Contract Drawings will be provided by Architect for Contractor's use in preparing submittals.
1. Architect will furnish Contractor one set of digital data drawing files of the Contract Drawings for use in preparing Shop Drawings and Project record drawings.
    - a. Architect makes no representations as to the accuracy or completeness of digital data drawing files as they relate to the Contract Drawings.
    - b. Digital Drawing Software Program: The Contract Drawings are available in AutoCAD 2012.
    - c. Contractor shall execute a data licensing agreement in the form of Agreement included in Project Manual.
    - d. The following digital data files will be furnished for each appropriate discipline:



- 1) Floor plans.
  - 2) Reflected ceiling plans.
- B. Project Submittals are to be Submitted via Master Library: All project submittals will be submitted via an online cloud system on this project; unless the Architect decides to require paper copy submittals of certain large size (over 11"x17") shop drawings, or other submittals, at his discretion. The cloud based system being used is Master Library, and the Contractors will receive training on the use of this system at or right after the project kickoff meeting. The Contractor's project manager and administrative worker working on this project will be required to attend this Master Library training session. The Master Library system will also be used to submit RFIs, and to exchange some other project paperwork.
- C. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
  2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
  3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
  4. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
    - a. Architect and Construction Manager reserve the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- D. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Construction Manager's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Construction Manager will advise Contractor when a submittal being processed must be delayed for coordination.
  2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
  3. Resubmittal Review: Allow 15 days for review of each resubmittal.
  4. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is indicated, allow 21 days for initial review of each submittal.
  5. Concurrent Consultant Review: Where the Contract Documents indicate that submittals may be transmitted simultaneously to Architect and to Architect's consultants, allow 15 days for review of each submittal. Submittal will be returned to Construction Manager, through Architect, before being returned to Contractor.
- E. Paper Submittals: Place a permanent label or title block on each submittal item for identification.

1. Indicate name of firm or entity that prepared each submittal on label or title block.
2. Provide a space approximately 6 by 8 inches on label or beside title block to record Contractor's review and approval markings and action taken by Architect and Construction Manager.
3. Include the following information for processing and recording action taken:
  - a. Project name.
  - b. Date.
  - c. Name of Architect.
  - d. Name of Construction Manager.
  - e. Name of Contractor.
  - f. Name of subcontractor.
  - g. Name of supplier.
  - h. Name of manufacturer.
  - i. Submittal number or other unique identifier, including revision identifier.
    - 1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 061000.01.A).
  - j. Number and title of appropriate Specification Section.
  - k. Drawing number and detail references, as appropriate.
  - l. Location(s) where product is to be installed, as appropriate.
  - m. Other necessary identification.
4. Additional Paper Copies: Unless additional copies are required for final submittal, and unless Architect or Construction Manager observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.
  - a. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Architect and Construction Manager.
5. Transmittal for Paper Submittals: Assemble each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form on the Master Library website. Construction Manager will return without review submittals received from sources other than Contractor.
  - a. Transmittal Form for Paper Submittals: Use facsimile of sample form included in Project Manual.
  - b. Transmittal Form for Paper Submittals: Provide locations on form for the following information:
    - 1) Project name.
    - 2) Date.
    - 3) Destination (To:).
    - 4) Source (From:).
    - 5) Name and address of Architect.
    - 6) Name of Construction Manager.
    - 7) Name of Contractor.
    - 8) Name of firm or entity that prepared submittal.

- 9) Names of subcontractor, manufacturer, and supplier.
- 10) Category and type of submittal.
- 11) Submittal purpose and description.
- 12) Specification Section number and title.
- 13) Specification paragraph number or drawing designation and generic name for each of multiple items.
- 14) Drawing number and detail references, as appropriate.
- 15) Indication of full or partial submittal.
- 16) Transmittal number, numbered consecutively.
- 17) Submittal and transmittal distribution record.
- 18) Remarks.
- 19) Signature of transmitter.

## PART 2 - PRODUCTS

### 2.1 SUBMITTAL PROCEDURES

- A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
  1. Action Submittals: Submit each submittal using the **Master Library** system (information available at [www.masterlibrary.com](http://www.masterlibrary.com), all Contractors will receive training on the use of this system after Contract award), unless otherwise indicated. Architect will return reviewed submittals via **Master Library**.
  2. Informational Submittals: Submit each submittal via **Master Library** unless otherwise indicated. Architect and Construction Manager will not return copies.
  3. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
    - a. Provide a digital signature with digital certificate on electronically submitted certificates and certifications where indicated.
    - b. Provide a notarized statement on original paper copy certificates and certifications where indicated.
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
  1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
  2. Mark each copy of each submittal to show which products and options are applicable.
  3. Include the following information, as applicable:
    - a. Manufacturer's catalog cuts.
    - b. Manufacturer's product specifications.
    - c. Standard color charts.
    - d. Statement of compliance with specified referenced standards.

- e. Testing by recognized testing agency.
  - f. Application of testing agency labels and seals.
  - g. Notation of coordination requirements.
  - h. Availability and delivery time information.
- 4. For equipment, include the following in addition to the above, as applicable:
  - a. Wiring diagrams showing factory-installed wiring.
  - b. Printed performance curves.
  - c. Operational range diagrams.
  - d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
- 5. Submit Product Data before or concurrent with Samples.
- 6. Submit Product Data in the following format:
  - a. Submit Product Data via **Master Library** unless otherwise indicated. Architect will return reviewed submittal via **Master Library**.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data, unless submittal based on Architect's digital data drawing files is otherwise permitted.
  - 1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
    - a. Identification of products.
    - b. Schedules.
    - c. Compliance with specified standards.
    - d. Notation of coordination requirements.
    - e. Notation of dimensions established by field measurement.
    - f. Relationship and attachment to adjoining construction clearly indicated.
    - g. Seal and signature of professional engineer if specified.
  - 2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches, but no larger than 30 by 42 inches.
  - 3. Submit Shop Drawings in the following format:
    - a. Three opaque copies of each submittal for shop drawings larger than 11' x 17". Architect and Construction Manager will retain two copies; remainder will be returned.
- D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
  - 1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package. A transmittal detailing the sample delivery to the CM or Architect will need to be submitted via **Master Library**.
  - 2. Identification: Attach label on unexposed side of Samples that includes the following:

- a. Generic description of Sample.
- b. Product name and name of manufacturer.
- c. Sample source.
- d. Number and title of applicable Specification Section.
- e. Specification paragraph number and generic name of each item.

Provide corresponding electronic submittal of Sample transmittal via **Master Library**, illustrating Sample characteristics, delivery date, and identification information for record.

3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
  - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
  - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
  - a. Number of Samples: Submit two full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect, through Construction Manager, will return submittal with options selected.
5. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
  - a. Number of Samples: Submit three sets of Samples. Architect and Construction Manager will retain two Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a project record sample.
    - 1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
    - 2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.

- E. Product Schedule: As required in individual Specification Sections, prepare a summary using Microsoft Word or Excel indicating types of products required for the Work and their intended location. Include the following information in tabular form:
  - 1. Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.
  - 2. Manufacturer and product name, and model number if applicable.
  - 3. Number and name of room or space.
  - 4. Location within room or space.
  - 5. Submit product schedule in the following format:
    - a. Digital copy of product schedule or list unless otherwise indicated. Architect, through Construction Manager, will review and return.
- F. Coordination Drawing Submittals: Comply with requirements specified in Section 013100 "Project Management and Coordination."
- G. Contractor's Construction Schedule: Comply with requirements specified in Section 013200 "Construction Progress Documentation."
- H. Application for Payment and Schedule of Values: Comply with requirements specified in Section 012900 "Payment Procedures."
- I. Test and Inspection Reports and Schedule of Tests and Inspections Submittals: Comply with requirements specified in Section 014000 "Quality Requirements."
- J. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Section 017700 "Closeout Procedures."
- K. Maintenance Data: Comply with requirements specified in Section 017823 "Operation and Maintenance Data."
- L. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.
- M. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.
- N. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
- O. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- P. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

- Q. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- R. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
- S. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- T. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
  - 1. Name of evaluation organization.
  - 2. Date of evaluation.
  - 3. Time period when report is in effect.
  - 4. Product and manufacturers' names.
  - 5. Description of product.
  - 6. Test procedures and results.
  - 7. Limitations of use.
- U. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
- V. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- W. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
- X. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

## 2.2 DELEGATED-DESIGN SERVICES

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional licensed in NYS are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
  - 1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.
- B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit three paper copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
  - 1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

## PART 3 - EXECUTION

### 3.1 CONTRACTOR'S REVIEW

- A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect and Construction Manager.
- B. Project Closeout and Maintenance Material Submittals: See requirements in Section 017700 "Closeout Procedures."
- C. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

### 3.2 ARCHITECT'S AND CONSTRUCTION MANAGER'S ACTION

- A. Action Submittals: Architect and Construction Manager will review each submittal, make marks to indicate corrections or revisions required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.
- B. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.



- C. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect.
- D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.
- E. Submittals not required by the Contract Documents may be returned by the Architect without action.

END OF SECTION 013300



## SECTION 013500 - ELECTRONIC DOCUMENT TRANSFER

### PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.02 SUMMARY

- A. This Section includes administrative and procedural requirements for the request and transfer of electronic documents from the Architect to the Contractor, Subcontractors and the associated Equipment Vendors.
- B. Electronic Documents include, but are not limited to, the following:
  - 1. Floor Plan drawings.
  - 2. Detail drawings.
  - 3. Tables and charts.
- C. Transfer of documents includes, but is limited to, the following:
  - 1. Computer disks and CDs.
  - 2. E-mail attachments.
- D. All drawings, specifications or other documents of any kind prepared by the Architect or its sub-consultants, whether in hard copy or any electronic or machine readable format, including Electronic Documents are, and shall remain, instruments of their services. These Instruments of Services were prepared solely for use in connection with this Project. The Architect and its subconsultants retain all common law, statutory and other reserved rights, including the copyright.
- E. The Electronic Documents are provided as a convenience to the Contractor for informational purposes only in connection with the Contractor's performance of its responsibilities and obligations relating to the Project. The Electronic Documents do not replace or supplement the paper copies of the Drawings and Specifications which are, and remain, the Contract Documents for the Project or the paper copies of any other document prepared by the Architect or its subconsultants.
- F. If any differences exist between printed Instruments of Services and the Electronic Documents, the information contained in the printed documents shall be presumed to be correct and shall take precedence over the Electronic Documents.
- G. Contractor agrees and understands that field conditions may alter or modify the configuration, products, materials, and installation of the information shown on the electronic documents. Contractor shall be fully responsible to verify all field conditions and if applicable to modify the electronic documents to the actual conditions prior to use of the documents. These documents are provided as a convenience only, and do not change the responsibility of the Contractor as outlined in the Drawings and Specifications.
- H. Architect will not be responsible for, or required to provide assistance to the Contractor in the plotting or printing of any documents.

#### 1.03 ELECTRONIC DOCUMENT TRANSFER PROCEDURES

#### ELECTRONIC DOCUMENT TRANSFER

- A. Coordination: Coordinate transfer requests with performance of construction activities. Transmit each request to the Owner Representative and A/E sufficiently in advance of scheduled needs to avoid delay.
  - 1. Processing: To avoid the need to delay installation as a result of the time required to process document transfers:
    - a. Allow 10 working days for the Architect's processing of each request, after receipt of a written request and the required processing fee.
    - b. The Architect will not authorize an extension of time because of the Contractor's failure to transmit requests and fees sufficiently in advance of the Work to permit processing.
- B. Electronic Document Transfer Requests: Contractor shall submit a written request for any transfer consisting of the following:
  - 1. Signed, completed copy of the attached "Electronic Document Transfer Agreement".
  - 2. List of drawing numbers and titles requested.
  - 3. A check in the proper amount for each drawing and or each specification section to cover the cost of processing the request.
  - 4. Statement of the requested software format. Drawings are only available in AutoCAD DWG format.
  - 5. Statement clarifying the document format, i.e. either a CD copy or issue as an e-mail attachment.

## PART 2 – PRODUCTS

(Not applicable)

## PART 3 – EXECUTION

(Not applicable)

END OF SECTION 013500

ELECTRONIC DOCUMENT TRANSFER REQUEST

Date: \_\_\_\_\_  
Name: \_\_\_\_\_  
Company: \_\_\_\_\_  
Address \_\_\_\_\_  
City, State Zip \_\_\_\_\_

RE:     Hilton Central School District – Capital Projects 2013  
         LABELLA PROJECT NO.: 213128

Dear (Addressee):

Compatibility and Translations

Files will be made available in AutoCAD 2012 format only. LaBella Associates makes no warranty as to the compatibility of these files beyond the specific release of the above stated software. No guarantee is provided or implied for the compatibility or translation of neutral file formats.

Sealed Drawings Prevail

Because data stored on electronic media can deteriorate undetected or can be modified without LaBella Associates' knowledge, ( Addressee ) agrees that LaBella Associates will not be held liable for the completeness or correctness of the electronic media. LaBella Associates Stands by the accuracy of the sealed drawings that pertain to the project.

Ownership

LaBella Associates retains all ownership rights, including copyrights, of the electronic files and data.

Limitations of Liability

Any use or reuse of original or altered files by ( Addressee ) or others without written verification by LaBella Associates or CADD adaptation will be at ( Addressee )'s risk and full legal responsibility. Furthermore, ( Addressee ) will, to the fullest extent permitted by law, indemnify, defend and hold LaBella Associates, its officers, directors, agents, and employees harmless from any and all claims, suits, liability, demands or costs, including reasonable attorney's fees, arising out of or resulting there from.

Handling Fee

The Handling fee required for the service of processing the requested electronic files is \$200.00 for the first sheet, and \$100.00 for every sheet there after. Please attach check or money order made payable to LaBella Associates, P.C. to this form when submitted.

Requested Drawings

Addressee shall attach a written list of documents requested with specific sheet number and name.

---

(LIST SHEET NUMBERS ONLY HERE)

(CONTRACTOR'S PROJECT MANAGER)

\_\_\_\_\_  
( Addressee )

cc:     (PM), File

CAD RELEASE FORM



## **AGREEMENT FOR DELIVERY OF DOCUMENTS IN ELECTRONIC FORMAT**

In connection with the **PROJECT NAME**, for which LaBella Associates, D.P.C. has been retained to provide services, **CLIENT NAME** has requested that LaBella Associates provide recipient with certain instruments of services prepared by LaBella Associates and its Subconsultants in electronic machine readable format. These documents in such format shall hereinafter be referred to as the "Electronic Documents". In consideration LaBella Associates' agreement to release electronic documents, the recipient agrees as follows:

1. It is understood and agreed that all drawings, specifications, data, or other documents of any kind prepared by LaBella Associates or its Subconsultants, whether in hard copy or any electronic or machine readable format, including electronic documents (collectively "Electronic Documents") are, and shall remain, instruments of their services. These Electronic Documents were prepared solely for use in connection with this project. This agreement is not intended in any way to alter the respective interests of the parties in the instruments of services as set forth in any agreement for services between recipient and LaBella Associates, notwithstanding LaBella Associates' agreement to release the Electronic Documents to recipient.
2. The Electronic Documents are provided as a convenience to the recipient for informational purposes only in connection with the recipient's performance of its responsibilities and obligations relating to the project. The Electronic Documents do not replace or supplement the paper copies of the drawings and specifications which are, and remain, the contract documents for the project or the paper copies of any other document prepared by LaBella Associates or its Subconsultants.
3. The parties agree that the Electronic Documents are not, nor shall they be construed to be a product. It is expressly agreed by the recipient that there are no warranties of any kind in such Electronic Documents or in the media in which they are contained, either expressed or implied.
4. It is further understood and agreed that no Electronic Documents shall be signed or sealed.
5. If any differences exist between printed instruments of services and the Electronic Documents, the information contained in the printed documents shall be presumed to be correct and take precedence over the Electronic Documents.
6. Recipient assumes all liability that results from any interpretation of, or modification or alteration in any way, to the Electronic Documents.
7. The Electronic Documents may be supplied in any commercially available or privately developed software which may include but shall not be limited to the following: STAAD, Adobe Acrobat, Bentley products such as MicroStation, Autodesk products such as AutoCAD and Revit, Microsoft products such as Word, Excel, PowerPoint, or MS Project. Transfer of Electronic Documents in no way conveys right or license to use the underlying software nor extinguish the rights of LaBella Associates to reuse the information in the general course of professional practice.

8. It is understood by recipient that the media in which any Electronic Documents are transmitted can deteriorate over time and under various conditions. LaBella Associates is not responsible for such deterioration. In addition, any conversion of the format is solely the responsibility of the recipient. Recipient understands that the conversion of paper copies of instruments of services into electronic or machine readable format, or the conversion of Electronic Documents from the machine readable format used by LaBella Associates, to some other format may introduce errors or other inaccuracies and agrees to release LaBella Associates and its Subconsultants from any liability or claims for recovery of damages or expenses arising as the result of such errors or inaccuracies.
9. Where the recipient has received specific permission to use the Electronic Documents in connection with recipient's obligation to prepare certain documents for the project, recipient shall, in addition to the other obligations set forth herein, be obligated to remove LaBella Associates' or the Subconsultant's title block from the copy of the Electronic Documents used by recipient.
10. Recipient further agrees that LaBella Associates' documents were prepared for use in connection with this project only, and that the Electronic Documents are supplied to recipient for the limited purpose stated above only. Recipient agrees not to use, or allow others to use, the Electronic Documents, in whole or in part, for any purpose or project other than as stated above without the expressed prior written permission of LaBella Associates.
11. Recipient agrees to waive any and all claims and liability against LaBella Associates and its Subconsultants resulting in any way from any failure by recipient to comply with the requirements of this agreement for the delivery of documents in electronic format.
12. Recipient further agrees to indemnify and hold harmless LaBella Associates and its Subconsultants and each of their partners, officers, shareholders, directors, and employees from any and all claims, judgments, suits, liabilities, damages, costs, or expenses (including reasonable defense and attorney's fees) arising as the result of either: (1) recipient's failure to comply with any of the requirements of this agreement for the delivery of documents in electronic format; or (2) a defect, error, or omission in the Electronic Documents or the information contained therein, which defect, error, or omission was not contained in the contract documents as defined in Paragraph 2 or where the use of such contract documents would have prevented the claim, judgment, suit, liability, damage, cost, or expense.

---

Signature, Representative of **Recipient**



## SECTION 014000 - QUALITY REQUIREMENTS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Related Sections'
  - 1. Section 014110 "Special Inspections and Testing" for testing and inspecting services are required to verify compliance with requirements specified or indicated.

#### 1.3 DEFINITIONS

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect or Construction Manager.
- C. Mockups: Full-size physical assemblies that are constructed on-site. Mockups are constructed to verify selections made under Sample submittals; to demonstrate aesthetic effects and, where indicated, qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not Samples. Unless otherwise indicated, approved mockups establish the standard by which the Work will be judged.
  - 1. Laboratory Mockups: Full-size physical assemblies constructed at testing facility to verify performance characteristics.
  - 2. Integrated Exterior Mockups: Mockups of the exterior envelope erected separately from the building but on Project site, consisting of multiple products, assemblies, and subassemblies.
  - 3. Room Mockups: Mockups of typical interior spaces complete with wall, floor, and ceiling finishes, doors, windows, millwork, casework, specialties, furnishings and equipment, and lighting.

- D. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria.
- E. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.
- F. Source Quality-Control Testing: Tests and inspections that are performed at the source, e.g., plant, mill, factory, or shop.
- G. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- H. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- I. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
  - 1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).
- J. Experienced: When used with an entity or individual, "experienced" means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

#### 1.4 CONFLICTING REQUIREMENTS

- A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Architect for a decision before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

#### 1.5 INFORMATIONAL SUBMITTALS

- A. Contractor's Quality-Control Plan: For quality-assurance and quality-control activities and responsibilities.

- B. Qualification Data : For Contractor's quality-control personnel.
- C. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility sent to authorities having jurisdiction before starting work on the following systems:
  - 1. Seismic-force-resisting system, designated seismic system, or component listed in the designated seismic system quality-assurance plan prepared by Architect.
  - 2. Main wind-force-resisting system or a wind-resisting component listed in the wind-force-resisting system quality-assurance plan prepared by Architect.
- D. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- E. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
  - 1. Specification Section number and title.
  - 2. Entity responsible for performing tests and inspections.
  - 3. Description of test and inspection.
  - 4. Identification of applicable standards.
  - 5. Identification of test and inspection methods.
  - 6. Number of tests and inspections required.
  - 7. Time schedule or time span for tests and inspections.
  - 8. Requirements for obtaining samples.
  - 9. Unique characteristics of each quality-control service.

#### 1.6 CONTRACTOR'S QUALITY-CONTROL PLAN

- A. Quality-Control Plan, General: Submit quality-control plan within 10 days of Notice to Proceed, and not less than five days prior to preconstruction conference. Submit in format acceptable to Architect. Identify personnel, procedures, controls, instructions, tests, records, and forms to be used to carry out Contractor's quality-assurance and quality-control responsibilities. Coordinate with Contractor's construction schedule.
- B. Submittal Procedure: Describe procedures for ensuring compliance with requirements through review and management of submittal process. Indicate qualifications of personnel responsible for submittal review.
- C. Testing and Inspection: In quality-control plan, include a comprehensive schedule of Work requiring testing or inspection, including the following:
  - 1. Contractor-performed tests and inspections including subcontractor-performed tests and inspections. Include required tests and inspections and Contractor-elected tests and inspections.
  - 2. Special inspections required by authorities having jurisdiction and indicated on the "Statement of Special Inspections."
  - 3. Owner-performed tests and inspections indicated in the Contract Documents.

- D. Continuous Inspection of Workmanship: Describe process for continuous inspection during construction to identify and correct deficiencies in workmanship in addition to testing and inspection specified. Indicate types of corrective actions to be required to bring work into compliance with standards of workmanship established by Contract requirements and approved mockups.
- E. Monitoring and Documentation: Maintain testing and inspection reports including log of approved and rejected results. Include work Architect has indicated as nonconforming or defective. Indicate corrective actions taken to bring nonconforming work into compliance with requirements. Comply with requirements of authorities having jurisdiction.

## 1.7 REPORTS AND DOCUMENTS

- A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:
  - 1. Date of issue.
  - 2. Project title and number.
  - 3. Name, address, and telephone number of testing agency.
  - 4. Dates and locations of samples and tests or inspections.
  - 5. Names of individuals making tests and inspections.
  - 6. Description of the Work and test and inspection method.
  - 7. Identification of product and Specification Section.
  - 8. Complete test or inspection data.
  - 9. Test and inspection results and an interpretation of test results.
  - 10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
  - 11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
  - 12. Name and signature of laboratory inspector.
  - 13. Recommendations on retesting and reinspecting.
- B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:
  - 1. Name, address, and telephone number of technical representative making report.
  - 2. Statement on condition of substrates and their acceptability for installation of product.
  - 3. Statement that products at Project site comply with requirements.
  - 4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
  - 5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
  - 6. Statement whether conditions, products, and installation will affect warranty.
  - 7. Other required items indicated in individual Specification Sections.
- C. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:

1. Name, address, and telephone number of factory-authorized service representative making report.
2. Statement that equipment complies with requirements.
3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
4. Statement whether conditions, products, and installation will affect warranty.
5. Other required items indicated in individual Specification Sections.

- D. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

## 1.8 QUALITY ASSURANCE

- A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- D. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar in material, design, and extent to those indicated for this Project.
- F. Specialists: Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.
- G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 329; and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.
1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.

2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.
  - H. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
  - I. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
    1. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect, through Construction Manager, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.
  - J. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:
    1. Build mockups in location and of size indicated or, if not indicated, as directed by Architect or Construction Manager.
    2. Notify Architect and Construction Manager seven days in advance of dates and times when mockups will be constructed.
    3. Employ supervisory personnel who will oversee mockup construction. Employ workers that will be employed during the construction at Project.
    4. Demonstrate the proposed range of aesthetic effects and workmanship.
    5. Obtain Architect's and Construction Manager's approval of mockups before starting work, fabrication, or construction.
      - a. Allow seven days for initial review and each re-review of each mockup.
    6. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
    7. Demolish and remove mockups when directed unless otherwise indicated.
- 1.9 QUALITY CONTROL
- A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
    1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
    2. Payment for these services will be made from testing and inspecting allowances, as authorized by Change Orders.

3. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.
- B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities required to verify that the Work complies with requirements, whether specified or not.
1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
  2. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
    - a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.
  3. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
  4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
  5. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
  6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- C. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Section 013300 "Submittal Procedures."
- D. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.
- E. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.
- F. Testing Agency Responsibilities: Cooperate with Architect , Construction Manager, and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
1. Notify Architect , Construction Manager, and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
  2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
  3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.

4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
  5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
  6. Do not perform any duties of Contractor.
- G. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
1. Access to the Work.
  2. Incidental labor and facilities necessary to facilitate tests and inspections.
  3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
  4. Facilities for storage and field curing of test samples.
  5. Delivery of samples to testing agencies.
  6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
  7. Security and protection for samples and for testing and inspecting equipment at Project site.
- H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.
- I. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents. Coordinate and submit concurrently with Contractor's construction schedule. Update as the Work progresses.
1. Distribution: Distribute schedule to Owner, Architect, Construction Manager, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

## PART 2 - PRODUCTS (Not Used)

## PART 3 - EXECUTION

### 3.1 TEST AND INSPECTION LOG

- A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:
1. Date test or inspection was conducted.
  2. Description of the Work tested or inspected.
  3. Date test or inspection results were transmitted to Architect.
  4. Identification of testing agency or special inspector conducting test or inspection.



- B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Architect's and Construction Manager's reference during normal working hours.

### 3.2 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
  - 1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 017300 "Execution."
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 014000



## SECTION 014110 – SPECIAL INSPECTIONS & TESTING

### PART 1 – GENERAL

#### 1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division - 1 Specification sections, apply to work of this section

#### 1.02 GENERAL REQUIREMENTS

- A. Provide a program of special inspections and testing in accordance with Chapter 17 of the Building Code of New York State (2010).
- B. The program of Special Inspection and Testing is a Quality Assurance program intended to ensure that the work is performed in accordance with the Contract Documents.
- C. This specification section is intended to inform the Contractor of the Owner's quality assurance program and describe the extent of the Contractor's responsibilities regarding the program. This specification section is also intended to notify the Special Inspectors, Testing Laboratories and other Agents of the Special Inspectors of their requirements and responsibilities.

#### 1.03 SCHEDULE OF INSPECTIONS AND TESTS

- A. Refer to the lists of Special Inspections and Testing on the contract drawings for a listing and description of the required inspections and tests. Individual specification sections provide additional information regarding the nature of the inspections and tests.
- B. The services and quantities of testing specified are approximate and may vary. Actual services and quantities of testing will be determined by the Owner or Project Architect/Engineer during the construction period.
- C. The Project Engineers will determine the locations for taking sample specimens for testing in accordance with the specifications.

#### 1.04 QUALIFICATIONS

- A. The Special Inspectors shall be qualified persons, hired directly by the Owner, who demonstrate competence to the satisfaction of the Building Official, and/or Engineer of Record.
- B. The testing laboratory shall retain the services of a full time registered Professional Engineer who shall certify all test reports. This Engineer shall be responsible for the training of the testing technicians and shall be in responsible charge of the field and laboratory testing operations.
- C. Special inspections shall be performed by Special Inspectors who are certified as outlined below, or are working under the direction of a registered Professional Engineer.

1. Technicians performing sampling and testing of concrete shall be ACI certified Concrete Field Testing Technicians – Grade 1.
2. Inspectors performing inspections of concrete work such as inspections of concrete placement, batching, reinforcing placement, curing and protection, shall be ACI certified Concrete Construction Inspectors or ICBO certified Reinforced Concrete Special Inspectors.
3. Technicians performing visual inspections of welding shall be AWS Certified Welding Inspectors or ICBO certified Structural Steel and Welding Special Inspectors. Technicians performing non-destructive testing such as ultrasonic testing, radiographic testing, magnetic particle testing or dye-penetrant testing shall be certified as ASNT-TC Level II or Level III technicians.
4. Inspectors performing inspections of spray fireproofing shall be ICBO Certified Spray-Applied Fireproofing Special Inspectors.
5. Technicians performing standard tests described by specific ASTM Standards shall have training in the performance of such tests and must be able to demonstrate either by oral or written examination competence for the test to be conducted. They shall be under the supervision of a licensed Professional Engineer and shall not be permitted to independently evaluate test results.

#### 1.05 SUBMITTALS

- A. The Special Inspectors and Testing Laboratories shall submit for review a copy of their qualifications, which shall include the names and qualifications of each of the individual inspectors and technicians who will be performing inspections or tests.
- B. The Special Inspectors and Testing Laboratories shall disclose any past or present business relationship or potential conflict of interest with the Contractor or any of the Subcontractors whose work will be inspected or tested.
- C. Copies of all submittals, statements and reports, including the Final Report, shall be distributed by the Special Inspectors and Testing Laboratories as follows:
  1. Owner one copy
  2. Building Official one copy
  3. Contractor or material supplier one copy
  5. Architect one copy
  6. Engineer of Record one copy

#### 1.06 PAYMENTS

- A. The Owner will engage, at his own expense, the services of the Special Inspectors and Testing Laboratories.
- B. The cost of any retesting or re-inspection of work which fails to comply with the requirements of the Contract Documents is the responsibility of the Contractor.

#### 1.07 CONTRACTOR RESPONSIBILITIES

- A. Cooperate with the Special Inspectors and Testing Laboratories so that all inspections and testing may be performed in a timely manner, without hindrance or undue delay to the project.
- B. Review the lists of Special Inspections and Testing, and be responsible for coordinating and scheduling inspections and tests. Notify the Special Inspectors or Testing Laboratories at least 24 hours in advance of a required inspection or test. Uninspected work that required inspection may be rejected solely on that basis.
- C. Provide incidental labor and facilities to provide safe access to the work to be inspected or tested, to obtain or handle samples at the site or at the source of products to be tested, to facilitate tests and inspections, storage and curing of test samples.
  - 1. Construct a storage box on site of sufficient size to store concrete cylinders which will afford protection as required by ASTM C-31.
  - 2. Provide the laboratory with representative initial samples, in requested quantities.
  - 3. When source, quality or characteristic of an approved material changes or indicates lack of compliance with the requirements of the Contract Documents, submit additional samples of materials to testing laboratory.
  - 4. Patch areas where samples are taken for purposes of testing to the satisfaction of the Owner.
- B. Retain the latest set of construction drawings, field sketches, reviewed shop drawings and specifications at the project site for use by the inspectors and testing technicians.
- C. The Special Inspection program does not, in any way, relieve the Contractor of his obligation to perform work in accordance with the requirements of the Contract Documents, or from implementing an effective Quality Control program. All work that is to be subjected to Special Inspections shall first be reviewed by the Contractor's quality control personnel.
- D. The sole responsibility for construction site safety belongs to the Contractor.

#### 1.08 LIMITS ON AUTHORITY

- A. The Special Inspectors or Testing Laboratories may not release, revoke, alter or enlarge on the requirements of the contract documents without specific written approval of the Construction Manager.
- B. The Special Inspectors or Testing Laboratories will not have control over the Contractor's means and methods of construction.
- C. The Special Inspectors or Testing Laboratories are not responsible for construction site safety.
- D. The Special Inspectors or Testing Laboratories have no authority to stop the work.

#### 1.09 STATEMENT OF SPECIAL INSPECTIONS

- A. The Statement of Required Special Inspections and Testing is attached to this Specification Section.
- B. The Statement of Required Special Inspections and Testing will be submitted with the application for the Building Permit.

#### 1.10 RECORDS AND REPORTS

- A. Submit on a timely basis reports of each inspection or test. Reports shall include the following:
  - 1. Date of test or inspection.
  - 2. Name of inspector or technician.
  - 3. Location of specific areas of the project inspected or tested.
  - 4. Description of test or inspection, and results of same.
  - 5. Applicable ASTM or test standard.
  - 6. Weather conditions at time of test or inspection.
  - 7. Signature of special inspector or technician performing test or inspection.
- B. Any discrepancies from the Contract Documents found during a Special Inspection shall be immediately reported to the Contractor. If the discrepancies are not corrected, the special inspector shall notify the Project Architect/Engineer, Owner Representative and Building Official. Reports shall document all discrepancies identified and corrective action taken.
- C. The Testing Laboratory shall immediately notify the Project Architect/Engineer and Owner Representative by telephone or fax of any test results which fail to comply with the requirements of the Contract Documents.
- D. Inspection and test reports shall be issued within 7 days of the inspection or test. Reports may be faxed, mailed or emailed at the discretion on the inspector or testing laboratory.
- E. Provide a statement at the completion of work requiring Special Inspections from each inspection agency and testing laboratory that the work was completed in substantial conformance with the Contract Documents and that all appropriate inspections and tests were performed.

#### 1.11 FINAL REPORT OF SPECIAL INSPECTIONS

- A. Issue a Final Report of Special Inspections prior to the issuance of a Certificate of Use and Occupancy.
- B. The Final Report of Special Inspections will certify that all required inspections have been performed and will itemize any discrepancies that were not corrected or resolved.

### PART 2 – TESTING AND ALLOWANCES

#### 2.01 STATEMENT OF STRUCTURAL TESTS & INSPECTIONS

- A. The following sheets comprise the required statement and schedule of special inspections for this project. (NYSED CHECKLIST ATTACHED).

---

Notes:

- A. The qualifications of all personnel performing special inspection activities shall be subject to approval of the code enforcement official.
- B. The special inspector shall furnish inspection reports to the following:
- Code Enforcement Official
  - Owner's representative
  - Architect of Record
  - Registered Design Professional in Responsible Charge
  - Construction Manager/Prime Contractor
- C. References: All references in this statement pertain to the specific edition as specified in *Referenced Standards* of the current Building Code of New York State.
-

## Statement of Special Inspections

---

Project: *Capital Projects 2016 – Phase 2*

Location: *225 west Avenue, Hilton New York 14468*

Owner: *Hilton Central School District*

Design Professional in Responsible Charge: *Michael Ferreri, Project Manager*

This *Statement of Special Inspections* is submitted as a condition for permit issuance in accordance with the Special Inspection and Structural Testing requirements of the Building Code. It includes a schedule of Special Inspection services applicable to this project as well as the name of the Special Inspection Coordinator and the identity of other approved agencies to be retained for conducting these inspections and tests. This *Statement of Special Inspections* encompass the following disciplines:

☒ Structural      ☒ Mechanical/Electrical/Plumbing  
☒ Architectural      Other: Civil

The Special Inspection Coordinator shall keep records of all inspections and shall furnish inspection reports to the Building Official and the Registered Design Professional in Responsible Charge. Discovered discrepancies shall be brought to the immediate attention of the Contractor for correction. If such discrepancies are not corrected, the discrepancies shall be brought to the attention of the Building Official and the Registered Design Professional in Responsible Charge. The Special Inspection program does not relieve the Contractor of his or her responsibilities.

Interim reports shall be submitted to the Building Official and the Registered Design Professional in Responsible Charge.

A *Final Report of Special Inspections* documenting completion of all required Special Inspections, testing and correction of any discrepancies noted in the inspections shall be submitted prior to issuance of a Certificate of Use and Occupancy.

Job site safety and means and methods of construction are solely the responsibility of the Contractor.

Interim Report      *Weekly*  
Frequency:  
Prepared by:

Or ☐ per attached  
schedule.

\_\_\_\_\_  
(type or print name)

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

Owner's Authorization:

Building Official's Acceptance:

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date



## Schedule of Inspection and Testing Agencies

---

This Statement of Special Inspections / Quality Assurance Plan include the following building systems:

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> Soils and Foundations     | <input checked="" type="checkbox"/> Spray Fire Resistant Material   |
| <input checked="" type="checkbox"/> Cast-in-Place Concrete    | <input type="checkbox"/> Wood Construction                          |
| <input type="checkbox"/> Precast Concrete                     | <input type="checkbox"/> Exterior Insulation and Finish System      |
| <input checked="" type="checkbox"/> Masonry                   | <input checked="" type="checkbox"/> Mechanical & Electrical Systems |
| <input checked="" type="checkbox"/> Structural Steel          | <input type="checkbox"/> Architectural Systems                      |
| <input checked="" type="checkbox"/> Cold-Formed Steel Framing | <input type="checkbox"/> Special Cases                              |

Special Inspection Agencies	Firm	Address, Telephone, e-mail
1. Special Inspection Coordinator		
2. Inspector		
3. Inspector		
4. Testing Agency		
5. Testing Agency		
6. Other		

Note: The inspectors and testing agencies shall be engaged by the Owner or the Owner's Agent, and not by the Contractor or Subcontractor whose work is to be inspected or tested. Any conflict of interest must be disclosed to the Building Official, prior to commencing work.

## Quality Assurance Plan

---

### Quality Assurance for Seismic Resistance

Seismic Design Category	<i>B</i>
Quality Assurance Plan Required (Y/N)	<i>NO</i>

Description of seismic force resisting system and designated seismic systems:

*Equivalent Lateral Force Procedure for Structural Steel System not Specifically Detailed for Seismic Resistance.*

### Quality Assurance for Wind Requirements

Basic Wind Speed (3 second gust)	<i>90 mph</i>
Wind Exposure Category	<i>C</i>
Quality Assurance Plan Required (Y/N)	<i>NO</i>

Description of wind force resisting system and designated wind resisting components:

*System described above for Seismic Resistance.*

### Statement of Responsibility

Each contractor responsible for the construction or fabrication of a system or component designated above must submit a Statement of Responsibility.

### Qualifications of Inspectors and Testing Technicians

---

The qualifications of all personnel performing Special Inspection and testing activities are subject to the approval of the Building Official. The credentials of all Inspectors and testing technicians shall be provided if requested.

#### Key for Minimum Qualifications of Inspection Agents:

When the Registered Design Professional in Responsible Charge deems it appropriate that the individual performing a stipulated test or inspection have a specific certification or license as indicated below, such designation shall appear below the *Agency Number* on the Schedule.

PE/SE	Structural Engineer – a licensed PE specializing in the design of building structures
PE/GE	Geotechnical Engineer – a licensed PE specializing in soil mechanics and foundations
EIT	Engineer-In-Training – a graduate engineer who has passed the Fundamentals of Engineering examination

#### American Concrete Institute (ACI) Certification

ACI-CFTT	Concrete Field Testing Technician – Grade 1
ACI-CCI	Concrete Construction Inspector
ACI-LTT	Laboratory Testing Technician – Grade 1&2
ACI-STT	Strength Testing Technician

#### American Welding Society (AWS) Certification

AWS-CWI	Certified Welding Inspector
AWS/AISC-SSI	Certified Structural Steel Inspector

#### American Society of Non-Destructive Testing (ASNT) Certification

ASNT	Non-Destructive Testing Technician – Level II or III.
------	---

#### International Code Council (ICC) Certification

ICC-SMSI	Structural Masonry Special Inspector
ICC-SWSI	Structural Steel and Welding Special Inspector
ICC-SFSI	Spray-Applied Fireproofing Special Inspector
ICC-PCSI	Prestressed Concrete Special Inspector
ICC-RCSI	Reinforced Concrete Special Inspector

#### National Institute for Certification in Engineering Technologies (NICET)

NICET-CT	Concrete Technician – Levels I, II, III & IV
NICET-ST	Soils Technician - Levels I, II, III & IV
NICET-GET	Geotechnical Engineering Technician - Levels I, II, III & IV

Soils and Foundations

Page        of

Item	Agency # (Qualif.)	Scope
1. Shallow Foundations	PE/GE	<i>Inspect soils below footings for adequate bearing capacity and consistency with geotechnical report.</i>  <i>Inspect removal of unsuitable material and preparation of subgrade prior to placement of controlled fill</i>
2. Controlled Structural Fill	PE/GE	<i>Perform sieve tests (ASTM D422 &amp; D1140) and modified Proctor tests (ASTM D1557) of each source of fill material.</i>  <i>Inspect placement, lift thickness and compaction of controlled fill.</i>  <i>Test density of each lift of fill by nuclear methods (ASTM D2922)</i>
3. Deep Foundations	PE/GE	<i>Inspect and log pile driving operations. Record pile driving resistance and verify compliance with driving criteria.</i>  <i>Inspect piles for damage from driving and plumbness.</i>  <i>Verify pile size, length and accessories.</i>  <i>Inspect installation of drilled pier foundations. Verify pier diameter, bell diameter, lengths, embedment into bedrock and suitability of end bearing strata.</i>
4. Load Testing	PE/GE	<i>As directed by project geotechnical engineer.</i>

## Cast-in-Place Concrete

Page       of

Item	Agency (Qualif.)	Scope
1. Mix Design	ACI-CCI ICC- RCSI	<i>Review concrete batch tickets and verify compliance with approved mix design. Verify that water added at the site does not exceed that allowed by the mix design.</i>
2. Material Certification		
3. Reinforcement Installation	ACI-CCI ICC- RCSI	<i>Inspect size, spacing, cover, positioning and grade of reinforcing steel. Verify that reinforcing bars are free of form oil or other deleterious materials. Inspect bar laps and mechanical splices. Verify that bars are adequately tied and supported on chairs or bolsters</i>
4. Post-Tensioning Operations	ICC- PCSI	<i>Inspect placement, stressing, grouting and protection of post-tensioning tendons. Verify that tendons are correctly positioned, supported, tied and wrapped. Record tendon elongations.</i>
5. Welding of Reinforcing	AWS- CWI	<i>Visually inspect all reinforcing steel welds. Verify weldability of reinforcing steel. Inspect preheating of steel when required.</i>
6. Anchor Rods		<i>Inspect size, positioning and embedment of anchor rods. Inspect concrete placement and consolidation around anchors.</i>
7. Concrete Placement	ACI-CCI ICC- RCSI	<i>Inspect placement of concrete. Verify that concrete conveyance and depositing avoids segregation or contamination. Verify that concrete is properly consolidated.</i>
8. Sampling and Testing of Concrete	ACI- CFTT ACI-STT	<i>Test concrete compressive strength (ASTM C31 &amp; C39), slump (ASTM C143), air-content (ASTM C231 or C173) and temperature (ASTM C1064).</i>
9. Curing and Protection	ACI-CCI ICC- RCSI	<i>Inspect curing, cold weather protection and hot weather protection procedures.</i>

**Masonry**

Required Inspection Level: ☒ 1 ☐ 2

Page of

Item	Agency (Qualif.)	Scope
1. Material Certification		
2. Mixing of Mortar and Grout	ICC-SMSI	<i>Inspect proportioning, mixing and retempering of mortar and grout.</i>
3. Installation of Masonry	ICC-SMSI	<i>Inspect size, layout, bonding and placement of masonry units.</i>
4. Mortar Joints	ICC-SMSI	<i>Inspect construction of mortar joints including tooling and filling of head joints.</i>
5. Reinforcement Installation	ICC-SMSI	<i>Inspect placement, positioning and lapping of reinforcing steel.</i>
	AWS-	<i>Inspect welding of reinforcing steel.</i>
6. Prestressed Masonry	ICC-	<i>Inspect placement, anchorage and stressing of prestressing bars.</i>
7. Grouting Operations	ICC-SMSI	<i>Inspect placement and consolidation of grout. Inspect masonry clean-outs for high-lift grouting.</i>
7. Weather Protection	ICC-SMSI	<i>Inspect cold weather protection and hot weather protection procedures. Verify that wall cavities are protected against precipitation.</i>
9. Evaluation of Masonry Strength	ICC-SMSI	<i>Test compressive strength of mortar and grout cube samples (ASTM C780). Test compressive strength of masonry prisms (ASTM C1314).</i>
10. Anchors and Ties	ICC-SMSI	<i>Inspect size, location, spacing and embedment of dowels, anchors and ties.</i>

## Structural Steel

Page        of

Item	Agency # (Qualif.)	Scope
1. Fabricator Certification/Quality Control Procedures <input type="checkbox"/> Fabricator Exempt	AWS/AIS C-SSI/ ICC- SWSI	<i>Review shop fabrication and quality control procedures.</i>
2. Material Certification	AWS/AIS C-SSI/ ICC- SWSI	<i>Review certified mill test reports and identification markings on wide-flange shapes, high-strength bolts, nuts and welding electrodes</i>
3. Open Web Steel Joists		<i>Inspect installation, field welding and bridging of joists.</i>
4. Bolting	AWS/AIS C-SSI/ ICC- SWSI	<i>Inspect installation and tightening of high-strength bolts. Verify that splines have separated from tension control bolts. Verify proper tightening sequence. Continuous inspection of bolts in slip-critical connections.</i>
5. Welding	AWS- CWI  ASNT	<i>Visually inspect all welds. Inspect pre-heat, post-heat and surface preparation between passes. Verify size and length of fillet welds.</i>  <i>Ultrasonic testing of all full-penetration welds.</i>
6. Shear Connectors	AWS/AIS C-SSI/ ICC- SWSI	<i>Inspect size, number, positioning and welding of shear connectors. Inspect suds for full 360 degree flash. Ring test all shear connectors with a 3 lb hammer. Bend test all questionable studs to 15 degrees.</i>
7. Structural Details	PE/SE	<i>Inspect steel frame for compliance with structural drawings, including bracing, member configuration and connection details.</i>
8. Metal Deck	AWS- CWI	<i>Inspect welding and side-lap fastening of metal roof and floor deck.</i>

## Cold-Formed Steel Framing

Page       of

<b>Item</b>	<b>Agency #</b>	<b>Scope</b>
1. Member Sizes	<i>AWS/AIS C-SSI</i>	<i>Verify cold-formed built-up sections as specifically detailed on the design drawings</i>
2. Material Properties	<i>PE</i>	<i>Review material properties in material submittal</i>
3. Mechanical Connections	<i>AWS/AIS C-SSI</i>	<i>Verify cold-formed built-up sections as specifically detailed on the design drawings</i>
4. Framing Details	<i>AWS/AIS C-SSI</i>	<i>Verify cold-formed built-up sections as specifically detailed on the design drawings</i>

END OF SECTION 014110



## SECTION 014200 - REFERENCES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.
- C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."
- D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."
- E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. "Install": Unload, temporarily store, unpack, assemble, erect, place, anchor, apply, work to dimension, finish, cure, protect, clean, and similar operations at Project site.
- H. "Provide": Furnish and install, complete and ready for the intended use.
- I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

#### 1.3 INDUSTRY STANDARDS

- A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

- B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.
- C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
  - 1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

#### 1.4 ABBREVIATIONS AND ACRONYMS

- A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Gale's "Encyclopedia of Associations: National Organizations of the U.S." or in Columbia Books' "National Trade & Professional Associations of the United States."
- B. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.
  - 1. AABC - Associated Air Balance Council; [www.aabc.com](http://www.aabc.com).
  - 2. AAMA - American Architectural Manufacturers Association; [www.aamanet.org](http://www.aamanet.org).
  - 3. AAPFCO - Association of American Plant Food Control Officials; [www.aapfco.org](http://www.aapfco.org).
  - 4. AASHTO - American Association of State Highway and Transportation Officials; [www.transportation.org](http://www.transportation.org).
  - 5. AATCC - American Association of Textile Chemists and Colorists; [www.aatcc.org](http://www.aatcc.org).
  - 6. ABMA - American Bearing Manufacturers Association; [www.americanbearings.org](http://www.americanbearings.org).
  - 7. ACI - American Concrete Institute; (Formerly: ACI International); [www.concrete.org](http://www.concrete.org).
  - 8. ACPA - American Concrete Pipe Association; [www.concrete-pipe.org](http://www.concrete-pipe.org).
  - 9. AEIC - Association of Edison Illuminating Companies, Inc. (The); [www.aeic.org](http://www.aeic.org).
  - 10. AF&PA - American Forest & Paper Association; [www.afandpa.org](http://www.afandpa.org).
  - 11. AGA - American Gas Association; [www.aga.org](http://www.aga.org).
  - 12. AHAM - Association of Home Appliance Manufacturers; [www.aham.org](http://www.aham.org).
  - 13. AHRI - Air-Conditioning, Heating, and Refrigeration Institute (The); [www.ahrinet.org](http://www.ahrinet.org).
  - 14. AI - Asphalt Institute; [www.asphaltinstitute.org](http://www.asphaltinstitute.org).
  - 15. AIA - American Institute of Architects (The); [www.aia.org](http://www.aia.org).
  - 16. AISC - American Institute of Steel Construction; [www.aisc.org](http://www.aisc.org).
  - 17. AISI - American Iron and Steel Institute; [www.steel.org](http://www.steel.org).
  - 18. AITC - American Institute of Timber Construction; [www.aitc-glulam.org](http://www.aitc-glulam.org).
  - 19. AMCA - Air Movement and Control Association International, Inc.; [www.amca.org](http://www.amca.org).
  - 20. ANSI - American National Standards Institute; [www.ansi.org](http://www.ansi.org).
  - 21. AOSA - Association of Official Seed Analysts, Inc.; [www.aosaseed.com](http://www.aosaseed.com).
  - 22. APA - APA - The Engineered Wood Association; [www.apawood.org](http://www.apawood.org).
  - 23. APA - Architectural Precast Association; [www.archprecast.org](http://www.archprecast.org).
  - 24. API - American Petroleum Institute; [www.api.org](http://www.api.org).
  - 25. ARI - Air-Conditioning & Refrigeration Institute; (See AHRI).
  - 26. ARI - American Refrigeration Institute; (See AHRI).
  - 27. ARMA - Asphalt Roofing Manufacturers Association; [www.asphaltroofing.org](http://www.asphaltroofing.org).

28. ASCE - American Society of Civil Engineers; [www.asce.org](http://www.asce.org).
29. ASCE/SEI - American Society of Civil Engineers/Structural Engineering Institute; (See ASCE).
30. ASHRAE - American Society of Heating, Refrigerating and Air-Conditioning Engineers; [www.ashrae.org](http://www.ashrae.org).
31. ASME - ASME International; (American Society of Mechanical Engineers); [www.asme.org](http://www.asme.org).
32. ASSE - American Society of Safety Engineers (The); [www.asse.org](http://www.asse.org).
33. ASSE - American Society of Sanitary Engineering; [www.asse-plumbing.org](http://www.asse-plumbing.org).
34. ASTM - ASTM International; (American Society for Testing and Materials International); [www.astm.org](http://www.astm.org).
35. ATIS - Alliance for Telecommunications Industry Solutions; [www.atis.org](http://www.atis.org).
36. AWEA - American Wind Energy Association; [www.awea.org](http://www.awea.org).
37. AWI - Architectural Woodwork Institute; [www.awinet.org](http://www.awinet.org).
38. AWMAC - Architectural Woodwork Manufacturers Association of Canada; [www.awmac.com](http://www.awmac.com).
39. AWWA - American Wood Protection Association; (Formerly: American Wood-Preservers' Association); [www.awpa.com](http://www.awpa.com).
40. AWS - American Welding Society; [www.aws.org](http://www.aws.org).
41. AWWA - American Water Works Association; [www.awwa.org](http://www.awwa.org).
42. BHMA - Builders Hardware Manufacturers Association; [www.buildershardware.com](http://www.buildershardware.com).
43. BIA - Brick Industry Association (The); [www.gobrick.com](http://www.gobrick.com).
44. BICSI - BICSI, Inc.; [www.bicsi.org](http://www.bicsi.org).
45. BIFMA - BIFMA International; (Business and Institutional Furniture Manufacturer's Association); [www.bifma.com](http://www.bifma.com).
46. BISSC - Baking Industry Sanitation Standards Committee; [www.bissc.org](http://www.bissc.org).
47. BOCA - BOCA; (Building Officials and Code Administrators International Inc.); (See ICC).
48. BWF - Badminton World Federation; (Formerly: International Badminton Federation); [www.bwfbadminton.org](http://www.bwfbadminton.org).
49. CDA - Copper Development Association; [www.copper.org](http://www.copper.org).
50. CEA - Canadian Electricity Association; [www.electricity.ca](http://www.electricity.ca).
51. CEA - Consumer Electronics Association; [www.ce.org](http://www.ce.org).
52. CFFA - Chemical Fabrics & Film Association, Inc.; [www.chemicalfabricsandfilm.com](http://www.chemicalfabricsandfilm.com).
53. CFSEI - Cold-Formed Steel Engineers Institute; [www.cfsei.org](http://www.cfsei.org).
54. CGA - Compressed Gas Association; [www.cganet.com](http://www.cganet.com).
55. CIMA - Cellulose Insulation Manufacturers Association; [www.cellulose.org](http://www.cellulose.org).
56. CISCA - Ceilings & Interior Systems Construction Association; [www.cisca.org](http://www.cisca.org).
57. CISPI - Cast Iron Soil Pipe Institute; [www.cispi.org](http://www.cispi.org).
58. CLFMI - Chain Link Fence Manufacturers Institute; [www.chainlinkinfo.org](http://www.chainlinkinfo.org).
59. CPA - Composite Panel Association; [www.pbmdf.com](http://www.pbmdf.com).
60. CRI - Carpet and Rug Institute (The); [www.carpet-rug.org](http://www.carpet-rug.org).
61. CRRC - Cool Roof Rating Council; [www.coolroofs.org](http://www.coolroofs.org).
62. CRSI - Concrete Reinforcing Steel Institute; [www.crsi.org](http://www.crsi.org).
63. CSA - Canadian Standards Association; [www.csa.ca](http://www.csa.ca).
64. CSA - CSA International; (Formerly: IAS - International Approval Services); [www.csa-international.org](http://www.csa-international.org).
65. CSI - Construction Specifications Institute (The); [www.csinet.org](http://www.csinet.org).
66. CSSB - Cedar Shake & Shingle Bureau; [www.cedarbureau.org](http://www.cedarbureau.org).
67. CTI - Cooling Technology Institute; (Formerly: Cooling Tower Institute); [www.cti.org](http://www.cti.org).
68. CWC - Composite Wood Council; (See CPA).

69. DASMA - Door and Access Systems Manufacturers Association; [www.dasma.com](http://www.dasma.com).
70. DHI - Door and Hardware Institute; [www.dhi.org](http://www.dhi.org).
71. ECA - Electronic Components Association; [www.ec-central.org](http://www.ec-central.org).
72. ECAMA - Electronic Components Assemblies & Materials Association; (See ECA).
73. EIA - Electronic Industries Alliance; (See TIA).
74. EIMA - EIFS Industry Members Association; [www.eima.com](http://www.eima.com).
75. EJMA - Expansion Joint Manufacturers Association, Inc.; [www.ejma.org](http://www.ejma.org).
76. ESD - ESD Association; (Electrostatic Discharge Association); [www.esda.org](http://www.esda.org).
77. ESTA - Entertainment Services and Technology Association; (See PLASA).
78. EVO - Efficiency Valuation Organization; [www.evo-world.org](http://www.evo-world.org).
79. FIBA - Federation Internationale de Basketball; (The International Basketball Federation); [www.fiba.com](http://www.fiba.com).
80. FIVB - Federation Internationale de Volleyball; (The International Volleyball Federation); [www.fivb.org](http://www.fivb.org).
81. FM Approvals - FM Approvals LLC; [www.fmglobal.com](http://www.fmglobal.com).
82. FM Global - FM Global; (Formerly: FMG - FM Global); [www.fmglobal.com](http://www.fmglobal.com).
83. FRSA - Florida Roofing, Sheet Metal & Air Conditioning Contractors Association, Inc.; [www.floridarooft.com](http://www.floridarooft.com).
84. FSA - Fluid Sealing Association; [www.fluidsealing.com](http://www.fluidsealing.com).
85. FSC - Forest Stewardship Council U.S.; [www.fscus.org](http://www.fscus.org).
86. GA - Gypsum Association; [www.gypsum.org](http://www.gypsum.org).
87. GANA - Glass Association of North America; [www.glasswebsite.com](http://www.glasswebsite.com).
88. GS - Green Seal; [www.greenseal.org](http://www.greenseal.org).
89. HI - Hydraulic Institute; [www.pumps.org](http://www.pumps.org).
90. HI/GAMA - Hydronics Institute/Gas Appliance Manufacturers Association; (See AHRI).
91. HMMA - Hollow Metal Manufacturers Association; (See NAAMM).
92. HPVA - Hardwood Plywood & Veneer Association; [www.hpva.org](http://www.hpva.org).
93. HPW - H. P. White Laboratory, Inc.; [www.hpwhite.com](http://www.hpwhite.com).
94. IAPSC - International Association of Professional Security Consultants; [www.iapsc.org](http://www.iapsc.org).
95. IAS - International Approval Services; (See CSA).
96. ICBO - International Conference of Building Officials; (See ICC).
97. ICC - International Code Council; [www.iccsafe.org](http://www.iccsafe.org).
98. ICEA - Insulated Cable Engineers Association, Inc.; [www.icea.net](http://www.icea.net).
99. ICPA - International Cast Polymer Alliance; [www.icpa-hq.org](http://www.icpa-hq.org).
100. ICRI - International Concrete Repair Institute, Inc.; [www.icri.org](http://www.icri.org).
101. IEC - International Electrotechnical Commission; [www.iec.ch](http://www.iec.ch).
102. IEEE - Institute of Electrical and Electronics Engineers, Inc. (The); [www.ieee.org](http://www.ieee.org).
103. IES - Illuminating Engineering Society; (Formerly: Illuminating Engineering Society of North America); [www.ies.org](http://www.ies.org).
104. IESNA - Illuminating Engineering Society of North America; (See IES).
105. IEST - Institute of Environmental Sciences and Technology; [www.iest.org](http://www.iest.org).
106. IGMA - Insulating Glass Manufacturers Alliance; [www.igmaonline.org](http://www.igmaonline.org).
107. IGSHPA - International Ground Source Heat Pump Association; [www.igshpa.okstate.edu](http://www.igshpa.okstate.edu).
108. ILI - Indiana Limestone Institute of America, Inc.; [www.iliai.com](http://www.iliai.com).
109. Intertek - Intertek Group; (Formerly: ETL SEMCO; Intertek Testing Service NA); [www.intertek.com](http://www.intertek.com).
110. ISA - International Society of Automation (The); (Formerly: Instrumentation, Systems, and Automation Society); [www.isa.org](http://www.isa.org).
111. ISAS - Instrumentation, Systems, and Automation Society (The); (See ISA).

112. ISFA - International Surface Fabricators Association; (Formerly: International Solid Surface Fabricators Association); [www.isfanow.org](http://www.isfanow.org).
113. ISO - International Organization for Standardization; [www.iso.org](http://www.iso.org).
114. ISSFA - International Solid Surface Fabricators Association; (See ISFA).
115. ITU - International Telecommunication Union; [www.itu.int/home](http://www.itu.int/home).
116. KCMA - Kitchen Cabinet Manufacturers Association; [www.kcma.org](http://www.kcma.org).
117. LMA - Laminating Materials Association; (See CPA).
118. LPI - Lightning Protection Institute; [www.lightning.org](http://www.lightning.org).
119. MBMA - Metal Building Manufacturers Association; [www.mbma.com](http://www.mbma.com).
120. MCA - Metal Construction Association; [www.metalconstruction.org](http://www.metalconstruction.org).
121. MFMA - Maple Flooring Manufacturers Association, Inc.; [www.maplefloor.org](http://www.maplefloor.org).
122. MFMA - Metal Framing Manufacturers Association, Inc.; [www.metalframingmfg.org](http://www.metalframingmfg.org).
123. MHIA - Material Handling Industry of America; [www.mhia.org](http://www.mhia.org).
124. MIA - Marble Institute of America; [www.marble-institute.com](http://www.marble-institute.com).
125. MMPA - Moulding & Millwork Producers Association; (Formerly: Wood Moulding & Millwork Producers Association); [www.wmmpa.com](http://www.wmmpa.com).
126. MPI - Master Painters Institute; [www.paintinfo.com](http://www.paintinfo.com).
127. MSS - Manufacturers Standardization Society of The Valve and Fittings Industry Inc.; [www.mss-hq.org](http://www.mss-hq.org).
128. NAAMM - National Association of Architectural Metal Manufacturers; [www.naamm.org](http://www.naamm.org).
129. NACE - NACE International; (National Association of Corrosion Engineers International); [www.nace.org](http://www.nace.org).
130. NADCA - National Air Duct Cleaners Association; [www.nadca.com](http://www.nadca.com).
131. NAIMA - North American Insulation Manufacturers Association; [www.naima.org](http://www.naima.org).
132. NBGQA - National Building Granite Quarries Association, Inc.; [www.nbgqa.com](http://www.nbgqa.com).
133. NCAA - National Collegiate Athletic Association (The); [www.ncaa.org](http://www.ncaa.org).
134. NCMA - National Concrete Masonry Association; [www.ncma.org](http://www.ncma.org).
135. NEBB - National Environmental Balancing Bureau; [www.nebb.org](http://www.nebb.org).
136. NECA - National Electrical Contractors Association; [www.necanet.org](http://www.necanet.org).
137. NeLMA - Northeastern Lumber Manufacturers Association; [www.nelma.org](http://www.nelma.org).
138. NEMA - National Electrical Manufacturers Association; [www.nema.org](http://www.nema.org).
139. NETA - InterNational Electrical Testing Association; [www.netaworld.org](http://www.netaworld.org).
140. NFHS - National Federation of State High School Associations; [www.nfhs.org](http://www.nfhs.org).
141. NFPA - NFPA; (National Fire Protection Association); [www.nfpa.org](http://www.nfpa.org).
142. NFPA - NFPA International; (See NFPA).
143. NFRC - National Fenestration Rating Council; [www.nfrc.org](http://www.nfrc.org).
144. NHLA - National Hardwood Lumber Association; [www.nhla.com](http://www.nhla.com).
145. NLGA - National Lumber Grades Authority; [www.nlga.org](http://www.nlga.org).
146. NOFMA - National Oak Flooring Manufacturers Association; (See NWFA).
147. NOMMA - National Ornamental & Miscellaneous Metals Association; [www.nomma.org](http://www.nomma.org).
148. NRCA - National Roofing Contractors Association; [www.nrca.net](http://www.nrca.net).
149. NRMCA - National Ready Mixed Concrete Association; [www.nrmca.org](http://www.nrmca.org).
150. NSF - NSF International; (National Sanitation Foundation International); [www.nsf.org](http://www.nsf.org).
151. NSPE - National Society of Professional Engineers; [www.nspe.org](http://www.nspe.org).
152. NSSGA - National Stone, Sand & Gravel Association; [www.nssga.org](http://www.nssga.org).
153. NTMA - National Terrazzo & Mosaic Association, Inc. (The); [www.ntma.com](http://www.ntma.com).
154. NWFA - National Wood Flooring Association; [www.nwfa.org](http://www.nwfa.org).
155. PCI - Precast/Prestressed Concrete Institute; [www.pci.org](http://www.pci.org).
156. PDI - Plumbing & Drainage Institute; [www.pdionline.org](http://www.pdionline.org).

157. PLASA - PLASA; (Formerly: ESTA - Entertainment Services and Technology Association); [www.plasa.org](http://www.plasa.org).
158. RCSC - Research Council on Structural Connections; [www.boltcouncil.org](http://www.boltcouncil.org).
159. RFCI - Resilient Floor Covering Institute; [www.rfci.com](http://www.rfci.com).
160. RIS - Redwood Inspection Service; [www.redwoodinspection.com](http://www.redwoodinspection.com).
161. SAE - SAE International; (Society of Automotive Engineers); [www.sae.org](http://www.sae.org).
162. SCTE - Society of Cable Telecommunications Engineers; [www.scte.org](http://www.scte.org).
163. SDI - Steel Deck Institute; [www.sdi.org](http://www.sdi.org).
164. SDI - Steel Door Institute; [www.steeldoor.org](http://www.steeldoor.org).
165. SEFA - Scientific Equipment and Furniture Association; [www.sefalabs.com](http://www.sefalabs.com).
166. SEI/ASCE - Structural Engineering Institute/American Society of Civil Engineers; (See ASCE).
167. SIA - Security Industry Association; [www.siaonline.org](http://www.siaonline.org).
168. SJI - Steel Joist Institute; [www.steeljoist.org](http://www.steeljoist.org).
169. SMA - Screen Manufacturers Association; [www.smainfo.org](http://www.smainfo.org).
170. SMACNA - Sheet Metal and Air Conditioning Contractors' National Association; [www.smacna.org](http://www.smacna.org).
171. SMPTE - Society of Motion Picture and Television Engineers; [www.smpte.org](http://www.smpte.org).
172. SPFA - Spray Polyurethane Foam Alliance; [www.sprayfoam.org](http://www.sprayfoam.org).
173. SPIB - Southern Pine Inspection Bureau; [www.spib.org](http://www.spib.org).
174. SPRI - Single Ply Roofing Industry; [www.spri.org](http://www.spri.org).
175. SRCC - Solar Rating and Certification Corporation; [www.solar-rating.org](http://www.solar-rating.org).
176. SSINA - Specialty Steel Industry of North America; [www.ssina.com](http://www.ssina.com).
177. SSPC - SSPC: The Society for Protective Coatings; [www.sspc.org](http://www.sspc.org).
178. STI - Steel Tank Institute; [www.steeltank.com](http://www.steeltank.com).
179. SWI - Steel Window Institute; [www.steelwindows.com](http://www.steelwindows.com).
180. SWPA - Submersible Wastewater Pump Association; [www.swpa.org](http://www.swpa.org).
181. TCA - Tilt-Up Concrete Association; [www.tilt-up.org](http://www.tilt-up.org).
182. TCNA - Tile Council of North America, Inc.; (Formerly: Tile Council of America); [www.tileusa.com](http://www.tileusa.com).
183. TEMA - Tubular Exchanger Manufacturers Association, Inc.; [www.tema.org](http://www.tema.org).
184. TIA - Telecommunications Industry Association; (Formerly: TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance); [www.tiaonline.org](http://www.tiaonline.org).
185. TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance; (See TIA).
186. TMS - The Masonry Society; [www.masonrysociety.org](http://www.masonrysociety.org).
187. TPI - Truss Plate Institute; [www.tpinst.org](http://www.tpinst.org).
188. TPI - Turfgrass Producers International; [www.turfgrasssod.org](http://www.turfgrasssod.org).
189. TRI - Tile Roofing Institute; [www.tilerroofing.org](http://www.tilerroofing.org).
190. UBC - Uniform Building Code; (See ICC).
191. UL - Underwriters Laboratories Inc.; [www.ul.com](http://www.ul.com).
192. UNI - Uni-Bell PVC Pipe Association; [www.uni-bell.org](http://www.uni-bell.org).
193. USAV - USA Volleyball; [www.usavolleyball.org](http://www.usavolleyball.org).
194. USGBC - U.S. Green Building Council; [www.usgbc.org](http://www.usgbc.org).
195. USITT - United States Institute for Theatre Technology, Inc.; [www.usitt.org](http://www.usitt.org).
196. WASTEC - Waste Equipment Technology Association; [www.wastec.org](http://www.wastec.org).
197. WCLIB - West Coast Lumber Inspection Bureau; [www.wclib.org](http://www.wclib.org).
198. WCMA - Window Covering Manufacturers Association; [www.wcmanet.org](http://www.wcmanet.org).
199. WDMA - Window & Door Manufacturers Association; [www.wdma.com](http://www.wdma.com).

200. WI - Woodwork Institute; (Formerly: WIC - Woodwork Institute of California); [www.wicnet.org](http://www.wicnet.org).
201. WMMPA - Wood Moulding & Millwork Producers Association; (See MMPA).
202. WSRCA - Western States Roofing Contractors Association; [www.wsrca.com](http://www.wsrca.com).
203. WPA - Western Wood Products Association; [www.wvpa.org](http://www.wvpa.org).

C. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is believed to be accurate as of the date of the Contract Documents.

1. DIN - Deutsches Institut für Normung e.V.; [www.din.de](http://www.din.de).
2. IAPMO - International Association of Plumbing and Mechanical Officials; [www.iapmo.org](http://www.iapmo.org).
3. ICC - International Code Council; [www.iccsafe.org](http://www.iccsafe.org).
4. ICC-ES - ICC Evaluation Service, LLC; [www.icc-es.org](http://www.icc-es.org).

D. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Information is subject to change and is up-to-date as of the date of the Contract Documents.

1. COE - Army Corps of Engineers; [www.usace.army.mil](http://www.usace.army.mil).
2. CPSC - Consumer Product Safety Commission; [www.cpsc.gov](http://www.cpsc.gov).
3. DOC - Department of Commerce; National Institute of Standards and Technology; [www.nist.gov](http://www.nist.gov).
4. DOD - Department of Defense; <http://dodssp.daps.dla.mil>.
5. DOE - Department of Energy; [www.energy.gov](http://www.energy.gov).
6. EPA - Environmental Protection Agency; [www.epa.gov](http://www.epa.gov).
7. FAA - Federal Aviation Administration; [www.faa.gov](http://www.faa.gov).
8. FG - Federal Government Publications; [www.gpo.gov](http://www.gpo.gov).
9. GSA - General Services Administration; [www.gsa.gov](http://www.gsa.gov).
10. HUD - Department of Housing and Urban Development; [www.hud.gov](http://www.hud.gov).
11. LBL - Lawrence Berkeley National Laboratory; Environmental Energy Technologies Division; <http://eetd.lbl.gov>.
12. OSHA - Occupational Safety & Health Administration; [www.osha.gov](http://www.osha.gov).
13. SD - Department of State; [www.state.gov](http://www.state.gov).
14. TRB - Transportation Research Board; National Cooperative Highway Research Program; [www.trb.org](http://www.trb.org).
15. USDA - Department of Agriculture; Agriculture Research Service; U.S. Salinity Laboratory; [www.ars.usda.gov](http://www.ars.usda.gov).
16. USDA - Department of Agriculture; Rural Utilities Service; [www.usda.gov](http://www.usda.gov).
17. USDJ - Department of Justice; Office of Justice Programs; National Institute of Justice; [www.ojp.usdoj.gov](http://www.ojp.usdoj.gov).
18. USP - U.S. Pharmacopeia; [www.usp.org](http://www.usp.org).
19. USPS - United States Postal Service; [www.usps.com](http://www.usps.com).

E. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.

1. CFR - Code of Federal Regulations; Available from Government Printing Office; [www.gpo.gov/fdsys](http://www.gpo.gov/fdsys).
  2. DOD - Department of Defense; Military Specifications and Standards; Available from Department of Defense Single Stock Point; <http://dodssp.daps.dla.mil>.
  3. DSCC - Defense Supply Center Columbus; (See FS).
  4. FED-STD - Federal Standard; (See FS).
  5. FS - Federal Specification; Available from Department of Defense Single Stock Point; <http://dodssp.daps.dla.mil>.
    - a. Available from Defense Standardization Program; [www.dsp.dla.mil](http://www.dsp.dla.mil).
    - b. Available from General Services Administration; [www.gsa.gov](http://www.gsa.gov).
    - c. Available from National Institute of Building Sciences/Whole Building Design Guide; [www.wbdg.org/ccb](http://www.wbdg.org/ccb).
  6. MILSPEC - Military Specification and Standards; (See DOD).
  7. USAB - United States Access Board; [www.access-board.gov](http://www.access-board.gov).
  8. USATBCB - U.S. Architectural & Transportation Barriers Compliance Board; (See USAB).
- F. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.
1. CBHF - State of California; Department of Consumer Affairs; Bureau of Electronic Appliance and Repair, Home Furnishings and Thermal Insulation; [www.bearhfti.ca.gov](http://www.bearhfti.ca.gov).
  2. CCR - California Code of Regulations; Office of Administrative Law; California Title 24 Energy Code; [www.calregs.com](http://www.calregs.com).
  3. CDHS - California Department of Health Services; (See CDPH).
  4. CDPH - California Department of Public Health; Indoor Air Quality Program; [www.cal-iaq.org](http://www.cal-iaq.org).
  5. CPUC - California Public Utilities Commission; [www.cpuc.ca.gov](http://www.cpuc.ca.gov).
  6. SCAQMD - South Coast Air Quality Management District; [www.aqmd.gov](http://www.aqmd.gov).
  7. TFS - Texas Forest Service; Forest Resource Development and Sustainable Forestry; <http://txforests-service.tamu.edu>.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 014200



**SECTION 015000 - TEMPORARY FACILITIES & CONTROLS**

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

**1.2 SUMMARY**

- A. This Section includes requirements for temporary facilities and controls, including temporary utilities, support facilities, and security and protection.
- B. Temporary utilities include, but are not limited to, the following:
  - 1. Heat and Ventilation
  - 2. Gas
  - 3. Water
  - 4. Waste Piping
  - 5. Toilets
  - 6. Telephones/Service
  - 7. Electric
  - 8. Fire Protection
  - 9. Temporary Site Entrance and Staging Areas
- C. Support facilities include, but are not limited to, the following:
  - 1. Field Offices and Storage Sheds.
  - 2. Temporary enclosures.
  - 3. Hoists and temporary elevator use.
  - 4. Temporary project identification signs and bulletin boards.
  - 5. Waste disposal services.
  - 6. Rodent and pest control.
  - 7. Construction aids and miscellaneous services and facilities.
  - 8. Temporary Site Entrance, Parking, and Staging Areas.
- D. Security and protection facilities include, but are not limited to, the following:
  - 1. Temporary fire protection.
  - 2. Barricades, warning signs, and lights.
  - 3. Environmental protection.

**1.3 DIVISION OF RESPONSIBILITIES**

- A. **General:** These Specifications assign each Prime Contractor specific responsibilities for certain temporary facilities used by other Prime Contractors and other entities at the site. The Contractor for General Trades Contract is responsible for providing temporary facilities and controls that are not normal construction activities of other Prime Contractors and are not specifically assigned otherwise by the Architect or Construction Manager.

B. Each Prime Contractor is responsible for the following:

1. Installation, operation, maintenance and removal of each temporary facility considered as its own normal construction activity, as well as the costs and use charges associated with each facility.
2. Plug-in electric power cords and extension cords, supplementary plug-in task lighting, and special lighting necessary exclusively for its own activities.
3. Its own storage and fabrication sheds.
4. Hoisting requirements, including hoisting loads in excess of 2 tons, hoisting material or equipment into spaces below grade, and hoisting requirements outside the building enclosure.
5. Collection and disposal of its own hazardous, dangerous, unsanitary, or other harmful waste material.
6. Secure lockup of its own tools, materials, and equipment
7. Construction aids and miscellaneous services and facilities necessary exclusively for its own construction activities.
8. **Smoking ban on Hilton Central School District property** - Contractor's employees are strictly forbidden to use any tobacco product on site. There is no tolerance for smoking or tobacco products and no warning will be given. State law forbids tobacco products on school property. Violation will result in permanent expulsion from district property for the duration of this capital project.
9. Clean up to dumpsters and legal disposal of all debris.
10. **Firearms, tobacco products, pornography, drugs, and alcohol are strictly forbidden.** Anyone caught in possession of any of these items is subject to immediate and permanent dismissal from the project.
11. Repair or replacement of any damage to district's existing grounds, curbs, walks, and drives from their construction vehicles, their delivery vehicles, or their employee or subcontractor vehicles.

1.4 USE CHARGE

- A. **General:** Unless noted otherwise, cost or use charges for temporary facilities are not chargeable to the Owner or the Architect or the Construction Manager. The Architect or Construction Manager will not accept a Prime Contractor's cost or use charges for temporary services or facilities as a basis of claim for an adjustment in the Contract Sum or the Contract Time.
- B. **Water Service:** Use water from the Owner's existing water system without metering and without payment of use charges. If outside water source is required, contractor is responsible to provide all equipment and pay usage charges.
- C. **Electric Power Service:** Provide temporary power system. The contractor shall pay all charges, costs, and expenses associated with the consumption or use, installation, removal, and restoration of the temporary and permanent electrical services including metering equipment until substantial contract work is completed. Electrical contractor responsible to provide temporary power, including materials for any contractor's job trailers.

- D. **Gas Fees:** The General Trades Contract shall be responsible for all gas fees including the cost of gas consumption fees, for the temporary heating requirements and also the permanent building gas consumption fees until substantial contract work is completed. (Not applicable)
- G. Other entities using temporary services and facilities include, but are not limited to, the following:
  - 1. The Construction Manager.
  - 2. Other non-prime Contractors.
  - 3. The Owner's work forces.
  - 4. Occupants of the Project.
  - 5. The Architect, Engineers, or other Design Consultants.
  - 6. Testing or inspection agencies.
  - 7. Personnel of government agencies.
  - 8. Other Prime Contractors.
  - 9. The School District and authorized personnel.

#### 1.5 SUBMITTALS

- A. **Temporary Facilities:** Each Prime Contractor shall submit a plan for the implementation of all temporary facilities and utilities for the project.
- B. Each Prime Contractor shall immediately apply to local, town, or the utility company, for necessary permits and services and pay all fees as may be required.
- C. Each Prime Contractor shall submit a detailed plan for temporary facilities to the Construction Manager, Architect, and Owner.
- D. Each Prime Contractor shall submit reports of tests, inspections, meter readings, and similar procedures performed on temporary utilities to the Construction Manager.
- E. **Implementation and Termination Schedule:** Within fifteen (15) days of the date established for submittal of the Contractor's Construction Schedule, each Prime Contractor shall submit a schedule indicating implementation and termination of each temporary utility for which the Contractor is responsible.

#### 1.6 QUALITY ASSURANCE

- A. **Regulation:** Each Prime Contractor shall comply with industry standards and with applicable laws and regulations of authorities having jurisdiction including, but not limited to, the following:
  - 1. Building code requirements.
  - 2. New York State Education Department.
  - 3. Health and safety regulations.
  - 4. Utility company regulations.
  - 5. Police, fire department and rescue squad rules.
  - 6. Environmental protection regulations.

- B. **Standards:** Each Prime Contractor shall comply with NFPA 241 "Standard for Safeguarding Construction, Alterations, and Demolition Operations," ANSI-A10 Series standards for "Safety Requirements for Construction and Demolition," and NECA Electrical Design Library "Temporary Electrical Facilities."
1. Trade Jurisdictions: Assigned responsibilities for installation and operation of temporary utilities are not intended to interfere with the normal application of trade regulations and union jurisdictions but merely to assign responsibility to a Prime Contractor.
  2. Electrical Service: Comply with NEMA, NECA and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- C. **Inspections:** Arrange for authorities having jurisdiction to inspect and test each temporary utility before use. Obtain required certifications and permits and pay all associated fees. Submit a copy of all certification and permits to the Construction Manager.
- D. **Uniform Safety Standards for School Construction and Maintenance projects:** (refer to section 01 10 00 and 01 50 00 for designation of specific responsibilities associated with the following standards):
1. The occupied portion of any school building shall always comply with the minimum requirements necessary to maintain a certificate of occupancy.
  2. Provide documentation that all school areas to be disturbed during renovation or demolition have been or will be tested for lead and asbestos. Note: The project folder should contain a letter regarding the presence of asbestos.
  3. The following are general safety and security standards for construction projects:
    - a. All construction materials shall be stored in a safe and secure manner.
    - b. Fences around construction supplies or debris shall be maintained.
    - c. Gates shall always be locked unless a worker is in attendance to prevent unauthorized entry.
    - d. During exterior renovation work, overhead protection shall be provided for any sidewalks or areas immediately beneath the work site or such areas shall be fenced off and provided with warning signs to prevent entry.
    - e. Workers shall be required to wear photo identification badges at all times for identification and security purposes while working at occupied sites.
  4. Separation of construction areas from occupied spaces. Construction areas under the control of a contractor and therefore not occupied by District staff or students shall be separated from occupied areas. Provisions shall be made to prevent the passage of dust and contaminants into occupied parts of the building. Periodic inspection and repairs of the containment barriers must be made to prevent exposure to dust or contaminants. Gypsum board must be used in exit ways or other areas that require fire rated separation. Heavy-duty plastic sheeting may be used only for a vapor, fine dust or infiltration barrier, and shall not be used to separate occupied spaces from construction areas.
    - a. A specific stairwell and/or elevator should be assigned for construction worker use during work hours. In general, workers may not use corridors, stairs or elevators designated for students or school staff.

- b. Large amounts of debris must be removed by using enclosed chutes or a similar sealed system. There shall be no movement of debris through halls of occupied spaces of the building. No material shall be dropped or thrown outside the walls of the building.
  - c. All occupied parts of the building affected by renovation activity shall be cleaned at the close of each workday. School buildings occupied during a construction project shall maintain required health, safety and educational capabilities at all times when classes are in session.
5. The General Trades Contract shall provide a plan detailing how exiting required by the applicable building code will be maintained.
6. The General Trades Contract shall provide a plan detailing how adequate ventilation will be maintained during construction.
7. Construction and maintenance operations shall not produce noise in excess of 60 dba in occupied spaces. Otherwise, Work shall be scheduled for times when the building or affected building spaces are not occupied, or acoustical abatement measures shall be taken.
8. Each Prime Contractor shall be responsible for the control of chemical fumes, gases, and other contaminants produced by welding, gasoline or diesel engines, General Trades, paving, painting, etc., to ensure they do not enter occupied portions of the building or air intakes. **All diesel engines shall be equipped with catalytic converters to minimize smoke and fumes.**
9. Each Prime Contractor shall be responsible to ensure that activities and materials which result in "off-gassing" of volatile organic compounds such as glues, paints, furniture, carpeting, wall covering, drapery, etc. are scheduled, cured or ventilated in accordance with manufacturer's recommendations before a space can be occupied.
10. Large and small asbestos projects as defined by 12NYCRR56 shall not be performed while the building is occupied. It is New York State interpretation that the term "building" as referenced in this section means a wing or major section of a building that can be completely isolated from the rest of the building with sealed non-combustible construction. The isolated portion of the building must contain exits that do not pass through the occupied portion and ventilation systems must be physically separated and sealed at the isolation barrier. If so isolated and unoccupied the abatement project may proceed in the building.
11. Exterior work such as General Trades, flashing, siding, or soffit work may be performed on occupied buildings provided proper variances are in place as required, and complete isolation of ventilation systems and at windows is provided. Care must be taken to schedule work so that classes are not disrupted by noise or visual distraction.
12. Surfaces that will be disturbed by reconstruction must have a determination made as to the presence of lead. Projects which disturb surfaces that contain lead shall have in the specifications a plan prepared by a certified Lead Risk Assessor or Supervisor which details provisions for occupant protection, worksite preparation, work methods, cleaning and clearance testing which are in general accordance with the HUD guidelines and EPA and OSHA regulations.

## 1.7 PROJECT CONDITIONS

- A. **Temporary Utilities:** Each Prime Contractor shall prepare a schedule indicating dates for implementation and termination of each temporary utility for which the Contractor is
- Temporary Facilities & Controls 015000-

responsible. At the earliest feasible time, when acceptable to the Owner, change over from use of temporary service to use of permanent service.

- B. **Conditions of Use:** Each Prime Contractor shall keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Relocate temporary services and facilities as the Work progresses. Do not overload facilities or permit them to interfere with progress. Take necessary fire-prevention measures. Do not allow hazardous, dangerous, or unsanitary conditions, or public nuisances to develop or persist on-site.
- C. **Temporary Use of Permanent Facilities:** The District reserves the right, in the best interest of the project, to utilize permanent building components as temporary methods to continue the construction process. Not unlike other components of the project, upon installation, the permanent components become the property of the District and shall not be controlled by any one Contractor. The Installer of each permanent service shall assume responsibility for its operation, maintenance, and protection during use as a construction facility prior to the Owner's acceptance, regardless of previously assigned responsibilities, without voiding any warranty / guarantee.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. **General:** Each Prime Contractor shall provide new materials. If acceptable to the Architect, undamaged, previously used materials in serviceable condition may be used. Provide materials suitable for use intended.
- B. **Lumber and Plywood:** Comply with requirements in Division 6 Section "Miscellaneous Rough Carpentry."
  - 1. For job-built temporary offices, shops, and sheds within the construction area, provide UL-labeled, fire-treated lumber and plywood for framing, sheathing, and siding.
  - 2. For signs and directory boards, provide exterior-type, Grade B-B high-density concrete form overlay plywood of sizes and thickness indicated.
  - 3. For fences and vision barriers, provide minimum 3/8-inch- (9.5-mm-) thick exterior plywood.
- C. **Gypsum Wallboard:** Provide gypsum wallboard on interior walls of temporary offices.
- D. **Paint:** Comply with requirements of Division 9 Section "Finishes"
  - 1. For job-built temporary offices, shops, sheds, fences, and other exposed lumber and plywood, provide exterior-grade acrylic-latex emulsion over exterior primer.
  - 2. For sign panels and applied graphics, provide exterior-grade alkyd gloss enamel over exterior primer.
  - 3. For interior walls of temporary offices, provide 2 coats interior latex-flat wall paint. (Not applicable)

- F. **Tarpaulins:** Provide waterproof, fire-resistant, UL-labeled tarpaulins with flame-spread rating of 15 or less. For temporary enclosures, provide translucent, nylon-reinforced laminated polyethylene or polyvinyl chloride, fire-retardant tarpaulins.
- G. **Water:** Provide portable bottled water approved by local health authorities.
- H. **Construction Fencing:** Provide 0.12-inch- (3-mm-) thick, galvanized 2-inch (50-mm) chain link fabric fencing 6 feet (2 m) high with galvanized steel pipe posts, 1-1/2 includes (38 mm) I.D for line posts and 2-1/2 includes (64 mm) I.D. for corner posts. Provide lockable gates with welded hinges to gate post and latches welded to its mounting post, sizes as required. The Site Contractor shall provide approximately 500 LF of 6 foot high chain link fence panes in addition to what is shown on the Phasing and Logistics plans. The CM will assist with final location of staging areas. The Site Contractor will be responsible for continued maintenance of the fencing and gate throughout its use along with full restoration of the site after removal of the staging area.

**Safety Fencing:** The General Contractor shall provide (furnish and install) and remove and restore up to 500 linear feet of orange safety fencing maintained with heavy gauge wire threaded through the top of the fence and fence tied to metal stakes every 10 feet. Use to be assigned by the CM at its discretion. The General Trades Contractor shall also provide 400 lf of modular chain link fence with 4 10 foot gates along with continual maintenance at the discretion of the CM. Provision includes installation, removal and restoration.

## 2.2 EQUIPMENT

- A. **General:** Each Prime Contractor shall provide new equipment. If acceptable to the Construction Manager, undamaged, previously used equipment in serviceable condition may be used. Provide equipment suitable for use intended, where and if required.
- B. **Water Hoses:** Provide 3/4-inch (19-mm) heavy-duty, abrasion-resistant, flexible rubber hoses 100 feet (30 m) long, with pressure rating greater than the maximum pressure of the water distribution system. Provide adjustable shutoff nozzles at hose discharge.
- C. **Electrical Outlets:** Provide properly configured, NEMA-polarized outlets to prevent insertion of 110- to 120-V plugs into higher voltage outlets. Provide receptacle outlets equipped with ground-fault circuit interrupters, reset button, and pilot light for connection of power tools and equipment. (All temp. panels must have locking capabilities).
- D. **Electrical Power Cords:** Provide grounded extension cords. Use hard-service cords where exposed to abrasion and traffic. Provide waterproof connectors to connect separate lengths of electric cords if single lengths will not reach areas where construction activities are in progress. Do not exceed safe length-voltage ratio.
- E. **Lamps and Light Fixtures:** Provide general service incandescent lamps of wattage required for adequate illumination. Provide guard cages or tempered-glass enclosures, where exposed to breakage. Provide exterior fixtures where exposed to moisture.

- F. **Heating Units:** Provide temporary heating units that have been tested and labeled by UL, FM, or another recognized trade association related to the type of fuel being consumed.
- G. **Fire Extinguishers:** Provide hand-carried, portable, UL-rated, Class A fire extinguishers for temporary offices and similar spaces. In other locations, provide hand-carried, portable, UL-rated, Class ABC, dry-chemical extinguishers or a combination of extinguishers of NFPA-recommended classes for the exposures.
  - 1. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.

### PART 3 - EXECUTION

#### 3.1 INSTALLATION

- A. Use qualified personnel for installation of temporary facilities. Locate facilities where they will serve the Project adequately and result in minimum interference with performance of the Work. Relocate as directed by the Construction Manager. Modify facilities as required at no additional cost to the owner.
- B. Each Prime Contractor shall provide each facility ready for use when needed to avoid delay to the Project. Maintain, modify and relocate as required at no addition cost. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

#### 3.2 TEMPORARY UTILITY INSTALLATION

- A. **General:** Engage the appropriate local utility company to install temporary service, or connect to existing service if necessary and applicable. Where the company provides only part of the service, provide the remainder with matching, compatible materials and equipment. Comply with company recommendations.
  - 1. Arrange with the company and existing users for a time when service can be interrupted, if necessary, to make connections for temporary services.
  - 2. Provide adequate capacity at each stage of construction. Prior to temporary utility availability, provide trucked-in services.
  - 3. Obtain easements to bring temporary utilities to the site where the Owner's easements cannot be used for that purpose.
- B. Temporary Electric Service:
  - 1. Each Contractor shall provide their own extension lines, and other equipment. Welding equipment shall run from generator trucks.
  - 2. All temporary electrical systems shall, as a minimum, conform to OSHA Standards. In addition, minimum light levels in all building work areas shall be maintained at twenty (20) foot candles. Branch circuit power distribution shall include four (4) duplex outlets per column, with separate circuits for each column. Duplex outlet locations shall be located no more than fifty (50) feet from each other, with sufficient ground fault over current protection on each circuit.



3. During schedule electrical shutdowns, the Electrical contractor shall provide generator systems capable of supporting all district life safety, security equipment, and infrastructure. HVAC/Electrical contractor shall also provide power to contractors performing work during the schedule electrical shutdown as to not delay the project schedule.
4. Contractor needing temporary lighting above the required lighting provided by the electrical contractor shall provide their own temporary lighting for the entire project.
5. Electrical contractor is to provide any temporary power supply and connection, including all material, for all required prime contractor and construction manager field offices.

C. Temporary Water Service

1. Plumbing contractor shall provide and maintain temporary water service, including water distribution piping and hose bibs on sites, as required throughout the construction period.
2. Dust control and erosion control is the responsibility of the General Trades Contract throughout construction, including the supply of water used for dust control and pay all fees associated.
3. Each contractor is responsible to provide metering and proper backflow prevention equipment for any required municipal water connections.

D. Temporary Sanitary Facilities

1. The General Trades contractor shall provide portable chemical toilet facilities for it's own use as well as for the use of the other primes for the duration of the project and meet O.S.H.A. standards, and shall maintain, service and clean these facilities for the duration of the project.
2. Provide at least one unit for each twelve (12) personnel on site.
3. Provide separate, well-identified, facilities for female and or transgender personnel.
4. Location of units to be field shall be placed on even, level ground and to be coordinated with the Construction Manager.
5. Provide and maintain all units in a clean and sanitary condition. At the minimum, clean on a weekly basis, and more often as necessary at the discretion of the construction manager. Provide all toilet supplies as required including toilet paper, soap, paper towels, and waste receptors.

E. Temporary Heating/Ventilation

1. Temporary heating plants utilizing electric power, propane, or kerosene as an energy source shall not be used in the building.
2. The Plumbing Contractor shall provide, maintain, and remove any and all gas piping necessary on the roof for the General Trades contractor work and its own mechanical contract work. The General Trades Contract shall provide, maintain, and remove, all necessary ducting requirements for temporary heating units and temporary controls. General Trades Contract will provide and maintain electrical wiring and components for safe operation of the heating units.
3. The Owner will not accept utilization of the permanent HVAC system for temporary heat during the course of construction except for the following

Additions: Permanent heat and cooling equipment will be used no more than 8 weeks from substantial completion.

4. The General Trades Contract shall provide indoor air quality management.
  - a. Provide an exhaust air system for all project areas that will eliminate fumes, VOC's off-gases, gases, dusts, mists, or other emissions.
  - b. Temporary building exhaust shall terminate at the building exterior.
  - c. Provide air seals to prevent migration of airborne contaminants from unoccupied areas to occupied areas.
  - d. Maintain a negative pressure between the work area and the space surrounding the work area.
  - e. Before start of work, submit a design for the exhaust air system. Do not begin work until approval of the District is obtained for the following:
    - 1) The number of machines required.
    - 2) Location of the machines in the workspace.
    - 3) Description of the methods used to test airflow and pressure differential.
  - f. Systems operation:
    - 1) A sufficient quantity of exhaust fans in existing window openings or other approved locations shall be operated with the following standards:
    - 2) Provide one (1) workplace air change every 15 minutes.
    - 3) To calculate total air flow requirement:
$$\text{TOTAL CFM} = \frac{\text{VOLUME OF WORK AREA (IN CF)}}{15 \text{ MINUTES}}$$
    - 4) To calculate the number of units needed for the work area:
$$\text{NUMBER OF UNITS} = \frac{\text{TOTAL CFM}}{(\text{CAPACITY OF UNIT IN CFM})}$$
  - g. Exhaust air system shall operate for a minimum of 72 hours after work is completed, or until all materials have cured sufficiently as to stop off-gassing of fumes and odors and area has been ventilated to remove all detectable traces of odors and fumes.
  - h. Maintain minimum twenty-five (25) feet of clearance from all temporary exhaust outlets to all active building areas.

F. Temporary Phone Service

1. Telephone services are the responsibility of each Prime Contractor.

G. Temporary Fire Protection

1. Each Prime Contractor shall furnish temporary fire protection in the course of performing their work.
2. Contractor for General Trades Contract shall furnish and maintain per OSHA standards, a fire extinguisher at stairwells, (all floors), and temporary means of egress at all necessary locations as determined by the Construction Manager.

3. All Contractors are forewarned that there shall be no smoking allowed in construction work areas, existing District facilities, or on District grounds. If caught smoking, the consequence is immediate and permanent dismissal from the construction project.

H. Temporary Construction

1. Temporary bridging, decks, hoists, lifts, scaffolding, and cranes shall be the responsibility of Contractor requiring it.
2. First aid requirements are the responsibility of each Contractor.
3. Temporary partitions and barricades are the responsibility of the General Trades Contract. Construction shall be in accordance with NYSED Uniform Safety Standards for School Construction.
4. Temporary entrances and exits to the building, shall be furnished, installed and maintained under General Trades Contract scope of work. In providing and maintaining all temporary partitions, barricades, corridors, etc... The General Trades Contract will construct to protect all existing finishes, floors, will be protected with 1" thick closed cell foam board (similar to Dow board) and covered with a layer of ¾ inch fire retardant plywood. All partitions, corridors, barricades exiting into a occupied space will be provided with a locking steel door with no window and installed to swing into construction. If damage upon dismantling of temporary enclosures results in damage to surrounding finishes, R-100 will replace or repair to acceptable standard.
6. Perimeter fences and gates, required to protect District property, security and safety to construction, staging, and storage areas, are the responsibility of the Site Contract, along with the protection of trees and plants. Provide chains of sufficient length to secure each indicated gate.
7. The General Trades Contract shall provide to the Construction Manager for distribution one (1) padlock for each gate, plus (4) extra padlocks, all keyed alike, with two (2) keys for each padlock. .
8. The General Trades Contract shall provide 500 lf of temporary partitions to be used at the discretion of the Construction Manager. The temporary partitions are to be constructed of metal studs, batt insulation, and drywall with mechanical fasteners and include 1 fire rated lockable, hinged, mounted and maintained door per 10 feet of wall. Electrical Trades contractor will provide 500 lf of 10 candlepower temporary lighting.

3.3 SUPPORT FACILITIES INSTALLATION

- A. Locate field offices, storage sheds, sanitary facilities, and other temporary construction and support facilities in designated area only.
  1. Maintain support facilities until near Substantial Completion. Remove prior to Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to the District.
  2. Security is the responsibility of each Contractor.
- B. Provide non-combustible construction for offices, shops, and sheds located within the construction area as directed. Comply with requirements of NFPA 241.

- C. Contractor Field Offices: Each Prime Contractor may utilize one insulated, weather tight temporary office of sufficient size to accommodate personnel at the Project Site. Keep the office clean and orderly for use for small meetings. Location as approved by Construction Manager. Parking is restricted to foremen and/or superintendents only; employee parking at designated areas. Furnish and equip office as necessary.
- D. Construction Manager Field Office: **General Trades Contractor shall provide a \$7,500 lump sum allowance** for office supplies and equipment to maintain the construction manager office to be used at the construction manager discretion and if not used in whole or in part the balance will be refunded to the district.

**Additionally, the General Trades Contractor shall provide the following:**

1. Provide an office trailer (new or newer). Trailer shall be double wide, approximately 24' x 64', similar to Willscot CPX2 equipped with heat and air conditioning and Data Hub option. Trailer should also come equipped with a kitchenette area, as well as working bathroom facility with hot water and a sanitary holding tank for the double trailer that is able to facilitate a bathroom. For the bathroom facility, provide holding tank and frequent pumping of waste; weekly (scheduled with 3rd party entity and cost borne by General Trades Contractor). Included shall be the trailer set-up, site preparation, skirting, maintenance, tear down and site restoration. The General Trades Contractor shall secure the rental of this trailer beginning approximately April 1, 2025 for the entire duration of the project. Make provisions to prevent freezing; provide a tank of sufficient volume to ensure tank does not overflow.
2. General Trades Contractor to provide full snow removal in all areas on the site plan including staging areas, construction laydown areas and construction trailers for the duration of the project.
3. Provide the following new office furniture and equipment, which will become property of the District upon completion of the Project:
  - a. One (1) 4-shelf bookcases in new condition – similar to model # LLR41286
  - b. Four (4) CorLiving – Fabric Office Chairs – Black in new condition similar to Best Buy SKU: 9160107
  - c. Four (4) office desks – Tresanti 47" Adjustable Height Desk (Cosco Item # 1414575)
  - d. One (1) Dry Erase Board in new condition – similar to Uline Standard Melamine Dry Erase Board 6' x 4', model # H-1840
  - e. Two (2) Dry Erase Boards in new condition – similar to Uline Non-Magnetic Melamine Dry Erase Board 3' x 2', model #H-616
  - f. Two (2) cork boards in new condition – similar to Uline Cork Board with Aluminum Frame 3' x 2', model #H-3945
  - g. One (1) 4x8 drafting table built by GC with lumber
  - h. Four (4) 8' Folding Tables in new condition – similar to Realspace Folding Table, 8' in length: 29" H x 96" W x 30" D in walnut woodgrain
  - i. Twelve (12) Folding Chairs in new condition – similar to Realspace Metal Folding Chairs – Black
  - j. One 4.5 cu ft mini fridge – Similar to Frigidaire model # FFPS4533UM
  - k. One standard microwave
  - l. One first aid wall cabinet similar to First Aid Only First Aid Cabinet: Industrial, 50 People Served per Kit, ANSI Std Not ANSI Compliant

Item :40JH88 Mfr. Model :1300-FAE-0103

- m. Provide a bi-weekly water service for the Construction Manager trailer. Provide portable, bottled water such as Poland Spring or Crystal Rock Services water with a cold and hot dispenser with 5-gallon capacity for the entire duration of the project.
- n. Provide a weekly professional cleaning service of the Construction Manager Office Trailer for the entire duration of the project.
- o. Provide one fire extinguisher for CM job trailer.
- p. Internet service including equipment and installation to CM trailer for the entire duration of the project.
- q. The General Trades Contractor shall provide the following IT Equipment.:
  - One (1) 4G WiFi hardware device with 5G subscription for the duration of the project, assume 22 months (Similar to Verizon Inseego MIFI X Pro 5G UW (SKU INSGM3100).
  - Contractor to provide Business Class High Speed Internet or equivalent service similar to Spectrum Business 200Mbps service (200Mbps download speed and 10Mbps upload speed) for the field office for the entire duration of the project.

E. Temporary Access Roads and Staging Area:

- 1. Storage of construction trailers and storage shed will be as directed by the Construction Manager and may in no way interfere with the District's daily functions.
- 2. Temporary parking by construction personnel shall be allowed only in areas identified by the C.M. and or owner. The Owner will not tolerate construction parking in existing parking lots, new parking areas or driveways in front of the building and will subsequently have vehicles in violation of parking prohibitions towed from the site and all fees back-charged to the responsible Contractor. See C.M. for parking locations.
- 3. Traffic Regulations:
  - a. Access through Owner's entrances shall be limited.
  - b. Utilize only designated entrances.
  - c. Maintain all District traffic regulations.
- 4. Construction parking will be allowed only in the areas designated by the C.M. and school district.
- 6. At staging areas to be placed on existing asphalt parking areas. The General Trades Contractor shall repair asphalt to match existing. Restripe all parking space covered by staging area. Fill in all post holes created during installation of fencing.
- 6. Construction parking will not be allowed adjacent to District buildings, additions or monuments.
- 7. General Trades Contractor is responsible for snow removal in all construction staging areas and access roads for the duration of the project.

E. **Dewatering Facilities and Drains:** For temporary drainage, dewatering facilities and operations directly associated with construction activities of the project, the Contractor requiring same shall be responsible for providing. Notwithstanding the above, the General Trades Contract is responsible for the dewatering of the general building area, unless stated otherwise in the Contract documents.

- F. **Temporary Enclosures:** General Trades Contract shall provide temporary enclosure for protection of construction in progress and completed, from exposure, foul weather, other construction operations, and similar activities.
1. Where heat is needed and the permanent building enclosure is not complete, provide temporary enclosures where there is no other provision for containment of heat. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.
  2. Install tarpaulins securely, with noncombustible wood framing and other materials. Close openings of 25 sq. ft. (2.3 sq. m) or less with plywood or similar materials.
  3. Close openings through floor or roof decks and horizontal surfaces with load-bearing, wood-framed construction.
  4. Where temporary wood or plywood enclosure exceeds 100 sq. ft. (9.2 s.m.) in area, use UL labeled fire-retardant-treated material for framing and main sheathing.
  5. Generally, temporary closures for openings are the responsibility of Contractor creating the opening and shall be installed to protect building from exterior elements. Specifically:
    - a. Roofing Contractor shall enclose roof openings with blocking, plywood and EPDM until roof top appurtenances are placed. Removal of these roof opening enclosures and disposal to Dumpster shall be by Contractor placing permanent equipment.
    - b. General Trades Contract shall be responsible for all temporary doors and locks until permanent systems are installed to building entrances and responsible for daily locking and unlocking throughout course of project.
  6. Temporary partitions shall be installed, maintained and removed under General Trades Contract. Temporary partitions shall be installed at all openings where required to protect areas, spaces, property, personnel, students, and faculty; to separate and control dust debris, noise, access, sight, fire areas, safety and security, and to separate phased construction areas per the phasing plan. Construction material and methods to suit need as determined by Construction Manager. Temporary partitions shall be insulated, constructed of noncombustible materials and have emergency egress doors and locking hardware if located in corridor. Installation of temporary partitions is not limited to what is shown on drawings, additional partitions with locking doors may be required at no cost to the owner.
  7. The Roofing Contract is responsible to protect all openings at the roof during all phases of construction, including the protection of temporary roof curbs at time of installation or removal, from this time if the opening is uncovered to complete additional work it shall be protected by the contractor who removed the protection.
- G. **Temporary Lifts and Hoists:** Each Prime Contractor shall provide facilities for hoisting materials, equipment and employees in the advancement of the Project. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.
- H. **Temporary Shoring:** Each Prime Contractor shall provide all shoring necessary for the advancement of the project and for the Work of their Contract. The work shall comply with all safety laws and be constructed so as not to interfere with other work. Coordinate with all other Contractors.

- I. Project Identification and Temporary Signs: Provide project identification and other signs of the size noted below. Install signs to inform the public and persons seeking entrance to the Project. Support on posts or framing of preservative-treated wood or steel. Do not permit installation of unauthorized signs.
1. Project Identification Signs: Engage an experienced sign painter to apply graphics. Comply with details indicated.
  2. Temporary Signs: Prepare signs to provide directional information to construction personnel and visitors; provide all signs four (4) foot by four (4) foot on pressure treated “A” face plywood, back painted, verbiage by Construction Manager/Architect.
  3. The General Trades Contract shall furnish and install (2) construction signs at locations to be specified by the Construction Manager.
    - a. For construction traffic control/flow at entrances and exits. Location for signage of entrances and exits may be moved as Sitework progresses during the project.
    - b. To direct visitors.
    - c. For construction parking.
    - d. To direct deliveries.
    - e. Warning signs as required.
    - f. Per OSHA standards as necessary.
    - g. Trailer identification.
    - h. For "No Smoking" safe work site at multiple locations.
    - i. Project signs shall be installed at each project site. Sign shall be furnished by CM.
- K. Collection and Disposal of Waste: Prime Contractors shall collect waste from construction areas and elsewhere, and load to dumpsters daily. Comply with requirements of NFPA 241 for removal of combustible waste material and debris. Enforce requirements strictly. Do not hold materials more than 3 days during normal weather or 1 day when the temperature is expected to rise above 80 deg. F (27 deg. C). Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly. Dispose of material lawfully. Cost of all Dumpster service for the duration of the project by General Trades Contract.
- L. General and Final Cleaning:
1. The maintenance of a clean work site shall be the responsibility of each Contractor.
  2. Each Contractor shall remove their own debris daily from work area to waste disposal containers (Dumpsters). Time lapse is not acceptable.
  3. Each Contractor shall leave an area in the same level of cleanliness in which it was found.
  4. Each and every Contractor working on site shall contribute manpower every Friday at 8 A.M. to work as a team to remove debris to Dumpsters, manpower to be coordinated by Construction Manager. Manpower shall be present until Construction Manager is satisfied with jobsite appearance. Cleanup work shall continue until complete. At the discretion of the Construction Manager, a contractor not complying may be back charged for work performed by others. The responsibility of broom cleaning five times weekly remains with the

General Trades Contract, and shall include use of sweeping compound. General Trades Contract will provide sufficient labor to once per week clean up all debris outside of all buildings including debris not generated by this contract. General Trades Contract will remove all debris discarded but not removed by others to accomplish a thorough sweeping including moving aside boxes, equipment, materials etc... to provide a complete sweeping service. Debris, garbage, beverage, food containers left by others will be removed by the General Trades Contract to a dumpster during course of sweeping.

5. Dumpsters shall be located at the site where work is occurring, accessible to building and roads. Each Contractor may load legally acceptable construction debris to the Dumpster (from this project only). Cost of all disposal fees shall be under General Trades Contract and dumpsters shall remain on the project until project completion, or as directed by Construction Manager. The General Trades Contract shall secure dumpsters during off-hours.
6. Each Prime Contractor shall be responsible for final cleaning of their work. After each Prime Contractor completes final cleaning of their work, General Trades Contract shall employ services of a Professional Cleaning Company for final cleaning of all finished surfaces before acceptance by the Owner.
7. Each Prime Contractor is specifically responsible for the final cleaning of their work before substantial completion and acceptance by the Owner.
  - a. General Trades Contract– General Trades; all sidewalks, roads, parking areas, all General Trades structures plant beds, etc.
  - b. HVAC Contract- all equipment, piping, insulation, valves, pumps, boilers, breaching, AHU's, ductwork, unit ventilators, grilles and diffusers, etc.

M. Protection of Work: Each Prime Contractor is reminded to temporarily protect work in place, or work area, at all times, pre, during or post construction, until accepted by the Owner per article 10 of the General Conditions of the Contract.

1. After building enclosure, either temporary or permanent, each Prime Contractor shall protect and maintain any and all of their own specific work in place, or work responsibilities, from rain, water, snow, mud, dust, dirt, ice, freezing temperature, debris, etc.
2. Each Prime Contractor is responsible for protection of work in place from the operations of other contractors. Communicate daily with other supervisory personnel. Coordinate with all trades.

### 3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Generally, each Prime Contractor is responsible for security and protection of their own work, work areas, temporary trailers or storage sheds, storage area, staging area, materials, or equipment stored on site, materials or equipment stored in the building, materials or equipment permanently installed in place, trucks, vehicles, or any item until legally becoming property of the District.
- B. Temporary Facility Changeover: Except for using permanent fire protection as soon as available, do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion, per phased area, as requested by the Construction Manager.



- C. Temporary Fire Protection: Until fire-protection needs are supplied by permanent facilities, install and maintain temporary fire-protection facilities of the types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 10, "Standard for Portable Fire Extinguishers," and NFPA 241, "Standard for Safeguarding Construction, Alterations, and Demolition Operations."
  - 1. The General Trades Contract to furnish and locate fire extinguishers where convenient and effective for their intended purpose, but not less than one extinguisher on each floor at or near each usable stairwell and in crawl space.
  - 2. All contractors to store combustible materials in containers in fire-safe locations.
  - 3. All contractors to maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire-protection facilities, stairways, and other access routes for fighting fires. Prohibit smoking.
  - 4. All contractors to provide supervision of welding operations, combustion-type temporary heating units, and similar sources of fire ignition.
- D. Permanent Fire Protection: At the earliest feasible date in each area of the Project, complete installation of the permanent fire-protection facilities, including connected services, and place into operation and use. Instruct key personnel on use of facilities.
- E. Barricades, Warning Signs and Lights: Comply with standards and code requirements for erecting structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform personnel and the public of the hazard being protected against. Where appropriate and needed, provide lighting, including flashing red or amber lights.
- F. The General Trades Contract shall provide security enclosure and lockup of the building. Install substantial temporary enclosures to protect partially completed areas of construction. Provide locking entrances to prevent unauthorized entrance, vandalism, theft and similar violations of security and also ensure the building is secure at the end of each shift.
  - 1. Storage: All contracts are responsible for their own storage. Where materials and equipment must be stored, and are of value or attractive for theft, provide a secure lockup. Enforce discipline in connection with the installation and release of material to minimize the opportunity for theft and vandalism.
- G. Environmental Protection: Each Prime Contractor shall provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations, and minimize the possibility that air, waterways, and subsoil might be contaminated or polluted or that any other undesirable effect might result. Avoid using tools and equipment that produce harmful noise. Restrict use of noise-making tools and equipment to hours that will minimize complaints and disruption. All contractors shall follow local noise ordinance.
- H. Erosion and Sediment Control: Site Contract shall comply with regulations of "New York Guidelines for Urban Erosion and Sediment Control" published by Soil and Water Conservation Society and appropriate local ordinances where applicable.

1. Erosion and Sediment Control Measures – By Site Contractor
  - a. Take precautions to prevent mud from construction site accumulating on adjoining public roads and sidewalks and Owner's roads and sidewalks. Clean accumulations of mud from public roads and sidewalks and from Owner's roads and sidewalks when required by public authorities and when directed by Architect.
  - b. Plan and execute construction by methods to control surface drainage from cuts and fills and from borrow areas, and to prevent erosion and sedimentations.
    1. Minimize amount of bare soil exposed at one time.
    2. Provide temporary measures such as berms, dikes, dams, sediment basins, fiber mats, netting, gravel, mulches, grasses, slope drains, and erosion control devices or methods appropriate to conditions at site.
    3. Construct fills and waste areas by selective placement to avoid erosive surfaces silts or clays.
    4. Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.
2. Coordinate temporary erosion and sediment control measures with permanent erosion control features specified elsewhere in Contract Documents to maximum extend possible to assure economical, effective, and continuous erosion control.

### 3.5 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. Limit availability of temporary facilities to essential and intended uses to minimize waste and abuse.
- B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage by freezing temperatures and similar elements.
  1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
  2. Protection: Prevent water-filled piping from freezing. Maintain markers for underground lines. Protect from damage during excavation operations. Protection applies to each Prime Contractor until substantial completion is issued by the Architect.
- C. Termination and Removal: Unless the Construction Manager requests that it be maintained longer, remove each temporary facility when the need has ended, when replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with the temporary facility. Repair damaged work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
  1. Materials and facilities that constitute temporary facilities are the property of each Prime Contractor. The Owner reserves the right to take possession of project identification signs.
  2. Remove temporary paving not intended for or acceptable for integration into permanent paving. Where the area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or

subsoil in the area. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at the temporary entrances, as required by the governing authority.

END OF SECTION 015000



## SECTION 016000 - PRODUCT REQUIREMENTS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.
- B. Related Requirements:
  - 1. Section 012300 "Alternates" for products selected under an alternate.
  - 2. Section 012500 "Substitution Procedures" for requests for substitutions.
  - 3. Section 014200 "References" for applicable industry standards for products specified.

#### 1.3 DEFINITIONS

- A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
  - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
  - 2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
  - 3. Comparable Product: Product that is demonstrated and approved through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- B. Basis-of-Design Product Specification: A specification in which a specific manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of additional manufacturers named in the specification.

#### 1.4 ACTION SUBMITTALS

- A. Comparable Product Requests: Submit request for consideration of each comparable product. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
  - 1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.
  - 2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Architect will notify Contractor through Construction Manager of approval or rejection of proposed comparable product request within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
    - a. Form of Approval: As specified in Section 013300 "Submittal Procedures."
    - b. Use product specified if Architect does not issue a decision on use of a comparable product request within time allocated.
- B. Basis-of-Design Product Specification Submittal: Comply with requirements in Section 013300 "Submittal Procedures." Show compliance with requirements.

#### 1.5 QUALITY ASSURANCE

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.
  - 1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
  - 2. If a dispute arises between contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used.

#### 1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.
- B. Delivery and Handling:
  - 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
  - 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
  - 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.

4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.

C. Storage:

1. Store products to allow for inspection and measurement of quantity or counting of units.
2. Store materials in a manner that will not endanger Project structure.
3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
4. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
6. Protect stored products from damage and liquids from freezing.
7. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.7 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.

- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
3. See other Sections for specific content requirements and particular requirements for submitting special warranties.

- C. Submittal Time: Comply with requirements in Section 017700 "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

- A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.

1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," Architect will make selection.
5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
6. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.

B. Product Selection Procedures:

1. Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
3. Products:
  - a. Restricted List: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
  - b. Nonrestricted List: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product.
4. Manufacturers:
  - a. Restricted List: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
  - b. Nonrestricted List: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed manufacturer's product.
5. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics



that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.

- C. Visual Matching Specification: Where Specifications require "match Architect's sample", provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.
  - 1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Section 012500 "Substitution Procedures" for proposal of product.
- D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

## 2.2 COMPARABLE PRODUCTS

- A. Conditions for Consideration: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with these requirements:
  - 1. Evidence that the proposed product does not require revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
  - 2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
  - 3. Evidence that proposed product provides specified warranty.
  - 4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
  - 5. Samples, if requested.

## PART 3 - EXECUTION (Not Used)

END OF SECTION 016000



## SECTION 017300 - EXECUTION

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:
  - 1. Construction layout.
  - 2. Field engineering and surveying.
  - 3. Installation of the Work.
  - 4. Cutting and patching.
  - 5. Coordination of Owner-installed products.
  - 6. Progress cleaning.
  - 7. Starting and adjusting.
  - 8. Protection of installed construction.
- B. Related Requirements:
  - 1. Section 013300 "Submittal Procedures" for submitting surveys.
  - 2. Section 017700 "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.
  - 3. Section 024119 "Selective Demolition" for demolition and removal of selected portions of the building.
  - 4. Section 078413 "Penetration Firestopping" for patching penetrations in fire-rated construction.

#### 1.3 DEFINITIONS

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of other work.
- B. Patching: Fitting and repair work required to restore construction to original conditions after installation of other work.

#### 1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For land surveyor.

- B. Certificates: Submit certificate signed by land surveyor certifying that location and elevation of improvements comply with requirements.
- C. Cutting and Patching Plan: Submit plan describing procedures at least 10 days prior to the time cutting and patching will be performed. Include the following information:
  - 1. Extent: Describe reason for and extent of each occurrence of cutting and patching.
  - 2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building appearance and other significant visual elements.
  - 3. Products: List products to be used for patching and firms or entities that will perform patching work.
  - 4. Dates: Indicate when cutting and patching will be performed.
  - 5. Utilities and Mechanical and Electrical Systems: List services and systems that cutting and patching procedures will disturb or affect. List services and systems that will be relocated and those that will be temporarily out of service. Indicate length of time permanent services and systems will be disrupted.
    - a. Include description of provisions for temporary services and systems during interruption of permanent services and systems.
- D. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

## 1.5 QUALITY ASSURANCE

- A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.
- B. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
  - 1. Structural Elements: When cutting and patching structural elements, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection
  - 2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Operational elements include the following:
    - a. Primary operational systems and equipment.
    - b. Fire separation assemblies.
    - c. Air or smoke barriers.
    - d. Fire-suppression systems.
    - e. Mechanical systems piping and ducts.
    - f. Control systems.

- g. Communication systems.
    - h. Fire-detection and -alarm systems.
    - i. Conveying systems.
    - j. Electrical wiring systems.
    - k. Operating systems of special construction.
  - 3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. Other construction elements include but are not limited to the following:
    - a. Water, moisture, or vapor barriers.
    - b. Membranes and flashings.
    - c. Exterior curtain-wall construction.
    - d. Sprayed fire-resistive material.
    - e. Equipment supports.
    - f. Piping, ductwork, vessels, and equipment.
  - 4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
- C. Cutting and Patching Conference: Before proceeding, meet at Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.
- D. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
- 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.
  - 1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; underground electrical services, and other utilities.
  - 2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
- B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
  - 1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
  - 2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
  - 3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
- C. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
  - 1. Description of the Work.
  - 2. List of detrimental conditions, including substrates.
  - 3. List of unacceptable installation tolerances.
  - 4. Recommended corrections.
- D. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

### 3.2 PREPARATION

- A. Existing Utility Information: Furnish information to Construction Manager that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
- B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before

fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

- C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Architect according to requirements in Section 013100 "Project Management and Coordination."

### 3.3 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect and Construction Manager promptly.
- B. General: Engage a land surveyor to lay out the Work using accepted surveying practices.
  - 1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
  - 2. Establish limits on use of Project site.
  - 3. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
  - 4. Inform installers of lines and levels to which they must comply.
  - 5. Check the location, level and plumb, of every major element as the Work progresses.
  - 6. Notify Architect and Construction Manager when deviations from required lines and levels exceed allowable tolerances.
  - 7. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.
- C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim and invert elevations.
- D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.
- E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect and Construction Manager.

### 3.4 FIELD ENGINEERING

- A. Identification: Owner will identify existing benchmarks, control points, and property corners.

- B. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.
  - 1. Do not change or relocate existing benchmarks or control points without prior written approval of Architect or Construction Manager. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Architect and Construction Manager before proceeding.
  - 2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.
- C. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.
  - 1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
  - 2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
  - 3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.

### 3.5 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
  - 1. Make vertical work plumb and make horizontal work level.
  - 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
  - 3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.
- F. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.



- H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
  - 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
  - 2. Allow for building movement, including thermal expansion and contraction.
  - 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- J. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

### 3.6 CUTTING AND PATCHING

- A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
  - 1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.
- C. Temporary Support: Provide temporary support of work to be cut.
- D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- E. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching according to requirements in Section 011000 "Summary."
- F. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to minimize or prevent interruption to occupied areas.
- G. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.

1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
  2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
  3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
  4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.
  5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
  6. Proceed with patching after construction operations requiring cutting are complete.
- H. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.
1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
  2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.
    - a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
    - b. Restore damaged pipe covering to its original condition.
  3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
    - a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
  4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
  5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.
- I. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

### 3.7 OWNER-INSTALLED PRODUCTS

- A. Site Access: Provide access to Project site for Owner's construction personnel.

- B. Coordination: Coordinate construction and operations of the Work with work performed by Owner's construction personnel.
  - 1. Construction Schedule: Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner if changes to schedule are required due to differences in actual construction progress.
  - 2. Preinstallation Conferences: Include Owner's construction personnel at preinstallation conferences covering portions of the Work that are to receive Owner's work. Attend preinstallation conferences conducted by Owner's construction personnel if portions of the Work depend on Owner's construction.

### 3.8 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
  - 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
  - 2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F.
  - 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
    - a. Use containers intended for holding waste materials of type to be stored.
  - 4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
  - 1. Remove liquid spills promptly.
  - 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

- G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Section 015000 "Temporary Facilities and Controls."
- H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

### 3.9 STARTING AND ADJUSTING

- A. Coordinate startup and adjusting of equipment and operating components with requirements in Section 019113 "General Commissioning Requirements."
- B. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- C. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.
- D. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- E. Manufacturer's Field Service: Comply with qualification requirements in Section 014000 "Quality Requirements."

### 3.10 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Comply with manufacturer's written instructions for temperature and relative humidity.

END OF SECTION 017300

## SECTION 017700 - CLOSEOUT PROCEDURES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
  - 1. Substantial Completion procedures.
  - 2. Final completion procedures.
  - 3. Warranties.
  - 4. Final cleaning.
  - 5. Repair of the Work.
- B. Related Requirements:
  - 1. Section 017300 "Execution" for progress cleaning of Project site.
  - 2. Section 017823 "Operation and Maintenance Data" for operation and maintenance manual requirements.
  - 3. Section 017839 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.
  - 4. Section 017900 "Demonstration and Training" for requirements for instructing Owner's personnel.

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For cleaning agents.
- B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.
- C. Certified List of Incomplete Items: Final submittal at Final Completion.

#### 1.4 CLOSEOUT SUBMITTALS

- A. Certificates of Release: From authorities having jurisdiction.
- B. Certificate of Insurance: For continuing coverage.
- C. Field Report: For pest control inspection.

1.5 MAINTENANCE MATERIAL SUBMITTALS

- A. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

1.6 SUBSTANTIAL COMPLETION PROCEDURES

- A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete, including all deficiency items. All punch lists and deficiency lists must be signed and dated upon completion.
- B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
  2. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record information.
  3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
  4. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Construction Manager. Label with manufacturer's name and model number where applicable.
    - a. Schedule of Maintenance Material Items: Prepare and submit schedule of maintenance material submittal items, including name and quantity of each item and name and number of related Specification Section. Obtain Construction Manager's signature for receipt of submittals.
  5. Submit test/adjust/balance records.
  6. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
- C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
1. Advise Owner of pending insurance changeover requirements.
  2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
  3. Complete startup and testing of systems and equipment.
  4. Perform preventive maintenance on equipment used prior to Substantial Completion.

5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training video recordings specified in Section 017900 "Demonstration and Training."
  6. Advise Owner of changeover in heat and other utilities.
  7. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
  8. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
  9. Complete final cleaning requirements, including touchup painting.
  10. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect and Construction Manager will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.
1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
  2. Results of completed inspection will form the basis of requirements for final completion.

## 1.7 FINAL COMPLETION PROCEDURES

- A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:
1. Submit a final Application for Payment according to Section 012900 "Payment Procedures."
  2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
  3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
  4. Submit pest-control final inspection report.
- B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect and Construction Manager will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.8 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
  - 1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.
  - 2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
  - 3. Include the following information at the top of each page:
    - a. Project name.
    - b. Date.
    - c. Name of Architect and Construction Manager.
    - d. Name of Contractor.
    - e. Page number.
  - 4. Submit list of incomplete items in the following format:
    - a. MS Excel electronic file.

1.9 SUBMITTAL OF PROJECT WARRANTIES

- A. Time of Submittal: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated, or when delay in submittal of warranties might limit Owner's rights under warranty.
- B. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.
  - 1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
  - 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
  - 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
  - 4. Warranty Electronic File: Scan warranties and bonds and assemble complete warranty and bond submittal package into a single indexed electronic PDF file with links enabling navigation to each item. Provide bookmarked table of contents at beginning of document.
- C. Provide additional copies of each warranty to include in operation and maintenance manuals.



## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.
  - 1. Use cleaning products that comply with Green Seal's GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable VOC levels.

## PART 3 - EXECUTION

### 3.1 FINAL CLEANING

- A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
  - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:
    - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
    - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
    - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
    - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
    - e. Remove snow and ice to provide safe access to building.
    - f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
    - g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
    - h. Sweep concrete floors broom clean in unoccupied spaces.
    - i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.

- j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Polish mirrors and glass, taking care not to scratch surfaces.
  - k. Remove labels that are not permanent.
  - l. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
  - m. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
  - n. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
  - o. Clean ducts, blowers, and coils if units were operated without filters during construction or that display contamination with particulate matter on inspection.
    - 1) Clean HVAC system in compliance with NADCA Standard 1992-01. Provide written report on completion of cleaning.
  - p. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.
  - q. Leave Project clean and ready for occupancy.
- C. Construction Waste Disposal: Comply with waste disposal requirements in Section 015000 "Temporary Facilities and Controls."

### 3.2 REPAIR OF THE WORK

- A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.
- B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.
- 1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
  - 2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that already show evidence of repair or restoration.
    - a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.
  - 3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
  - 4. Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

END OF SECTION 017700

## SECTION 017823 - OPERATION AND MAINTENANCE DATA

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
  - 1. Operation and maintenance documentation directory.
  - 2. Emergency manuals.
  - 3. Operation manuals for systems, subsystems, and equipment.
  - 4. Product maintenance manuals.
  - 5. Systems and equipment maintenance manuals.
- B. Related Requirements:
  - 1. Section 011000 "Summary of Work" for coordinating operation and maintenance manuals covering the Work of multiple contracts.
  - 2. Section 013300 "Submittal Procedures" for submitting copies of submittals for operation and maintenance manuals.

#### 1.3 DEFINITIONS

- A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.
- B. Subsystem: A portion of a system with characteristics similar to a system.

#### 1.4 CLOSEOUT SUBMITTALS

- A. Manual Content: Operations and maintenance manual content is specified in individual Specification Sections to be reviewed at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.
  - 1. Architect will comment on whether content of operations and maintenance submittals are acceptable.
  - 2. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.
- B. Format: Submit operations and maintenance manuals in the following format:

1. PDF electronic file. Assemble each manual into a composite electronically indexed file. Submit on digital media acceptable to Architect.
    - a. Name each indexed document file in composite electronic index with applicable item name. Include a complete electronically linked operation and maintenance directory.
    - b. Enable inserted reviewer comments on draft submittals.
  2. Three paper copies. Include a complete operation and maintenance directory. Enclose title pages and directories in clear plastic sleeves. Architect, through Construction Manager, will return two copies.
- C. Initial Manual Submittal: Submit draft copy of each manual at least 30 days before commencing demonstration and training. Architect will comment on whether general scope and content of manual are acceptable.
- D. Final Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least 15 days before commencing demonstration and training. Architect will return copy with comments.
1. Correct or revise each manual to comply with Architect's comments. Submit copies of each corrected manual within 15 days of receipt of Architect's comments and prior to commencing demonstration and training.

## PART 2 - PRODUCTS

### 2.1 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY

- A. Directory: Prepare a single, comprehensive directory of emergency, operation, and maintenance data and materials, listing items and their location to facilitate ready access to desired information. Include a section in the directory for each of the following:
1. List of documents.
  2. List of systems.
  3. List of equipment.
  4. Table of contents.
- B. List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.
- C. List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.
- D. Tables of Contents: Include a table of contents for each emergency, operation, and maintenance manual.
- E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to

ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

## 2.2 REQUIREMENTS FOR EMERGENCY, OPERATION, AND MAINTENANCE MANUALS

- A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
  - 1. Title page.
  - 2. Table of contents.
  - 3. Manual contents.
- B. Title Page: Include the following information:
  - 1. Subject matter included in manual.
  - 2. Name and address of Project.
  - 3. Name and address of Owner.
  - 4. Date of submittal.
  - 5. Name and contact information for Contractor.
  - 6. Name and contact information for Construction Manager.
  - 7. Name and contact information for Architect.
  - 8. Name and contact information for Commissioning Authority.
  - 9. Names and contact information for major consultants to the Architect that designed the systems contained in the manuals.
  - 10. Cross-reference to related systems in other operation and maintenance manuals.
- C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
  - 1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.
- D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
- E. Manuals, Electronic Files: Submit manuals in the form of a multiple file composite electronic PDF file for each manual type required.
  - 1. Electronic Files: Use electronic files prepared by manufacturer where available. Where scanning of paper documents is required, configure scanned file for minimum readable file size.
  - 2. File Names and Bookmarks: Enable bookmarking of individual documents based on file names. Name document files to correspond to system, subsystem, and equipment names used in manual directory and table of contents. Group documents for each system and subsystem into individual composite bookmarked files, then create composite manual, so that resulting bookmarks reflect the system, subsystem, and equipment names in a readily

navigated file tree. Configure electronic manual to display bookmark panel on opening file.

F. Manuals, Paper Copy: Submit manuals in the form of hard copy, bound and labeled volumes.

1. Binders: Heavy-duty, three-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
  - a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
  - b. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents, and indicate Specification Section number on bottom of spine. Indicate volume number for multiple-volume sets.
2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section of the manual. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software storage media for computerized electronic equipment.
4. Supplementary Text: Prepared on 8-1/2-by-11-inch white bond paper.
5. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
  - a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
  - b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

## 2.3 EMERGENCY MANUALS

A. Content: Organize manual into a separate section for each of the following:

1. Type of emergency.
2. Emergency instructions.
3. Emergency procedures.

B. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component:

1. Fire.
2. Flood.
3. Gas leak.
4. Water leak.

5. Power failure.
  6. Water outage.
  7. System, subsystem, or equipment failure.
  8. Chemical release or spill.
- C. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.
- D. Emergency Procedures: Include the following, as applicable:
1. Instructions on stopping.
  2. Shutdown instructions for each type of emergency.
  3. Operating instructions for conditions outside normal operating limits.
  4. Required sequences for electric or electronic systems.
  5. Special operating instructions and procedures.

## 2.4 OPERATION MANUALS

- A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:
1. System, subsystem, and equipment descriptions. Use designations for systems and equipment indicated on Contract Documents.
  2. Performance and design criteria if Contractor has delegated design responsibility.
  3. Operating standards.
  4. Operating procedures.
  5. Operating logs.
  6. Wiring diagrams.
  7. Control diagrams.
  8. Piped system diagrams.
  9. Precautions against improper use.
  10. License requirements including inspection and renewal dates.
- B. Descriptions: Include the following:
1. Product name and model number. Use designations for products indicated on Contract Documents.
  2. Manufacturer's name.
  3. Equipment identification with serial number of each component.
  4. Equipment function.
  5. Operating characteristics.
  6. Limiting conditions.
  7. Performance curves.
  8. Engineering data and tests.
  9. Complete nomenclature and number of replacement parts.
- C. Operating Procedures: Include the following, as applicable:
1. Startup procedures.

2. Equipment or system break-in procedures.
  3. Routine and normal operating instructions.
  4. Regulation and control procedures.
  5. Instructions on stopping.
  6. Normal shutdown instructions.
  7. Seasonal and weekend operating instructions.
  8. Required sequences for electric or electronic systems.
  9. Special operating instructions and procedures.
- D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.
- E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

## 2.5 PRODUCT MAINTENANCE MANUALS

- A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.
- B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.
- C. Product Information: Include the following, as applicable:
1. Product name and model number.
  2. Manufacturer's name.
  3. Color, pattern, and texture.
  4. Material and chemical composition.
  5. Reordering information for specially manufactured products.
- D. Maintenance Procedures: Include manufacturer's written recommendations and the following:
1. Inspection procedures.
  2. Types of cleaning agents to be used and methods of cleaning.
  3. List of cleaning agents and methods of cleaning detrimental to product.
  4. Schedule for routine cleaning and maintenance.
  5. Repair instructions.
- E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.
- F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
1. Include procedures to follow and required notifications for warranty claims.



## 2.6 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

- A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.
- B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.
- C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:
  - 1. Standard maintenance instructions and bulletins.
  - 2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
  - 3. Identification and nomenclature of parts and components.
  - 4. List of items recommended to be stocked as spare parts.
- D. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:
  - 1. Test and inspection instructions.
  - 2. Troubleshooting guide.
  - 3. Precautions against improper maintenance.
  - 4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
  - 5. Aligning, adjusting, and checking instructions.
  - 6. Demonstration and training video recording, if available.
- E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
  - 1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
  - 2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.
- F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.
- G. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.
- H. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

1. Include procedures to follow and required notifications for warranty claims.

### PART 3 - EXECUTION

#### 3.1 MANUAL PREPARATION

- A. Operation and Maintenance Documentation Directory: Prepare a separate manual that provides an organized reference to emergency, operation, and maintenance manuals.
- B. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.
- C. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.
- D. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.
  1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
  2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.
- E. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
  1. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.
- F. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in record Drawings to ensure correct illustration of completed installation.
  1. Do not use original project record documents as part of operation and maintenance manuals.
  2. Comply with requirements of newly prepared record Drawings in Section 017839 "Project Record Documents."
- G. Comply with Section 017700 "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION 017823



## SECTION 017839 - PROJECT RECORD DOCUMENTS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for project record documents, including the following:
  - 1. Record Drawings.
- B. Related Requirements:
  - 1. Section 011000 "Summary of Work" for coordinating project record documents covering the Work of multiple contracts.
  - 2. Section 017300 "Execution" for final property survey.
  - 3. Section 017700 "Closeout Procedures" for general closeout procedures.
  - 4. Section 017823 "Operation and Maintenance Data" for operation and maintenance manual requirements.

#### 1.3 CLOSEOUT SUBMITTALS

- A. Record Drawings: Comply with the following:
  - 1. Number of Copies: Submit copies of record Drawings as follows:
    - a. Initial Submittal:
      - 1) Submit one paper-copy set(s) of marked-up record prints.
      - 2) Architect will indicate whether general scope of changes, additional information recorded, and quality of drafting are acceptable.
    - b. Final Submittal:
      - 1) Submit three (3) PDF electronic files of scanned record prints to Owner/Arch/CM. Submit one (1) set of record prints to Owner. Provide (3) portable drives for electronic files.
      - 2) Print each drawing, whether or not changes and additional information were recorded.

## PART 2 - PRODUCTS

### 2.1 RECORD DRAWINGS

- A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.
1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.
    - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
    - b. Accurately record information in an acceptable drawing technique.
    - c. Record data as soon as possible after obtaining it.
    - d. Record and check the markup before enclosing concealed installations.
    - e. Cross-reference record prints to corresponding archive photographic documentation.
  2. Content: Types of items requiring marking include, but are not limited to, the following:
    - a. Dimensional changes to Drawings.
    - b. Revisions to details shown on Drawings.
    - c. Depths of foundations below first floor.
    - d. Locations and depths of underground utilities.
    - e. Revisions to routing of piping and conduits.
    - f. Revisions to electrical circuitry.
    - g. Actual equipment locations.
    - h. Duct size and routing.
    - i. Locations of concealed internal utilities.
    - j. Changes made by Change Order or Construction Change Directive.
    - k. Changes made following Architect's written orders.
    - l. Details not on the original Contract Drawings.
    - m. Field records for variable and concealed conditions.
    - n. Record information on the Work that is shown only schematically.
  3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
  4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
  5. Mark important additional information that was either shown schematically or omitted from original Drawings.
  6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- B. Record Digital Data Files: Immediately before inspection for Certificate of Substantial Completion, review marked-up record prints with Architect and Construction Manager. When authorized, prepare a full set of corrected digital data files of the Contract Drawings, as follows:

1. Format: Annotated PDF electronic file with comment function enabled.
  2. Incorporate changes and additional information previously marked on record prints. Delete, redraw, and add details and notations where applicable.
  3. Refer instances of uncertainty to Architect through Construction Manager for resolution.
  4. Architect will furnish Contractor one set of digital data files of the Contract Drawings for use in recording information.
    - a. See Section 013300 "Submittal Procedures" for requirements related to use of Architect's digital data files.
    - b. Architect will provide data file layer information. Record markups in separate layers.
- C. Newly Prepared Record Drawings: Prepare new Drawings instead of preparing record Drawings where Architect determines that neither the original Contract Drawings nor Shop Drawings are suitable to show actual installation.
1. New Drawings may be required when a Change Order is issued as a result of accepting an alternate, substitution, or other modification.
  2. Consult Architect and Construction Manager for proper scale and scope of detailing and notations required to record the actual physical installation and its relation to other construction. Integrate newly prepared record Drawings into record Drawing sets; comply with procedures for formatting, organizing, copying, binding, and submitting.
- D. Format: Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
1. Record Prints: Organize record prints and newly prepared record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
  2. Format: Annotated PDF electronic file with comment function enabled.
  3. Record Digital Data Files: Organize digital data information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each digital data file.
  4. Identification: As follows:
    - a. Project name.
    - b. Date.
    - c. Designation "PROJECT RECORD DRAWINGS."
    - d. Name of Architect and Construction Manager.
    - e. Name of Contractor.

## PART 3 - EXECUTION

### 3.1 RECORDING AND MAINTENANCE

- A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until end of Project.

- B. Maintenance of Record Documents and Samples: Store record documents and Samples in the field office apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Architect's and Construction Manager's reference during normal working hours.

END OF SECTION 017839



## SECTION 017900 - DEMONSTRATION AND TRAINING

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for instructing Owner's personnel, including the following:
  - 1. Demonstration of operation of systems, subsystems, and equipment.
  - 2. Training in operation and maintenance of systems, subsystems, and equipment.

#### 1.3 SUBMITTALS

- A. Instruction Program: Submit outline of instructional program for demonstration and training, including a list of training modules and a schedule of proposed dates, times, length of instruction time, and instructors' names for each training module. Include learning objective and outline for each training module.
  - 1. Indicate proposed training modules using manufacturer-produced demonstration and training video recordings for systems, equipment, and products in lieu of video recording of live instructional module.
- B. Qualification Data: For instructor.
- C. Attendance Record: For each training module, submit list of participants and length of instruction time.
- D. Evaluations: For each participant and for each training module, submit results and documentation of performance-based test.

#### 1.4 QUALITY ASSURANCE

- A. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Section 014000 "Quality Requirements," experienced in operation and maintenance procedures and training.

1.5 COORDINATION

- A. Coordinate instruction schedule with Owner's operations. Adjust schedule as required to minimize disrupting Owner's operations and to ensure availability of Owner's personnel.
- B. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.
- C. Coordinate content of training modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data has been reviewed and approved by Architect.

PART 2 - PRODUCTS

2.1 INSTRUCTION PROGRAM

- A. Program Structure: Develop an instruction program that includes individual training modules for each system and for equipment not part of a system, as required by individual Specification Sections.
- B. Training Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction for the following as applicable to the system, equipment, or component:
  - 1. Basis of System Design, Operational Requirements, and Criteria: Include the following:
    - a. System, subsystem, and equipment descriptions.
    - b. Performance and design criteria if Contractor is delegated design responsibility.
    - c. Operating standards.
    - d. Regulatory requirements.
    - e. Equipment function.
    - f. Operating characteristics.
    - g. Limiting conditions.
    - h. Performance curves.
  - 2. Documentation: Review the following items in detail:
    - a. Emergency manuals.
    - b. Operations manuals.
    - c. Maintenance manuals.
    - d. Project record documents.
    - e. Identification systems.
    - f. Warranties and bonds.
    - g. Maintenance service agreements and similar continuing commitments.
  - 3. Emergencies: Include the following, as applicable:
    - a. Instructions on meaning of warnings, trouble indications, and error messages.

- b. Instructions on stopping.
  - c. Shutdown instructions for each type of emergency.
  - d. Operating instructions for conditions outside of normal operating limits.
  - e. Sequences for electric or electronic systems.
  - f. Special operating instructions and procedures.
- 4. Operations: Include the following, as applicable:
  - a. Startup procedures.
  - b. Equipment or system break-in procedures.
  - c. Routine and normal operating instructions.
  - d. Regulation and control procedures.
  - e. Control sequences.
  - f. Safety procedures.
  - g. Instructions on stopping.
  - h. Normal shutdown instructions.
  - i. Operating procedures for emergencies.
  - j. Operating procedures for system, subsystem, or equipment failure.
  - k. Seasonal and weekend operating instructions.
  - l. Required sequences for electric or electronic systems.
  - m. Special operating instructions and procedures.
- 5. Adjustments: Include the following:
  - a. Alignments.
  - b. Checking adjustments.
  - c. Noise and vibration adjustments.
  - d. Economy and efficiency adjustments.
- 6. Troubleshooting: Include the following:
  - a. Diagnostic instructions.
  - b. Test and inspection procedures.
- 7. Maintenance: Include the following:
  - a. Inspection procedures.
  - b. Types of cleaning agents to be used and methods of cleaning.
  - c. List of cleaning agents and methods of cleaning detrimental to product.
  - d. Procedures for routine cleaning
  - e. Procedures for preventive maintenance.
  - f. Procedures for routine maintenance.
  - g. Instruction on use of special tools.
- 8. Repairs: Include the following:
  - a. Diagnosis instructions.
  - b. Repair instructions.
  - c. Disassembly; component removal, repair, and replacement; and reassembly instructions.
  - d. Instructions for identifying parts and components.

- e. Review of spare parts needed for operation and maintenance.

### PART 3 - EXECUTION

#### 3.1 PREPARATION

- A. Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a training manual organized in coordination with requirements in Section 017823 "Operation and Maintenance Data."
- B. Set up instructional equipment at instruction location.

#### 3.2 INSTRUCTION

- A. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
- B. Scheduling: Provide instruction at mutually agreed on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.
  - 1. Schedule training with Owner, through Construction Manager, with at least seven days' advance notice.
- C. Training Location and Reference Material: Conduct training on-site in the completed and fully operational facility using the actual equipment in-place. Conduct training using final operation and maintenance data submittals.
- D. Cleanup: Collect used and leftover educational materials and remove from Project site. Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.

END OF SECTION 017900

## **SECTION 020800 – ASBESTOS REMOVAL AND DISPOSAL**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SCOPE OF WORK**

- A. This Section references procedures for the removal of existing asbestos-containing materials (ACM) that will be disturbed or are disturbed during construction of this project.
- B. Furnish all labor, materials, supervision, construction tools and equipment necessary to remove and dispose of **all asbestos-containing materials** disturbed during renovation.

A “Limited Pre-Renovation Regulated Building Materials Inspection” Report prepared by LaBella Associates, D.P.C. for Merton Williams Middle School, Quest Elementary School, and Village Elementary School can be found in Specification Section 022000 – Existing Hazardous Material Information. An “Asbestos Contamination Assessment” report prepared by LaBella Associates, D.P.C. for Northwood Elementary School can also be found in Specification Section 022000.

These reports incorporate and include all testing data obtained for all four sites, based on project scope and materials reported to be disturbed by planned renovations. See the reports for detailed descriptions of the types of ACM identified and the locations.

The asbestos-containing materials identified at each site, per their respective report, are listed below:

##### Merton Williams Middle School

- White Window/Door Glazing Compound
- Gray Mud Fittings
- Gray Transite Panel

##### Northwood Elementary School

- Gray Debris

##### Quest Elementary School

- Gray Transite Panels
- Various Colored 9” Floor Tiles
- Black Duct Sealant
- Gray Window Glazing Compound
- Black Sink Coating
- Tan Window Caulk (Residual)
- Brown Streaked 12” Floor Tile & Associated Black Mastic (Residual)
- Gray Gasket
- Black Gasket
- White Door Insulation (Vermiculite)

Village Elementary School

- Gray Window/Door Glazing Compound
- Gray Window Glazing Compound
- Gray Mud Fittings
- Gray Transite Panels
- Purple Sink Coating
- Gray Debris
- Tan Door Caulk

- C. The Contractor shall be aware of all conditions of the Project and is responsible for verifying quantities and locations of all Work to be performed referenced in the Contract Documents. Failure to do so shall not relieve the Contractor of its obligation to furnish all labor and materials necessary to perform the Work.
- D. Removal or disturbance of ACM shall be completed in compliance with all governing regulations, including Code Rule 56. Any Contractor, other than the asbestos abatement contractor, who requires the removal or disturbance of asbestos-containing material (ACM) to complete his work shall obtain the services of a certified asbestos abatement contractor to remove the ACM in compliance with this specification and all applicable rules and regulations.
- E. The Owner's Representative shall approve the asbestos abatement contractor prior to the beginning of the work.
- F. Working hours shall be as required and approved by the Owner. Multiple mobilizations may be required to perform the work identified in this project. The Contractor shall coordinate and schedule all Work with the facility and Owner's representative.
- G. Locations and quantities of all materials to be removed by the abatement contractor must be field verified. Information given on drawings and in the specifications is for general orientation and information only.
- H. The contractor shall have at least one supervisor on the job site at all times who can read and write and is fluent in English, while the project is in progress. The supervisor must be able to communicate fluently with all employees.
- I. Contractor shall provide temporary protection to keep the work areas enclosed, where required, during the performance of the Contract Work. The Contractor shall be responsible for any damage caused as a result of improper temporary protection.
- J. The Contractor is responsible for keeping the work area in a clean and safe condition at all times.
- K. Contractor is to coordinate with other trades on the job concerning scheduling, phasing, etc.

1.3 SPECIAL CONDITIONS

- A. Any special job conditions, including variances obtained by the Owner, are described below.
  - No Variance Petitions have been submitted to date

1.4 CODES AND REGULATIONS

- A. General Applicability of Codes and Regulations and Standards: Except to the extent that more explicit or more stringent requirements are written directly into the Contract Documents, all

applicable codes, regulations and standards have the same force and effect (and are made a part of the Contract Documents by reference) as if copied directly into the Contract Documents, or as if published copies are bound herewith.

- B. Contractor Responsibility: The Contractor shall assume full responsibility and liability for the compliance with all applicable Federal, State and local regulations pertaining to work practices, hauling, disposal, and protection of workers, visitors to the site and persons occupying areas adjacent to the site. The Contractor is responsible for providing medical examinations and maintaining medical records of personnel as required by the applicable Federal, State and local regulations. The contractor shall hold the Owner and Owner's Representative harmless for failure to comply with any applicable work, hauling, disposal, safety, health or other regulation on the part of himself, his employees or his subcontractors.
- C. Federal Requirements which govern asbestos abatement work or hauling and disposal of asbestos waste materials include but are not limited to the following:

OSHA: U.S. Department of Labor, Occupational Safety and Health Administration (OSHA), including but not limited to:

Occupational Exposure to Asbestos, Tremolite, Anthophyllite, and Actinolite; Final Rules Title 29, Part 1926, Section 1101 of the Code of Federal Regulations

Respiratory Protection  
Title 29, Part 1910, Section 134 of the Code of Federal Regulations

Access to Employee Exposure and Medical Records  
Title 29, Part 1910, Section 2 of the Code of Federal Regulations

Hazard Communication  
Title 29, Part 1910, Section 1200 of the Code of Federal Regulations

DOT: U.S. Department of Transportation, including but not limited to:

Hazardous Substances  
Title 29, Part 171 and 172 of the Code of Federal Regulations

EPA: U.S. Environmental Protection Agency (EPA), including but not limited to:

National Emission Standard for Hazardous Air Pollutants (NESHAPS)  
National Emission Standard for Asbestos  
Title 40, Part 61, Subpart A, and revised Subpart M (Revised Subpart B) of the Code of Federal Regulations dated November 20, 1990

- D. State Requirements which govern asbestos abatement work or hauling and disposal of asbestos waste materials include but are not limited to the following:

New York State Department of Labor (NYSDOL) 12 NYCCR Part 56, as amended March 21, 2007. Also known as Industrial Code Rule 56 (ICR 56).

New York State Department of Environmental Conservation (DEC) Regulations regarding waste collector registration Title 6, Part 364 of the New York State Official compilation of Codes,

Rules and Regulations. An annual “Industrial Waste Hauler Permit” specifically for asbestos-containing materials is required for transportation of asbestos-containing waste to the disposal site.

- E. Local Requirements: Abide by all local requirements which govern asbestos abatement work or hauling and disposal of asbestos waste materials.

## 1.5 SUBMITTALS

- A. Prior to commencement of any work (minimum of seven days prior to starting work) involving the disturbance of ACM, the Contractor shall submit the following to the Owner’s Representative for review and approval:
1. Copy of current NYSDOL Asbestos Contractor’s License (DOH-432)
  2. Copies of current worker’s Asbestos Handler’s Certificates
  3. Provide a statement signed by an authorized representative of the company stating that the Building Occupants/Other Trades notification required by ICR 56 will be or has been posted at least 10 days prior to the start of abatement. Provide a copy of the notification that will be posted at the job site
  4. Copies of all proposed site-specific variances
  5. Copy of current insurance certificate held by the Asbestos Contractor that names Hilton Central School District as an additional insured and provides the following coverages: 1) Pollution liability in a general aggregate of \$2,000,000; and 2) General Liability with \$1,000,000/\$2,000,000 for each occurrence/general aggregate; and 3) Workers Compensation
  6. Copies of Project Notifications and proof of submittal (e.g., certified mail receipt) to NYSDOL and USEPA
  7. Copy of NYSDEC permit for waste hauler
  8. Name and address of landfill where asbestos-containing waste materials are to be buried. Include contact person and telephone number, and NYSDEC Part 360 permit number or other applicable permits
  9. Site-specific work plan in accordance with Section 1.5 D
  10. On a weekly basis, submit copies of all waste shipment records and disposal site receipts to the Owner
- B. During the project, legible copies of the following items must be submitted to the Owner’s Representative (LaBella Associates, P.C.). If personnel records are not available at this time, workers will not be able to work on-site until copies are provided:
1. NYSDOL Asbestos Handling Certificates (DOH 442) for all persons employed on the project
  2. Project Logbook entries
  3. Any and all changes to the Contract, should any occur
  4. Personal sampling results within 24 hours of sampling
- C. Upon completion of the project, legible copies of the following items must be submitted to the Owner’s Representative (LaBella Associates, P.C.):
1. Waste manifests, shipment records, and landfill receipts signed by the landfill operator submitted within 30 days after the waste leaves the site. A percentage of the final



payment will be withheld until the Owner or Owner's Representative receives the waste shipment record.

## 1.6 QUALITY ASSURANCE

- A. Comply with the most recent edition of compilation of Codes, Rules and Regulations of the State of New York (Statutory Authority: Labor Law Section 906), including Rule 56 of Title 12 NYCRR, New York State, Department of labor, most currently amended (hereinafter referred to in this Specification as Code Rule 56). Note: Article 30 of the Labor Law sets forth procedures and standards that must be met by parties who desire to obtain variations of any of the requirements of this rule.
- B. Comply with all current and appropriate Federal, State and Local rules and regulations regarding work of this section, including those of the following agencies:
  - New York State Uniform Fire Prevention and Building Code
  - New York State Department of Labor
  - New York State Department of Environmental Conservation (DEC)
  - Occupational Safety and Health Administration (OSHA)
  - United States Environmental Protection Agency (EPA)
- C. Pre-Work Conference: Before the work of this section is scheduled to commence, a conference may be held at the site for the purpose of reviewing the Contract Documents, discussing requirements for the work and reviewing the work procedures. The conference shall be attended by the asbestos abatement contractor.
- D. Work Plan: The Contractor shall prepare a detailed work plan and submit the plan no later than one week prior to the start of the abatement project. The work plan shall include, but not be limited to:
  1. A preliminary schedule for completion of the work:
    - a. Show the complete sequence of abatement activities and the sequencing of Work within each building or building section.
    - b. Show the dates for the beginning and completion of each major element of Work including substantial completion dates for each Work Area, building, or phase.
  2. Work procedures that will be utilized (including anticipated decon and negative air exhaust locations).
  3. Estimated crew size.
  4. The anticipated work hours.
  5. Emergency procedures for fire and medical emergencies and for failure of containment barriers.
  6. Project Notifications: As required by Federal and State regulatory agencies together with proof of transmittal (i.e., certified mail return receipt).
  7. Building Occupant Notification: As required by regulatory agencies.
  8. Abatement Work Plan: Provide plans that clearly indicate the following:
    - a. All Work Areas/containments numbered sequentially.
    - b. Locations and types of all decontamination enclosures.
    - c. Entrances and exits to each Work Areas/containments.
    - d. Type of abatement activity/technique for each Work Area/containment.
    - e. Number and location of negative air units and exhaust. Also provide calculations for determining number of negative air pressure units.

- f. Proposed location and construction of storage facilities and field office.
  - g. Location of water and electrical connections to building services.
  - h. Waste transport routes through the building to the waste storage container.
9. Disposal Site/Landfill Permit from applicable regulatory agency.
10. NYS Department of Environmental Conservation Waste Transporter Permit.
- E. Progress Meetings: The Owner's Representative will hold general progress meetings as required. A representative of the Contractor and the Owner is to be properly represented at each meeting.
- F. Daily Log: The Contractor is to maintain within the Decontamination Unit a daily log documenting the dates and time of, but not limited to, the following items:
  1. Meetings; purpose, attendees, brief discussion
  2. Visitations; authorized and unauthorized
  3. Special or unusual events, i.e. barrier breeching, equipment failures, accidents
  4. Air monitoring tests and test results.
  5. Other entries as detailed in Code Rule 56-7.3 Asbestos Contractor Daily Project Log.

Submit three (3) copies of this log at final closeout of the Project as a Project closeout submittal.
- G. Project Monitor: The Project Monitor shall be a representative of the Owner during the asbestos abatement portion of the project. The Project Monitor has the following responsibilities:
  1. The Project Monitor shall oversee work practices and inspect for compliance with all applicable regulations and standards, and the Contract Documents.
  2. The Project Monitor shall have at all times access to the work areas whenever it is in preparation or in progress. The Contractor shall provide the Project Monitor with keys to all locks located on the entrance(s) to the decontamination unit(s) and all other secured areas.
  3. The Project Monitor, in conjunction with the Owner, will be the interpreter of the requirements of the Contract Documents and the judge of the performance thereunder.
  4. The Project Monitor and/or the Owner will have the authority to reject work which is not in compliance with the requirements of the Contract Documents or Federal, State, or Local Regulations. The decision of the Owner will be final.
- H. Air Sampling and Analysis
  1. Area Air Sampling and Analysis
    - a. The Owner will be responsible for hiring an independent third party firm to perform the required area air sampling and analysis in accordance with ICR 56.
    - b. The Contractor is required to ensure cooperation of its personnel with the Air Sampling Technician (AST) for general air sampling, and testing of each work area after completion of asbestos work prior to removal of containment barriers.
    - c. All air samples shall be analyzed using Phase Contrast Microscopy (PCM) in accordance with NIOSH method 7400.
  2. Personal Air Sampling:
    - a. As per the requirements of OSHA 1926.1101, the Contractor shall be required to perform personal air monitoring in order to determine that appropriate respiratory protection is being utilized.
    - b. The analysis of personal air samples shall be conducted by an ELAP approved laboratory, subject to approval of the Owner or the Owner's Representative.

- c. Results of personnel air sample analyses shall be available, verbally, within twenty-four (24) hours of sampling and shall be posted at the work site within 48 hours. Results shall be submitted in accordance with the requirements of Section 1.5 F.

3. Final Clearance Air Sampling:

- a. For Code Rule 56 PCM Analysis: When required, the clearance air monitoring results shall be considered satisfactory when every sample demonstrates an airborne concentration of asbestos fibers of less than 0.01 fibers per cubic centimeter, or the background level, whichever is greater.
- b. The Contractor shall pay for all additional costs incurred by the Owner, including additional air monitoring, project monitoring, engineering fees, and sample analysis required if clearance air monitoring fails, or if completion of abatement work is not in accordance with approved progress schedule.

1.7 GENERAL PROCEDURES

- A. General Requirements - Comply with Code Rule 56's procedures for entry, exit, logging in, showering, personal protective equipment, tools, clothing, etc., throughout the asbestos abatement. Respiratory equipment shall be as required by OSHA and air monitoring results. (Except for authorized visitors as required by Rule 56). Non-certified workers will not be allowed in the work area.
- B. Equipment and Waste Container Decontamination and Removal – Code Rule 56's procedures for large projects (cleaning, recontainerization, holding areas, etc.) shall be followed.

PART 2 - PRODUCTS

2.1 MATERIALS AND EQUIPMENT

- A. General Requirements: Code Rule 56's requirements for materials and equipment shall apply.
- B. Miscellaneous protective materials - Provide plywood sheathing, hardboard, etc., as required to provide protective cover over surfaces of existing construction and finishes to eliminate damage resulting from work of this section, including impact and water damage. Poly shall comply with Code Rule-56 including fire retardant requirements.
- C. Water and electricity shall be furnished by Owner without charge. Contractor shall provide an in-line backflow preventer at water source, and utilize non-leaking hoses.
- D. The Contractor shall supply the Project Monitor and Air Monitor with sufficient electricity to operate all high-volume air monitoring pumps as may be required during the project.

PART 3 - EXECUTION

### 3.1 REMOVAL REQUIREMENTS

- A. Perform work under this contract in accordance with the standards referenced in Part 1 of this Section. The provisions of any site-specific variances to Code Rule 56, or other asbestos standards, obtained for this project may not be implemented until approval is given by the Owner or Owner's Representative.
- B. Work that results in the disturbance of asbestos-containing materials shall be performed by a licensed asbestos abatement contractor who employs certified workers in accordance with all applicable standards referenced herein. If additional suspect ACM is discovered during the course of abatement, the Contractor shall notify the Owner or Owner's Representative immediately.
- C. The Contractor shall protect all items/existing construction intended to remain.
- D. Should the area beyond the asbestos work area(s) become contaminated with asbestos-containing dust or debris as a consequence of the work, immediately institute emergency procedures established for asbestos removal. All costs incurred in decontaminating such non-work areas shall be borne by the Contractor at no additional cost to the Owner.

### 3.2 WORK AREA PREPARATION

- A. General Requirements: Code Rule 56's requirements for general work area preparation shall apply, including vacating, signs, power, timing, HVAC isolation, isolation barriers, objects, exits, toilets, etc.

### 3.3 PERSONAL AND WASTE DECONTAMINATION ENCLOSURE SYSTEMS

- A. Comply with Code Rule 56's requirements for enclosure, showers, room types and configuration, etc.

### 3.4 DECONTAMINATION ENCLOSURE SYSTEMS/WORK AREA BARRIERS

- A. General Requirements: Comply with Code Rule 56 requirements for maintenance of work area barriers. (Setting, inspection, repairs, cleaning, etc.)

### 3.5 HANDLING AND REMOVAL PROCEDURES

- A. General Requirements: Comply with Code Rule 56 requirements regarding handling and removal procedures.
- B. Dry removal or disturbance: No dry removal or disturbance of asbestos materials shall be permitted.
- C. Wetting requirements: The asbestos material shall be wetted as necessary with amended water to keep asbestos fibers from becoming airborne. If any friable material is encountered, all of its surfaces shall be saturated.

- D. The use of open flame, torches, welding and other Hot Work is not permitted without review and approval by the Owner or Owner's Representative. A Hot Work Permit system shall be required for authorized use.
- E. Cleaning of surfaces: After completion of all stripping work, surfaces where asbestos material has been removed or handled shall be HEPA vacuumed.

### 3.6 CLEANING PROCEDURES

- A. General requirements: Code Rule 56's requirements for containerization, dust cleanup, tools and enclosure cleanup, etc., shall apply. Cleanup shall be by HEPA vacuum.
- B. Post abatement requirements: Code Rule 56's requirements shall apply (tool/equipment cleanup, general cleanup, waste removal, clearance air monitoring, etc.).

### 3.7 ASBESTOS WASTE TRANSPORTATION AND DISPOSAL

- A. Contractor shall minimally transport and dispose of all of the Category I non-friable asbestos waste materials according to correct applicable NYSDEC transportation requirements, Part 364, and solid waste requirements Part 360.
- B. If any removed material is "friable", Contractor shall handle it as such and transport and dispose of as "friable" asbestos waste per regulations referenced in Part 1 of this Section.
- C. All waste generated as a result of this work shall be removed from the site within 10 days of completion and clearance of abatement work.
- D. Log disposal site transportation names, etc., per Code Rule 56.
- E. All loading, transportation, and disposal shall also comply with NESHAPS 40 CFR 61 - 150 paragraphs C, D and E including all requirements for loading signs, shipment records, content certificate, record receipts, notifications, etc.

### 3.8 TEMPORARY PROTECTION OF FACILITIES

- A. Contractor shall provide temporary enclosure as required to protect the existing facilities from adverse weather conditions and maintain the interior environment in its normal condition. The contractor shall maintain the building secure from intrusion at all times and exits shall be operational during construction whenever the building is occupied. Temporary door and window enclosures shall be secure, weather resistant and lockable, if operable.

### 3.9 RESTORATION

- A. Remove temporary decontamination facilities and restore area designated for these facilities to its original condition or better.

- B. After final clearance, the Contractor shall replace all filters of the associated portions of the existing building HVAC system that were affected by the abatement operations, remove locks and restore power. All temporary power supplies shall be disconnected, power lockouts removed and building power restored. All temporary plumbing shall be removed.
- C. Finishes damaged by asbestos removal operation including, but not limited to, plaster/paint damage due to taping of polyethylene sheeting and floor tile lifted due to humid conditions, shall be restored prior to final payment.
  - 1. Finishes unable to be restored shall be replaced under this Contract.
  - 2. All foam and expandable foam products and materials used to seal Work Area openings shall be completely removed upon completion of abatement activities.
- D. All penetrations (including, but not limited to, pipes, ducts, etc.) through fire rated construction shall be fire stopped using materials and systems tested in accordance with ASTM E814 on projects where re-insulation is part of the required work.

### 3.10 PROJECT COMPLETION REQUIREMENTS

- A. Submission by the Contractor to the Owner Representative of the job logbook as described in Section 1.5 paragraph F.
- B. Inspection of the work sites by the Contractor's Project Manager's representative and the Owner's Representative for substantial completion of the Scope of Work.
- C. Submission by the Contractor to the Owner of the waste disposal manifest verifying that all waste generated at the project site has been disposed of at an EPA approved waste site. A 10% payment retainage shall be withheld by the Owner until receipt of all waste manifests.

END OF SECTION 020800

## **SECTION 020810 - PROTECTION OF WORKERS – LEAD-CONTAINING MATERIALS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SCOPE**

- A. Contractors are alerted to the fact that the paint coatings on surfaces in this project have the potential to contain lead. Lead is a toxic metal capable of causing damage to the nervous system, kidneys, bones, heart and reproductive system.
- B. Any surface coated with paint is considered to contain some percentage of lead, based on the Technical Memo dated February 7, 2023, and prepared by LaBella Associates, D.P.C. for each school building. These memos can be found in Specification Section 022000 – Existing Hazardous Material Information. These memos incorporate and include all testing data obtained for all four sites, based on project scope and materials reported to be disturbed by planned renovations. Any alteration and/or repair that results in the disturbance of the paint coatings shall meet the requirements of OSHA CFR 29 1926.62 Construction Lead Standard.
- C. All work must be completed in accordance with the HUD Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing, 2012, and updates.

#### **1.3 SUBMITTALS**

- A. Contractors of each trade shall submit their written Lead Program prior to the start of work. The plan must identify potential sources of lead exposure and propose specific procedures to protect workers from those exposures.

#### **1.4 DEFINITIONS**

- A. **Action Level** means employee exposure, without regard to the use of respirators, to an airborne concentration of lead of 30 micrograms per cubic meter of air (30 ug/m<sup>3</sup>) calculated as an 8-hour time weighted average (TWA).
- B. **Exposure Assessment** means a Contractor's requirement to determine if any Contractor's employees may be exposed to lead at or above the action level.
- C. **Lead** means metallic lead, all inorganic lead compounds and organic lead soaps. Excluded from this definition are all other organic lead compounds.
- D. **Permissible Exposure Limit (PEL)** means employee exposure, without the use of respirators, to an airborne concentration of lead of 50 ug/m<sup>3</sup> averaged over an 8-hour period.

## PART 2 - PRODUCTS

None Specified.

## PART 3 - EXECUTION

### 3.1 PROTECTION OF WORKERS

- A. All Contractors shall be responsible to conduct an exposure assessment and shall initially determine if any Contractor's employee may be exposed to lead at or above the action level where their work causes the disturbance of paint or paint coatings, or provide a negative exposure assessment for work tasks to be completed under this scope of work.

### 3.2 EXPOSURE ASSESSMENT

- A. The Contractor shall collect personal samples representative of a full shift including at least one sample for each job classification in each work area either for each shift or for the shift with the highest exposure.
  - 1. **Below the Action Level** - should the initial personal air monitoring results be less than 30 ug/m<sup>3</sup> the Contractor shall make a written record of such determination. Further exposure determination need not be repeated except as follows:
    - a. Whenever there has been a change of equipment, process, control, personnel or a new task has been initiated that may result in additional employees being exposed to lead at or above the action level or may result in employees already exposed at or above the action level being exposed above the PEL, the employer shall conduct additional monitoring.
  - 2. **At or Above the Action Level but At or Below the PEL** - the Contractor shall perform monitoring until at least two consecutive measurements taken at least 7 days apart, are below the action level at which time the Contractor may discontinue monitoring for that employee except as otherwise provided in paragraph 3.02.A.1.a.
  - 3. **Above the PEL** - the Contractor shall perform monitoring until at least two consecutive measurements taken at least 7 days apart, are at or below the PEL but at or above the action level at which time the Contractor shall repeat monitoring for that Contractor's employee as specified in 3.02.A.2.
- B. The Contractor may submit a negative exposure assessment in lieu of performing exposure monitoring.

### 3.3 METHODS OF COMPLIANCE

- A. To the extent feasible, Contractors must reduce worker lead exposure to the Permissible Exposure Limit (PEL) of 50 ug/m<sup>3</sup> by a combination of engineering controls, work practice, and administrative controls.



- B. Respiratory protection and other protective equipment must be provided and used to the extent that the engineering and work practice controls cannot reduce exposure to the PEL as specified within 29 CFR 1926.62.

3.4 HOUSEKEEPING (required whenever lead is disturbed)

- A. All surfaces shall be maintained as free as practical of accumulations of lead.
- B. Clean up of floors and other surfaces where lead accumulates shall wherever possible be cleaned by vacuuming or other methods that minimize the likelihood of lead becoming airborne.
- C. Shovelng, dry or wet sweeping and brushing may be used only where vacuuming or other equally effective methods have been tried and found not to be effective.
- D. Where vacuuming methods are selected, the vacuums shall be equipped with HEPA filters and used and emptied in a manner which minimizes the reentry of lead into the workplace.
- E. Compressed air shall not be used to remove lead from any surface unless the compressed air is used in conjunction with a ventilation system designed to capture the airborne dust created by the compressed air.

3.5 HYGIENE FACILITIES AND PRACTICES (required above the PEL)

- A. The Contractor shall assure that in areas where Contractor's employees are exposed to lead above the PEL without regard to the use of respirators, food or beverage is not present or consumed, tobacco products are not present or used, and cosmetics are not applied.
- B. Change Areas (required above the PEL and during exposure assessment)
  - 1. The Contractor shall provide clean change areas for employees whose airborne exposure to lead is above the PEL, and as interim protection for employees.
  - 2. The Contractor shall assure that change areas are equipped with separate storage facilities for protective work clothing and equipment and for street clothes which prevent cross-contamination.
  - 3. The Contractor shall assure that Contractor's employees do not leave the workplace wearing any protective clothing or equipment that is required to be worn during the work shift.
- C. Showers (required above the PEL)
  - 1. The Contractor shall provide shower facilities, where feasible, for use by Contractor's employees whose airborne exposure to lead is above the PEL.
  - 2. The Contractor shall assure where shower facilities are available, that Contractor's employees shower at the end of the work shift and shall provide an adequate supply of cleansing agents and towels for use by affected Contractor's employees.
- D. Eating Facilities (required above the PEL)
  - 1. The Contractor shall provide lunchroom facilities or eating areas for Contractor's employees whose airborne exposure to lead is above the PEL, without regard to the use of respirators.
  - 2. The Contractor shall assure that lunchroom facilities or eating areas are as free as practicable from lead contamination and are readily accessible to Contractor's employees.

3. The Contractor shall assure that Contractor's employees whose airborne exposure to lead is above the PEL, without regard to the use of a respirator, wash their hands and face prior to eating, drinking, smoking or applying cosmetics.
4. The Contractor shall assure that Contractor's employees do not enter lunchroom facilities or eating areas with protective work clothing or equipment unless surface lead dust has been removed by vacuuming, downdraft booth, or other cleaning method that limits dispersion of lead dust.

E. Handwashing Facilities (required whenever lead is disturbed)

1. The Contractor shall provide adequate handwashing facilities for use by Contractor's employees exposed to lead.
2. Where showers are not provided the Contractor shall assure that Contractor's employees wash their hands and face at the end of the work shift.

3.6 MEDICAL SURVEILLANCE (required whenever lead is disturbed)

- A. The Contractor is responsible for providing medical examinations and maintaining medical records of personnel as required by 29 CFR 1926.62 (j) Medical Surveillance.

3.7 TRAINING (required whenever lead is disturbed)

- A. For all Contractor's employees who are subject to exposure to lead at or above the action level on any day or who are subject to exposure to lead compounds which may cause skin or eye irritation, the Contractor shall provide a training program in accordance with 29 CFR 1926.62 (l)(2).

3.8 SIGNS (required above the PEL)

- A. The Contractor shall post the following warning signs in each work area where Contractor's employees exposure to lead is above the PEL.

**WARNING  
LEAD WORK AREA  
POISON  
NO SMOKING OR EATING**

- B. The Contractor shall assure that signs are illuminated and cleaned as necessary so that the legend is readily visible.

3.9 RECORDKEEPING (required whenever lead is disturbed)

- A. The Contractor is responsible to establish and maintain an accurate record of all monitoring and other data used in conducting Contractor's employee exposure assessments and for each Contractor's employee subject to medical surveillance as required per 29 CFR 1926.62 (n).

3.10 OBSERVATION OF MONITORING (required whenever lead is disturbed)

- A. The Contractor shall provide affected Contractor's employees or their designated representatives an opportunity to observe any monitoring of employee exposure to lead.
- B. Whenever observation of the monitoring of employee exposure to lead requires entry into an area where the use of respirators, protective clothing or equipment is required, the Contractor shall provide the observer with and assure the use of such respirators, clothing and equipment.
- C. Without interfering with the monitoring, observers shall be entitled to:
  - 1. Receive an explanation of the measurement procedures;
  - 2. Observe all steps related to the monitoring of lead performed at the place of exposure; and
  - 3. Record the results obtained or receive copies of the results when returned by the laboratory.

END OF SECTION 020810

## **SECTION 022000 – EXISTING HAZARDOUS MATERIALS INFORMATION**

### **PART 1 – GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

Existing Hazardous Materials technical memos are included as attachments at the end of this section and are hereby incorporated into the Procurement and Contracting Requirements by reference.

A copy of LaBella Associates, D.P.C., “Limited Pre-Renovation Regulated Building Materials Inspection” Report for Merton Williams Middle School, dated November 16, 2023, is bound in this Project Manual (Attachment A).

A copy of LaBella Associates, D.P.C., “Limited Pre-Renovation Regulated Building Materials Inspection” Report for Quest Elementary School, dated May 15, 2024, is bound in this Project Manual (Attachment B).

A copy of LaBella Associates, D.P.C., “Limited Pre-Renovation Regulated Building Materials Inspection” Report for Village Elementary School, dated December 13, 2023, is bound in this Project Manual (Attachment C).

A copy of LaBella Associates, D.P.C., “Asbestos Contamination Assessment” Report for Northwood Elementary School, dated April 1, 2024, is bound in this Project Manual (Attachment D).

### **PART 2 - PRODUCTS (Not Applicable)**

### **PART 3 - EXECUTION (Not Applicable)**

**END OF SECTION 022000**



**ATTACHMENT A:**

**LIMITED PRE-RENOVATION  
REGULATED BUILDING MATERIALS  
INSPECTION REPORT**

**MERTON WILLIAMS MIDDLE  
SCHOOL**



# Limited Pre-Renovation Regulated Building Materials Inspection

## Location:

Merton Williams Middle School  
200 School Lane  
Hilton, New York 14468

## Prepared for:

Hilton Central School District  
225 West Avenue  
Hilton, New York 14468

## LaBella Project No.

2221581.01

November 16, 2023



## Table of Contents

<b>1.0</b>	<b>PROJECT DESCRIPTION .....</b>	<b>1</b>
<b>2.0</b>	<b>INSPECTION PROCEDURES .....</b>	<b>1</b>
<b>3.0</b>	<b>INSPECTION LIMITATIONS .....</b>	<b>1</b>
<b>4.0</b>	<b>INSPECTION RESULTS .....</b>	<b>2</b>
4.1	Asbestos-Containing Materials (ACMs) .....	2
4.2	PCB-Containing Materials and Equipment.....	2
4.3	Mercury-Containing Equipment (MCE).....	3
4.4	Lead – Based Paint (LBP).....	3
<b>5.0</b>	<b>OBSERVATIONS AND CAUTIONARY STATEMENTS .....</b>	<b>4</b>

## Appendices

Asbestos Bulk Sample Summary Table	T-1
Appendix A – Inspection Fact Sheet	FS-1
Appendix B – Scope of Work Drawing	
Appendix C – Sample Location Drawing	
Appendix D – Inspection Photos	
Appendix E – Laboratory Analytical Reports	
Appendix F – Licenses and Certifications	





## 1.0 PROJECT DESCRIPTION

---

In accordance with current regulations, LaBella Associates, D.P.C. (LaBella) conducted a Limited Pre-Renovation Regulated Building Materials (RBM) Inspection of select areas within the Merton Williams Middle School located at 200 School Lane in Hilton, New York. The objective was to identify suspect RBMs, such as Asbestos-Containing Materials (ACM), Lead-Based Paint (LBP), PCB-containing materials and equipment and Mercury-containing equipment (MCE) that may require abatement or removal prior to or during renovation activities due to applicable regulations.

The inspection was limited to the areas anticipated to be impacted by the upcoming capital improvement project as shown on the “Scope of Work Drawings” in Appendix B. Materials and locations understood to be impacted by this project were determined from information provided by the Hilton Central School District and LaBella’s Architectural Division.

## 2.0 INSPECTION PROCEDURES

---

The following procedures were used to obtain the data for this Report:

- A. Existing documentation was requested for review. Several historical reports were reviewed to develop an understanding of the previously sampled materials and confirmed ACMs at the Site.
- B. A visual inspection of the areas outlined on the “Scope of Work Drawings” was conducted to identify visible and accessible sources of suspect RBMs. Photographs captured during this inspection are attached in Appendix D.
- C. Bulk samples of accessible suspect materials were collected and submitted for laboratory analysis.
- D. Asbestos samples were submitted for laboratory analysis. Preliminary Polarized Light Microscopy analyses were performed by LaBella Laboratories, a NYSDOH accredited laboratory, to determine the presence and percentage of asbestos in each sample. Transmission electron microscopy analyses of NOB materials, if necessary, were performed by AMA Laboratories.
- E. Suspect painted or glazed materials were spot checked in the field using X-Ray Fluorescence (XRF) testing procedures for the presence of lead.
- F. Results of the laboratory analyses, field testing and the visual on-site inspection were compiled and summarized.

## 3.0 INSPECTION LIMITATIONS

---

This inspection was conducted in accordance with generally accepted environmental engineering practices for this region. Collection of bulk samples of suspect RBMs was limited to those materials readily accessible using hand tools or hand-held power tools. Homogeneous materials were identified and located based on visual observation from readily accessible points. The data derived from representative samples of any given homogeneous material represent conditions that apply only at that particular location. Inspection protocol and methodology requires that sample data be used to draw conclusions about the entire homogeneous area, but such conclusions may not necessarily apply to the general Site as a whole.

No sub-surface investigations were performed to determine the possible presence of regulated materials on or in the immediate vicinity of the Site. No record drawings of the building were available for review as part of this investigation.



LaBella makes no other warranty or representation, either expressed or implied, nor is one intended to be included as part of its services, proposals, contracts, or reports. No inspection can wholly eliminate the uncertainty regarding the potential for undiscovered RBMs. The Work performed by LaBella is intended to reduce, but not eliminate, uncertainty regarding the potential for RBMs at the Site. This inspection report is not intended to be a bid document for an abatement scope of work. This report is intended to satisfy the requirements of NYS Code Rule 56-5 for inspections.

### Live Electrical Equipment

At the time of inspection, the Merton Williams Middle school building was energized. The inspector was unable to sample any of the electrical components throughout the building. Any suspect materials associated with the electrical components should be considered asbestos-containing until a time when the power can be turned off and sampling can occur.

## 4.0 INSPECTION RESULTS

### 4.1 Asbestos-Containing Materials (ACMs)

Based on laboratory analyses of bulk samples collected, the following materials were determined to contain greater than 1% asbestos. However, the following table does not include all of the materials sampled during this inspection; for a full list of materials sampled see the *Asbestos Bulk Sample Summary Table* immediately following this report.

Type of Material	Typical Location <sup>1</sup>	Estimated Amount <sup>2</sup>	Friability	Condition
White Window/Door Glazing Compound	Rooms 113 & 115	20 LF/ <1 SF	Non-Friable	Good
Gray Mud Fittings	See Description Below	13 LF	Friable	Good
Gray Transite Panel	Room 115A – Along Wall Adjacent to Machinery	4 SF	Non-Friable	Good

#### ACM Project Specific Details

##### Mud Fittings

Gray asbestos-containing mud fittings are located on the fiberglass piping in the following locations:

- Room 113A (4 fittings)
- Room 115 (2 fittings)
- Room 115A (4 fittings)
- Room 113/115 Mezzanine (3 fittings)

### 4.2 PCB-Containing Materials and Equipment

#### Capacitors in Fluorescent Light Fixture Ballasts

Ceiling mounted fluorescent light fixtures were observed throughout the various sections of the building. Older vintage fluorescent light fixtures manufactured prior to 1980 typically contained a capacitor filled with PCB fluid. A representative number of light fixtures were dismantled in each area of investigation, and all had ballasts labeled “No PCBs”. Based on these observations made at the time of the site visit, to the extent feasible, the ballasts within the inspection area can be considered to be non-PCB-containing.

If non-labeled ballasts are encountered during renovation activities, contractors shall ensure that all components are properly managed and disposed of in accordance with 40 CFR 761.

<sup>1</sup> Typical Location may not be inclusive of all material locations present throughout the building.

<sup>2</sup> For general reference only: Quantities reflect only those materials understood to be impacted by the project. Estimated amounts of confirmed ACM listed above were obtained through field observations made during site visits. Quantities are approximations and LaBella assumes no responsibility if used for bidding.



### ***Caulking and Glazing Compounds***

According to the Environmental Protection Agency (EPA), PCB-containing building materials were commonly used in buildings built or renovated between circa 1950 and 1979. Caulking and glazing compounds were often used around windows, door frames, building joints, masonry columns and other masonry building materials. PCBs from manufactured sources (caulk), may also contaminate adjoining materials, such as masonry or wood, through direct contact and create secondary sources.

As such, prior to removal, the EPA recommends testing caulk and other building materials to determine what protections are needed during removal, and to determine proper disposal requirements. Building materials (caulking, sealants, etc.) containing equal to or greater than 50 ppm PCB must be disposed of as PCB-Contaminated hazardous waste in accordance with 40 CFR part 761, subpart D. Therefore, the following suspect building materials were sampled and analyzed for the presence of PCBs:

- Black window glazing compound located around glass panes of windows in room F118 (G-8)
- White caulking compound located around door and window frames in rooms F118 and F118A (C-9)
- Gray caulking compound located along ductwork throughout inspected spaces (C-12)
- Gray caulking compound located around door frames in rooms 113 and 115 (C-17)
- Black window glazing compound located around glass panes of windows of the technology rooms (G-28)
- Gray caulking compound located around exterior window frames of the technology rooms (C-30)

Based on laboratory analysis, the following caulking compound is considered to be PCB-Contaminated (i.e., greater than 50 ppm PCBs):

- C-30: Gray Caulking Compound – located around exterior window frames of Technology Rooms

When removed, this caulking compound *is* to be disposed of as PCB-containing hazardous waste in accordance with EPA regulations 40 CFR 761.

Additionally, caulking compound C-17 did contain low levels of PCB's. Renovation and demolition contractors should be informed of the presence of the low levels of PCB's for OSHA compliance considerations.

### ***4.3 Mercury-Containing Equipment (MCE)***

Ceiling mounted fluorescent light fixtures were observed throughout the inspected spaces. These fixtures have light bulbs that contain varying amounts of mercury vapor. LaBella observed approximately 191 fluorescent light bulbs throughout the inspected spaces. To prevent breakage and the release of mercury, bulbs should be removed and sent to a mercury recycling facility prior to renovation activities.

No other MCE (i.e., thermostats, manometers, etc.) were identified in the inspected areas.

### ***4.4 Lead – Based Paint (LBP)***

Several representative painted and glazed surfaces were observed and tested for the presence of lead-based paint using XRF testing procedures. The following components were determined to be lead-based:

- Lead-based vinyl cove molding in room 113 (black) and room 115 (brown);
- Painted metal vertical and horizontal I-Beams in rooms 113, 115 and 113/115 mezzanine; and
- White lead-glazed porcelain sink in rooms 113 and 115.

In accordance with Environmental Protection Agency (EPA) protocols, no other materials were observed or tested which contain lead above the action level threshold of 1.0 mg/cm<sup>2</sup>. However, additional lead-based



materials may exist within the building. Therefore, Contractors shall be responsible for determining the quantity, location and condition of materials not tested during this inspection.

The building and spaces inspected for this project do not include or comprise residential spaces applicable to the requirements of EPA lead-based paint management regulations. Therefore, EPA 40 Code of Federal Regulations (CFR) 745: Lead-Based Paint Renovation, Repair and Painting (RRP) Program Rule do not apply. However, lead was detected at low concentrations in a variety of building materials (i.e., door components, window components, walls, etc.). Renovation and demolition contractors should be informed of the presence of lead for OSHA compliance considerations.

For purposes of reading this report, and understanding which wall or component in a particular space was sampled, walls were assigned the letters A, B, C, or D. The wall labeled as “A” is the address side of the building; walls B, C, and D will follow clockwise in succession.

## 5.0 OBSERVATIONS AND CAUTIONARY STATEMENTS

---

### ***Vermiculite***

Vermiculite has been used as loose insulation in attics, walls, CMU block, and as a component of plaster, fireproofing and other building materials. The NYS Department of Health considers loose-fill Vermiculite to be an asbestos-containing material, and that building materials containing Vermiculite should be treated as asbestos-containing until sent for additional analysis and proven negative in accordance with NYS DOH guidelines.

Vermiculite was **not** observed in spaces and materials inspected for this project. However, destructive investigation of CMU wall cavities was not conducted, and for that reason, the presence or extent of this material’s application throughout the building was not determined. Therefore, cautionary measures should be taken during construction, renovation, and demolition to ensure that proper steps are taken if Vermiculite is discovered in previously inaccessible locations. If Vermiculite is discovered, work should be stopped immediately to address the issue and prevent the uncontrolled release and distribution of an asbestos-containing material.

### ***Potentially Hidden/Inaccessible RBMs***

As stated earlier, collection of bulk samples of suspect RBMs was limited to those materials readily accessible. Since the building is occupied and in operation as a public school, destructive sampling techniques were limited in order to minimize disruption to business operations and damage to building components.

Although this inspection was conducted in a manner consistent with recognized professional practices, the potential does exist for additional RBMs to be located in the following inaccessible areas because of the operational constraints mentioned above:

- Inside wall and/or ceiling cavities
- Electrical components

If future building renovations are to take place, it is recommended that the above areas/materials be re-investigated using destructive sampling techniques as necessary, in order to identify and sample currently hidden/inaccessible suspect RBMs that could potentially be discovered during building renovations.

# **Asbestos Bulk Sample Summary Table**

## Asbestos Bulk Sample Summary Table

Limited Pre-Renovation Regulated Building Materials Inspection  
Merton Williams Middle School  
200 School Lane  
Hilton, New York 14468

Items in Bold are Confirmed ACM

<i>Sample #</i>	<i>Type of Material</i>	<i>Sample Location</i>	<i>Results % Asbestos</i>
HMS-1A	White with Black Speck 12" Floor Tile	Room F118, Floor	None Detected
HMS-1B	White with Black Speck 12" Floor Tile	Room F118A, Floor	None Detected
HMS-2A	Tan Floor Tile Mastic	Room F118, Floor	None Detected
HMS-2B	Tan Floor Tile Mastic	Room F118A, Floor	None Detected
HMS-3A	White Cove Molding Mastic	Room F118, Wall Base	None Detected
HMS-3B	White Cove Molding Mastic	Room F118A, Wall Base	None Detected
HMS-4A	Gray Drywall	Room F118, Upper Wall	None Detected
HMS-4B	Gray Drywall	Room F118, Upper Wall	None Detected
HMS-5A	White Joint Compound	Room F118, Upper Wall	None Detected
HMS-5B	White Joint Compound	Room F118, Upper Wall	None Detected
HMS-6A	Gray 2'x4' Suspended Ceiling Tile	Room F118, Ceiling	None Detected
HMS-6B	Gray 2'x4' Suspended Ceiling Tile	Room F118A, Ceiling	None Detected
HMS-7A	Gray Fireproofing	Room F118, On Beam	None Detected
HMS-7B	Gray Fireproofing	Room F118, On Beam	None Detected
HMS-7C	Gray Fireproofing	Room F118, On Deck	None Detected
HMS-8A	Black Window Glazing Compound	Room F118, Around Glass Pane of Interior Window	None Detected
HMS-8B	Black Window Glazing Compound	Room F118, Around Glass Pane of Interior Window	None Detected
HMS-9A	White Caulk	Room F118, Around Door Frame	None Detected
HMS-9B	White Caulk	Room F118A, Around Window Frame	None Detected
HMS-10A	Tan Wall Caulk	Room F118, Along Vertical Seam in Corner	None Detected
HMS-10B	Tan Wall Caulk	Room F118, Along Vertical Seam in Corner	None Detected
HMS-11A	Black Window/Door Glazing Compound	Room F118, Around Glass Windowpane of Door	None Detected
HMS-11B	Black Window/Door Glazing Compound	Room F118, Around Glass Windowpane of Door	None Detected

## Asbestos Bulk Sample Summary Table

Limited Pre-Renovation Regulated Building Materials Inspection  
Merton Williams Middle School  
200 School Lane  
Hilton, New York 14468

Items in Bold are Confirmed ACM

<i>Sample #</i>	<i>Type of Material</i>	<i>Sample Location</i>	<i>Results % Asbestos</i>
HMS-12A	Gray Duct Caulk	Room F118, Around Ductwork	None Detected
HMS-12B	Gray Duct Caulk	Room 113, Around Ductwork	None Detected
HMS-13A	Tan Mottled 12" Floor Tile	Room 113, Floor	None Detected
HMS-13B	Tan Mottled 12" Floor Tile	Room 115, Floor	None Detected
HMS-14A	Tan Floor Tile Mastic	Room 113, Floor	None Detected
HMS-14B	Tan Floor Tile Mastic	Room 115, Floor	None Detected
HMS-15A	Tan/Brown Cove Molding Mastic	Room 113, Wall Base	None Detected
HMS-15B	Tan/Brown Cove Molding Mastic	Room 115, Wall Base	None Detected
HMS-16A	Beige Wood Floor Mastic	Room 113, Under Wood Parquet Floor	None Detected
HMS-16B	Beige Wood Floor Mastic	Room 113, Under Wood Parquet Floor	None Detected
HMS-17A	Gray Door Caulk	Room 113, Around Door Frame	None Detected
HMS-17B	Gray Door Caulk	Room 115, Around Door Frame	None Detected
<b>HMS-18A</b>	<b>White Window/Door Glazing Compound</b>	<b>Room 113, Around Glass Windowpane of Door</b>	<b>Chrysotile 8%</b>
<b>HMS-18B</b>	<b>White Window/Door Glazing Compound</b>	<b>Room 115, Around Glass Windowpane of Door</b>	<b>Not Analyzed Duplicate of 18A</b>
HMS-19A	Brown Cove Molding	Room 115, Wall Base	None Detected
HMS-19B	Brown Cove Molding	Room 115, Wall Base	None Detected
HMS-20A	Tan/Brown Cove Molding Mastic	Room 115, Wall Base	None Detected
HMS-20B	Tan/Brown Cove Molding Mastic	Room 115, Wall Base	None Detected
HMS-21A	Black Tar	Room 113/115 Mezzanine, On Fiberglass Line	None Detected
HMS-21B	Black Tar	Room 113/115 Mezzanine, On Fiberglass Line	None Detected
HMS-22A	Gray Mud Fitting	<b>Room 113/115 Mezzanine, On Fiberglass Line</b>	<b>Chrysotile 5%</b>
HMS-22B	Gray Mud Fitting	<b>Room 113/115 Mezzanine, Around Roof Drain</b>	<b>Chrysotile 6%</b>



## Asbestos Bulk Sample Summary Table

Limited Pre-Renovation Regulated Building Materials Inspection  
Merton Williams Middle School  
200 School Lane  
Hilton, New York 14468

Items in Bold are Confirmed ACM

<i>Sample #</i>	<i>Type of Material</i>	<i>Sample Location</i>	<i>Results % Asbestos</i>
HMS-22C	Gray Mud Fitting	Room 113A, On Fiberglass Line	Chrysotile 8%
HMS-22D	Gray Mud Fitting	Room 115, On Fiberglass Line	Chrysotile 6%
HMS-23A	White Mastic	Room 113/115 Mezzanine, Seams on Fiberglass Ceiling	None Detected
HMS-23B	White Mastic	Room 113/115 Mezzanine, Seams on Fiberglass Ceiling	None Detected
HMS-24A	Gray Transite Panel	Room 115A, Against Wall Next to Machinery	Chrysotile 29%
HMS-24B	Gray Transite Panel	Room 115A, Against Wall Next to Machinery	Not Analyzed Duplicate of 24A
HMS-25A	Brown Wall Panel	Room 115, Upper Wall	None Detected
HMS-25B	Brown Wall Panel	Room 115, Upper Wall	None Detected
HMS-26A	Gray 1'x1' Adhered Ceiling Tile	Room 113/115 Stairs, Ceiling	None Detected
HMS-26B	Gray 1'x1' Adhered Ceiling Tile	Room 113/115 Stairs, Ceiling	None Detected
HMS-27A	Tan Ceiling Tile Mastic	Room 113/115 Stairs, Ceiling	None Detected
HMS-27B	Tan Ceiling Tile Mastic	Room 113/115 Stairs, Ceiling	None Detected
HMS-28A	Black Window Glazing Compound	Exterior, Around Glass Panes of Windows 1 <sup>st</sup> Layer (Tech Rm)	None Detected
HMS-28B	Black Window Glazing Compound	Exterior, Around Glass Panes of Windows 1 <sup>st</sup> Layer (Tech Rm)	None Detected
HMS-29A	Black Window Glazing Compound (Sticky)	Exterior, Around Glass Panes of Windows 2 <sup>nd</sup> Layer (Tech Rm)	None Detected
HMS-29B	Black Window Glazing Compound (Sticky)	Exterior, Around Glass Panes of Windows 2 <sup>nd</sup> Layer (Tech Rm)	None Detected
HMS-30A	Gray Window Caulk	Exterior, Around Window Frames (Tech Rm)	None Detected
HMS-30B	Gray Window Caulk	Exterior, Around Window Frames (Tech Rm)	None Detected





## **APPENDIX A:**

# **INSPECTION FACT SHEET**

# Inspection Fact Sheet

## Name and Address of Building/Structure

Merton Williams Middle School

200 School Lane

Hilton, New York 14468

## Name and Address of Building/Structure Owner

Hilton Central School District

225 West Avenue

Hilton, New York 14468

## Name and Address of Owner's Agent

LaBella Associates, D.P.C.

300 State Street, Suite 201

Rochester, New York 14614

## Name of the Firm & Person Conducting the Inspection

LaBella Associates, D.P.C.

Chris Enright (NYSDOL Cert. #06-08603)

## Dates the Inspection Was Conducted

October 6 and November 9, 2023



## **APPENDIX B:**

## **SCOPE OF WORK DRAWINGS**



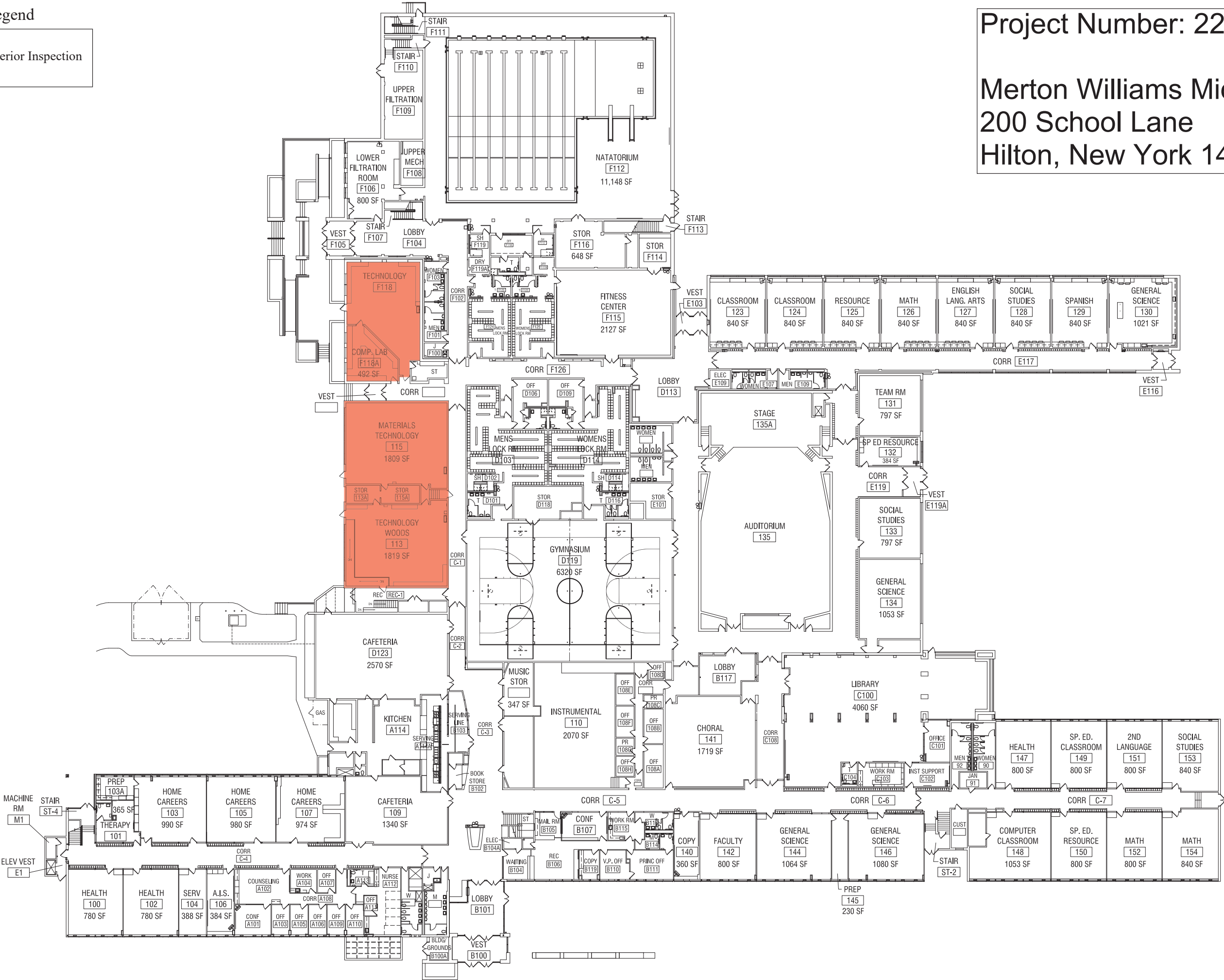
Key Legend



Full Interior Inspection

Project Number: 2221581.01

Merton Williams Middle School  
200 School Lane  
Hilton, New York 14468







## **APPENDIX C:**

# **SAMPLE LOCATION DRAWINGS**

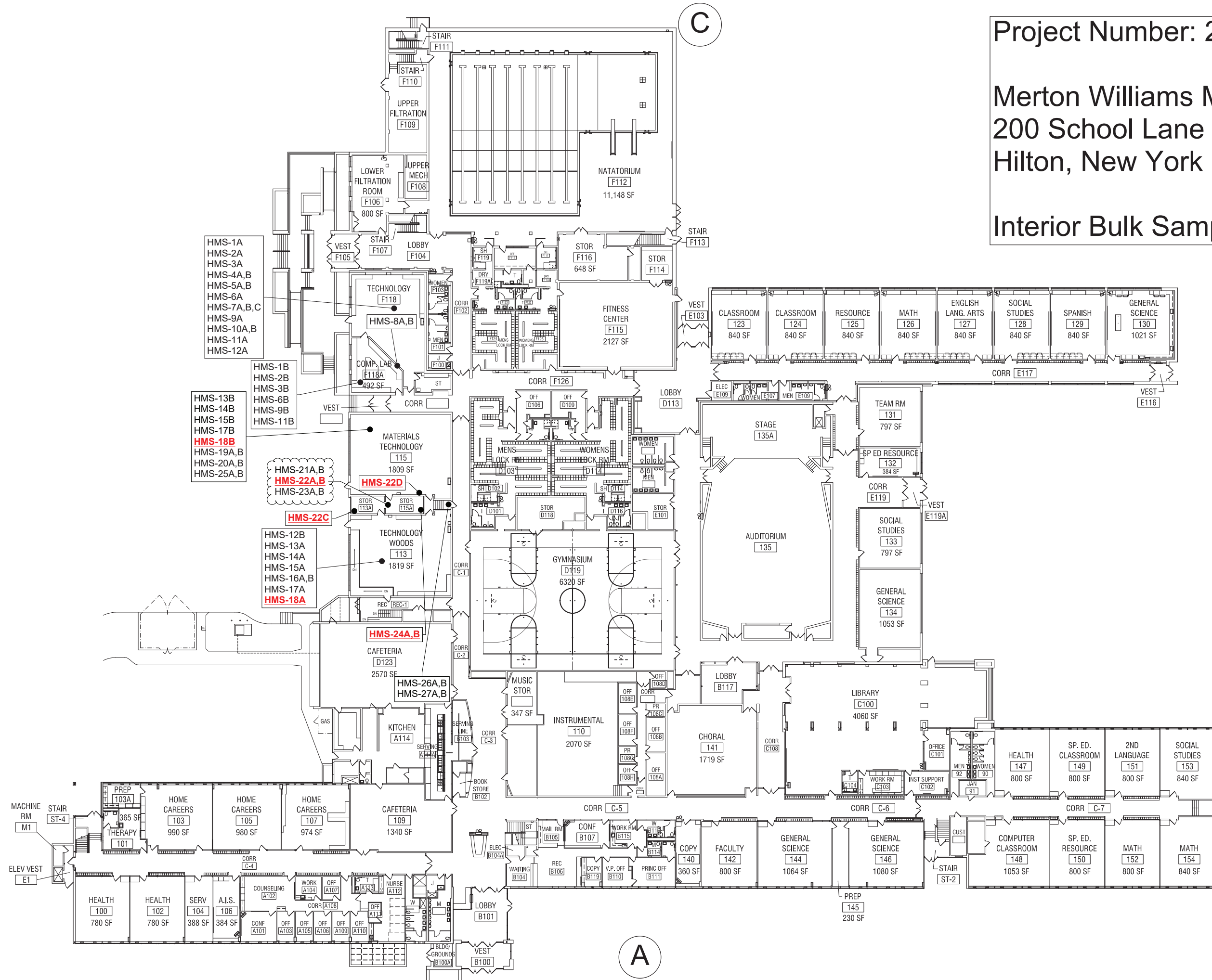




Merton Williams Middle School  
200 School Lane  
Hilton, New York 14468

## Interior Bulk Samples

## Mezzanine Samples



Confirmed ACM **Bold and Underlined**





## **APPENDIX D:**

## **INSPECTION PHOTOS**





Photo 1

View of White Asbestos-Containing Window/Door Glazing Around Glass Pane of Door in Room 115

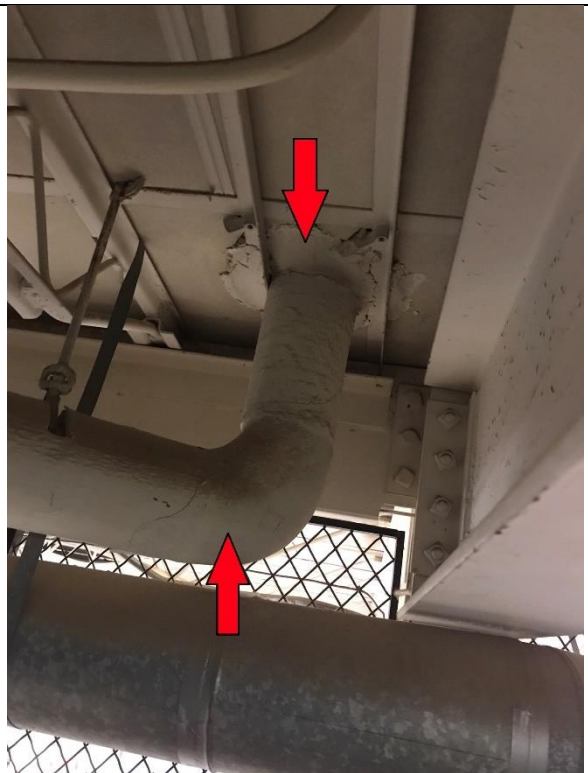


Photo 2

View of Gray Asbestos-Containing Mud Fittings on Fiberglass Lines in Room 113/115 Mezzanine

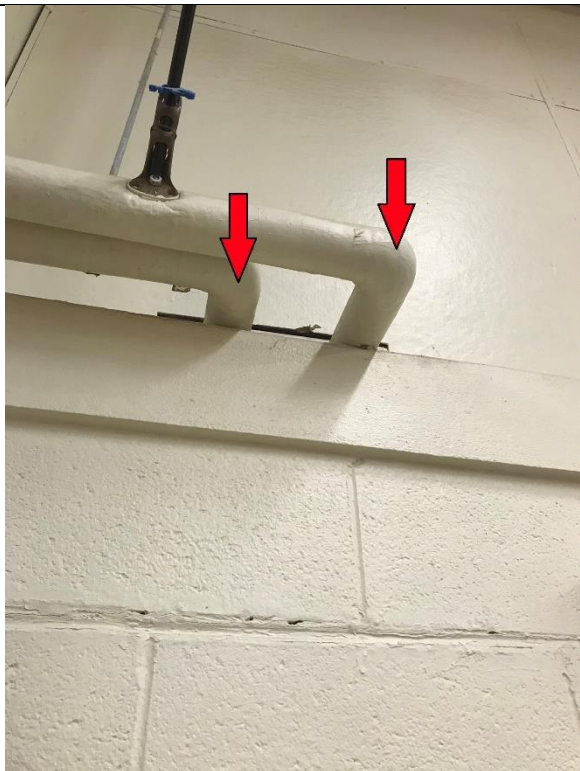


Photo 3

View of Gray Asbestos-Containing Mud Fittings on Fiberglass Lines in Room 115



Photo 4

View of Gray Asbestos-Containing Transite Panel Against the Wall in Room 115A



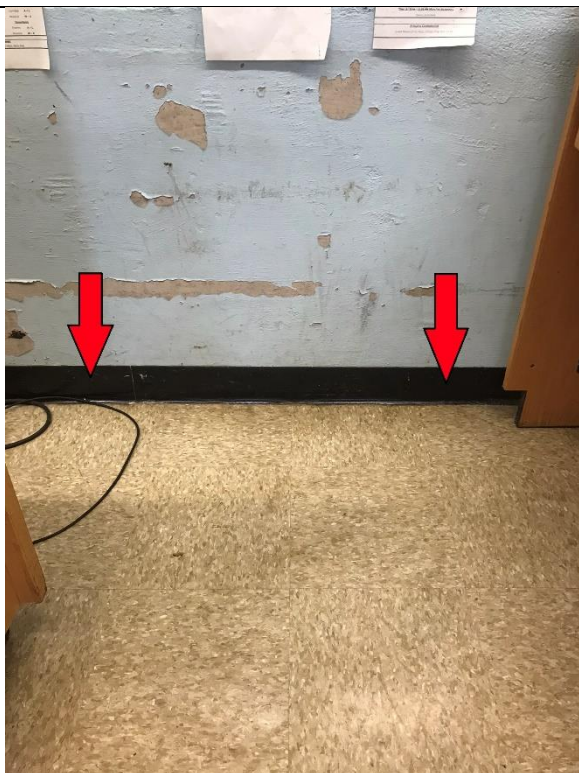


Photo 5

View of Lead-Glazed Vinyl Cove Base in Room 113

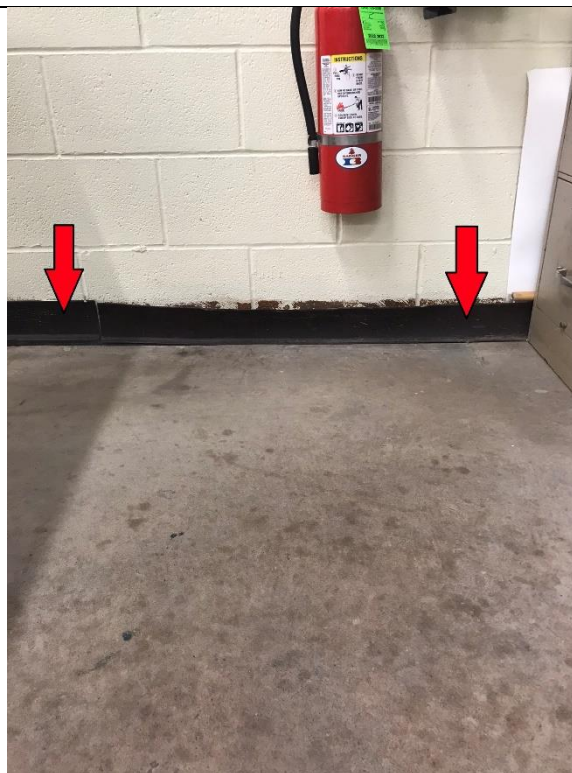


Photo 6

View of Lead-Glazed Vinyl Cove Base in Room 115

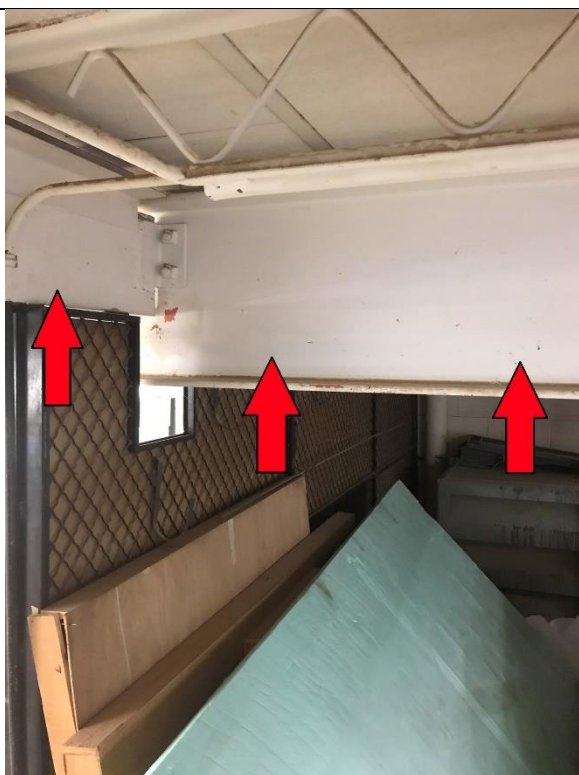


Photo 7

View of Lead-Based Paint on the Horizontal  
I-Beams in Room 113/115 Mezzanine



Photo 8

View of Lead-Glazed Porcelain Sink in Room 113



**APPENDIX E:**  
**LABORATORY ANALYTICAL**  
**REPORTS**





# Bulk Sample Asbestos Analytical Report

LABELLA ASSOCIATES, DPC  
ANALYTICAL LABORATORY  
300 STATE STREET  
ROCHESTER, NY 14614  
585.454.6110 FAX 585.454.3066

LBL ELAP # 11184  
All TEM analysis by AMA Lab, ELAP # 10920  
PLM Methods: 198.1, 198.4 & 198.6  
RSD: 18.3

LBL JOB # 1,03023

Page 1 of 3

Client Code:

CLIENT: Labella Associates

Project Number: 2221581.01

ADDRESS: 300 State Street

Rochester, NY 14614

Sample Type: PLM Bulk

Sample Date: 10/6/2023

PROJECT LOCATION: Hilton Middle School

Field ID	LBL ID	Method	Asbestos Type	%	Other Fibers	%	Matrix	%	Color/Description
HMS-1A	103023-1	T	ND		ND		MIN/VINYL	100	WHITE FLOOR TILE
HMS-1B	103023-2	T	ND		ND		MIN/VINYL	100	WHITE FLOOR TILE
HMS-2A	103023-3	T	ND		ND		MIN/BINDER	100	TAN MASTIC
HMS-2B	103023-4	T	ND		ND		MIN/BINDER	100	TAN MASTIC
HMS-3A	103023-5	T	ND		ND		MIN/BINDER	100	WHITE MASTIC
HMS-3B	103023-6	T	ND		ND		MIN/BINDER	100	WHITE MASTIC
HMS-4A	103023-7	P	ND		ND		MIN	100	GRAY DRYWALL
HMS-4B	103023-8	P	ND		ND		MIN	100	GRAY DRYWALL
HMS-5A	103023-9	P	ND		ND		MIN	100	WHITE JOINT COMPOUND
HMS-5B	103023-10	P	ND		ND		MIN	100	WHITE JOINT COMPOUND
HMS-6A	103023-11	T	ND		CELL/GLASS	100	ND		GRAY CEILING TILE
HMS-6B	103023-12	T	ND		CELL/GLASS	100	ND		GRAY CEILING TILE
HMS-7A	103023-13	P	ND		CELL	50	MIN	50	GRAY FIREPROOFING
HMS-7B	103023-14	P	ND		CELL	50	MIN	50	GRAY FIREPROOFING
HMS-7C	103023-15	P	ND		CELL	50	MIN	50	GRAY FIREPROOFING
HMS-8A	103023-16	T	ND		ND		MIN/BINDER	100	BLACK WINDOW GLAZING COMPOUND
HMS-8B	103023-17	T	ND		ND		MIN/BINDER	100	BLACK WINDOW GLAZING COMPOUND
HMS-9A	103023-18	T	ND		ND		MIN/BINDER	100	WHITE CAULK
HMS-9B	103023-19	T	ND		ND		MIN/BINDER	100	WHITE CAULK
HMS-10A	103023-20	T	ND		ND		MIN/BINDER	100	TAN CAULK
HMS-10B	103023-21	T	ND		ND		MIN/BINDER	100	TAN CAULK

LAB DIRECTOR: Matthew Smith Date: 10/9/23

Method Code: P - Friable PLM result N - NOB PLM result T - TEM result IN\* - Inconclusive G - Gravimetric Matrix Reduction where sample residue weight is less than 1% of original sample weight, TEM not required.

Terms: ND\*\* - None Detected CELL - Cellulose JC - Joint Compound MIN - Mineral GLASS - Fiberglass <1\*\* - Trace PLAS - Plaster Vermiculite - Vermiculite is reported as an asbestos-containing mineral in accordance with NYSDOH determinations and requirements. See NYSDOH guidance, available upon request.

\* "Polarized-light microscopy (PLM) is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can be used to determine if this material can be considered to be non-asbestos containing."

\*\* Please note: Due to interference from sample matrix components results reported via PLM method ELAP 198.1 as negative (ND) or less than 1% (Trace) may be inaccurate and reported as a False Negative. It is recommended that additional analytical techniques such as gravimetric reduction, TEM and others be used to reduce obscuring effects of some matrix components yielding more accurate results.

# LaBella Lab Bulk Sample Asbestos Analytical Report

LBL JOB # 1,03023

Page 2 of 3

Client Code:

CLIENT: Labella Associates

Project Number: 2221581.01

PROJECT LOCATION: Hilton Middle School

Field ID	LBL ID	Method	Asbestos Type	%	Other Fibers	%	Matrix	%	Color/Description
HMS-11A	103023-22	T	ND		ND		MIN/BINDER	100	BLACK WINDOW/DOOR GLAZING COMP.
HMS-11A	103023-23	T	ND		ND		MIN/BINDER	100	BLACK WINDOW/DOOR GLAZING COMP.
HMS-12A	103023-24	T	ND		ND		MIN/BINDER	100	GRAY DUCT CAULK
HMS-12B	103023-25	T	ND		ND		MIN/BINDER	100	GRAY DUCT CAULK
HMS-13A	103023-26	G	ND		ND		MIN/VINYL	100	TAN FLOOR TILE
HMS-13B	103023-27	G	ND		ND		MIN/VINYL	100	TAN FLOOR TILE
HMS-14A	103023-28	T	ND		ND		MIN/BINDER	100	TAN MASTIC
HMS-14B	103023-29	T	ND		ND		MIN/BINDER	100	TAN MASTIC
HMS-15A	103023-30	T	ND		ND		MIN/BINDER	100	TAN/BROWN MASTIC
HMS-15B	103023-31	T	ND		ND		MIN/BINDER	100	TAN/BROWN MASTIC
HMS-16A	103023-32	T	ND		ND		MIN/BINDER	100	BEIGE MASTIC
HMS-16B	103023-33	T	ND		ND		MIN/BINDER	100	BEIGE MASTIC
HMS-17A	103023-34	T	ND		ND		MIN/BINDER	100	GRAY CAULK
HMS-17B	103023-35	T	ND		ND		MIN/BINDER	100	GRAY CAULK
HMS-18A	103023-36	N	CHRYSTILE	8	ND		MIN/BINDER	92	WHITE WINDOW/DOOR GLAZING COMP.
HMS-19A	103023-37	T	ND		ND		MIN/VINYL	100	BROWN COVE MOLDING
HMS-19B	103023-38	T	ND		ND		MIN/VINYL	100	BROWN COVE MOLDING
HMS-20A	103023-39	T	ND		ND		MIN/BINDER	100	TAN/BROWN MASTIC
HMS-20B	103023-40	T	ND		ND		MIN/BINDER	100	TAN/BROWN MASTIC
HMS-21A	103023-41	G	ND		ND		TAR	100	BLACK TAR
HMS-21B	103023-42	G	ND		ND		TAR	100	BLACK TAR
HMS-22A	103023-43	P	CHRYSTILE	5	GLASS	15	MIN	80	GRAY MUD FITTING
HMS-22B	103023-44	P	CHRYSTILE	6	GLASS	15	MIN	79	GRAY MUD FITTING
HMS-22C	103023-45	P	CHRYSTILE	8	GLASS	15	MIN	77	GRAY MUD FITTING
HMS-22D	103023-46	P	CHRYSTILE	6	GLASS	15	MIN	79	GRAY MUD FITTING
HMS-23A	103023-47	T	ND		ND		MIN/BINDER	100	WHITE MASTIC
HMS-23B	103023-48	T	ND		ND		MIN/BINDER	100	WHITE MASTIC
HMS-24A	103023-49	N	CHRYSTILE	29	ND		MIN/BINDER	71	GRAY TRANSITE PANEL

LAB DIRECTOR:

Matthew Smith

Date:

10/9/23

Method Code: P - Friable PLM result N - NOB PLM result T - TEM result IN\* - Inconclusive G - Gravimetric Matrix Reduction where sample residue weight is less than 1% of original sample weight, TEM not required.

Terms: ND\*\* - None Detected CELL - Cellulose JC - Joint Compound MIN - Mineral GLASS - Fiberglass <1\*\* - Trace PLAS - Plaster Vermiculite - Vermiculite is reported as an asbestos-containing mineral in accordance with NYSDOH determinations and requirements. See NYSDOH guidance, available upon request.

\* "Polarized-light microscopy (PLM) is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can be used to determine if this material can be considered to be non-asbestos containing."

\*\* Please note: Due to interference from sample matrix components results reported via PLM method ELAP 198.1 as negative (ND) or less than 1% (Trace) may be inaccurate and reported as a False Negative. It is recommended that additional analytical techniques such as gravimetric reduction, TEM and others be used to reduce obscuring effects of some matrix components yielding more accurate results.

\* Please note: Due to interference from sample matrix components results reported via PLM method ELAP 198.1 as negative (ND) or less than 1% (Trace) may be inaccurate and reported as a False Negative. It is recommended that additional analytical techniques such as gravimetric reduction, TEM and others be used to reduce obscuring effects of some matrix components yielding more accurate results.

**ASBESTOS SAMPLING SURVEY  
BULK SAMPLE LOG  
AND CHAIN OF CUSTODY**

Location: Hilton Middle School

Client: Hilton CSD

Job No.: 2221581.01

Rates: 12/20/35

Date: 10/6/2023

Relinquished by: Chris Enright

Sampled By: Chris Enright

Received by: Matt Smith 10/9/23

LaBella Lab No.: 103023

Number of Samples: \_\_\_\_\_

STOP Positive: (YES) NO

	Field ID #	Sample Location	Type of Suspect ACM to be Analyzed	Approx. Amount
T 1	HMS-1A	Room F118, Floor	White with Black Speck 12" Floor Tile	
T 2	HMS-1B	Room F118A, Floor	White with Black Speck 12" Floor Tile	
T 3	HMS-2A	Room F118, Floor	Tan Floor Tile Mastic	
T 4	HMS-2B	Room F118A, Floor	Tan Floor Tile Mastic	
T 5	HMS-3A	Room F118, Wall Base	White Cove Molding Mastic	
T 6	HMS-3B	Room F118A, Wall Base	White Cove Molding Mastic	
P 7	HMS-4A	Room F118, Upper Wall	Gray Drywall	
P 8	HMS-4B	Room F118, Upper Wall	Gray Drywall	
P 9	HMS-5A	Room F118, Upper Wall	White Joint Compound	
P 10	HMS-5B	Room F118, Upper Wall	White Joint Compound	
T 11	HMS-6A	Room F118, Ceiling	Gray 2'x4' Suspended Ceiling Tile	
T 12	HMS-6B	Room F118A, Ceiling	Gray 2'x4' Suspended Ceiling Tile	
P 13	HMS-7A	Room F118, On Beam	Gray Fireproofing	
P 14	HMS-7B	Room F118, On Beam	Gray Fireproofing	
P 15	HMS-7C	Room F118, On Deck	Gray Fireproofing	
T 16	HMS-8A	Room F118, Around Glass Pane of Interior Window	Black Window Glazing Compound	
T 17	HMS-8B	Room F118, Around Glass Pane of Interior Window	Black Window Glazing Compound	
T 18	HMS-9A	Room F118, Around Door Frame	White Caulk	
T 19	HMS-9B	Room F118A, Around Window Frame	White Caulk	
T 20	HMS-10A	Room F118, Along Vertical Seam in Corner	Tan Wall Caulk	
T 21	HMS-10B	Room F118, Along Vertical Seam in Corner	Tan Wall Caulk	

**ASBESTOS SAMPLING SURVEY  
BULK SAMPLE LOG  
AND CHAIN OF CUSTODY**

Location: Hilton Middle School

Client: Hilton CSD

Job No.: 2221581.01

Rates: 12/20/35

Date: 10/6/2023

Relinquished by: Chris Enright

Sampled By: Chris Enright

Received by: Matt Smith

LaBella Lab No.: 103023

Number of Samples: \_\_\_\_\_

STOP Positive: (YES) NO

Field ID #	Sample Location	Type of Suspect ACM to be Analyzed	Approx. Amount
T 22 HMS-11A	Room F118, Around Glass windowpane Of Door	Black Window/Door Glazing Compound	
T 23 HMS-11B	Room F118a, Around glass windowpane Of Door	Black Window/Door Glazing Compound	
T 24 HMS-12A	Room F118, Around Ductwork	Gray Duct Caulk	
T 25 HMS-12B	Room 113, Around Ductwork	Gray Duct Caulk	
G 26 HMS-13A	Room 113, Floor	Tan Mottled 12" Floor Tile	
G 27 HMS-13B	Room 115, Floor	Tan Mottled 12" Floor Tile	
T 28 HMS-14A	Room 113, Floor	Tan Floor Tile Mastic	
T 29 HMS-14B	Room 115, Floor	Tan Floor Tile Mastic	
T 30 HMS-15A	Room 113, Wall Base	Tan/Brown Cove Molding Mastic	
T 31 HMS-15B	Room 115, Wall Base	Tan/Brown Cove Molding Mastic	
T 32 HMS-16A	Room 113, Under Wood Parquet Floor	Beige Wood Floor Mastic	
T 33 HMS-16B	Room 113, Under Wood Parquet Floor	Beige Wood Floor Mastic	
T 34 HMS-17A	Room 113, Around Door Frame	Gray Door Caulk	
T 35 HMS-17B	Room 115, Around Door Frame	Gray Door Caulk	
+N 36 HMS-18A	Room 113, Around Glass Windowpane Of Door	White Window/Door Glazing Compound	
✓ HMS-18B	Room 115, Around Glass Windowpane Of Door	White Window/Door Glazing Compound	
T 37 HMS-19A	Room 115, Wall Base	Brown Cove Molding	
T 38 HMS-19B	Room 115, Wall Base	Brown Cove Molding	
T 39 HMS-20A	Room 115, Wall Base	Tan/Brown Cove Molding Mastic	
T 40 HMS-20B	Room 115, Wall Base	Tan/Brown Cove Molding Mastic	

**ASBESTOS SAMPLING SURVEY  
BULK SAMPLE LOG  
AND CHAIN OF CUSTODY**

Location: Hilton Middle School

Client: Hilton CSD

Job No.: 2221581.01

Rates: 12/20/35

Date: 10/6/2023

Relinquished by: Chris Enright

Sampled By: Chris Enright

Received by: Matt Smith

LaBella Lab No.: 103023

Number of Samples: \_\_\_\_\_

STOP Positive: YES NO

	Field ID #	Sample Location	Type of Suspect ACM to be Analyzed	Approx. Amount
G 41	HMS-21A	113/115 Mezz, On Fiberglass Line	Black Tar	
G 42	HMS-21B	113/115 Mezz, On Fiberglass Line	Black Tar	
+ P 43	HMS-22A	113/115 Mezz, On Fiberglass Line	Gray Mud Fitting	
+ P 44	HMS-22B	113/115 Mezz, Around Roof Drain	Gray Mud Fitting	
+ P 45	HMS-22C	Room 113A, On Fiberglass Line	Gray Mud Fitting	
+ P 46	HMS-22D	Room 115, On Fiberglass Line	Gray Mud Fitting	
T 47	HMS-23A	113/115 Mezz, Seams on Fiberglass Ceiling	White Mastic	
T 48	HMS-23B	113/115 Mezz, Seams on Fiberglass Ceiling	White Mastic	
+ N 49	HMS-24A	Room 115A, Against Wall Next to Machinery	Gray Transite Panel	
V	HMS-24B	Room 115A, Against Wall Next to Machinery	Gray Transite Panel	
P 50	HMS-25A	Room 115, Upper Wall	Brown Wall Panel	
P 51	HMS-25B	Room 115, Upper Wall	Brown Wall Panel	
P 52	HMS-26A	Room 113/115 Stairs, Ceiling	Gray 1'x1' Adhered Ceiling Tile	
P 53	HMS-26B	Room 113/115 Stairs, Ceiling	Gray 1'x1' Adhered Ceiling Tile	
T 54	HMS-27A	Room 113/115 Stairs, Ceiling	Tan Ceiling Tile Mastic	
T 55	HMS-27B	Room 113/115 Stairs, Ceiling	Tan Ceiling Tile Mastic	

# ASBESTOS SAMPLING SURVEY BULK SAMPLE LOG AND CHAIN OF CUSTODY

**Client: Hilton CSD**

**Rates: 12/20/35**Relinquished by: Chris Enright

**Received by: Matt Smith**

**Number of Samples:** \_\_\_\_\_

**YES**

T 56  
T 57  
T 58  
T 59  
T 60  
T 61

**XRF Lead Sampling Summary Table**  
**Merton Williams Middle School**  
**200 School Lane**  
**Hilton, New York 14468**  
**LaBella Project No. 2221581.01**

Reading No.	Location (Room)	Wall (A, B, C D) & Structure	Substrate	Color	XRF Result
1	Calibration Check	----	----	----	PASS
2	Calibration Check	----	----	----	PASS
3	Calibration Check	----	----	----	PASS
4	Calibration Check	----	----	----	PASS
5	Calibration Check	----	----	----	PASS
6	Calibration Check	----	----	----	PASS
7	Room F118	B	CMU	Cream	0.0
8	Room F118	B, Wall Base	Vinyl	Black	0.0
9	Room F118	B, Window Case 7	Metal	Tan	0.2
10	Room F118	B, Door Case	Metal	Tan	0.2
11	Room F118	B, Door Lintel	Metal	Tan	0.1
12	Room F118	D, Vertical I-Beam	Metal	White	0.1
13	Room F118A	C	CMU	White	0.0
14	Room F118A	A, Door Case	Metal	Tan	0.2
15	Room F118A	A, Door Lintel	Metal	Tan	0.1
16	Room F118A	A, Wall Base	Vinyl	Black	0.0
17	Room F118A	D, Window Case 3	Metal	Tan	0.2
18	Room 113	C	CMU	Blue	0.1
<b>19</b>	<b>Room 113</b>	<b>C, Wall Base</b>	<b>Vinyl</b>	<b>Black</b>	<b>4.1+ I</b>
20	Room 113	C, Ladder	Metal	Black	0.1
21	Room 113	C, Door Case 1	Metal	Gray	0.5
22	Room 113	C, Door 1	Wood	Brown	0..0
23	Room 113	C, Door Lintel 1	Metal	Gray	0.2
<b>24</b>	<b>Room 113</b>	<b>D, Sink</b>	<b>Porcelain</b>	<b>White</b>	<b>17.1+ I</b>

I = Intact Condition. No visible damage or deterioration

P = Poor Condition. Paint is chipped, peeling, or otherwise damaged



**XRF Lead Sampling Summary Table**  
**Merton Williams Middle School**  
**200 School Lane**  
**Hilton, New York 14468**  
**LaBella Project No. 2221581.01**

Reading No.	Location (Room)	Wall (A, B, C D) & Structure	Substrate	Color	XRF Result
25	Room 113	D, Lower	Concrete	Blue	0.4
26	Room 115	A	CMU	Cream	0.1
27	Room 115	A, Wall Base	Vinyl	Brown	0.1
28	Room 115	A, Ladder	Metal	Black	0.1
<b>29</b>	<b>Room 115</b>	<b>B, Vertical I-Beam</b>	<b>Metal</b>	<b>Black</b>	<b>5.6+ I</b>
<b>30</b>	<b>Room 115</b>	<b>C, Wall Base</b>	<b>Vinyl</b>	<b>Brown</b>	<b>4.7+ I</b>
31	Room 115	C, Lower	Concrete	Cream	0.1
<b>32</b>	<b>Room 115</b>	<b>D, Sink</b>	<b>Porcelain</b>	<b>White</b>	<b>39.0+ I</b>
33	Room 115	A, Handrail	Metal	Black	0.1
34	Room 115A	Ceiling	Concrete	White	0.2
35	Room 115A	C, Door Case	Metal	Black	0.6
<b>36</b>	<b>Room 113/115 Mezzanine</b>	<b>Horizontal I-Beam</b>	<b>Metal</b>	<b>White</b>	<b>5.5+ I</b>
<b>37</b>	<b>Room 113/115 Mezzanine</b>	<b>Vertical I-Beam</b>	<b>Metal</b>	<b>White</b>	<b>9.8+ I</b>
38	Calibration Check	-----	-----	-----	PASS
39	Calibration Check	-----	-----	-----	PASS
40	Calibration Check	-----	-----	-----	PASS
41	Calibration Check	-----	-----	-----	PASS
42	Calibration Check	-----	-----	-----	PASS
43	Calibration Check	-----	-----	-----	PASS

I = Intact Condition. No visible damage or deterioration

P = Poor Condition. Paint is chipped, peeling, or otherwise damaged



## Analysis Report

# Schneider Laboratories Global, Inc

2512 W. Cary Street • Richmond, Virginia • 23220-5117  
804-353-6778 • 800-785-LABS (5227) • Fax 804-359-1475

**Customer:** Labella Associates (1126)  
**Address:** 300 State Street  
Rochester, NY 14614-1098

**Order #:** 535509

**Matrix** Bulk  
**Received** 10/11/23  
**Reported** 10/18/23

**Attn:**

**Project:** RBM Inspection Hilton Middle  
**Location:** 200 School Lane Hilton NY  
**Number:** 2221581.01

**PO Number:**

Sample ID	Cust. Sample ID	Location	Result	RL*	Units	Analysis Date	Analyst
Parameter		Method					
535509-001	G-8						
<b>Semi-volatile Organic Compounds</b>							
Aroclor - 1016		SW846 8082A	<2480	2480	µg/kg	10/11/23	NM
Aroclor - 1221		SW846 8082A	<2480	2480	µg/kg	10/11/23	NM
Aroclor - 1232		SW846 8082A	<2480	2480	µg/kg	10/11/23	NM
Aroclor - 1242		SW846 8082A	<2480	2480	µg/kg	10/11/23	NM
Aroclor - 1248		SW846 8082A	<2480	2480	µg/kg	10/11/23	NM
Aroclor - 1254		SW846 8082A	<2480	2480	µg/kg	10/11/23	NM
Aroclor - 1260		SW846 8082A	<2480	2480	µg/kg	10/11/23	NM
Aroclor - 1262		SW846 8082A	<2480	2480	µg/kg	10/11/23	NM
Aroclor - 1268		SW846 8082A	<2480	2480	µg/kg	10/11/23	NM
535509-002	C-9						
<b>Semi-volatile Organic Compounds</b>							
Aroclor - 1016		SW846 8082A	<480	480	µg/kg	10/11/23	NM
Aroclor - 1221		SW846 8082A	<480	480	µg/kg	10/11/23	NM
Aroclor - 1232		SW846 8082A	<480	480	µg/kg	10/11/23	NM
Aroclor - 1242		SW846 8082A	<480	480	µg/kg	10/11/23	NM
Aroclor - 1248		SW846 8082A	<480	480	µg/kg	10/11/23	NM
Aroclor - 1254		SW846 8082A	<480	480	µg/kg	10/11/23	NM
Aroclor - 1260		SW846 8082A	<480	480	µg/kg	10/11/23	NM
Aroclor - 1262		SW846 8082A	<480	480	µg/kg	10/11/23	NM
Aroclor - 1268		SW846 8082A	<480	480	µg/kg	10/11/23	NM
535509-003	C-12						
<b>Semi-volatile Organic Compounds</b>							
Aroclor - 1016		SW846 8082A	<475	474	µg/kg	10/11/23	NM
Aroclor - 1221		SW846 8082A	<475	474	µg/kg	10/11/23	NM
Aroclor - 1232		SW846 8082A	<475	474	µg/kg	10/11/23	NM
Aroclor - 1242		SW846 8082A	<475	474	µg/kg	10/11/23	NM
Aroclor - 1248		SW846 8082A	<475	474	µg/kg	10/11/23	NM
Aroclor - 1254		SW846 8082A	<475	474	µg/kg	10/11/23	NM

All internal QC parameters were met. Unusual sample conditions, if any, are described. Surrogate Spike results designated with "D" indicate that the analyte was diluted out. "MI" indicates matrix interference. Concentration and \*Reporting Limit (RL) based on areas provided by client. Values are reported to three significant figures. Solid PPM = mg/kg | PPB = µg/kg and Water PPM = mg/L | PPB = µg/L. The test results apply to the sample as received.



## Analysis Report

# Schneider Laboratories Global, Inc

2512 W. Cary Street • Richmond, Virginia • 23220-5117  
804-353-6778 • 800-785-LABS (5227) • Fax 804-359-1475

**Customer:** Labella Associates (1126)  
**Address:** 300 State Street  
Rochester, NY 14614-1098

**Order #:** 535509

**Matrix** Bulk  
**Received** 10/11/23  
**Reported** 10/18/23

**Attn:**

**Project:** RBM Inspection Hilton Middle  
**Location:** 200 School Lane Hilton NY  
**Number:** 2221581.01

**PO Number:**

Sample ID	Cust. Sample ID	Location	Result	RL*	Units	Analysis Date	Analyst
Parameter		Method					
<b>535509-003</b>	C-12						
Aroclor - 1260		SW846 8082A	<475	474	µg/kg	10/11/23	NM
Aroclor - 1262		SW846 8082A	<475	474	µg/kg	10/11/23	NM
Aroclor - 1268		SW846 8082A	<475	474	µg/kg	10/11/23	NM
<b>535509-004</b>	C-17						
<b>Semi-volatile Organic Compounds</b>							
Aroclor - 1016		SW846 8082A	<490	490	µg/kg	10/11/23	NM
Aroclor - 1221		SW846 8082A	<490	490	µg/kg	10/11/23	NM
Aroclor - 1232		SW846 8082A	<490	490	µg/kg	10/11/23	NM
Aroclor - 1242		SW846 8082A	<490	490	µg/kg	10/11/23	NM
Aroclor - 1248		SW846 8082A	<490	490	µg/kg	10/11/23	NM
Aroclor - 1254		SW846 8082A	2770	490	µg/kg	10/11/23	NM
Aroclor - 1260		SW846 8082A	<490	490	µg/kg	10/11/23	NM
Aroclor - 1262		SW846 8082A	<490	490	µg/kg	10/11/23	NM
Aroclor - 1268		SW846 8082A	<490	490	µg/kg	10/11/23	NM

All internal QC parameters were met. Unusual sample conditions, if any, are described. Surrogate Spike results designated with "D" indicate that the analyte was diluted out. "MI" indicates matrix interference. Concentration and \*Reporting Limit (RL) based on areas provided by client. Values are reported to three significant figures. Solid PPM = mg/kg | PPB = µg/kg and Water PPM = mg/L | PPB = µg/L. The test results apply to the sample as received.



## Analysis Report

# Schneider Laboratories Global, Inc

2512 W. Cary Street • Richmond, Virginia • 23220-5117  
804-353-6778 • 800-785-LABS (5227) • Fax 804-359-1475

**Customer:** Labella Associates (1126)  
**Address:** 300 State Street  
Rochester, NY 14614-1098

**Order #:** 535509

**Matrix** Bulk  
**Received** 10/11/23  
**Reported** 10/18/23

**Attn:**

**Project:** RBM Inspection Hilton Middle  
**Location:** 200 School Lane Hilton NY  
**Number:** 2221581.01

**PO Number:**

Sample ID	Cust. Sample ID	Location	Result	RL*	Units	Analysis Date	Analyst
Parameter		Method					

535509-10/18/23 03:49 PM

*Kelly Muncy*

Reviewed By: **Kelly Muncy**  
Manager

### Surrogate Recoveries

**535509-001 - PCB**

DCB 113%  
TCMX 105%

**535509-002 - PCB**

DCB 86%  
TCMX 105%

**535509-003 - PCB**

DCB 116%  
TCMX MI

**535509-004 - PCB**

DCB MI  
TCMX 106%

### State Certifications

Method	Parameter	New York	Virginia
SW846 8082A	Aroclor - 1016	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1221	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1232	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1242	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1248	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1254	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1260	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1262	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1268	ELAP Certified	VELAP Certified

State	Certificate Number
New York	ELAP 66375
Virginia	VELAP 12299

All internal QC parameters were met. Unusual sample conditions, if any, are described. Surrogate Spike results designated with "D" indicate that the analyte was diluted out. "MI" indicates matrix interference. Concentration and \*Reporting Limit (RL) based on areas provided by client. Values are reported to three significant figures. Solid PPM = mg/kg | PPB = µg/kg and Water PPM = mg/L | PPB = µg/L. The test results apply to the sample as received.



## Analysis Report

# Schneider Laboratories Global, Inc

2512 W. Cary Street • Richmond, Virginia • 23220-5117  
804-353-6778 • 800-785-LABS (5227) • Fax 804-359-1475

**Customer:** Labella Associates (1126)  
**Address:** 300 State Street  
Rochester, NY 14614-1098

**Order #:** 539922

**Matrix** Bulk  
**Received** 11/14/23  
**Reported** 11/15/23

**Attn:**

**Project:** RBM Insp-Hilton Middle School  
**Location:** 200 School Lane Hilton, NY  
**Number:** 2221581.01

**PO Number:**

Sample ID	Cust. Sample ID	Location	Result	RL*	Units	Analysis Date	Analyst
Parameter		Method					
539922-001	G-28						
<b>Semi-volatile Organic Compounds</b>							
Aroclor - 1016		SW846 8082A	<457	456	µg/kg	11/15/23	NM
Aroclor - 1221		SW846 8082A	<457	456	µg/kg	11/15/23	NM
Aroclor - 1232		SW846 8082A	<457	456	µg/kg	11/15/23	NM
Aroclor - 1242		SW846 8082A	<457	456	µg/kg	11/15/23	NM
Aroclor - 1248		SW846 8082A	<457	456	µg/kg	11/15/23	NM
Aroclor - 1254		SW846 8082A	<457	456	µg/kg	11/15/23	NM
Aroclor - 1260		SW846 8082A	<457	456	µg/kg	11/15/23	NM
Aroclor - 1262		SW846 8082A	<457	456	µg/kg	11/15/23	NM
Aroclor - 1268		SW846 8082A	<457	456	µg/kg	11/15/23	NM
539922-002	C-30						
<b>Semi-volatile Organic Compounds</b>							
Aroclor - 1016		SW846 8082A	<458000	458000	µg/kg	11/15/23	NM
Aroclor - 1221		SW846 8082A	<458000	458000	µg/kg	11/15/23	NM
Aroclor - 1232		SW846 8082A	<458000	458000	µg/kg	11/15/23	NM
Aroclor - 1242		SW846 8082A	<458000	458000	µg/kg	11/15/23	NM
Aroclor - 1248		SW846 8082A	<458000	458000	µg/kg	11/15/23	NM
Aroclor - 1254		SW846 8082A	<458000	458000	µg/kg	11/15/23	NM
Aroclor - 1260		SW846 8082A	1510000	458000	µg/kg	11/15/23	NM
Aroclor - 1262		SW846 8082A	<458000	458000	µg/kg	11/15/23	NM
Aroclor - 1268		SW846 8082A	<458000	458000	µg/kg	11/15/23	NM

All internal QC parameters were met. Unusual sample conditions, if any, are described. Surrogate Spike results designated with "D" indicate that the analyte was diluted out. "MI" indicates matrix interference. Concentration and \*Reporting Limit (RL) based on areas provided by client. Values are reported to three significant figures. Solid PPM = mg/kg | PPB = µg/kg and Water PPM = mg/L | PPB = µg/L. The test results apply to the sample as received.



## Analysis Report

# Schneider Laboratories Global, Inc

2512 W. Cary Street • Richmond, Virginia • 23220-5117  
804-353-6778 • 800-785-LABS (5227) • Fax 804-359-1475

**Customer:** Labella Associates (1126)  
**Address:** 300 State Street  
Rochester, NY 14614-1098

**Order #:** 539922

**Matrix** Bulk  
**Received** 11/14/23  
**Reported** 11/15/23

**Attn:**

**Project:** RBM Insp-Hilton Middle School  
**Location:** 200 School Lane Hilton, NY  
**Number:** 2221581.01

**PO Number:**

Sample ID	Cust. Sample ID	Location	Result	RL*	Units	Analysis Date	Analyst
Parameter		Method					
539922-11/15/23 04:18 PM							

*Kelly Muncy*

Reviewed By: **Kelly Muncy**  
Manager

### Surrogate Recoveries

**539922-001 - PCB**

DCB 70%  
TCMX MI

**539922-002 - PCB**

DCB D  
TCMX D

### State Certifications

Method	Parameter	New York	Virginia
SW846 8082A	Aroclor - 1016	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1221	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1232	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1242	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1248	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1254	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1260	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1262	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1268	ELAP Certified	VELAP Certified

State	Certificate Number
New York	ELAP 66375
Virginia	VELAP 12664

All internal QC parameters were met. Unusual sample conditions, if any, are described. Surrogate Spike results designated with "D" indicate that the analyte was diluted out. "MI" indicates matrix interference. Concentration and \*Reporting Limit (RL) based on areas provided by client. Values are reported to three significant figures. Solid PPM = mg/kg | PPB = µg/kg and Water PPM = mg/L | PPB = µg/L. The test results apply to the sample as received.









## **APPENDIX F:**

# **LICENSES AND CERTIFICATIONS**

**WE ARE YOUR DOL**



DIVISION OF SAFETY & HEALTH LICENSE AND CERTIFICATE UNIT, STATE OFFICE CAMPUS, BLDG. 12, ALBANY, NY 12226

# ASBESTOS HANDLING LICENSE

LaBella Associates, D.P.C.  
300 State Street, Suite 201, Rochester, NY, 14614

License Number: 29278

License Class: RESTRICTED

Date of Issue: 03/24/2023

Expiration Date: 03/31/2024

Duly Authorized Representative: Greg Senecal

This license has been issued in accordance with applicable provisions of Article 30 of the Labor Law of New York State and of the New York State Codes, Rules and Regulations (12 NYCRR Part 56). It is subject to suspension or revocation for a (1) serious violation of state, federal or local laws with regard to the conduct of an asbestos project, or (2) demonstrated lack of responsibility in the conduct of any job involving asbestos or asbestos material.

This license is valid only for the contractor named above and this license or a photocopy must be prominently displayed at the asbestos project worksite. This license verifies that all persons employed by the licensee on an asbestos project in New York State have been issued an Asbestos Certificate, appropriate for the type of work they perform, by the New York State Department of Labor.

Amy Phillips, Director  
For the Commissioner of Labor

EXCELSIOR

NEW YORK STATE DEPARTMENT OF HEALTH  
WADSWORTH CENTER



Expires 12:01 AM April 01, 2024  
Issued April 01, 2022  
Revised March 30, 2023

**CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE**

*Issued in accordance with and pursuant to section 502 Public Health Law of New York State*

MR. MATTHEW SMITH  
LABELLA ASSOCIATES  
300 STATE STREET SUITE 200  
ROCHESTER, NY 14614

NY Lab Id No: 11184

*is hereby APPROVED as an Environmental Laboratory for the category  
ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE  
All approved subcategories and/or analytes are listed below:*

**Miscellaneous**

Asbestos in Friable Material      Item 198.1 of Manual  
Asbestos in Non-Friable Material-PLM      Item 198.6 of Manual (NOB by PLM)

Serial No.: 66308

Property of the New York State Department of Health. Certificates are valid only at the address shown and must be conspicuously posted by the laboratory. Continued accreditation depends on the laboratory's successful ongoing participation in the Program. Consumers may verify a laboratory's accreditation status online at <https://apps.health.ny.gov/pubdoh/applinks/wc/elappublicweb/>, by phone (518) 485-5570 or by email to [elap@health.ny.gov](mailto:elap@health.ny.gov).

NEW YORK STATE DEPARTMENT OF HEALTH  
WADSWORTH CENTER



Expires 12:01 AM April 01, 2024  
Issued April 01, 2022  
Revised March 30, 2023

**CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE**

*Issued in accordance with and pursuant to section 502 Public Health Law of New York State*

**MICHAEL GREENBERG**  
**AMA ANALYTICAL SERVICES INC**  
**4475 FORBES BLVD**  
**LANHAM, MD 20706**

*NY Lab Id No: 10920*

*is hereby APPROVED as an Environmental Laboratory for the category*  
**ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE**  
*All approved subcategories and/or analytes are listed below:*

**Metals I**

Lead, Total EPA 7000B

**Miscellaneous**

Asbestos in Friable Material Item 198.1 of Manual  
EPA 600/M4/82/020  
Asbestos in Non-Friable Material-PLM Item 198.6 of Manual (NOB by PLM)  
Asbestos in Non-Friable Material-TEM Item 198.4 of Manual  
Lead in Dust Wipes EPA 7000B  
Lead in Paint EPA 7000B

**Sample Preparation Methods**

ASTM E-1979-17

**Serial No.: 66247**

Property of the New York State Department of Health. Certificates are valid only at the address shown and must be conspicuously posted by the laboratory. Continued accreditation depends on the laboratory's successful ongoing participation in the Program. Consumers may verify a laboratory's accreditation status online at <https://apps.health.ny.gov/pubdoh/applinks/wc/elappublicweb/>, by phone (518) 485-5570 or by email to [elap@health.ny.gov](mailto:elap@health.ny.gov).

# United States Environmental Protection Agency

This is to certify that

LaBella Associates, D.P.C.

has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402, and has received certification to conduct lead-based paint activities pursuant to 40 CFR Part 745.226

In the Jurisdiction of:

All EPA Administered Lead-based Paint Activities Program States, Tribes and Territories

This certification is valid from the date of issuance and expires September 26, 2024

LBP-2226-2

Certification #

August 24, 2021

Issued On



A handwritten signature in black ink, appearing to read "Michelle Price".

Michelle Price, Chief

Lead, Heavy Metals, and Inorganics Branch

# United States Environmental Protection Agency

This is to certify that



Chris Enright

has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402, and has received certification to conduct lead-based paint activities pursuant to 40 CFR Part 745.226 as:

Risk Assessor

In the Jurisdiction of:

All EPA Administered Lead-based Paint Activities Program States, Tribes and Territories

This certification is valid from the date of issuance and expires October 24, 2025

LBP-R-22573-2

Certification #

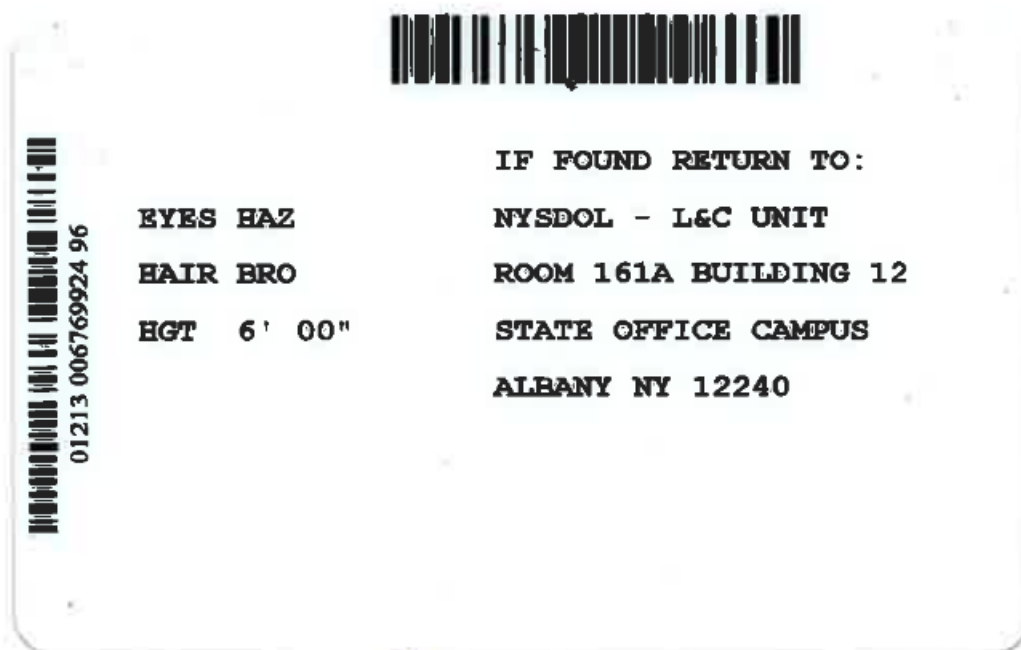
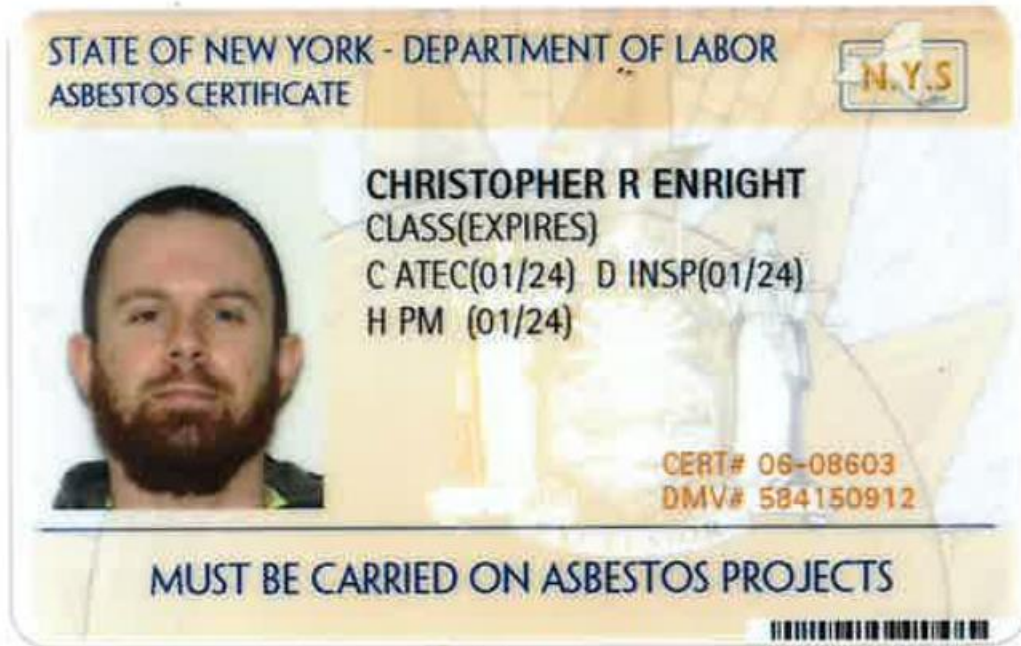
August 02, 2022

Issued On

Ben Conetta, Chief

Chemicals and Multimedia Programs Branch







NEW YORK STATE DEPARTMENT OF HEALTH  
WADSWORTH CENTER



Expires 12:01 AM April 01, 2024  
Issued April 01, 2022  
Revised March 30, 2023

**CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE**

*Issued in accordance with and pursuant to section 502 Public Health Law of New York State*

MR. FAYEZ ABOUZAKI  
SCHNEIDER LABORATORIES GLOBAL, INC  
2512 WEST CARY STREET  
RICHMOND, VA 23220-5117

NY Lab Id No: 11413

*is hereby APPROVED as an Environmental Laboratory in conformance with the  
National Environmental Laboratory Accreditation Conference Standards (2016) for the category  
ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE  
All approved analytes are listed below:*

**Metals III**

Cobalt, Total	EPA 6010D
Molybdenum, Total	EPA 6010D
Thallium, Total	EPA 6010D
Tin, Total	EPA 6010D
Titanium, Total	EPA 6010D

**Miscellaneous**

Boron, Total	EPA 6010D
--------------	-----------

**Polychlorinated Biphenyls**

Aroclor 1016 (PCB-1016)	EPA 8082A
Aroclor 1221 (PCB-1221)	EPA 8082A
Aroclor 1232 (PCB-1232)	EPA 8082A
Aroclor 1242 (PCB-1242)	EPA 8082A
Aroclor 1248 (PCB-1248)	EPA 8082A
Aroclor 1254 (PCB-1254)	EPA 8082A
Aroclor 1260 (PCB-1260)	EPA 8082A
Aroclor 1262 (PCB-1262)	EPA 8082A
Aroclor 1268 (PCB-1268)	EPA 8082A

**Sample Preparation Methods**

EPA 3010A
EPA 3050B
EPA 3550C

Serial No.: 66375

Property of the New York State Department of Health. Certificates are valid only at the address shown and must be conspicuously posted by the laboratory. Continued accreditation depends on the laboratory's successful ongoing participation in the Program. Consumers may verify a laboratory's accreditation status online at <https://apps.health.ny.gov/pubdoh/applinks/wc/elappublicweb/>, by phone (518) 485-5570 or by email to [elap@health.ny.gov](mailto:elap@health.ny.gov).







**ATTACHMENT B:**

**LIMITED PRE-RENOVATION  
REGULATED BUILDING MATERIALS  
INSPECTION REPORT**

**QUEST ELEMENTARY SCHOOL**



# Limited Pre-Renovation Regulated Building Materials Inspection

## Location:

Quest Elementary School  
225 West Avenue  
Hilton, New York 14468

## Prepared for:

Hilton Central School District  
225 West Avenue  
Hilton, New York 14468

## LaBella Project No.

2221581.01

January 24, 2025



## Table of Contents

<b>1.0</b>	<b>PROJECT DESCRIPTION .....</b>	<b>1</b>
<b>2.0</b>	<b>INSPECTION PROCEDURES .....</b>	<b>1</b>
<b>3.0</b>	<b>INSPECTION LIMITATIONS .....</b>	<b>1</b>
<b>4.0</b>	<b>INSPECTION RESULTS .....</b>	<b>2</b>
4.1	Asbestos-Containing Materials (ACMs) .....	2
4.2	Vermiculite-Containing Materials .....	3
4.3	PCB-Containing Materials and Equipment.....	4
4.4	Mercury-Containing Equipment (MCE).....	4
4.5	Lead – Based Paint (LBP).....	5
<b>5.0</b>	<b>OBSERVATIONS AND CAUTIONARY STATEMENTS .....</b>	<b>5</b>

## Appendices

Asbestos Bulk Sample Summary Table	T-1
Appendix A – Inspection Fact Sheet	FS-1
Appendix B – Scope of Work Drawings	
Appendix C – Sample Location Drawings	
Appendix D – Inspection Photos	
Appendix E – Laboratory Analytical Reports	
Appendix F – Licenses and Certifications	



## 1.0 PROJECT DESCRIPTION

---

In accordance with current regulations, LaBella Associates, D.P.C. (LaBella) conducted a Limited Pre-Renovation Regulated Building Materials (RBM) Inspection of select areas within Quest Elementary School located at 225 West Avenue in Hilton, New York. The objective was to identify suspect RBMs, such as Asbestos-Containing Materials (ACM), Lead-Based Paint (LBP), PCB-containing materials and equipment and Mercury-containing Equipment (MCE) that may require abatement or removal prior to or during renovation activities due to applicable regulations.

The inspection was limited to the areas anticipated to be impacted by the upcoming capital improvement project as shown on the “Scope of Work Drawings” in Appendix B. Materials and locations understood to be impacted by this project were determined from information provided by the Hilton Central School District and LaBella’s Architectural Division.

## 2.0 INSPECTION PROCEDURES

---

The following procedures were used to obtain the data for this Report:

- A. Existing documentation was requested for review. Several historical reports were reviewed to develop an understanding of the previously sampled materials and confirmed ACMs at the Site.
- B. A visual inspection of the areas outlined on the “Scope of Work Drawings” was conducted to identify visible and accessible sources of suspect RBMs. Photographs captured during this inspection are attached in Appendix D.
- C. Bulk samples of accessible suspect materials were collected and submitted for laboratory analysis.
- D. Asbestos samples were submitted for laboratory analysis. Preliminary Polarized Light Microscopy analyses were performed by LaBella Laboratories, a NYSDOH accredited laboratory, to determine the presence and percentage of asbestos in each sample. Transmission electron microscopy analyses of NOB materials, if necessary, were performed by AMA Laboratories.
- E. Suspect painted or glazed materials were spot checked in the field using X-Ray Fluorescence (XRF) testing procedures for the presence of lead.
- F. Results of the laboratory analyses, field testing and the visual on-site inspection were compiled and summarized.

## 3.0 INSPECTION LIMITATIONS

---

This inspection was conducted in accordance with generally accepted environmental engineering practices for this region. Collection of bulk samples of suspect RBMs was limited to those materials readily accessible using hand tools or hand-held power tools. Homogeneous materials were identified and located based on visual observation from readily accessible points. The data derived from representative samples of any given homogeneous material represent conditions that apply only at that particular location. Inspection protocol and methodology requires that sample data be used to draw conclusions about the entire homogeneous area, but such conclusions may not necessarily apply to the general Site as a whole.

No sub-surface investigations were performed to determine the possible presence of regulated materials on or in the immediate vicinity of the Site. No record drawings of the building were available for review as part of this investigation.



LaBella makes no other warranty or representation, either expressed or implied, nor is one intended to be included as part of its services, proposals, contracts, or reports. No inspection can wholly eliminate the uncertainty regarding the potential for undiscovered RBMs. The Work performed by LaBella is intended to reduce, but not eliminate, uncertainty regarding the potential for RBMs at the Site. This inspection report is not intended to be a bid document for an abatement scope of work. This report is intended to satisfy the requirements of NYS Code Rule 56-5 for inspections.

## 4.0 INSPECTION RESULTS

### 4.1 Asbestos-Containing Materials (ACMs)

Based on laboratory analyses of bulk samples collected, the following materials were determined to contain greater than 1% asbestos. However, the following table does not include all of the materials sampled during this inspection; for a full list of materials sampled see the *Asbestos Bulk Sample Summary Table* immediately following this report.

Type of Material	Typical Location <sup>1</sup>	Estimated Amount <sup>2</sup>	Friability	Condition
Gray Transite Panels	See Description Below	350 SF	Non-Friable	Good
Various Colored 9" Floor Tiles	See Description Below	5,500 SF	Non-Friable	Good
Black Duct Sealant	See Description Below	65 SF	Non-Friable	Good
Gray Window Glazing Compound	See Description Below	80 LF/ 2 SF	Non-Friable	Good
Black Sink Coating	See Description Below	12 SF	Non-Friable	Good
Tan Window Caulk (Residual)	Exterior – Around Window Frames, 2 <sup>nd</sup> Layer (North Pole Wing)	400 LF/ 16 SF	Non-Friable	Good
Brown Streaked 12" Floor Tile & Associated Black Mastic (Residual)	Rooms 215 & 216 – Flooring	115 SF	Non-Friable	Good
Gray Gasket	Room 211 – Around Boiler Motor on Boilers #1 & #2	2 Gaskets	Non-Friable	Good
Black Gasket	Room 211 – Burner Gasket on Boilers #1 & #2	2 Gaskets	Non-Friable	Good

#### ACM Project Specific Details

##### Transite Panels

Gray asbestos-containing transite panels are located along the ceiling system adjacent to the exterior windows in the following locations:

- Room 219
- Room 220
- Room 226
- Room 227
- Room 228
- Room 231
- Room 233
- Room 234
- Room 235
- Room 236
- Room 238
- Room 238A
- Room 239
- Corridor 1 (display case)

<sup>1</sup> Typical Location may not be inclusive of all material locations present throughout the building.

<sup>2</sup> For general reference only: Quantities reflect only those materials understood to be impacted by the project. Estimated amounts of confirmed ACM listed above were obtained through field observations made during site visits. Quantities are approximations and LaBella assumes no responsibility if used for bidding.



### ***Floor Tile and Associated Mastic***

Various colored asbestos-containing 9" floor tiles are located beneath the carpeting in the following locations:

- Green 9" Floor Tiles
  - Room 219
  - Room 226
  - Room 231
  - Room 238
- Gray 9" Floor Tiles
  - Room 238A
- Brown 9" Floor Tiles
  - Room 227
  - Room 228

### ***Duct Sealant***

Black asbestos-containing duct sealant is located around the flex ninety-degree connections on the ductwork above the ceiling in the following locations:

- Room 219
- Room 220
- Room 226
- Room 227
- Room 231
- Room 233
- Room 234
- Room 235
- Room 236
- Corridor 1
- Corridor 2

### ***Window Glazing Compound***

Gray asbestos-containing window glazing compound is located around the glass panes of the transom windows in the following locations:

- Corridor 1
- Corridor 2

The window glazing compound is generally in good condition and covers an area of approximately 80 linear feet. With a ¼" bead of glazing around the windowpanes, an estimated equivalent area of 2 square feet of asbestos-containing window glazing compound is present.

### ***Sink Coating***

Black asbestos-containing sink coating is located on the underside of the stainless steel sinks in the following locations:

- Room 226
- Room 227
- Room 228

## **4.2 Vermiculite-Containing Materials**

Based on laboratory analyses of bulk samples collected, the following material was determined to contain greater than 10% vermiculite. However, the following table does not include all of the materials sampled during this inspection; for a full list of materials sampled see the *Asbestos Bulk Sample Summary Table* immediately following this report.

Type of Material	Typical Location <sup>1</sup>	Estimated Amount <sup>2</sup>	Friability	Condition
White Door Insulation (Vermiculite)	Inside Wooden Doors in Corridors 1 and 2	20 SF Per/ 160 SF Total	Friable	Good

<sup>1</sup> Typical Location may not be inclusive of all material locations present throughout the building.

<sup>2</sup> For general reference only: Quantities reflect only those materials understood to be impacted by the project. Estimated amounts of confirmed ACM listed above were obtained through field observations made during site visits. Quantities are approximations and LaBella assumes no responsibility if used for bidding.



## Project Specific Details

### ***White Door Insulation***

Door insulation containing greater than 10% Vermiculite was observed inside the wooden doors in Corridors 1 and 2. In accordance with New York State Department of Health (NYSDOH) guidance, these samples were analyzed using Item 198.6. Although asbestos fibers were not identified within the samples using Item 198.6, the client shall be aware that this method does not remove vermiculite and may underestimate the level of asbestos present in a sample containing greater than 10% vermiculite.

### **4.3 PCB-Containing Materials and Equipment**

#### ***Capacitors in Fluorescent Light Fixture Ballasts***

Ceiling mounted fluorescent light fixtures were observed throughout the inspected spaces. Older vintage fluorescent light fixtures manufactured prior to 1980 typically contained a capacitor filled with PCB fluid. A representative number of light fixtures were dismantled and all had ballasts labeled “No PCBs”. Based on these observations made at the time of the site visit, to the extent feasible, the ballasts within the inspection area can be considered to be non-PCB-containing.

If non-labeled ballasts are encountered during renovation activities, contractors shall ensure that all components are properly managed and disposed of in accordance with 40 CFR 761.

#### ***Caulking and Glazing Compounds***

According to the Environmental Protection Agency (EPA), PCB-containing building materials were commonly used in buildings built or renovated between circa 1950 and 1979. Caulking and glazing compounds were often used around windows, door frames, building joints, masonry columns and other masonry building materials. PCBs from manufactured sources (caulk), may also contaminate adjoining materials, such as masonry or wood, through direct contact and create secondary sources.

As such, prior to removal, the EPA recommends testing caulk and other building materials to determine what protections are needed during removal, and to determine proper disposal requirements. Building materials (caulking, sealants, etc.) containing equal to or greater than 50 ppm PCB must be disposed of as PCB-Contaminated hazardous waste in accordance with 40 CFR part 761, subpart D. Therefore, the following suspect building materials were sampled and analyzed for the presence of PCBs:

- Gray window glazing compound located around interior glass panes of transom windows above classroom doors in corridor 2 (G-23)
- Black window glazing compound located around exterior glass panes of windows (North Pole Wing, 1<sup>st</sup> layer) (G-35)
- Brown caulking compound located around exterior window frames on the northeast side of the building on the North Pole Wing (1<sup>st</sup> layer) (C-37)
- Black caulking compound located around exterior window frames on the North Pole Wing (2<sup>nd</sup> layer) (C-38)

Based on laboratory analysis, these caulking and glazing compounds are **not** considered to be PCB-Contaminated (i.e., NOT  $\geq$  50 ppm PCBs).

### **4.4 Mercury-Containing Equipment (MCE)**

Approximately 388 ceiling mounted fluorescent light fixtures were observed throughout the inspected spaces. These fixtures have light bulbs that contain varying amounts of mercury vapor. To prevent breakage and the release of mercury, bulbs should be removed and sent to a mercury recycling facility prior to any renovation activities.

No other mercury-containing equipment was identified in the inspected areas.





#### **4.5 Lead – Based Paint (LBP)**

Several representative painted and glazed surfaces were observed and tested for the presence of lead-based paint using XRF testing procedures. The following components were determined to be lead-based:

- Painted metal structural I-Beams throughout inspected spaces;
- Green lead-glazed blocks in corridor 1, corridor 2 and room 223; and
- White lead-glazed porcelain sinks and toilets in room 225.

In accordance with Environmental Protection Agency (EPA) protocols, no other materials were observed or tested which contain lead above the action level threshold of 1.0 mg/cm<sup>2</sup>. However, additional lead-based materials may exist within the building. Therefore, Contractors shall be responsible for determining the quantity, location and condition of materials not tested during this inspection.

The building inspected for this project includes spaces applicable to the requirements of EPA 40 Code of Federal Regulations (CFR) 745: Lead-Based Paint Renovation, Repair and Painting (RRP) Program Rule. The RRP Rule affects any contractor who disturbs known or presumed lead-based paint during any renovation, repair or painting projects in housing, child care facilities, and preschools built before 1978. Any contractor performing renovation work in applicable areas throughout the building must be certified, assign a “certified renovator” to each job where lead-based paint will likely be disturbed, train its renovation workers, distribute the EPA’s Renovate Right lead hazard pamphlet before starting work, and use lead safe work practices.

Additionally, lead was detected at low concentrations in a variety of building materials. Renovation and demolition contractors should be informed of the presence of lead for OSHA compliance considerations.

For purposes of reading this report, and understanding which wall or component in a particular space was sampled, walls were assigned the letters A, B, C, or D. The wall labeled as “A” is the address side of the building; walls B, C, and D will follow clockwise in succession.

### **5.0 OBSERVATIONS AND CAUTIONARY STATEMENTS**

---

#### ***Vermiculite***

Vermiculite has been used as loose insulation in attics, walls, CMU block, and as a component of plaster, fireproofing and other building materials. The NYS Department of Health considers loose-fill Vermiculite to be an asbestos-containing material, and that building materials containing Vermiculite should be treated as asbestos-containing until sent for additional analysis and proven negative in accordance with NYS DOH guidelines.

Door insulation containing greater than 10% Vermiculite was observed inside the wooden corridor doors inspected for this project. If impacted, LaBella recommends treating these doors as an asbestos-containing material and handled in accordance with local, state and federal regulations.

Furthermore, it shall be noted that destructive investigation of wall cavities was not conducted during the inspection, and therefore, the presence or extent of Vermiculite throughout the building was not determined. Therefore, cautionary measures should be taken during construction, renovation, and demolition to ensure that proper steps are taken if Vermiculite is discovered in previously inaccessible locations. If Vermiculite is discovered, work should be stopped immediately to address the issue and prevent the uncontrolled release and distribution of an asbestos-containing material.



### ***Potentially Hidden/Inaccessible RBMs***

As stated earlier, collection of bulk samples of suspect RBMs was limited to those materials readily accessible. Since the building is occupied and in operation as a school, destructive sampling techniques were limited in order to minimize disruption to business operations and damage to building components.

Although this inspection was conducted in a manner consistent with recognized professional practices, the potential does exist for additional RBMs to be located in the following inaccessible areas because of the operational constraints mentioned above:

- Inside wall and/or ceiling cavities
- Electrical components

If materials/components associated with the above list are scheduled for renovation, it is recommended that these areas/materials be re-investigated using destructive sampling techniques, as necessary, in order to identify and sample currently hidden/inaccessible suspect RBMs that could be discovered during building renovations. Any questions or concerns regarding suspect materials should be resolved with additional testing.

Any newly identified suspect materials encountered during renovation shall be assumed to be ACM until the material can be inspected and, if necessary, sampled to identify the material as non-ACM as per standard EPA and OSHA regulations. Work in the vicinity of the suspect material shall cease until such time as the inspection or sample results are received.

# **Asbestos Bulk Sample Summary Table**



## Asbestos Bulk Sample Summary Table

Limited Pre-Renovation Regulated Building Materials Inspection  
 Quest Elementary School  
 225 West Avenue  
 Hilton, New York 14468

Items in Bold are Confirmed ACM

<i>Sample #</i>	<i>Type of Material</i>	<i>Sample Location</i>	<i>Results % Asbestos</i>
QE-1A	Tan/Black Carpet Mastic	Room 239, Floor Under Carpet	None Detected
QE-1B	Tan/Black Carpet Mastic	Room 231, Floor Under Carpet	None Detected
QE-2A	Tan Cove Molding Mastic	Room 239, Wall Base	None Detected
QE-2B	Tan Cove Molding Mastic	Room 237, Wall Base	None Detected
QE-3A	Brown Cove Molding Mastic	Room 239, Wall Base	None Detected
QE-3B	Brown Cove Molding Mastic	Room 237, Wall Base	None Detected
QE-4A	White Grout	Room 239, Wall 4 Feet Up	None Detected
QE-4B	White Grout	Room 219, Wall 4 Feet Up	None Detected
QE-5A	Gray Ceramic Tile Cement	Room 239, Wall 4 Feet Up	None Detected
QE-5B	Gray Ceramic Tile Cement	Room 219, Wall 4 Feet Up	None Detected
QE-6A	White Joint Compound	Room 239, Column	None Detected
QE-6B	White Joint Compound	Room 238A, Column	None Detected
QE-6C	White Joint Compound	Room 220, Column	None Detected
QE-6D	White Joint Compound	Room 231, Column	None Detected
QE-6E	White Joint Compound	Room 229, Column	None Detected
QE-6F	White Joint Compound	Room 226, Column	None Detected
QE-6G	White Joint Compound	Room 227, Column	None Detected
QE-7A	Gray 2'x4' Suspended Ceiling Tile (Pin/Fissured)	Room 239, Ceiling	None Detected
QE-7B	Gray 2'x4' Suspended Ceiling Tile (Pin/Fissured)	Room 237, Ceiling	None Detected
QE-8A	Gray Window/Door Glazing Compound	Room 239, Around Glass Windowpane of Door	None Detected
QE-8B	Gray Window/Door Glazing Compound	Room 220, Around Glass Windowpane of Door	None Detected
QE-9A	Gray Transite Panel	<b>Room 239, Along Wall by Windows</b>	<b>Chrysotile 33%</b>
QE-9B	Gray Transite Panel	<b>Room 220, Along Wall by Windows</b>	<b>Not Analyzed Duplicate of 9A</b>

## Asbestos Bulk Sample Summary Table

Limited Pre-Renovation Regulated Building Materials Inspection  
 Quest Elementary School  
 225 West Avenue  
 Hilton, New York 14468

Items in Bold are Confirmed ACM

<i>Sample #</i>	<i>Type of Material</i>	<i>Sample Location</i>	<i>Results % Asbestos</i>
QE-10A	White Mastic	Room 239, Seams of Deck	None Detected
QE-10B	White Mastic	Room 237, Seams of Deck	None Detected
QE-10C	White Mastic	Room 228, Seams of Deck	None Detected
QE-11A	Tan Carpet Mastic	Room 238, Floor Under Carpet	None Detected
QE-11B	Tan Carpet Mastic	Room 219, Floor Under Carpet	None Detected
<b>QE-12A</b>	<b>Green 9" Floor Tile</b>	<b>Room 238, Floor Under Carpet</b>	<b>Chrysotile 21%</b>
<b>QE-12B</b>	<b>Green 9" Floor Tile</b>	<b>Room 219, Floor Under Carpet</b>	<b>Not Analyzed Duplicate of 12A</b>
QE-13A	Black Floor Tile Mastic	Room 238, Floor Under Carpet	None Detected
QE-13B	Black Floor Tile Mastic	Room 238A, Floor Under Carpet	None Detected
QE-14A	Gray Drywall	Room 238, Wall	None Detected
QE-14B	Gray Drywall	Room 220, Wall	None Detected
QE-15A	White Joint Compound	Room 238, Wall	None Detected
QE-16A	Black Window/Door Glazing Compound	Room 238, Around Glass Windowpane of Door	None Detected
QE-16B	Black Window/Door Glazing Compound	Room 238, Around Glass Windowpane of Door	None Detected
<b>QE-17A</b>	<b>Gray 9" Floor Tile</b>	<b>Room 238A, Floor Under Carpet</b>	<b>Chrysotile 18%</b>
QE-18A	Gray Sink Coating	Room 237, Under Sink	None Detected
QE-18B	Gray Sink Coating	Room 220, Under Sink	None Detected
QE-19A	Tan Putty	Room 237, Under Sink	None Detected
QE-19B	Tan Putty	Room 220, Under Sink	None Detected
QE-20A	White Mottled 12" Floor Tile	Room 237, Floor	None Detected
QE-20B	White Mottled 12" Floor Tile	Room 220, Floor	None Detected
QE-21A	Tan Floor Tile Mastic	Room 237, Floor	None Detected
QE-21B	Tan Floor Tile Mastic	Room 220, Floor	None Detected

## Asbestos Bulk Sample Summary Table

Limited Pre-Renovation Regulated Building Materials Inspection  
 Quest Elementary School  
 225 West Avenue  
 Hilton, New York 14468

Items in Bold are Confirmed ACM

<i>Sample #</i>	<i>Type of Material</i>	<i>Sample Location</i>	<i>Results % Asbestos</i>
QE-22A	Black Duct Sealant	Room 219, On Ductwork Flex Connect	Chrysotile 16%
QE-22B	Black Duct Sealant	Room 220, On Ductwork Flex Connect	Not Analyzed Duplicate of 22A
QE-23A	Gray Window Glazing Compound	Corridor 2, Around Glass Pane of Transom Window	Chrysotile 5%
QE-23B	Gray Window Glazing Compound	Corridor 2, Around Glass Pane of Transom Window	Not Analyzed Duplicate of 23A
QE-24A	White Plaster	Room 225, Wall	None Detected
QE-24B	White Plaster	Room 233, Wall	None Detected
QE-25A	Gray Plaster	Room 225, Wall	None Detected
QE-25B	Gray Plaster	Room 233, Wall	None Detected
QE-26A	Black Sink Coating	Room 236, Under Sink	None Detected
QE-26B	Black Sink Coating	Room 234, Under Sink	None Detected
QE-27A	Black Wall Mastic	Room 222, On Back of Wall	None Detected
QE-27B	Black Wall Mastic	Room 222, On Back of Wall	None Detected
QE-28A	Tan Ceramic Tile Mastic	Room 222, Wall Base	None Detected
QE-28B	Tan Ceramic Tile Mastic	Room 223, Wall Base	None Detected
QE-29A	Gray Grout	Room 222, Wall Base	None Detected
QE-29B	Gray Grout	Room 223, Wall Base	None Detected
QE-30A	<b>Black Sink Coating</b>	<b>Room 228, Under Sink</b>	<b>Chrysotile 11%</b>
QE-30B	<b>Black Sink Coating</b>	<b>Room 227, Under Sink</b>	<b>Not Analyzed Duplicate of 30A</b>
QE-31A	White 12" Floor Tile (Sticky)	Room 227, Floor Under Carpet	None Detected
QE-31B	White 12" Floor Tile (Sticky)	Room 227, Floor Under Carpet	None Detected
QE-32A	<b>Brown 9" Floor Tile</b>	<b>Room 227, Floor Under Carpet</b>	<b>Chrysotile 17%</b>
QE-33A	Gray Grout	Room 225, Floor	None Detected
QE-33B	Gray Grout	Room 225, Floor	None Detected

## Asbestos Bulk Sample Summary Table

Limited Pre-Renovation Regulated Building Materials Inspection  
 Quest Elementary School  
 225 West Avenue  
 Hilton, New York 14468

Items in Bold are Confirmed ACM

<i>Sample #</i>	<i>Type of Material</i>	<i>Sample Location</i>	<i>Results % Asbestos</i>
QE-34A	Tan Ceramic Tile Cement	Room 225, Floor	None Detected
QE-34B	Tan Ceramic Tile Cement	Room 225, Floor	None Detected
QE-35A	Black Window Glazing Compound	Exterior, Around Glass Panes of Windows 1 <sup>st</sup> Layer (Northpole Wing)	None Detected
QE-35B	Black Window Glazing Compound	Exterior, Around Glass Panes of Windows 1 <sup>st</sup> Layer (Northpole Wing)	None Detected
QE-36A	Black Window Glazing Compound	Exterior, Around Glass Panes of Windows 2 <sup>nd</sup> Layer (Northpole Wing)	None Detected
QE-36B	Black Window Glazing Compound	Exterior, Around Glass Panes of Windows 2 <sup>nd</sup> Layer (Northpole Wing)	None Detected
QE-37A	Brown Window Caulk	Exterior, Around Window Frames 1 <sup>st</sup> Layer (NE Side)	None Detected
QE-37B	Brown Window Caulk	Exterior, Around Window Frames 1 <sup>st</sup> Layer (NE Side)	None Detected
QE-38A	Black Window Caulk	Exterior, Around Window Frames 1 <sup>st</sup> Layer (NW Side)	None Detected
QE-38B	Black Window Caulk	Exterior, Around Window Frames 1 <sup>st</sup> Layer (S Side)	None Detected
QE-39A	<b>Tan Window Caulk</b>	<b>Exterior, Around Window Frames 1<sup>st</sup> Layer (NE Side Residual)</b>	<b>Chrysotile 9%</b>
QE-39B	<b>Tan Window Caulk</b>	<b>Exterior, Around Window Frames 1<sup>st</sup> Layer (NW Side Residual)</b>	<b>Not Analyzed Duplicate of 39A</b>
QE-40A	Gray Soffit Panel	Exterior, Soffit Above Windows (Northpole Wing)	None Detected
QE-40B	Gray Soffit Panel	Exterior, Soffit Above Windows (Northpole Wing)	None Detected
QE-41A	Tan Cove Molding Mastic	Room 215, Wall Base	None Detected
QE-41B	Tan Cove Molding Mastic	Room 216, Wall Base	None Detected
QE-42A	Brown Cove Molding Mastic	Room 215, Wall Base	None Detected
QE-42B	Brown Cove Molding Mastic	Room 216, Wall Base	None Detected
QE-43A	<b>Brown Streaked 12" Floor Tile</b>	<b>Room 215, Floor</b>	<b>Chrysotile 19%</b>



## Asbestos Bulk Sample Summary Table

Limited Pre-Renovation Regulated Building Materials Inspection  
 Quest Elementary School  
 225 West Avenue  
 Hilton, New York 14468

Items in Bold are Confirmed ACM

<i>Sample #</i>	<i>Type of Material</i>	<i>Sample Location</i>	<i>Results % Asbestos</i>
QE-43B	Brown Streaked 12" Floor Tile	Room 216, Floor	Not Analyzed Duplicate of 43A
QE-44A	Tan Floor Tile Mastic	Room 215, Floor	None Detected
QE-44B	Tan Floor Tile Mastic	Room 216, Floor	None Detected
QE-45A	Black Floor Tile Mastic	Room 216, Floor	Chrysotile 12%
QE-45B	Black Floor Tile Mastic	Room 216, Floor	Not Analyzed Duplicate of 45A
QE-46A	White Door Insulation	Corridor 2, Inside Wood Door	Vermiculite >10%
QE-46B	White Door Insulation	Corridor 2, Inside Wood Door	Vermiculite >10%
QE-47A	White Mastic	Room 211, Ends of Fiberglass Lines Off Boiler	None Detected
QE-47B	White Mastic	Room 211, Ends of Fiberglass Lines Off Boiler	None Detected
QE-48A	Green Gasket	Room 211, Between Flange of Pipe Off Boiler	None Detected
QE-48B	Green Gasket	Room 211, Between Flange of Pipe Off Boiler	None Detected
QE-49A	Tan Gasket	Room 211, Between Door of Boiler #1	None Detected
QE-49B	Tan Gasket	Room 211, Between Door of Boiler #2	None Detected
QE-50A	Gray Gasket	Room 211, Around Blower Motor of Boiler #1	Chrysotile 57%
QE-50B	Gray Gasket	Room 211, Around Blower Motor of Boiler #2	Not Analyzed Duplicate of 50A
QE-51A	Black Gasket	Room 211, Boiler #1 Burner Gasket	Chrysotile 57%
QE-51B	Black Gasket	Room 211, Boiler #2 Burner Gasket	Not Analyzed Duplicate of 51A
QE-52A	Gray Boiler Breeching	Room 211, Exhaust Off Boilers	None Detected
QE-52B	Gray Boiler Breeching	Room 211, Exhaust Off Boilers	None Detected
QE-52C	Gray Boiler Breeching	Room 211, Exhaust Off Boilers	None Detected
QE-53A	Gray Tank Insulation	Room 211, End Caps of Suspended Tank	None Detected

## Asbestos Bulk Sample Summary Table

Limited Pre-Renovation Regulated Building Materials Inspection  
Quest Elementary School  
225 West Avenue  
Hilton, New York 14468

Items in Bold are Confirmed ACM

<i>Sample #</i>	<i>Type of Material</i>	<i>Sample Location</i>	<i>Results % Asbestos</i>
QE-53B	Gray Tank Insulation	Room 211, End Caps of Suspended Tank	None Detected
QE-53C	Gray Tank Insulation	Room 211, End Caps of Suspended Tank	None Detected



## **APPENDIX A:**

# **INSPECTION FACT SHEET**

# Inspection Fact Sheet

## Name and Address of Building/Structure

Quest Elementary School

225 West Avenue

Hilton, New York 14468

## Name and Address of Building/Structure Owner

Hilton Central School District

225 West Avenue

Hilton, New York 14468

## Name and Address of Owner's Agent

LaBella Associates, D.P.C.

300 State Street, Suite 201

Rochester, New York 14614

## Name of the Firm & Person Conducting the Inspection

LaBella Associates, D.P.C.

Chris Enright (NYSDOL Cert. #06-08603)

## Dates the Inspection Was Conducted

September 26, October 6, November 9, 2023 and

April 25, 2024



## **APPENDIX B:**

# **SCOPE OF WORK DRAWING**



Key Legend

Full Interior Inspection

Flooring Replacement

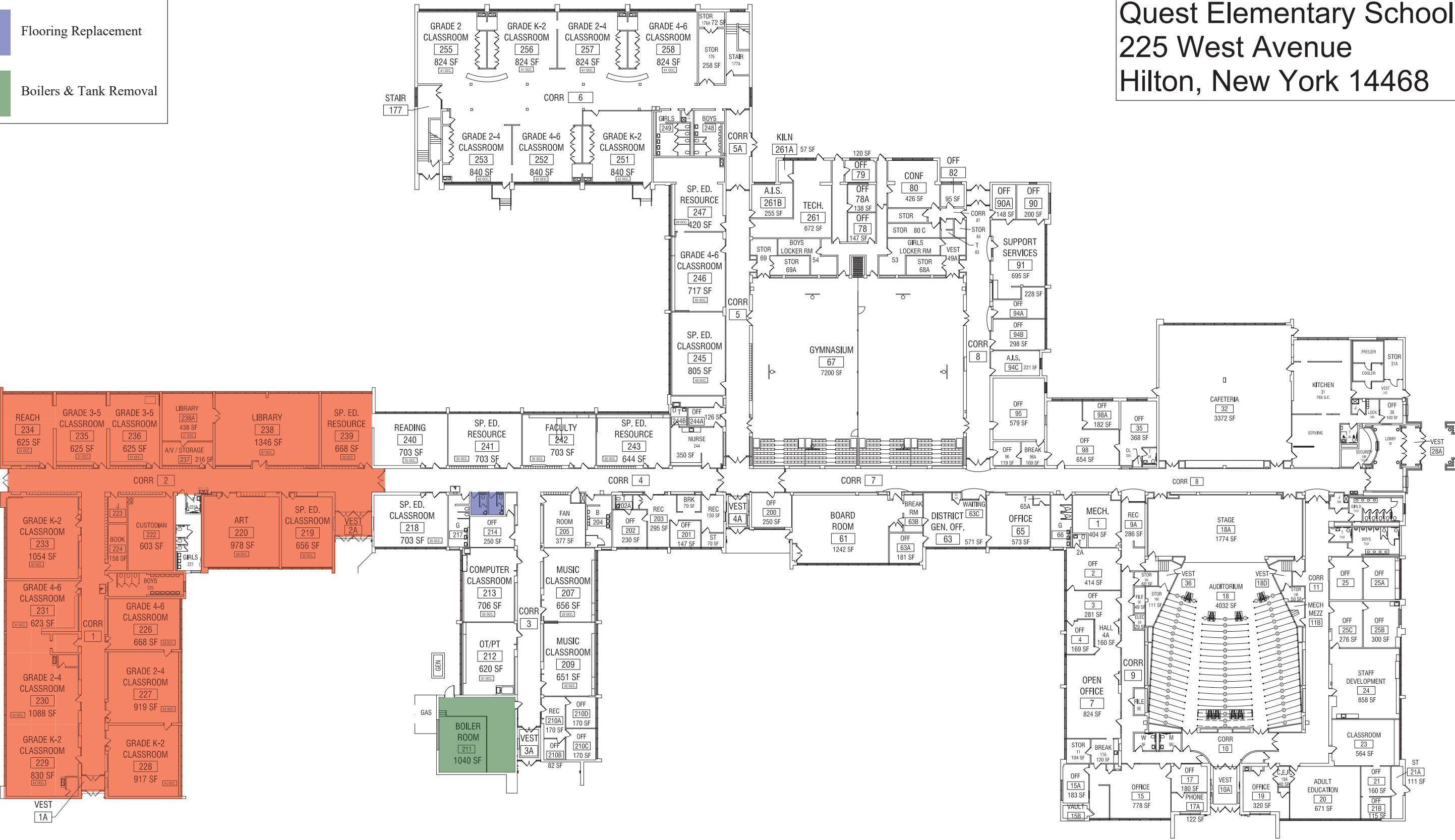
Boilers & Tank Removal

Project Number: 2221581.01

Quest Elementary School

225 West Avenue

Hilton, New York 14468





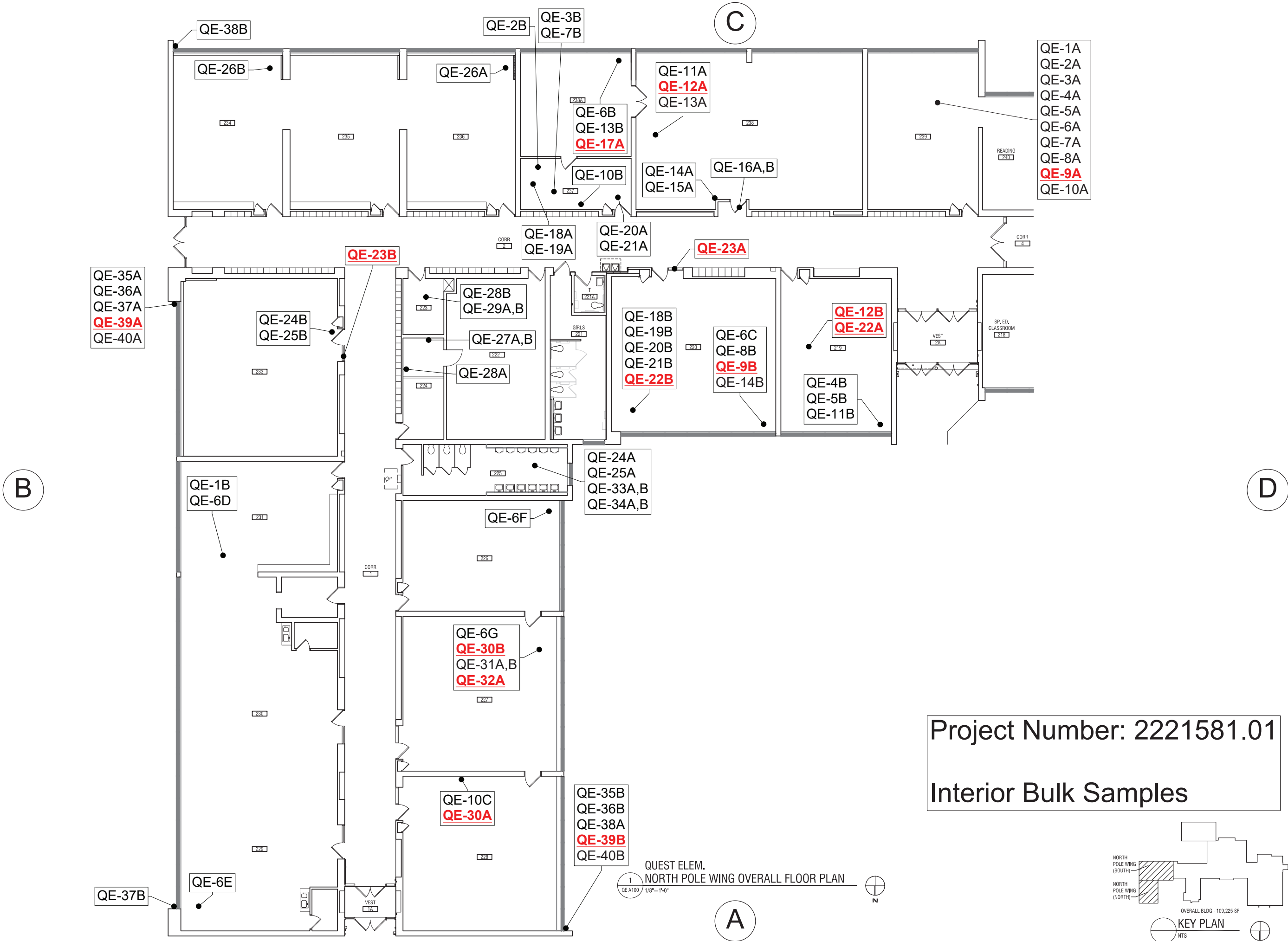




## **APPENDIX C:**

# **SAMPLE LOCATION DRAWING**

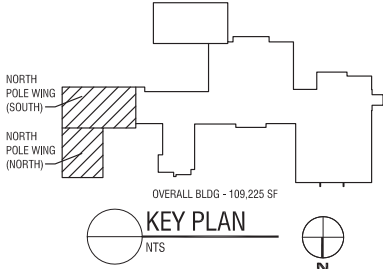




Confirmed ACM **Bold and Underlined**

Project Number: 2221581.01

Interior Bulk Samples



300 State Street, Suite 201  
Rochester, NY 14614  
585-454-6110  
labellapc.com

It is a violation of New York Education Law Article 145 Sec.7209, for any person, unless acting under the direction of a licensed architect, professional engineer, or land surveyor, to alter an item in any way. If an item bearing the seal of an architect, engineer, or land surveyor is altered; the altering architect, engineer, or land surveyor shall affix to the item their seal and notation "altered by" followed by their signature and date of such alteration, and a specific description of the alteration.

© 2018 LaBella Associates

**HILTON CSD  
CAPITAL PROJECTS 2023  
PHASE 2**  
225 WEST AVENUE  
HILTON, NEW YORK 14468



**QUEST ELEMENTARY  
SCHOOL**  
225 WEST AVENUE  
HILTON, NEW YORK 14468

S.E.D. NO. 26-10-01-06-0-001-017

REVISIONS		
NO.	DATE	DESCRIPTION

PROJECT NUMBER: 2221581.01

DRAWN BY: \_\_\_\_\_

REVIEWED BY: \_\_\_\_\_

ISSUED FOR: \_\_\_\_\_

DATE: \_\_\_\_\_

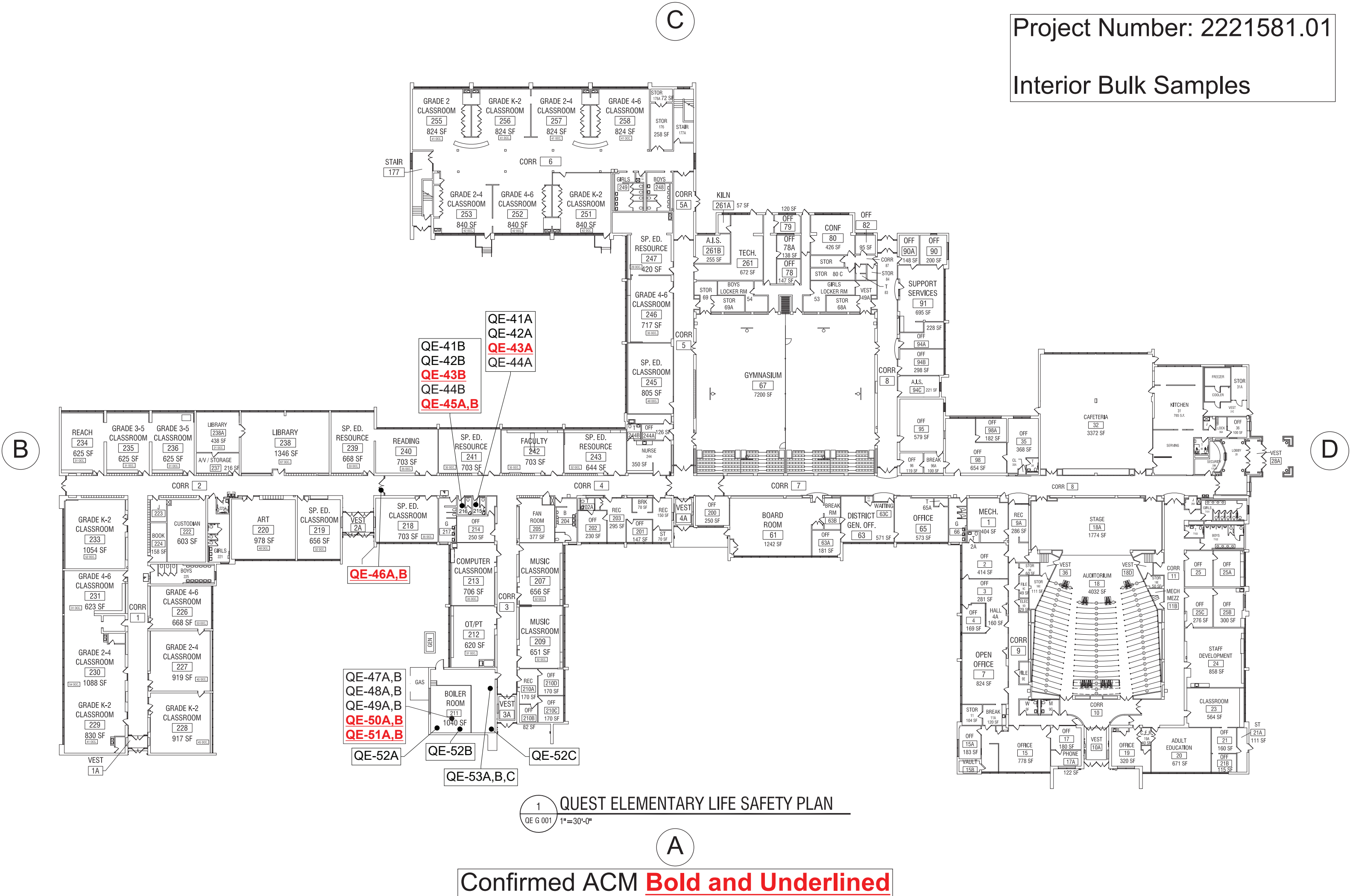
DRAWING NAME: \_\_\_\_\_

NORTH POLE WING  
OVERALL FLOOR PLAN

DRAWING NUMBER: \_\_\_\_\_

**QE  
A100**









## **APPENDIX D:**

## **INSPECTION PHOTOS**





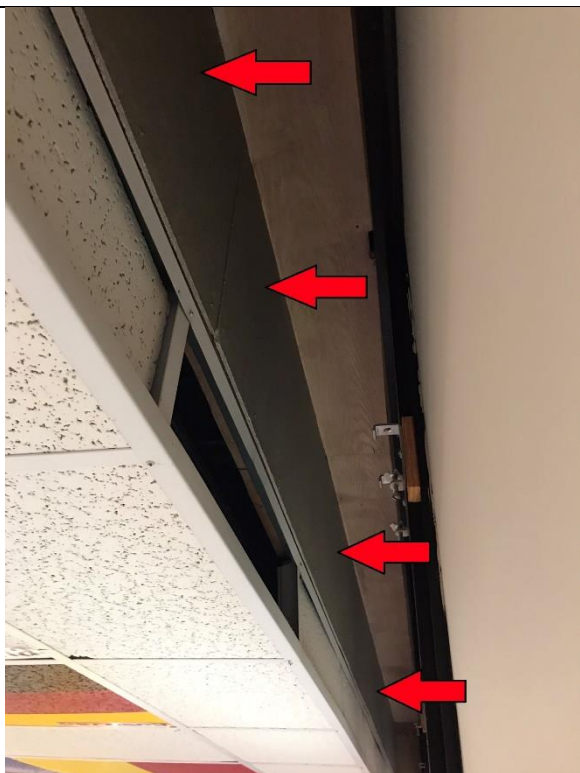


Photo 1

View of Gray Asbestos-Containing Transite Panel Along Ceiling System by Windows in Room 239



Photo 2

View of Gray Asbestos-Containing Transite Panel Along Ceiling System by Windows in Room 239



Photo 3

View of Green Asbestos-Containing 9" Floor Tile Underneath the Carpet in Room 238

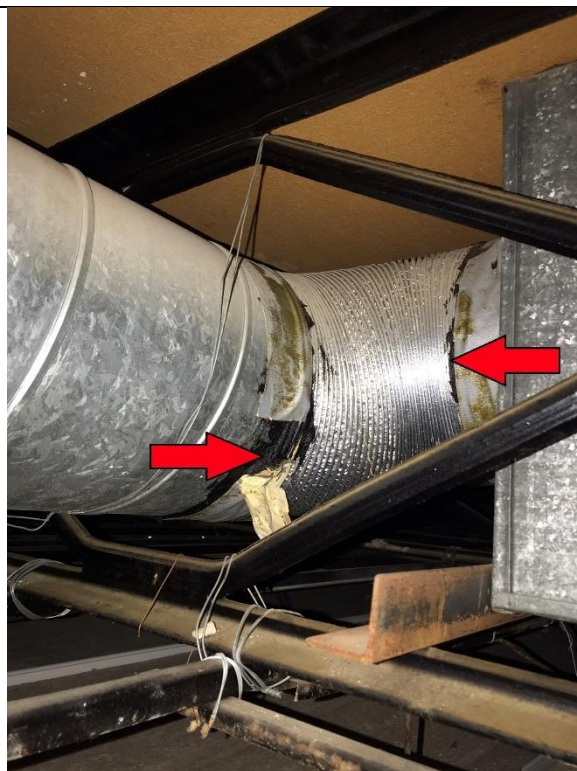


Photo 4

View of Black Asbestos-Containing Duct Sealant on Flex Connection of Ductwork Throughout



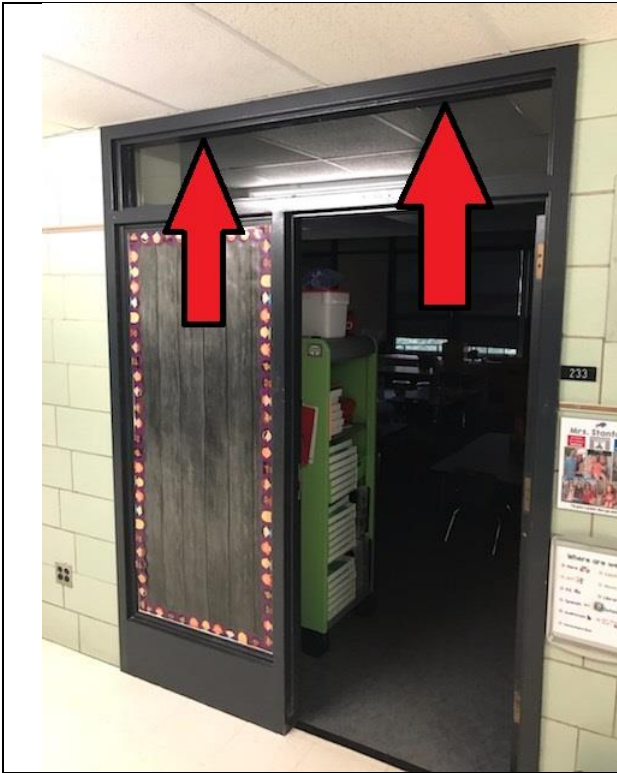


Photo 5

View of Gray Asbestos-Containing Window Glazing Around Glass Pane of Transom Window in Corridor



Photo 6

View of Black Asbestos-Containing Sink Coating Underneath Stainless Steel Sink in Room 228



Photo 7

View of Residual Tan Asbestos-Containing Window Caulk Around Exterior Window Frames (2<sup>nd</sup> Layer)

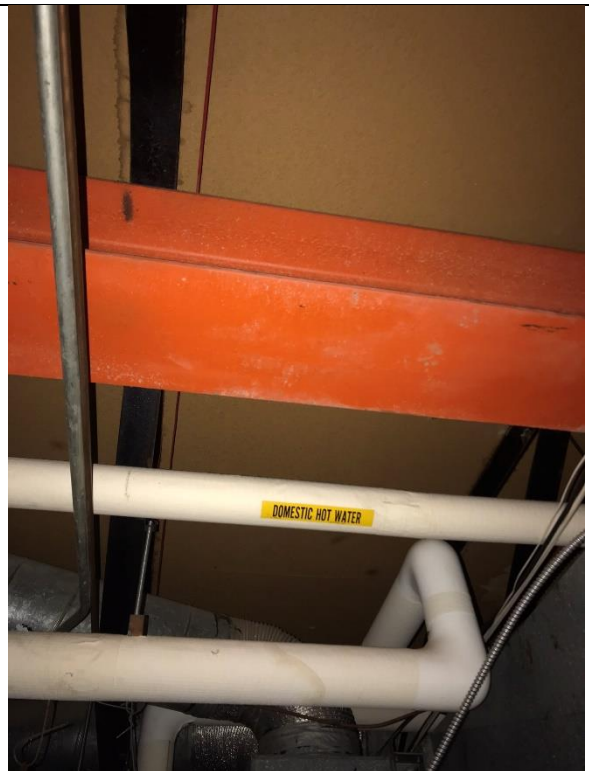


Photo 8

View of Lead-Based Paint on Structural I-Beams



[Photo 9](#)

View of Lead-Glazed Block Throughout Corridor 1



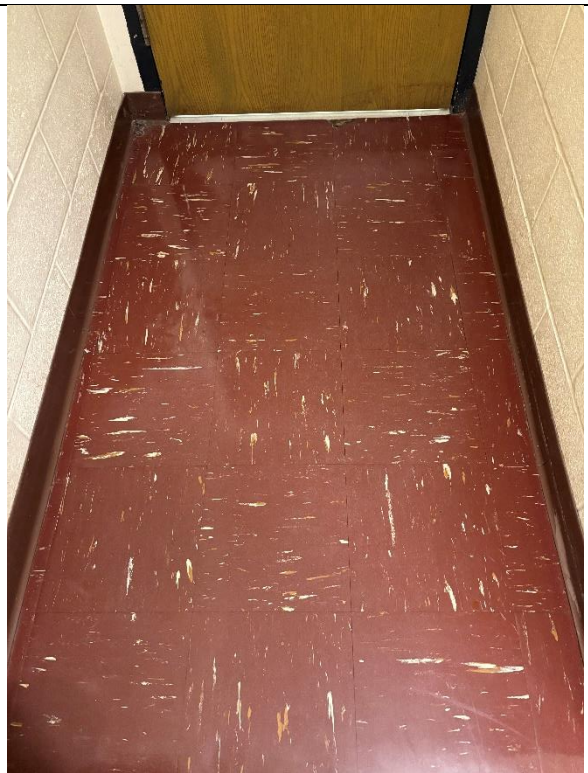
[Photo 10](#)

View of Lead-Glazed Porcelain Sinks in Room 225



[Photo 11](#)

View of Lead-Glazed Porcelain Toilet in Room 225



[Photo 12](#)

View of Brown Streaked Asbestos-Containing 12" Floor Tile & Associated Black Mastic in Room 216





Photo 13

View of Gray Asbestos-Containing Gasket Around the Blower Motor on Boiler #1 in Room 211



Photo 14

View of Black Asbestos-Containing Gasket on Boiler #2 Burner Gasket in Room 211



**APPENDIX E:**  
**LABORATORY ANALYTICAL**  
**REPORTS**



# Bulk Sample Asbestos Analytical Report

LABELLA ASSOCIATES, DPC  
ANALYTICAL LABORATORY  
300 STATE STREET  
ROCHESTER, NY 14614  
585.454.6110 FAX 585.454.3066

LBL ELAP # 11184  
All TEM analysis by AMA Lab, ELAP # 10920  
PLM Methods: 198.1, 198.4 & 198.6  
RSD: 18.3

LBL JOB # 1,01623

Page 1 of 3

Client Code:

CLIENT: Labella Associates  
ADDRESS: 300 State Street  
Rochester, NY 14614

Project Number: 2221581.01

Sample Type: PLM Bulk

Sample Date: 9/26/2023

PROJECT LOCATION: Quest Elementary

Field ID	LBL ID	Method	Asbestos Type	%	Other Fibers	%	Matrix	%	Color/Description
QE-1A	101623-1	G	ND		ND		MIN/BINDER	100	TAN/BLACK MASTIC
QE-1B	101623-2	G	ND		ND		MIN/BINDER	100	TAN/BLACK MASTIC
QE-2A	101623-3	T	ND		ND		MIN/BINDER	100	TAN MASTIC
QE-2B	101623-4	T	ND		ND		MIN/BINDER	100	TAN MASTIC
QE-3A	101623-5	T	ND		ND		MIN/BINDER	100	BROWN MASTIC
QE-3B	101623-6	T	ND		ND		MIN/BINDER	100	BROWN MASTIC
QE-4A	101623-7	P	ND		ND		MIN	100	WHITE GROUT
QE-4B	101623-8	P	ND		ND		MIN	100	WHITE GROUT
QE-5A	101623-9	P	ND		ND		MIN	100	GRAY CEMENT
QE-5B	101623-10	P	ND		ND		MIN	100	GRAY CEMENT
QE-6A	101623-11	P	ND		ND		MIN	100	WHITE JOINT COMPOUND
QE-6B	101623-12	P	ND		ND		MIN	100	WHITE JOINT COMPOUND
QE-6C	101623-13	P	ND		ND		MIN	100	WHITE JOINT COMPOUND
QE-6D	101623-14	P	ND		ND		MIN	100	WHITE JOINT COMPOUND
QE-6E	101623-15	P	ND		ND		MIN	100	WHITE JOINT COMPOUND
QE-6F	101623-16	P	ND		ND		MIN	100	WHITE JOINT COMPOUND
QE-6G	101623-17	P	ND		ND		MIN	100	WHITE JOINT COMPOUND
QE-7A	101623-18	T	ND		CELL/GLASS	100	ND		GRAY CEILING TILE
QE-7B	101623-19	T	ND		CELL/GLASS	100	ND		GRAY CEILING TILE
QE-8A	101623-20	T	ND		ND		MIN/BINDER	100	GRAY WINDOW/DOOR GLAZING COMP.
QE-8B	101623-21	T	ND		ND		MIN/BINDER	100	GRAY WINDOW/DOOR GLAZING COMP.

LAB DIRECTOR:

*Matthew Smith*

Date:

*10/3/23*

**Method Code:** P - Friable PLM result N - NOB PLM result T - TEM result IN\* - Inconclusive G - Gravimetric Matrix Reduction where sample residue weight is less than 1% of original sample weight, TEM not required.

**Terms:** ND\*\* - None Detected CELL - Cellulose JC - Joint Compound MIN - Mineral GLASS - Fiberglass <1\*\* - Trace PLAS - Plaster Vermiculite - Vermiculite is reported as an asbestos-containing mineral in accordance with NYSDOH determinations and requirements. See NYSDOH guidance, available upon request.

\* "Polarized-light microscopy (PLM) is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can be used to determine if this material can be considered to be non-asbestos containing."

\*\* Please note: Due to interference from sample matrix components results reported via PLM method ELAP 198.1 as negative (ND) or less than 1% (Trace) may be inaccurate and reported as a False Negative. It is recommended that additional analytical techniques such as gravimetric reduction, TEM and others be used to reduce obscuring effects of some matrix components yielding more accurate results.

# LaBella Lab Bulk Sample Asbestos Analytical Report

LBL JOB # 1,01623

Page 2 of 3

Client Code:

CLIENT: Labella Associates

Project Number: 2221581.01

PROJECT LOCATION: Quest Elementary

Field ID	LBL ID	Method	Asbestos Type	%	Other Fibers	%	Matrix	%	Color/Description
QE-9A	101623-22	N	CHRYSTILE	33	ND		MIN/BINDER	67	GRAY TRANSITE
QE-10A	101623-23	T	ND		ND		MIN/BINDER	100	WHITE MASTIC
QE-10B	101623-24	T	ND		ND		MIN/BINDER	100	WHITE MASTIC
QE-10C	101623-25	T	ND		ND		MIN/BINDER	100	WHITE MASTIC
QE-11A	101623-26	T	ND		ND		MIN/BINDER	100	TAN MASTIC
QE-11B	101623-27	T	ND		ND		MIN/BINDER	100	TAN MASTIC
QE-12A	101623-28	N	CHRYSTILE	21	ND		MIN/VINYL	79	GREEN FLOOR TILE
QE-13A	101623-29	G	ND		ND		MIN/BINDER	100	BLACK MASTIC
QE-13B	101623-30	G	ND		ND		MIN/BINDER	100	BLACK MASTIC
QE-14A	101623-31	P	ND		ND		MIN	100	GRAY DRYWALL
QE-14B	101623-32	P	ND		ND		MIN	100	GRAY DRYWALL
QE-15A	101623-33	P	ND		ND		MIN	100	WHITE JOINT COMPOUND
QE-16A	101623-34	T	ND		ND		MIN/BINDER	100	BLACK WINDOW/DOOR GLAZING COMP.
QE-16B	101623-35	T	ND		ND		MIN/BINDER	100	BLACK WINDOW/DOOR GLAZING COMP.
QE-17A	101623-36	N	CHRYSTILE	18	ND		MIN/VINYL	82	GRAY FLOOR TILE
QE-18A	101623-37	P	ND		ND		MIN	100	GRAY SINK COATING
QE-18B	101623-38	P	ND		ND		MIN	100	GRAY SINK COATING
QE-19A	101623-39	T	ND		ND		MIN/BINDER	100	TAN PUTTY
QE-19B	101623-40	T	ND		ND		MIN/BINDER	100	TAN PUTTY
QE-20A	101623-41	T	ND		ND		MIN/VINYL	100	WHITE FLOOR TILE
QE-20B	101623-42	T	ND		ND		MIN/VINYL	100	WHITE FLOOR TILE
QE-21A	101623-43	T	ND		ND		MIN/BINDER	100	TAN MASTIC
QE-21B	101623-44	T	ND		ND		MIN/BINDER	100	TAN MASTIC
QE-22A	101623-45	N	CHRYSTILE	16	ND		MIN/BINDER	84	BLACK DUCT SEALANT
QE-23A	101623-46	N	CHRYSTILE	5	ND		MIN/BINDER	95	GRAY WINDOW GLAZING COMPOUND
QE-24A	101623-47	P	ND		ND		MIN	100	WHITE PLASTER
QE-24B	101623-48	P	ND		ND		MIN	100	WHITE PLASTER
QE-25A	101623-49	P	ND		ND		MIN	100	GRAY PLASTER

LAB DIRECTOR:

*Matthew Smith*

Date:

*10/3/23*

**Method Code:** P - Friable PLM result N - NOB PLM result T - TEM result IN\* - Inconclusive G - Gravimetric Matrix Reduction where sample residue weight is less than 1% of original sample weight, TEM not required.

**Terms:** ND\*\* - None Detected CELL - Cellulose JC - Joint Compound MIN - Mineral GLASS - Fiberglass <1\*\* - Trace PLAS - Plaster Vermiculite - Vermiculite is reported as an asbestos-containing mineral in accordance with NYSDOH determinations and requirements. See NYSDOH guidance, available upon request.

\* "Polarized-light microscopy (PLM) is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can be used to determine if this material can be considered to be non-asbestos containing."

\*\* Please note: Due to interference from sample matrix components results reported via PLM method ELAP 198.1 as negative (ND) or less than 1% (Trace) may be inaccurate and reported as a False Negative. It is recommended that additional analytical techniques such as gravimetric reduction, TEM and others be used to reduce obscuring effects of some matrix components yielding more accurate results.



# LaBella Lab Bulk Sample Asbestos Analytical Report

LBL JOB # 1,01623

Page 3 of 4

Client Code:

CLIENT: Labella Associates

Project Number: 2221581.01

PROJECT LOCATION: Quest Elementary

Field ID	LBL ID	Method	Asbestos Type	%	Other Fibers	%	Matrix	%	Color/Description
QE-25B	101623-50	P	ND		ND		MIN	100	GRAY PLASTER
QE-26A	101623-51	T	ND		ND		MIN/BINDER	100	BLACK SINK COATING
QE-26B	101623-52	T	ND		ND		MIN/BINDER	100	BLACK SINK COATING
QE-27A	101623-53	T	ND		ND		MIN/BINDER	100	BLACK MASTIC
QE-27B	101623-54	T	ND		ND		MIN/BINDER	100	BLACK MASTIC
QE-28A	101623-55	T	ND		ND		MIN/BINDER	100	TAN MASTIC
QE-28B	101623-56	T	ND		ND		MIN/BINDER	100	TAN MASTIC
QE-29A	101623-57	P	ND		ND		MIN	100	GRAY GROUT
QE-29B	101623-58	P	ND		ND		MIN	100	GRAY GROUT
QE-30A	101623-59	N	CHRYSTILE	11	ND		MIN/BINDER	89	BLACK SINK COATING
QE-31A	101623-60	G	ND		ND		MIN/VINYL	100	WHITE FLOOR TILE
QE-31B	101623-61	G	ND		ND		MIN/VINYL	100	WHITE FLOOR TILE
QE-32A	101623-62	N	CHRYSTILE	17	ND		MIN/VINYL	83	BROWN FLOOR TILE
QE-33A	101623-63	P	ND		ND		MIN	100	GRAY GROUT
QE-33B	101623-64	P	ND		ND		MIN	100	GRAY GROUT
QE-34A	101623-65	P	ND		ND		MIN	100	TAN CEMENT
QE-34B	101623-66	P	ND		ND		MIN	100	TAN CEMENT
QE-15B	101623-67	P	ND		ND		MIN	100	WHITE JOINT COMPOUND
QE-24C	101623-68	P	ND		ND		MIN	100	WHITE PLASTER
QE-25C	101623-69	P	ND		ND		MIN	100	GRAY PLASTER
QE-35A	101623-70	T	ND		ND		MIN/BINDER	100	BLACK WINDOW GLAZING COMPOUND
QE-35B	101623-71	T	ND		ND		MIN/BINDER	100	BLACK WINDOW GLAZING COMPOUND
QE-36A	101623-72	T	ND		ND		MIN/BINDER	100	BLACK WINDOW GLAZING COMPOUND
QE-36B	101623-73	T	ND		ND		MIN/BINDER	100	BLACK WINDOW GLAZING COMPOUND
QE-37A	101623-74	T	ND		ND		MIN/BINDER	100	BROWN WINDOW CAULK
QE-37B	101623-75	T	ND		ND		MIN/BINDER	100	BROWN WINDOW CAULK
QE-38A	101623-76	T	ND		ND		MIN/BINDER	100	BLACK WINDOW CAULK
QE-38B	101623-77	T	ND		ND		MIN/BINDER	100	BLACK WINDOW CAULK

LAB DIRECTOR:

Matthew Smith

Date:

11/13/23

**Method Code:** P - Friable PLM result N - NOB PLM result T - TEM result IN\* - Inconclusive G - Gravimetric Matrix Reduction where sample residue weight is less than 1% of original sample weight, TEM not required.

**Terms:** ND\*\* - None Detected CELL - Cellulose JC - Joint Compound MIN - Mineral GLASS - Fiberglass <1\*\* - Trace PLAS - Plaster Vermiculite - Vermiculite is reported as an asbestos-containing mineral in accordance with NYSDOH determinations and requirements. See NYSDOH guidance, available upon request.

\* "Polarized-light microscopy (PLM) is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can be used to determine if this material can be considered to be non-asbestos containing."

\*\* Please note: Due to interference from sample matrix components results reported via PLM method ELAP 198.1 as negative (ND) or less than 1% (Trace) may be inaccurate and reported as a False Negative. It is recommended that additional analytical techniques such as gravimetric reduction, TEM and others be used to reduce obscuring effects of some matrix components yielding more accurate results.

# LaBella Lab Bulk Sample Asbestos Analytical Report

LBL JOB # 1,01623

Page 4 of 4

Client Code:

CLIENT: Labella Associates

Project Number: 2221581.01

PROJECT LOCATION: Quest Elementary

Field ID	LBL ID	Method	Asbestos Type	%	Other Fibers	%	Matrix	%	Color/Description
QE-39A	101623-78	N	CHRYSTOTILE	9	ND		MIN/BINDER	91	TAN WINDOW CAULK
QE-40A	101623-79	P	ND		CELL	25	MIN	75	GRAY SOFFIT PANEL
QE-40B	101623-80	P	ND		CELL	25	MIN	75	GRAY SOFFIT PANEL
QE-41A	101623-81	T	ND		ND		MIN/BINDER	100	TAN MASTIC
QE-41B	101623-82	T	ND		ND		MIN/BINDER	100	TAN MASTIC
QE-42A	101623-83	T	ND		ND		MIN/BINDER	100	BROWN MASTIC
QE-42B	101623-84	T	ND		ND		MIN/BINDER	100	BROWN MASTIC
QE-43A	101623-85	N	CHRYSTOTILE	19	ND		MIN/VINYL	81	BROWN FLOOR TILE
QE-44A	101623-86	T	ND		ND		MIN/BINDER	100	TAN MASTIC
QE-44B	101623-87	T	ND		ND		MIN/BINDER	100	TAN MASTIC
QE-45A	101623-88	N	CHRYSTOTILE	12	ND		TAR	88	BLACK MASTIC
QE-46A	101623-89	P	VERMICULITE	>10	CELL	15	MIN	<75	WHITE DOOR INSULATION
QE-46B	101623-90	P	VERMICULITE	>10	CELL	15	MIN	<75	WHITE DOOR INSULATION
QE-47A	101623-91	T	ND		ND		MIN/BINDER	100	WHITE MASTIC
QE-47B	101623-92	T	ND		ND		MIN/BINDER	100	WHITE MASTIC
QE-48A	101623-93	T	ND		SYNTHETIC	50	BINDER	50	GREEN GASKET
QE-48B	101623-94	T	ND		SYNTHETIC	50	BINDER	50	GREEN GASKET
QE-49A	101623-95	T	ND		GLASS	50	BINDER	50	TAN GASKET
QE-49B	101623-96	T	ND		GLASS	50	BINDER	50	TAN GASKET
QE-50A	101623-97	N	CHRYSTOTILE	57	ND		BINDER	43	GRAY GASKET
QE-51A	101623-98	N	CHRYSTOTILE	57	ND		BINDER	43	BLACK GASKET
QE-52A	101623-99	P	ND		GLASS	30	MIN	70	GRAY BOILER BREECHING
QE-52B	101623-100	P	ND		GLASS	30	MIN	70	GRAY BOILER BREECHING
QE-52A	101623-101	P	ND		GLASS	30	MIN	70	GRAY BOILER BREECHING
QE-53B	101623-102	P	ND		GLASS	25	MIN	75	GRAY TANK INSULATION
QE-53A	101623-103	P	ND		GLASS	25	MIN	75	GRAY TANK INSULATION
QE-53B	101623-104	P	ND		GLASS	25	MIN	75	GRAY TANK INSULATION

LAB DIRECTOR:

*Matthew Smith*

Date:

*4/29/24*

**Method Code:** P - Friable PLM result N - NOB PLM result T - TEM result IN\* - Inconclusive G - Gravimetric Matrix Reduction where sample residue weight is less than 1% of original sample weight, TEM not required.

**Terms:** ND\*\* - None Detected CELL - Cellulose JC - Joint Compound MIN - Mineral GLASS - Fiberglass <1\*\* - Trace PLAS - Plaster Vermiculite - Vermiculite is reported as an asbestos-containing mineral in accordance with NYSDOH determinations and requirements. See NYSDOH guidance, available upon request.

\* "Polarized-light microscopy (PLM) is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can be used to determine if this material can be considered to be non-asbestos containing."

\*\* Please note: Due to interference from sample matrix components results reported via PLM method ELAP 198.1 as negative (ND) or less than 1% (Trace) may be inaccurate and reported as a False Negative. It is recommended that additional analytical techniques such as gravimetric reduction, TEM and others be used to reduce obscuring effects of some matrix components yielding more accurate results.

**ASBESTOS SAMPLING SURVEY  
BULK SAMPLE LOG  
AND CHAIN OF CUSTODY**

Location: Quest Elementary

Client: Hilton CSD

Job No.: 2221581.01

Rates: 12/20/35

Date: 9/26/2023

Relinquished by: Chris Enright

Sampled By: Chris Enright

Received by: Matt Smith

LaBella Lab No.: 101623

Number of Samples: \_\_\_\_\_

STOP Positive: YES NO

	Field ID #	Sample Location	Type of Suspect ACM to be Analyzed	Approx. Amount
G 1	QE-1A	Room 239, Floor Under Carpet	Tan/Black Carpet mastic	
G 2	QE-1B	Room 231, Floor Under Carpet	Tan/Black Carpet mastic	
T 3	QE-2A	Room 239, Wall Base	Tan Cove Molding	
T 4	QE-2B	Room 237, Wall Base	Mastic Tan Cove Molding	
T 5	QE-3A	Room 239, Wall Base	Mastic	
T 6	QE-3B	Room 237, Wall Base	Brown Cove Molding Mastic	
P 7	QE-4A	Room 239, Wall 4 Feet Up	Brown Cove Molding	
P 8	QE-4B	Room 219, Wall 4 Feet Up	Mastic	
P 9	QE-5A	Room 239, Wall 4 Feet Up	White Grout	
P 10	QE-5B	Room 219, Wall 4 Feet Up	White Grout	
P 11	QE-6A	Room 239, Column	Gray Ceramic Tile	
P 12	QE-6B	Room 238A, Column	Cement	
P 13	QE-6C	Room 220, Column	Gray Ceramic Tile	
P 14	QE-6D	Room 231, Column	Cement	
P 15	QE-6E	Room 229, Column	White Joint Compound	
P 16	QE-6F	Room 226, Column	White Joint Compound	
P 17	QE-6G	Room 227, Column	White Joint Compound	
T 18	QE-7A	Room 239, Ceiling	White Joint Compound	
T 19	QE-7B	Room 237, Ceiling	Gray 2'x4' Suspended Ceiling Tile (Pin/Fis)	
T 20	QE-8A	Room 239, Around Glass Windowpane Of Door	Gray 2'x4' Suspended Ceiling Tile	
T 21	QE-8B	Room 220, Around Glass Windowpane Of Door	Gray Window/Door Glazing Compound	

**ASBESTOS SAMPLING SURVEY  
BULK SAMPLE LOG  
AND CHAIN OF CUSTODY**

Location: Quest Elementary

Client: Hilton CSD

Job No.: 2221581.01

Rates: 12/20/35

Date: 9/26/2023

Relinquished by: Chris Enright

Sampled By: Chris Enright

Received by: Matt Smith

LaBella Lab No.: 101623

Number of Samples: \_\_\_\_\_

STOP Positive: YES NO

Field ID #	Sample Location	Type of Suspect ACM to be Analyzed	Approx. Amount
+N 22 V QE-9A	Room 239, Along Wall By Windows	Gray Transite Panel	
QE-9B	Room 220, Along Wall By Windows	Gray Transite Panel	
T 23 QE-10A	Room 239, Seams of Deck	White Mastic	
T 24 QE-10B	Room 237, Seams of Deck		
T 25 QE-10C	Room 228, Seams of Deck	White Mastic	
T 26 QE-11A	Room 238, Floor Under Carpet	Tan Carpet Mastic	
T 27 QE-11B	Room 219, Floor Under Carpet	Tan Carpet Mastic	
+N 28 V QE-12A	Room 238, Floor Under Carpet	Green 9" Floor Tile	
QE-12B	Room 219, Floor Under Carpet	Green 9" Floor Tile	
G 29 QE-13A	Room 238, Floor Under Carpet	Black Floor Tile Mastic	
G 30 QE-13B	Room 238A, Floor Under Carpet	Black Floor Tile Mastic	
P 31 QE-14A	Room 238, Wall	Gray Drywall	
P 32 QE-14B	Room 220, Wall	Gray Drywall	
P 33 QE-15A	Room 238, Wall	White Joint Compound	
T 34 QE-16A	Room 238, Around Glass Windowpane Of Door	Black Window/Door Glazing Compound	
T 35 QE-16B	Room 238, Around Glass Windowpane Of Door	Glazing Compound	
+N 36 QE-17A	Room 238A, Floor Under Carpet	Gray 9" Floor Tile	

**ASBESTOS SAMPLING SURVEY  
BULK SAMPLE LOG  
AND CHAIN OF CUSTODY**

Location: Quest Elementary

Client: Hilton CSD

Job No.: 2221581.01

Rates: 12/20/35

Date: 9/26/2023

Relinquished by: Chris Enright

Sampled By: Chris Enright

Received by: Matt Smith

LaBella Lab No.: 101623

Number of Samples: \_\_\_\_\_

STOP Positive: YES NO

	Field ID #	Sample Location	Type of Suspect ACM to be Analyzed	Approx. Amount
P 37	QE-18A	Room 237, Under Sink	Gray Sink Coating	
P 38	QE-18B	Room 220, Under Sink	Gray Sink Coating	
T 39	QE-19A	Room 237, Under Sink	Tan Putty	
T 40	QE-19B	Room 220, Under Sink	Tan Putty	
T 41	QE-20A	Room 237, Floor	White Mottled 12" Floor Tile	
T 42	QE-20B	Room 220, Floor	White Mottled 12" Floor Tile	
T 43	QE-21A	Room 237, Floor	Tan Floor Tile Mastic	
T 44	QE-21B	Room 220, Floor	Tan Floor Tile Mastic	
+N 45	QE-22A	Room 219, On Ductwork Flex Connect	Black Duct Sealant	
V	QE-22B	Room 220, On Ductwork Flex Connect	Black Duct Sealant	
+N 46	QE-23A	Corridor 2, Around Glass Pane of Transom Window	Gray Window Glazing Compound	
V	QE-23B	Corridor 2, Around Glass Pane of Transom Window	Gray Window Glazing Compound	
P 47	QE-24A	Room 225, Wall	White Plaster	
P 48	QE-24B	Room 233, Wall	White Plaster	
P 49	QE-25A	Room 225, Wall	Gray Plaster	
P 50	QE-25B	Room 233, Wall	Gray Plaster	
T 51	QE-26A	Room 236, Under Sink	Black Sink Coating	
T 52	QE-26B	Room 234, Under Sink	Black Sink Coating	
T 53	QE-27A	Room 222, On Back of Wall	Black Wall Mastic	
T 54	QE-27B	Room 222, On Back of Wall	Black Wall Mastic	

**ASBESTOS SAMPLING SURVEY  
BULK SAMPLE LOG  
AND CHAIN OF CUSTODY**

Location: Quest Elementary

Client: Hilton CSD

Job No.: 2221581.01

Rates: 12/20/35

Date: 9/26/2023

Relinquished by: Chris Enright

Sampled By: Chris Enright

Received by: Matt Smith

LaBella Lab No.: 101623

Number of Samples: \_\_\_\_\_

STOP Positive: YES NO

Field ID #	Sample Location	Type of Suspect ACM to be Analyzed	Approx. Amount
T 55 QE-28A	Room 222, Wall Base	Tan Ceramic Tile mastic	
T 56 QE-28B	Room 223, Wall Base	Tan Ceramic Tile mastic	
P 57 QE-29A	Room 223, Wall Base	Gray Grout	
P 58 QE-29B	Room 223, Wall Base	Gray Grout	
+N 59 QE-30A	Room 228, Under Sink	Black Sink Coating	
V QE-30B	Room 227, Under Sink	Black Sink Coating	
G 60 QE-31A	Room 227, Floor Under Carpet	White 12" Floor Tile (Sticky)	
G 61 QE-31B	Room 227, Floor Under Carpet	White 12" Floor Tile	
+N 62 QE-32A	Room 227, Floor Under Carpet	Brown 9" Floor Tile	
P 63 QE-33A	Room 225, Floor	Gray Grout	
P 64 QE-33B	Room 225, Floor	Gray Grout	
P 65 QE-34A	Room 225, Floor	Tan Ceramic Tile Cement	
P 66 QE-34B	Room 225, Floor	Tan Ceramic Tile Cement	

**ASBESTOS SAMPLING SURVEY  
BULK SAMPLE LOG  
AND CHAIN OF CUSTODY**

Location: Quest Elementary School Client: Hilton CSD  
 Job No.: 2221581.01 Rates: 12/20/35  
 Date: 11/9/2023 Relinquished by: Chris Enright  
 Sampled By: Chris Enright Received by: Matt Smith  
 LaBella Lab No.: 101623 Number of Samples: \_\_\_\_\_  
 STOP Positive: YES NO

Field ID #	Sample Location	Type of Suspect ACM to be Analyzed	Approx. Amount
T70 QE-35A	Exterior, Around Glass Panes of Windows 1 <sup>st</sup> Layer (Northpole Wing)	Black Window Glazing Compound	
T71 QE-35B	Exterior, Around Glass Panes of Windows 1 <sup>st</sup> Layer (Northpole Wing)	Black Window Glazing Compound	
T72 QE-36A	Exterior, Around Glass Panes of Windows 2 <sup>nd</sup> Layer (Northpole Wing)	Black Window Glazing Compound	
T73 QE-36B	Exterior, Around Glass Panes of Windows 2 <sup>nd</sup> Layer (Northpole Wing)	Black Window Glazing Compound	
T74 QE-37A	Exterior, Around Window Frames 1 <sup>st</sup> Layer (NE Side)	Brown Window Caulk	
T75 QE-37B	Exterior, Around Window Frames 1 <sup>st</sup> Layer (NE Side)	Brown Window Caulk	
T76 QE-38A	Exterior, Around Window Frames 1 <sup>st</sup> Layer (NW Side)	Black Window Caulk	
T77 QE-38B	Exterior, Around Window Frames 1 <sup>st</sup> Layer (S Side)	Black Window Caulk	
+N78 QE-39A	Exterior, Around Window Frames 2 <sup>nd</sup> Layer (NE Side, Residual)	Tan Window Caulk	
V QE-39B	Exterior, Around Window Frames 2 <sup>nd</sup> Layer (NW Side, Residual)	Tan Window Caulk	
P79 QE-40A	Exterior, Soffit Above Windows (Northpole Wing)	Gray Soffit Panel	
cP 80 QE-40B	Exterior, Soffit Above Windows (Northpole Wing)	Gray Soffit Panel	

**ASBESTOS SAMPLING SURVEY  
BULK SAMPLE LOG  
AND CHAIN OF CUSTODY**

Location: Quest Elementary

Client: Hilton CSD

Job No.: 2221581.02

Rates: 10/20/32

Date: 4/15/2024 4/25/2024

Relinquished by: Chris Enright

Sampled By: Chris Enright

Received by: Matt Smith

LaBella Lab No.: 101623

Number of Samples: \_\_\_\_\_

STOP Positive: YES NO

T  
T  
T  
T  
+N  
V  
T  
T  
+N  
V  
VP  
VP

Field ID #	Sample Location	Type of Suspect ACM to be Analyzed	Approx. Amount
81	QE-41A	Room 215, Wall Base	Tan Cove Molding
			Mastic
82	QE-41B	Room 216, Wall Base	Tan Cove Molding
			Mastic
83	QE-42A	Room 215, Wall Base	Brown Cove Molding
			Mastic
84	QE-42B	Room 216, Wall Base	Brown Cove Molding
			Mastic
85	QE-43A	Room 215, Floor	Brown Streaked 12"
			Floor Tile
V	QE-43B	Room 216, Floor	Brown Streaked 12"
			Floor Tile
86	QE-44A	Room 215, Floor	Tan Floor Tile Mastic
87	QE-44B	Room 216, Floor	Tan Floor Tile Mastic
88	QE-45A	Room 216, Floor	Black Floor Tile Mastic
V	QE-45B	Room 216, Floor	Black Floor Tile Mastic
89	QE-46A	Corridor 2, Inside Wood Door	White Door Insulation
90	QE-46B	Corridor 2, Inside Wood Door	White Door Insulation



**ASBESTOS SAMPLING SURVEY  
BULK SAMPLE LOG  
AND CHAIN OF CUSTODY**

Location: Quest Elementary

Client: Hilton CSD

Job No.: 2221581.02

Rates: 10/20/32

Date: 4/15/2024 4/25/2024

Relinquished by: Chris Enright

Sampled By: Chris Enright

Received by: Matt Smith

LaBella Lab No.: 101623

Number of Samples: \_\_\_\_\_

STOP Positive: YES NO

	Field ID #	Sample Location	Type of Suspect ACM to be Analyzed	Approx. Amount
T 91	QE-47A	Room 211, Ends of Fiberglass Lines Off Boiler	White Mastic	
T 92	QE-47B	Room 211, Ends of Fiberglass Lines Off Boiler	White Mastic	
S T 93	QE-48A	Room 211, Between Flange of Pipe Off Boiler	Green Gasket	
T 94	QE-48B	Room 211, Between Flange of Pipe Off Boiler	Green Gasket	
g T 95	QE-49A	Room 211, Between Door of Boiler #1	Tan Gasket	
T 96	QE-49B	Room 211, Between Door of Boiler #2	Tan Gasket	
+ N 97	QE-50A	Room 211, Around Blower Motor of Boiler #1	Gray Gasket	
V	QE-50B	Room 211, Around Blower Motor of Boiler #2	Gray Gasket	
+ N 98	QE-51A	Room 211, Boiler #1 Burner Gasket	Black Gasket	
V	QE-51B	Room 211, Boiler #2 Burner Gasket	Black Gasket	
g P 99	QE-52A	Room 211, Exhaust Off Boilers	Gray Boiler Breeching	
P 100	QE-52B	Room 211, Exhaust Off Boilers	Gray Boiler Breeching	
P 101	QE-52C	Room 211, Exhaust Off Boilers	Gray Boiler Breeching	
P 102	QE-53A	Room 211, End Caps of Suspended tank	Gray Tank Insulation	
P 103	QE-53B	Room 211, End Caps of Suspended tank	Gray Tank Insulation	
P 104	QE-53C	Room 211, End Caps of Suspended tank	Gray Tank Insulation	

**XRF Lead Sampling Summary Table**  
**Quest Elementary School**  
**225 West Avenue**  
**Hilton, New York 14468**  
**LaBella Project No. 2221581.01**

Reading No.	Location (Room)	Wall (A, B, C D) & Structure	Substrate	Color	XRF Result
1	Calibration Check	----	----	----	PASS
2	Calibration Check	----	----	----	PASS
3	Calibration Check	----	----	----	PASS
4	Calibration Check	----	----	----	PASS
5	Calibration Check	----	----	----	PASS
6	Calibration Check	----	----	----	PASS
7	Room 223	B	CMU	Orange	0.0
8	Room 223	B, Wall Base	Ceramic	Brown	0.0
9	Room 223	D, Backsplash	Ceramic	Pink	0.0
10	Room 223	Floor	Ceramic	Ten	0.0
<b>11</b>	<b>Room 223</b>	<b>Floor</b>	<b>Glazed Block</b>	<b>Green</b>	<b>2.5+ I</b>
12	Room 223	D, Sink	Porcelain	White	0.0
13	Room 224	B	CMU	White	0.0
14	Room 224	B, Wall Base	Ceramic	Brown	0.0
15	Room 225	A, Heater Cover	Metal	Tan	0.0
<b>16</b>	<b>Room 225</b>	<b>A, Sink 5</b>	<b>Porcelain</b>	<b>White</b>	<b>9.5+ I</b>
17	Room 225	C, Urinal 3	Porcelain	White	0.0
<b>18</b>	<b>Room 225</b>	<b>C, Toilet 2</b>	<b>Porcelain</b>	<b>White</b>	<b>2.0+ I</b>
19	Room 226	A, Upper	Wood	Yellow	0.1
20	Room 226	A, Lower	Ceramic	Pink	0.0
21	Room 227	A, Column	Drywall	Cream	0.0
22	Room 227	A, Upper	Wood	Cream	0.2
23	Room 229	A	Drywall	Cream	0.1
24	Room 229	D, Upper	Brick	Cream	0.0

I = Intact Condition. No visible damage or deterioration

P = Poor Condition. Paint is chipped, peeling, or otherwise damaged

**XRF Lead Sampling Summary Table**  
**Quest Elementary School**  
**225 West Avenue**  
**Hilton, New York 14468**  
**LaBella Project No. 2221581.01**

Reading No.	Location (Room)	Wall (A, B, C D) & Structure	Substrate	Color	XRF Result
25	Room 229	D, Lower	Ceramic	Pink	0.0
26	Room 229	C, Wall Base	Vinyl	Black	0.3
27	Room 229	D, Door Case	Metal	Blue	0.7
28	Room 229	D, Door	Wood	Blue	0.1
29	Room 234	B, Lower	Ceramic	Pink	0.0
30	Room 238	C, Heater Cover	Metal	Tan	0.0
31	Room 239	A, Door Case	Metal	Blue	0.5
32	Room 239	A, Door	Wood	Blue	0.0
33	Room 239	B, Lower	Ceramic	Pink	0.0
34	Room 239	C, Heater Cover	Metal	Tan	0.1
<b>35</b>	<b>Corridor 1</b>	<b>Horizontal I-Beam</b>	<b>Metal</b>	<b>Orange</b>	<b>22.0+ I</b>
36	Corridor 1	Ceiling Joist	Metal	Black	0.1
<b>37</b>	<b>Corridor 1</b>	<b>B</b>	<b>Glazed Block</b>	<b>Green</b>	<b>2.5+ I</b>
38	Corridor 1	B, Above Lockers	Plaster	Yellow	0.0
39	Corridor 1	B, Lockers	Metal	Blue	0.0
40	Corridor 1	D, Door Case	Metal	Blue	0.6
41	Corridor 1	D, Door	Wood	Blue	0.0
42	Corridor 2	C, Lockers	Metal	Blue	0.1
43	Corridor 2	C, Above Lockers	Plaster	Yellow	0.0
<b>44</b>	<b>Corridor 2</b>	<b>C</b>	<b>Glazed Block</b>	<b>Green</b>	<b>2.8+ I</b>
45	Corridor 2	Ceiling	Plaster	White	0.0
46	Calibration Check	----	----	----	PASS
47	Calibration Check	----	----	----	PASS
48	Calibration Check	----	----	----	PASS

I = Intact Condition. No visible damage or deterioration

P = Poor Condition. Paint is chipped, peeling, or otherwise damaged

**XRF Lead Sampling Summary Table**  
**Quest Elementary School**  
**225 West Avenue**  
**Hilton, New York 14468**  
**LaBella Project No. 2221581.01**

Reading No.	Location (Room)	Wall (A, B, C D) & Structure	Substrate	Color	XRF Result
49	Calibration Check	-----	-----	-----	PASS
50	Calibration Check	-----	-----	-----	PASS
51	Calibration Check	-----	-----	-----	PASS

I = Intact Condition. No visible damage or deterioration

P = Poor Condition. Paint is chipped, peeling, or otherwise damaged



## Analysis Report

# Schneider Laboratories Global, Inc

2512 W. Cary Street • Richmond, Virginia • 23220-5117  
804-353-6778 • 800-785-LABS (5227) • Fax 804-359-1475

**Customer:** Labella Associates (1126)  
**Address:** 300 State Street  
Rochester, NY 14614-1098

**Order #:** 535510

**Matrix** Bulk  
**Received** 10/11/23  
**Reported** 10/18/23

**Attn:**

**Project:** RBM Inspection Quest  
**Location:** 225 West Ave Hilton NY 14468  
**Number:** 2221581.01

**PO Number:**

Sample ID	Cust. Sample ID	Location	Result	RL*	Units	Analysis Date	Analyst
Parameter		Method					
535510-001	G-23						
<b>Semi-volatile Organic Compounds</b>							
Aroclor - 1016		SW846 8082A	<497	497	µg/kg	10/11/23	NM
Aroclor - 1221		SW846 8082A	<497	497	µg/kg	10/11/23	NM
Aroclor - 1232		SW846 8082A	<497	497	µg/kg	10/11/23	NM
Aroclor - 1242		SW846 8082A	<497	497	µg/kg	10/11/23	NM
Aroclor - 1248		SW846 8082A	<497	497	µg/kg	10/11/23	NM
Aroclor - 1254		SW846 8082A	<497	497	µg/kg	10/11/23	NM
Aroclor - 1260		SW846 8082A	<497	497	µg/kg	10/11/23	NM
Aroclor - 1262		SW846 8082A	<497	497	µg/kg	10/11/23	NM
Aroclor - 1268		SW846 8082A	<497	497	µg/kg	10/11/23	NM

535510-10/18/23 03:49 PM

*Kelly Muncy*

Reviewed By: **Kelly Muncy**  
Manager

### Surrogate Recoveries

**535510-001 - PCB**

DCB 134%  
TCMX 107%

All internal QC parameters were met. Unusual sample conditions, if any, are described. Surrogate Spike results designated with "D" indicate that the analyte was diluted out. "MI" indicates matrix interference. Concentration and \*Reporting Limit (RL) based on areas provided by client. Values are reported to three significant figures. Solid PPM = mg/kg | PPB = µg/kg and Water PPM = mg/L | PPB = µg/L. The test results apply to the sample as received.



## Analysis Report

# Schneider Laboratories Global, Inc

2512 W. Cary Street • Richmond, Virginia • 23220-5117  
804-353-6778 • 800-785-LABS (5227) • Fax 804-359-1475

**Customer:** Labella Associates (1126)  
**Address:** 300 State Street  
Rochester, NY 14614-1098

**Order #:** 535510

**Matrix** Bulk  
**Received** 10/11/23  
**Reported** 10/18/23

**Attn:**

**Project:** RBM Inspection Quest  
**Location:** 225 West Ave Hilton NY 14468  
**Number:** 2221581.01

**PO Number:**

Sample ID	Cust. Sample ID	Location	Result	RL*	Units	Analysis Date	Analyst
Parameter		Method					

### State Certifications

Method	Parameter	New York	Virginia
SW846 8082A	Aroclor - 1016	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1221	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1232	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1242	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1248	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1254	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1260	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1262	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1268	ELAP Certified	VELAP Certified

State	Certificate Number
New York	ELAP 66375
Virginia	VELAP 12299

All internal QC parameters were met. Unusual sample conditions, if any, are described. Surrogate Spike results designated with "D" indicate that the analyte was diluted out. "MI" indicates matrix interference. Concentration and \*Reporting Limit (RL) based on areas provided by client. Values are reported to three significant figures. Solid PPM = mg/kg | PPB = µg/kg and Water PPM = mg/L | PPB = µg/L. The test results apply to the sample as received.



## Analysis Report

# Schneider Laboratories Global, Inc

2512 W. Cary Street • Richmond, Virginia • 23220-5117  
804-353-6778 • 800-785-LABS (5227) • Fax 804-359-1475

**Customer:** Labella Associates (1126)  
**Address:** 300 State Street  
Rochester, NY 14614-1098

**Order #:** 539923

**Matrix** Bulk  
**Received** 11/14/23  
**Reported** 11/17/23

**Attn:**

**Project:** RBM Insp-Quest Elem School  
**Location:** 225 W Ave Hilton, NY 14468  
**Number:** 2221581.01

**PO Number:**

Sample ID	Cust. Sample ID	Location	Result	RL*	Units	Analysis Date	Analyst
Parameter		Method					
539923-001	G-35						
<b>Semi-volatile Organic Compounds</b>							
Aroclor - 1016		SW846 8082A	<477	477	µg/kg	11/15/23	NM
Aroclor - 1221		SW846 8082A	<477	477	µg/kg	11/15/23	NM
Aroclor - 1232		SW846 8082A	<477	477	µg/kg	11/15/23	NM
Aroclor - 1242		SW846 8082A	<477	477	µg/kg	11/15/23	NM
Aroclor - 1248		SW846 8082A	<477	477	µg/kg	11/15/23	NM
Aroclor - 1254		SW846 8082A	<477	477	µg/kg	11/15/23	NM
Aroclor - 1260		SW846 8082A	<477	477	µg/kg	11/15/23	NM
Aroclor - 1262		SW846 8082A	<477	477	µg/kg	11/15/23	NM
Aroclor - 1268		SW846 8082A	<477	477	µg/kg	11/15/23	NM
539923-002	C-37						
<b>Semi-volatile Organic Compounds</b>							
Aroclor - 1016		SW846 8082A	<457	457	µg/kg	11/15/23	NM
Aroclor - 1221		SW846 8082A	<457	457	µg/kg	11/15/23	NM
Aroclor - 1232		SW846 8082A	<457	457	µg/kg	11/15/23	NM
Aroclor - 1242		SW846 8082A	<457	457	µg/kg	11/15/23	NM
Aroclor - 1248		SW846 8082A	<457	457	µg/kg	11/15/23	NM
Aroclor - 1254		SW846 8082A	<457	457	µg/kg	11/15/23	NM
Aroclor - 1260		SW846 8082A	<457	457	µg/kg	11/15/23	NM
Aroclor - 1262		SW846 8082A	<457	457	µg/kg	11/15/23	NM
Aroclor - 1268		SW846 8082A	<457	457	µg/kg	11/15/23	NM
539923-003	C-38						
<b>Semi-volatile Organic Compounds</b>							
Aroclor - 1016		SW846 8082A	<457	457	µg/kg	11/15/23	NM
Aroclor - 1221		SW846 8082A	<457	457	µg/kg	11/15/23	NM
Aroclor - 1232		SW846 8082A	<457	457	µg/kg	11/15/23	NM
Aroclor - 1242		SW846 8082A	<457	457	µg/kg	11/15/23	NM
Aroclor - 1248		SW846 8082A	<457	457	µg/kg	11/15/23	NM
Aroclor - 1254		SW846 8082A	<457	457	µg/kg	11/15/23	NM

All internal QC parameters were met. Unusual sample conditions, if any, are described. Surrogate Spike results designated with "D" indicate that the analyte was diluted out. "MI" indicates matrix interference. Concentration and \*Reporting Limit (RL) based on areas provided by client. Values are reported to three significant figures. Solid PPM = mg/kg | PPB = µg/kg and Water PPM = mg/L | PPB = µg/L. The test results apply to the sample as received.



## Analysis Report

# Schneider Laboratories Global, Inc

2512 W. Cary Street • Richmond, Virginia • 23220-5117  
804-353-6778 • 800-785-LABS (5227) • Fax 804-359-1475

**Customer:** Labella Associates (1126)  
**Address:** 300 State Street  
Rochester, NY 14614-1098

**Order #:** 539923

**Matrix** Bulk  
**Received** 11/14/23  
**Reported** 11/17/23

**Attn:**

**Project:** RBM Insp-Quest Elem School  
**Location:** 225 W Ave Hilton, NY 14468  
**Number:** 2221581.01

**PO Number:**

Sample ID	Cust. Sample ID	Location	Result	RL*	Units	Analysis Date	Analyst
Parameter		Method					
539923-003	C-38						
Aroclor - 1260		SW846 8082A	<457	457	µg/kg	11/15/23	NM
Aroclor - 1262		SW846 8082A	<457	457	µg/kg	11/15/23	NM
Aroclor - 1268		SW846 8082A	<457	457	µg/kg	11/15/23	NM

539923-11/17/23 05:01 PM

*Kelly Muncy*

Reviewed By: **Kelly Muncy**  
Manager

### Surrogate Recoveries

**539923-001 - PCB**

DCB 89%  
TCMX MI

**539923-002 - PCB**

DCB 110%  
TCMX MI

**539923-003 - PCB**

DCB 72%  
TCMX MI

All internal QC parameters were met. Unusual sample conditions, if any, are described. Surrogate Spike results designated with "D" indicate that the analyte was diluted out. "MI" indicates matrix interference. Concentration and \*Reporting Limit (RL) based on areas provided by client. Values are reported to three significant figures. Solid PPM = mg/kg | PPB = µg/kg and Water PPM = mg/L | PPB = µg/L. The test results apply to the sample as received.





## Analysis Report

# Schneider Laboratories Global, Inc

2512 W. Cary Street • Richmond, Virginia • 23220-5117  
804-353-6778 • 800-785-LABS (5227) • Fax 804-359-1475

**Customer:** Labella Associates (1126)  
**Address:** 300 State Street  
Rochester, NY 14614-1098

**Order #:** 539923

**Matrix** Bulk  
**Received** 11/14/23  
**Reported** 11/17/23

**Attn:**

**Project:** RBM Insp-Quest Elem School  
**Location:** 225 W Ave Hilton, NY 14468  
**Number:** 2221581.01

**PO Number:**

Sample ID	Cust. Sample ID	Location	Result	RL*	Units	Analysis Date	Analyst
Parameter		Method					

### State Certifications

Method	Parameter	New York	Virginia
SW846 8082A	Aroclor - 1016	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1221	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1232	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1242	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1248	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1254	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1260	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1262	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1268	ELAP Certified	VELAP Certified

State	Certificate Number
New York	ELAP 66375
Virginia	VELAP 12664

All internal QC parameters were met. Unusual sample conditions, if any, are described. Surrogate Spike results designated with "D" indicate that the analyte was diluted out. "MI" indicates matrix interference. Concentration and \*Reporting Limit (RL) based on areas provided by client. Values are reported to three significant figures. Solid PPM = mg/kg | PPB = µg/kg and Water PPM = mg/L | PPB = µg/L. The test results apply to the sample as received.









## **APPENDIX F:**

# **LICENSES AND CERTIFICATIONS**

**WE ARE YOUR DOL**



DIVISION OF SAFETY & HEALTH LICENSE AND CERTIFICATE UNIT, STATE OFFICE CAMPUS, BLDG. 12, ALBANY, NY 12226

# ASBESTOS HANDLING LICENSE

LaBella Associates, D.P.C.  
300 State Street, Suite 201, Rochester, NY, 14614

License Number: 29278

License Class: RESTRICTED

Date of Issue: 03/25/2024

Expiration Date: 03/31/2025

Duly Authorized Representative: Greg Senecal

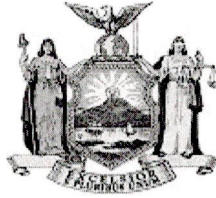
This license has been issued in accordance with applicable provisions of Article 30 of the Labor Law of New York State and of the New York State Codes, Rules and Regulations (12 NYCRR Part 56). It is subject to suspension or revocation for a (1) serious violation of state, federal or local laws with regard to the conduct of an asbestos project, or (2) demonstrated lack of responsibility in the conduct of any job involving asbestos or asbestos material.

This license is valid only for the contractor named above and this license or a photocopy must be prominently displayed at the asbestos project worksite. This license verifies that all persons employed by the licensee on an asbestos project in New York State have been issued an Asbestos Certificate, appropriate for the type of work they perform, by the New York State Department of Labor.

Amy Phillips, Director  
For the Commissioner of Labor

EXCELSIOR

NEW YORK STATE DEPARTMENT OF HEALTH  
WADSWORTH CENTER



Expires 12:01 AM April 01, 2025  
Issued April 01, 2024

**CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE**

*Issued in accordance with and pursuant to section 502 Public Health Law of New York State*

MR. MATTHEW SMITH  
LABELLA ASSOCIATES  
300 STATE STREET SUITE 200  
ROCHESTER, NY 14614

NY Lab Id No: 11184

*is hereby APPROVED as an Environmental Laboratory for the category  
ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE  
All approved subcategories and/or analytes are listed below:*

**Miscellaneous**

Asbestos in Friable Material	Item 198.1 of Manual
Asbestos in Non-Friable Material-PLM	Item 198.6 of Manual (NOB by PLM)

Serial No.: 68695

Property of the New York State Department of Health. Certificates are valid only at the address shown and must be conspicuously posted by the laboratory. Continued accreditation depends on the laboratory's successful ongoing participation in the Program. Consumers may verify a laboratory's accreditation status online at <https://apps.health.ny.gov/pubdoh/applinks/wc/elappublicweb/>, by phone (518) 485-5570 or by email to [elap@health.ny.gov](mailto:elap@health.ny.gov).

NEW YORK STATE DEPARTMENT OF HEALTH  
WADSWORTH CENTER



Expires 12:01 AM April 01, 2024  
Issued April 01, 2022  
Revised March 30, 2023

**CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE**

*Issued in accordance with and pursuant to section 502 Public Health Law of New York State*

**MICHAEL GREENBERG**  
**AMA ANALYTICAL SERVICES INC**  
**4475 FORBES BLVD**  
**LANHAM, MD 20706**

*NY Lab Id No: 10920*

*is hereby APPROVED as an Environmental Laboratory for the category*  
**ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE**  
*All approved subcategories and/or analytes are listed below:*

**Metals I**

Lead, Total EPA 7000B

**Miscellaneous**

Asbestos in Friable Material Item 198.1 of Manual  
EPA 600/M4/82/020  
Asbestos in Non-Friable Material-PLM Item 198.6 of Manual (NOB by PLM)  
Asbestos in Non-Friable Material-TEM Item 198.4 of Manual  
Lead in Dust Wipes EPA 7000B  
Lead in Paint EPA 7000B

**Sample Preparation Methods**

ASTM E-1979-17

**Serial No.: 66247**

Property of the New York State Department of Health. Certificates are valid only at the address shown and must be conspicuously posted by the laboratory. Continued accreditation depends on the laboratory's successful ongoing participation in the Program. Consumers may verify a laboratory's accreditation status online at <https://apps.health.ny.gov/pubdoh/applinks/wc/elappublicweb/>, by phone (518) 485-5570 or by email to [elap@health.ny.gov](mailto:elap@health.ny.gov).



# United States Environmental Protection Agency

This is to certify that

LaBella Associates, D.P.C.

has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402, and has received certification to conduct lead-based paint activities pursuant to 40 CFR Part 745.226

In the Jurisdiction of:

All EPA Administered Lead-based Paint Activities Program States, Tribes and Territories

This certification is valid from the date of issuance and expires September 26, 2024

LBP-2226-2

Certification #

August 24, 2021

Issued On



A handwritten signature in black ink, reading "Michelle Price", is positioned above the official title of the signatory.

Michelle Price, Chief

Lead, Heavy Metals, and Inorganics Branch

NEW YORK STATE DEPARTMENT OF HEALTH  
WADSWORTH CENTER



Expires 12:01 AM April 01, 2024  
Issued April 01, 2022  
Revised March 30, 2023

**CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE**

*Issued in accordance with and pursuant to section 502 Public Health Law of New York State*

MR. FAYEZ ABOUZAKI  
SCHNEIDER LABORATORIES GLOBAL, INC  
2512 WEST CARY STREET  
RICHMOND, VA 23220-5117

NY Lab Id No: 11413

*is hereby APPROVED as an Environmental Laboratory in conformance with the  
National Environmental Laboratory Accreditation Conference Standards (2016) for the category  
ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE  
All approved analytes are listed below:*

**Metals III**

Cobalt, Total	EPA 6010D
Molybdenum, Total	EPA 6010D
Thallium, Total	EPA 6010D
Tin, Total	EPA 6010D
Titanium, Total	EPA 6010D

**Miscellaneous**

Boron, Total	EPA 6010D
--------------	-----------

**Polychlorinated Biphenyls**

Aroclor 1016 (PCB-1016)	EPA 8082A
Aroclor 1221 (PCB-1221)	EPA 8082A
Aroclor 1232 (PCB-1232)	EPA 8082A
Aroclor 1242 (PCB-1242)	EPA 8082A
Aroclor 1248 (PCB-1248)	EPA 8082A
Aroclor 1254 (PCB-1254)	EPA 8082A
Aroclor 1260 (PCB-1260)	EPA 8082A
Aroclor 1262 (PCB-1262)	EPA 8082A
Aroclor 1268 (PCB-1268)	EPA 8082A

**Sample Preparation Methods**

EPA 3010A
EPA 3050B
EPA 3550C

Serial No.: 66375

Property of the New York State Department of Health. Certificates are valid only at the address shown and must be conspicuously posted by the laboratory. Continued accreditation depends on the laboratory's successful ongoing participation in the Program. Consumers may verify a laboratory's accreditation status online at <https://apps.health.ny.gov/pubdoh/applinks/wc/elappublicweb/>, by phone (518) 485-5570 or by email to [elap@health.ny.gov](mailto:elap@health.ny.gov).



# United States Environmental Protection Agency

This is to certify that



Chris Enright

has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402, and has received certification to conduct lead-based paint activities pursuant to 40 CFR Part 745.226 as:

Risk Assessor

In the Jurisdiction of:

All EPA Administered Lead-based Paint Activities Program States, Tribes and Territories

This certification is valid from the date of issuance and expires October 24, 2025

LBP-R-22573-2

Certification #

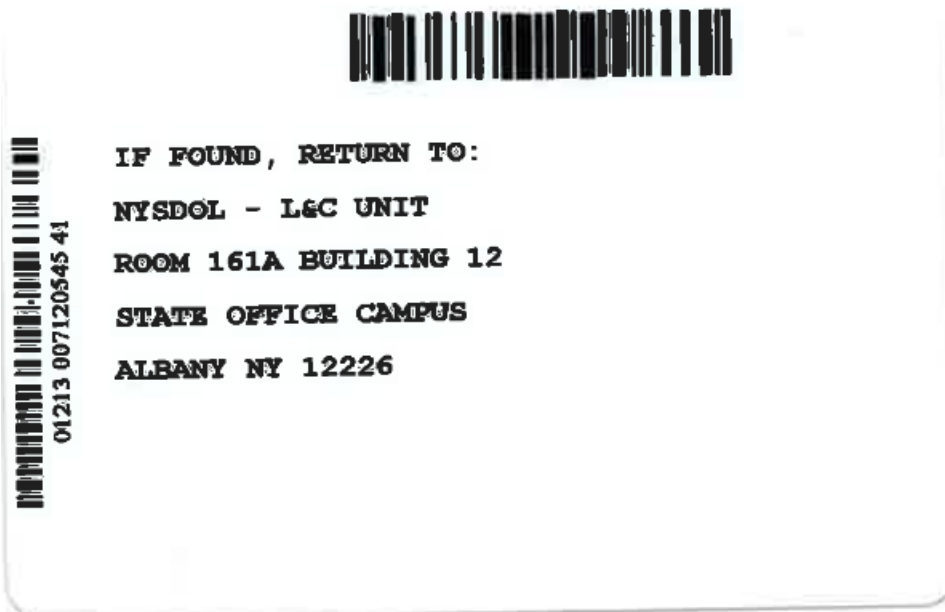
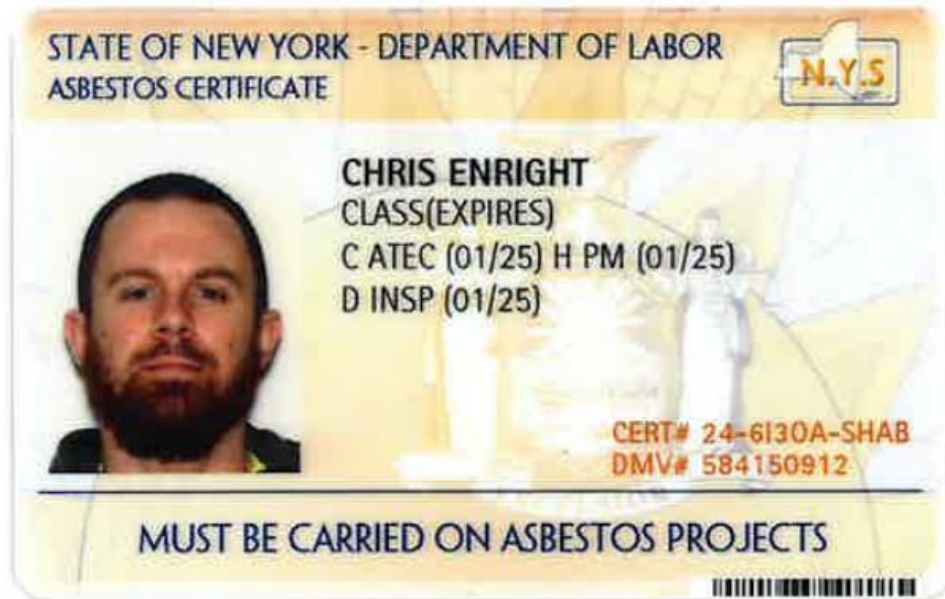
August 02, 2022

Issued On

Ben Conetta, Chief

Chemicals and Multimedia Programs Branch







**ATTACHMENT C:**

**LIMITED PRE-RENOVATION  
REGULATED BUILDING MATERIALS  
INSPECTION REPORT**

**VILLAGE ELEMENTARY SCHOOL**



# Limited Pre-Renovation Regulated Building Materials Inspection

## Location:

Village Elementary School  
100 School Lane  
Hilton, New York 14468

## Prepared for:

Hilton Central School District  
225 West Avenue  
Hilton, New York 14468

## LaBella Project No.

2221581.01

December 13, 2023



## Table of Contents

<b>1.0</b>	<b>PROJECT DESCRIPTION .....</b>	<b>1</b>
<b>2.0</b>	<b>INSPECTION PROCEDURES .....</b>	<b>1</b>
<b>3.0</b>	<b>INSPECTION LIMITATIONS .....</b>	<b>1</b>
<b>4.0</b>	<b>INSPECTION RESULTS .....</b>	<b>2</b>
4.1	Asbestos-Containing Materials (ACMs) .....	2
4.2	PCB-Containing Materials and Equipment.....	3
4.3	Mercury-Containing Equipment (MCE).....	4
4.4	Lead – Based Paint (LBP).....	4
<b>5.0</b>	<b>OBSERVATIONS AND CAUTIONARY STATEMENTS .....</b>	<b>5</b>

## Appendices

Asbestos Bulk Sample Summary Table	T-1
Appendix A – Inspection Fact Sheet	FS-1
Appendix B – Scope of Work Drawings	
Appendix C – Sample Location Drawings	
Appendix D – Inspection Photos	
Appendix E – Laboratory Analytical Reports	
Appendix F – Licenses and Certifications	





## 1.0 PROJECT DESCRIPTION

---

In accordance with current regulations, LaBella Associates, D.P.C. (LaBella) conducted a Limited Pre-Renovation Regulated Building Materials (RBM) Inspection of select areas within the Village Elementary School located at 100 School Lane in Hilton, New York. The objective was to identify suspect RBMs, such as Asbestos-Containing Materials (ACM), Lead-Based Paint (LBP), PCB-containing materials and equipment and Mercury-containing Equipment (MCE) that may require abatement or removal prior to or during renovation activities due to applicable regulations.

The inspection was limited to the areas anticipated to be impacted by the upcoming capital improvement project as shown on the “Scope of Work Drawings” in Appendix B. Materials and locations understood to be impacted by this project were determined from information provided by the Hilton Central School District and LaBella’s Architectural Division.

## 2.0 INSPECTION PROCEDURES

---

The following procedures were used to obtain the data for this Report:

- A. Existing documentation was requested for review. Several historical reports were reviewed to develop an understanding of the previously sampled materials and confirmed ACMs at the Site.
- B. A visual inspection of the areas outlined on the “Scope of Work Drawings” was conducted to identify visible and accessible sources of suspect RBMs. Photographs captured during this inspection are attached in Appendix D.
- C. Bulk samples of accessible suspect materials were collected and submitted for laboratory analysis.
- D. Asbestos samples were submitted for laboratory analysis. Preliminary Polarized Light Microscopy analyses were performed by LaBella Laboratories, a NYSDOH accredited laboratory, to determine the presence and percentage of asbestos in each sample. Transmission electron microscopy analyses of NOB materials, if necessary, were performed by AMA Laboratories.
- E. Suspect painted or glazed materials were spot checked in the field using X-Ray Fluorescence (XRF) testing procedures for the presence of lead.
- F. Results of the laboratory analyses, field testing and the visual on-site inspection were compiled and summarized.

## 3.0 INSPECTION LIMITATIONS

---

This inspection was conducted in accordance with generally accepted environmental engineering practices for this region. Collection of bulk samples of suspect RBMs was limited to those materials readily accessible using hand tools or hand-held power tools. Homogeneous materials were identified and located based on visual observation from readily accessible points. The data derived from representative samples of any given homogeneous material represent conditions that apply only at that particular location. Inspection protocol and methodology requires that sample data be used to draw conclusions about the entire homogeneous area, but such conclusions may not necessarily apply to the general Site as a whole.

No sub-surface investigations were performed to determine the possible presence of regulated materials on or in the immediate vicinity of the Site. No record drawings of the building were available for review as part of this investigation.



LaBella makes no other warranty or representation, either expressed or implied, nor is one intended to be included as part of its services, proposals, contracts, or reports. No inspection can wholly eliminate the uncertainty regarding the potential for undiscovered RBMs. The Work performed by LaBella is intended to reduce, but not eliminate, uncertainty regarding the potential for RBMs at the Site. This inspection report is not intended to be a bid document for an abatement scope of work. This report is intended to satisfy the requirements of NYS Code Rule 56-5 for inspections.

## 4.0 INSPECTION RESULTS

### 4.1 Asbestos-Containing Materials (ACMs)

Based on laboratory analyses of bulk samples collected, the following materials were determined to contain greater than 1% asbestos. However, the following table does not include all of the materials sampled during this inspection; for a full list of materials sampled see the *Asbestos Bulk Sample Summary Table* immediately following this report.

Type of Material	Typical Location <sup>1</sup>	Estimated Amount <sup>2</sup>	Friability	Condition
Gray Window/Door Glazing Compound	See Description Below	170 LF/ 4 SF	Non-Friable	Good
Gray Window Glazing Compound	See Description Below	650 LF/ 13 SF	Non-Friable	Good
Gray Mud Fittings	See Description Below	40 LF	Non-Friable	Good
Gray Transite Panels	Room P5 – Skylights Above Drop Ceiling	35 SF	Non-Friable	Good
Purple Sink Coating	See Description Below	55 SF	Non-Friable	Good
Gray Debris	Corridor A197 – On Fiberglass Insulation Above Drop Ceiling Outside Room P45	2 SF	Friable	Poor*
Tan Door Caulk	Vestibule A191B – Around Door Frame	16 LF/ <1 SF	Non-Friable	Good

**Note:** New York State Regulations currently consider this condition to represent an “Incidental Asbestos Disturbance”. See “Section V, Observations and Cautionary Statements” for additional information.

#### ACM Project Specific Details

##### Window/Door Glazing Compound

Gray asbestos-containing window/door glazing compound is located around the glass windowpane of the wooden doors in the following locations:

- Room P2
- Room P38
- Room P39
- Room P40
- Room P41
- Room P42
- Room P43
- Room P44
- Room P45
- Room P46
- Room P47
- Room P48
- Room P49
- Room 61
- Vestibule A191B

The window/door glazing compound is generally in good condition and covers an area of approximately 170 linear feet. With a ¼” bead of glazing, an estimated equivalent area of 4 square feet of asbestos-containing window/door glazing is present.

<sup>1</sup> Typical Location may not be inclusive of all material locations present throughout the building.

<sup>2</sup> For general reference only: Quantities reflect only those materials understood to be impacted by the project. Estimated amounts of confirmed ACM listed above were obtained through field observations made during site visits. Quantities are approximations and LaBella assumes no responsibility if used for bidding.



### ***Window Glazing Compound***

Gray asbestos-containing window glazing is located around the glass panes of the transom windows and interior classroom windows in the following locations:

- Room P2 (transom only)
- Room P8 (transom only)
- Room P38 (transom only)
- Room P39 (transom only)
- Room P40
- Room P41
- Room P42
- Room P43
- Room P44
- Room P45
- Room P46
- Room P47
- Room P48
- Room P49
- Room 61 (transom only)

The window glazing compound is generally in good condition and covers an area of approximately 650 linear feet. With a ¼" bead of glazing, an estimated equivalent area of 13 square feet of asbestos-containing window glazing is present.

### ***Mud Fittings***

White and gray asbestos-containing mud fittings are located on fiberglass lines in the following locations:

- Room P3
- Room P5
- Room P38
- Room P39
- Room P42
- Room 61A
- Room 62A
- Corridor A199/A200

### ***Sink Coating***

Purple asbestos-containing sink coating is located on the underside of the stainless steel sinks in the following locations:

- Room P2
- Room P38
- Room P39
- Room P40
- Room P41
- Room P42
- Room P43
- Room P44
- Room P45
- Room P46
- Room P47
- Room P48
- Room P49

## **4.2 PCB-Containing Materials and Equipment**

### ***Capacitors in Fluorescent Light Fixture Ballasts***

Ceiling mounted fluorescent light fixtures were observed throughout the inspected spaces. Older vintage fluorescent light fixtures manufactured prior to 1980 typically contained a capacitor filled with PCB fluid. A representative number of light fixtures were dismantled and all had ballasts labeled "No PCBs". Based on these observations made at the time of the site visit, to the extent feasible, the ballasts within the inspection area can be considered to be non-PCB-containing.

If non-labeled ballasts are encountered during renovation activities, contractors shall ensure that all components are properly managed and disposed of in accordance with 40 CFR 761.

### ***Caulking and Glazing Compounds***

According to the Environmental Protection Agency (EPA), PCB-containing building materials were commonly used in buildings built or renovated between circa 1950 and 1979. Caulking and glazing compounds were often used around windows, door frames, building joints, masonry columns and other masonry building materials. PCBs from manufactured sources (caulk), may also contaminate adjoining materials, such as masonry or wood, through direct contact and create secondary sources.



As such, prior to removal, the EPA recommends testing caulk and other building materials to determine what protections are needed during removal, and to determine proper disposal requirements. Building materials (caulking, sealants, etc.) containing equal to or greater than 50 ppm PCB must be disposed of as PCB-Contaminated hazardous waste in accordance with 40 CFR part 761, subpart D. Therefore, the following suspect building materials were sampled and analyzed for the presence of PCBs:

- Gray window glazing compound located around glass panes of interior transom windows (G-10)
- Gray window/door glazing compound located around glass windowpanes of wooden doors throughout inspected spaces (G-26)
- Black window glazing compound located around glass windowpanes of interior windows in Lobby A194 (G-36)
- Gray window glazing compound located around glass windowpanes of interior windows in Corridor A197 (G-41)

Based on laboratory analysis, the following glazing compounds are considered to be **PCB-Contaminated** (i.e., greater than 50 ppm PCBs):

- G-10/G-41: Gray Window Glazing Compound – located around glass panes of interior windows throughout inspected spaces
- G-26: Gray Window/Door Glazing Compound – located around glass windowpanes of wooden doors throughout inspected spaces

When removed, these glazing compounds **are** to be disposed of as PCB-containing hazardous waste in accordance with EPA regulations 40 CFR 761.

#### **4.3 Mercury-Containing Equipment (MCE)**

Approximately 625 ceiling mounted fluorescent light fixtures were observed throughout the inspected spaces. These fixtures have light bulbs that contain varying amounts of mercury vapor. To prevent breakage and the release of mercury, bulbs should be removed and sent to a mercury recycling facility prior to any renovation activities.

No other mercury-containing equipment was identified in the inspected areas.

#### **4.4 Lead – Based Paint (LBP)**

Several representative painted and glazed surfaces were observed and tested for the presence of lead-based paint using XRF testing procedures. The following components were determined to be lead-based:

- Tan lead-glazed block on the walls in Rooms 61 and 62A;
- White painted plaster upper walls in Room 62A;
- Salmon lead-glazed block walls throughout inspected corridors;
- White lead-glazed porcelain sinks in rooms P4A and Men's room; and
- White lead-glazed porcelain toilet in room P5A.

In accordance with Environmental Protection Agency (EPA) protocols, no other materials were observed or tested which contain lead above the action level threshold of 1.0 mg/cm<sup>2</sup>. However, additional lead-based materials may exist within the building. Therefore, Contractors shall be responsible for determining the quantity, location and condition of materials not tested during this inspection.

The building inspected for this project includes spaces applicable to the requirements of EPA 40 Code of Federal Regulations (CFR) 745: Lead-Based Paint Renovation, Repair and Painting (RRP) Program Rule. The RRP Rule affects any contractor who disturbs known or presumed lead-based paint during any renovation, repair or painting projects in housing, childcare facilities, and preschools built before



1978. Any contractor performing renovation work in applicable areas throughout the building must be certified, assign a “certified renovator” to each job where lead-based paint will likely be disturbed, train its renovation workers, distribute the EPA’s Renovate Right lead hazard pamphlet before starting work, and use lead safe work practices.

Additionally, lead was detected at low concentrations in a variety of building materials. Renovation and demolition contractors should be informed of the presence of lead for OSHA compliance considerations. For purposes of reading this report, and understanding which wall or component in a particular space was sampled, walls were assigned the letters A, B, C, or D. The wall labeled as “A” is the address side of the building; walls B, C, and D will follow clockwise in succession.

## 5.0 OBSERVATIONS AND CAUTIONARY STATEMENTS

---

### **Incidental Disturbances**

As stated earlier, the presence of damaged asbestos-containing material (pipe fitting debris) was noted above the drop ceiling in Corridor A197. This condition represents an “Incidental Asbestos Disturbance” as defined by New York State Asbestos Regulations, (i.e., Industrial Code Rule 56). According to these regulations, personnel access to the areas affected shall be restricted until such time as the materials are cleaned up by a licensed asbestos abatement contractor. The clean-up of these materials shall take place as soon as possible.

For contamination cleanup scenarios, the notifiable quantity is the square footage of potentially contaminated surfaces. In addition, any cleanup scenario over a minor size (10 SF), requires a site-specific variance. The following disturbance was noted during the inspection:

- Gray Debris – Approximately 25 square feet (inclusive of all contaminated surfaces)

While on site, the extent of contamination was quantified and assessed in accordance with all New York State Regulations. The certified asbestos inspector used his professional experience, as well as bulk sampling/analysis of the debris/residue, to define the limits of the contamination that must be cleaned up. The data collected during the inspection may be incorporated into a site-specific emergency variance application.

### **Vermiculite**

Vermiculite has been used as loose insulation in attics, walls, CMU block, and as a component of plaster, fireproofing and other building materials. The NYS Department of Health considers loose-fill Vermiculite to be an asbestos-containing material, and that building materials containing Vermiculite should be treated as asbestos-containing until sent for additional analysis and proven negative in accordance with NYS DOH guidelines.

Vermiculite was observed mixed in with the soil in the garden bed in Room A192. If this material is disturbed, it must be handled as an asbestos-containing material.

Furthermore, it shall be noted that destructive investigation of wall cavities was not conducted, and therefore the presence or extent of this material’s application throughout the building was not determined. Therefore, cautionary measures should be taken during construction, renovation, and demolition to ensure that proper steps are taken if Vermiculite is discovered in previously inaccessible locations. If Vermiculite is discovered, work should be stopped immediately to address the issue and prevent the uncontrolled release and distribution of an asbestos-containing material.



### ***Potentially Hidden/Inaccessible RBMs***

As stated earlier, collection of bulk samples of suspect RBMs was limited to those materials readily accessible. Since the building is occupied and in operation as a school, destructive sampling techniques were limited in order to minimize disruption to business operations and damage to building components.

Although this inspection was conducted in a manner consistent with recognized professional practices, the potential does exist for additional RBMs to be located in the following inaccessible areas because of the operational constraints mentioned above:

- Inside wall and/or ceiling cavities
- Electrical components
- Bathrooms A196B and A196C
- Cooler/freezer

# **Asbestos Bulk Sample Summary Table**

## Asbestos Bulk Sample Summary Table

Limited Pre-Renovation Regulated Building Materials Inspection  
Village Elementary School  
100 School Lane  
Hilton, New York 14468

Items in Bold are Confirmed ACM

<b>Sample #</b>	<b>Type of Material</b>	<b>Sample Location</b>	<b>Results % Asbestos</b>
<u>Samples Taken 8/4/2023</u>			
VE-1A	Gray Paper	Roof 1, Field (SW Section)	None Detected
VE-1B	Gray Paper	Roof 2, Field (NE Section)	None Detected
VE-2A	Black Thru Flashing	Roof 1, Between Brick and Curbing	None Detected
VE-2B	Black Thru Flashing	Roof 1, Between Brick and Curbing	None Detected
VE-3A	Gray Caulk	Roof 1, Along Top of Metal Flashing	None Detected
VE-3B	Gray Caulk	Roof 1, Along Top of Metal Flashing	None Detected
VE-4A	White Insulation	Roof 2, Field (NE Section)	None Detected
VE-4B	White Insulation	Roof 2, Field (NE Section)	None Detected
VE-5A	White 12" Floor Tile	Cafeteria (61), Floor	None Detected
VE-5B	White 12" Floor Tile	Cafeteria (61), Floor	None Detected
VE-6A	Tan Floor Tile Mastic	Cafeteria (61), Floor	None Detected
VE-6B	Tan Floor Tile Mastic	Cafeteria (61), Floor	None Detected
VE-7A	Gray 1'x1' Ceiling Tile	Cafeteria (61), Ceiling	None Detected
VE-7B	Gray 1'x1' Ceiling Tile	Cafeteria (61), Ceiling	None Detected
<b>VE-8A</b>	<b>Gray Window/Door Glazing Compound</b>	<b>Cafeteria (61), Around Glass Windowpane of Door</b>	<b>Chrysotile 3%</b>
<b>VE-8B</b>	<b>Gray Window/Door Glazing Compound</b>	<b>Cafeteria (61), Around Glass Windowpane of Door</b>	<b>Not Analyzed Duplicate of 8A</b>
<b>VE-9A</b>	<b>Gray Window Glazing Compound</b>	<b>Cafeteria (61), Around Glass Pane of Transom Window</b>	<b>Chrysotile 2%</b>
<b>VE-9B</b>	<b>Gray Window Glazing Compound</b>	<b>Cafeteria (61), Around Glass Pane of Transom Window</b>	<b>Not Analyzed Duplicate of 9A</b>
VE-10A	Gray Grout	Kitchen (62A), Floor	None Detected
VE-10B	Gray Grout	Kitchen (62A), Floor	None Detected
VE-11A	Gray Ceramic Tile Cement	Kitchen (62A), Floor	None Detected
VE-11B	Gray Ceramic Tile Cement	Kitchen (62A), Floor	None Detected



## Asbestos Bulk Sample Summary Table

Limited Pre-Renovation Regulated Building Materials Inspection  
Village Elementary School  
100 School Lane  
Hilton, New York 14468

Items in Bold are Confirmed ACM

<i>Sample #</i>	<i>Type of Material</i>	<i>Sample Location</i>	<i>Results % Asbestos</i>
VE-12A	White Plaster	Kitchen (62A), Upper Wall	None Detected
VE-12B	White Plaster	Kitchen (62A), Upper Wall	None Detected
VE-12C	White Plaster	Kitchen (62A), Upper Wall	None Detected
VE-13A	Gray Plaster	Kitchen (62A), Upper Wall	None Detected
VE-13B	Gray Plaster	Kitchen (62A), Upper Wall	None Detected
VE-13C	Gray Plaster	Kitchen (62A), Upper Wall	None Detected
VE-14A	Black Metal Pan Paper	Kitchen (62A), Ceiling	None Detected
VE-14B	Black Metal Pan Paper	Kitchen (62A), Ceiling	None Detected
<b>VE-15A</b>	<b>Gray Mud Fitting</b>	<b>Kitchen (62A), On Fiberglass Lines Above Metal Pan Ceiling</b>	<b>Chrysotile 4%</b>
<b>VE-15B</b>	<b>Gray Mud Fitting</b>	<b>Kitchen (62A), On Fiberglass Lines Above Metal Pan Ceiling</b>	<b>Chrysotile 4%</b>
<i>Samples Taken 9/20/2023 – 9/21/2023</i>			
1A	Gray 2'x4' Suspended Ceiling Tile	Room P8, Ceiling	None Detected
1B	Gray 2'x4' Suspended Ceiling Tile	Room P5, Ceiling	None Detected
2A	Gray Drywall	Room P8, Top Fill Above Ceiling	None Detected
2B	Gray Drywall	Room P3A, Interior Wall	None Detected
3A	White Drywall	Room P8, Ceiling Above Drop Ceiling	None Detected
3B	White Drywall	Room P49, Ceiling Above Drop Ceiling	None Detected
4A	White Mastic	Room P8, Ceiling Above Drop Ceiling	None Detected
4B	White Mastic	Room P2, Ceiling Above Drop Ceiling	None Detected
4C	White Mastic	Room P49, Ceiling Above Drop Ceiling	None Detected
5A	White Gypsum Deck	Room P8, Deck	None Detected
5B	White Gypsum Deck	Corridor A197, Deck	None Detected
6A	White Plaster	Room P8, Wall	None Detected

## Asbestos Bulk Sample Summary Table

Limited Pre-Renovation Regulated Building Materials Inspection  
Village Elementary School  
100 School Lane  
Hilton, New York 14468

Items in Bold are Confirmed ACM

<i>Sample #</i>	<i>Type of Material</i>	<i>Sample Location</i>	<i>Results % Asbestos</i>
6B	White Plaster	Room P5, Wall	None Detected
6C	White Plaster	Room P44, Wall	None Detected
6D	White Plaster	Room P41, Wall	None Detected
7A	Gray Plaster	Room P8, Wall	None Detected
7B	Gray Plaster	Room P5, Wall	None Detected
7C	Gray Plaster	Room P44, Wall	None Detected
7D	Gray Plaster	Room P41, Wall	None Detected
8A	Tan Cove Molding Mastic	Room P8, Wall Base	None Detected
8B	Tan Cove Molding Mastic	Room P5, Wall Base	None Detected
9A	White Carpet Mastic	Room P8, Floor Under Carpet	None Detected
9B	White Carpet Mastic	Room P5, Floor Under Carpet	None Detected
10A	Gray Window Glazing Compound	Room P8, Around Glass Pane of Transom Window	None Detected
10B	Gray Window Glazing Compound	Room P2, Around Glass Pane of Transom Window	None Detected
11A	Gray Floor Leveler	Room P5, Floor Under Carpet	None Detected
11B	Gray Floor Leveler	Room A195, Floor Under Carpet	None Detected
12A	White Joint Compound	Room P5, Interior Wall	None Detected
12B	White Joint Compound	Room P3A, Interior Wall	None Detected
12C	White Joint Compound	Room P39, Interior Wall	None Detected
12D	White Joint Compound	Room A194, Wall	None Detected
13A	Gray Window Glazing Compound	Room P5, Around Glass Panes of Wood Windows	None Detected
13B	Gray Window Glazing Compound	Room P5, Around Glass Panes of Wood Windows	None Detected
14A	<b>Gray Transite Panel</b>	<b>Room P5, Skylight Above Ceiling</b>	<b>Chrysotile 36%</b>
14B	<b>Gray Transite Panel</b>	<b>Room P5, Skylight Above Ceiling</b>	<b>Not Analyzed Duplicate of 14A</b>

## Asbestos Bulk Sample Summary Table

Limited Pre-Renovation Regulated Building Materials Inspection  
Village Elementary School  
100 School Lane  
Hilton, New York 14468

Items in Bold are Confirmed ACM

<i>Sample #</i>	<i>Type of Material</i>	<i>Sample Location</i>	<i>Results % Asbestos</i>
15A	White Mud Fitting	Room P5, Fitting on Fiberglass Line	Chrysotile 18%
15B	White Mud Fitting	Room P3, Fitting on Fiberglass Line	Chrysotile 23%
15C	Gray Mud Fitting	Room P42, Fitting on Fiberglass Line	Chrysotile 16%
15D	Gray Mud Fitting	Room P39, Fitting on Fiberglass Line	Chrysotile 19%
15E	White Mud Fitting	Room 61A, Fitting on Fiberglass Line	Chrysotile 25%
16A	Black Sink Coating	Room P3, Under Sink	None Detected
16B	Black Sink Coating	Room P3, Under Sink	None Detected
17A	White Grout	Room P3, Wall	None Detected
17B	White Grout	Janitor's Closet, Wall	None Detected
18A	Beige Ceramic Tile Mastic	Room P3, Wall	None Detected
18B	Beige Ceramic Tile Mastic	Janitor's Closet, Wall	None Detected
19A	Gray Grout	Janitor's Closet, Floor	None Detected
19B	Gray Grout	Men's Room, Floor	None Detected
20A	Dark Gray Ceramic Tile Cement	Janitor's Closet, Floor	None Detected
20B	Dark Gray Ceramic Tile Cement	Janitor's Closet, Floor	None Detected
21A	Brown Cove Molding Mastic	Room P6, Wall Base	None Detected
21B	Brown Cove Molding Mastic	Room P4, Wall Base	None Detected
22A	Gray 1'x'1 Ceiling Tile	Room P6, Ceiling	None Detected
22B	Gray 1'x'1 Ceiling Tile	Vestibule A191B, Ceiling	None Detected
23A	Black Window/Door Glazing Compound	Room P6, Around Glass Windowpane of Door	None Detected
23B	Black Window/Door Glazing Compound	Room P6, Around Glass Windowpane of Door	None Detected
24A	White with Black Streaks 12" Floor Tile	Room P2, Floor	None Detected

## Asbestos Bulk Sample Summary Table

Limited Pre-Renovation Regulated Building Materials Inspection  
Village Elementary School  
100 School Lane  
Hilton, New York 14468

Items in Bold are Confirmed ACM

<i>Sample #</i>	<i>Type of Material</i>	<i>Sample Location</i>	<i>Results % Asbestos</i>
24B	White with Black Streaks 12" Floor Tile	Corridor A197, Floor	None Detected
25A	Yellow Floor Tile Mastic	Room P2, Floor	None Detected
25B	Yellow Floor Tile Mastic	Corridor A197, Floor	None Detected
26A	<b>Gray Window/Door Glazing Compound</b>	<b>Room P2, Around Glass Windowpane of Door</b>	<b>Chrysotile 4%</b>
26B	<b>Gray Window/Door Glazing Compound</b>	<b>Room P49, Around Glass Windowpane of Door</b>	<b>Not Analyzed Duplicate of 26A</b>
27A	<b>Purple Sink Coating</b>	<b>Room P2, Under Sink</b>	<b>Chrysotile 15%</b>
27B	<b>Purple Sink Coating</b>	<b>Room P45, Under Sink</b>	<b>Not Analyzed Duplicate of 27A</b>
28A	Black Tar	Room P4, On Fiberglass Line	None Detected
28B	Black Tar	Room P45, On Fiberglass Line	None Detected
28C	Black Tar	Room P43, On Fiberglass Line	None Detected
29A	Tan Pin Mastic	Mechanical Room, On Ductwork	None Detected
29B	Tan Pin Mastic	Mechanical Room, On Ductwork	None Detected
30A	Beige Mastic	Room P47, Under Wood At Base of Unit Ventilator	None Detected
30B	Beige Mastic	Room P47, Under Wood At Base of Unit Ventilator	None Detected
31A	<b>Gray Debris</b>	<b>Corridor A197, On Fiberglass Insulation (Outside Room P45)</b>	<b>Chrysotile 20%</b>
32A	Gray Debris	Corridor A197, On Fiberglass Insulation (Outside Room P42)	None Detected
32B	Gray Debris	Corridor A197, On Fiberglass Insulation (Outside Room P45)	None Detected
33A	Green Carpet Mastic	Vestibule A191B, Floor Under Carpet	None Detected
33B	Green Carpet Mastic	Vestibule A191B, Floor Under Carpet	None Detected
34A	<b>Tan Door Caulk</b>	<b>Vestibule A191B, Around Door Frame</b>	<b>Chrysotile 5%</b>
34B	<b>Tan Door Caulk</b>	<b>Vestibule A191B, Around Door Frame</b>	<b>Not Analyzed Duplicate of 34A</b>
35A	Cream Mottled 12" Floor Tile	Canopy A192, Floor	None Detected

## Asbestos Bulk Sample Summary Table

Limited Pre-Renovation Regulated Building Materials Inspection  
Village Elementary School  
100 School Lane  
Hilton, New York 14468

Items in Bold are Confirmed ACM

<i>Sample #</i>	<i>Type of Material</i>	<i>Sample Location</i>	<i>Results % Asbestos</i>
35B	Cream Mottled 12" Floor Tile	Corridor A199/A200, Floor	None Detected
36A	Black Window Glazing Compound	Lobby A194, Around Glass Panes of Interior Window	None Detected
36B	Black Window Glazing Compound	Lobby A194, Around Glass Panes of Interior Window	None Detected
37A	Gray 2'x2' Suspended Ceiling Tile	Lobby A194, Ceiling	None Detected
37B	Gray 2'x2' Suspended Ceiling Tile	Office A195, Ceiling	None Detected
38A	Black Caulk	Canopy A192, Along Top of Rubber Inside Garden Bed	None Detected
38B	Black Caulk	Canopy A192, Along Top of Rubber Inside Garden Bed	None Detected
39A	Light Gray Caulk	Lobby A194, Along Window Frame	None Detected
39B	Light Gray Caulk	Vestibule A193, Along Door Frame	None Detected
40A	Black Window/Door Glazing Compound	Office A196, Around Glass Windowpane of Door	None Detected
40B	Black Window/Door Glazing Compound	Office A196, Around Glass Windowpane of Door	None Detected
<b>41A</b>	<b>Gray Window Glazing Compound</b>	<b>Corridor A197, Around Glass Panes of Interior Window</b>	<b>Chrysotile 5%</b>
<b>41B</b>	<b>Gray Window Glazing Compound</b>	<b>Corridor A197, Around Glass Panes of Interior Window</b>	<b>Not Analyzed Duplicate of 41A</b>
42A	White with Black Specks 12" Floor Tile	Corridor A190, Floor	None Detected
42B	White with Black Specks 12" Floor Tile	Corridor A190, Floor	None Detected





## **APPENDIX A:**

# **INSPECTION FACT SHEET**

# Inspection Fact Sheet

## Name and Address of Building/Structure

Village Elementary School

100 School Lane

Hilton, New York 14468

## Name and Address of Building/Structure Owner

Hilton Central School District

225 West Avenue

Hilton, New York 14468

## Name and Address of Owner's Agent

LaBella Associates, D.P.C.

300 State Street, Suite 201

Rochester, New York 14614

## Name of the Firm & Person Conducting the Inspection

LaBella Associates, D.P.C.

Chris Enright (NYSDOL Cert. #06-08603)

## Dates the Inspection Was Conducted

August 4, 2023 & September 20-21, 2023





## **APPENDIX B:**

# **SCOPE OF WORK DRAWINGS**



It is a violation of New York Education Law Article 145 Sec.7209, for any person, unless acting under the direction of a licensed architect, professional engineer, or land surveyor, to alter an item in any way. If an item bearing the seal of an architect, engineer, or land surveyor is altered; the altering architect, engineer, or land surveyor shall affix to the item their seal and notation "altered by" followed by their signature and date of such alteration, and a specific description of the alteration.

© 2018 LaBella Associates

**HILTON CSD  
CAPITAL PROJECTS 2023  
PHASE 1**

225 WEST AVENUE  
HILTON, NEW YORK 14468



**VILLAGE ELEMENTARY  
SCHOOL**  
100 SCHOOL LANE  
HILTON, NEW YORK 14468

S.E.D. NO. 26-10-01-06-0-004-022

REVISIONS		
NO.	DATE:	DESCRIPTION:

PROJECT NUMBER: 2221581.01

DRAWN BY: \_\_\_\_\_

REVIEWED BY: \_\_\_\_\_

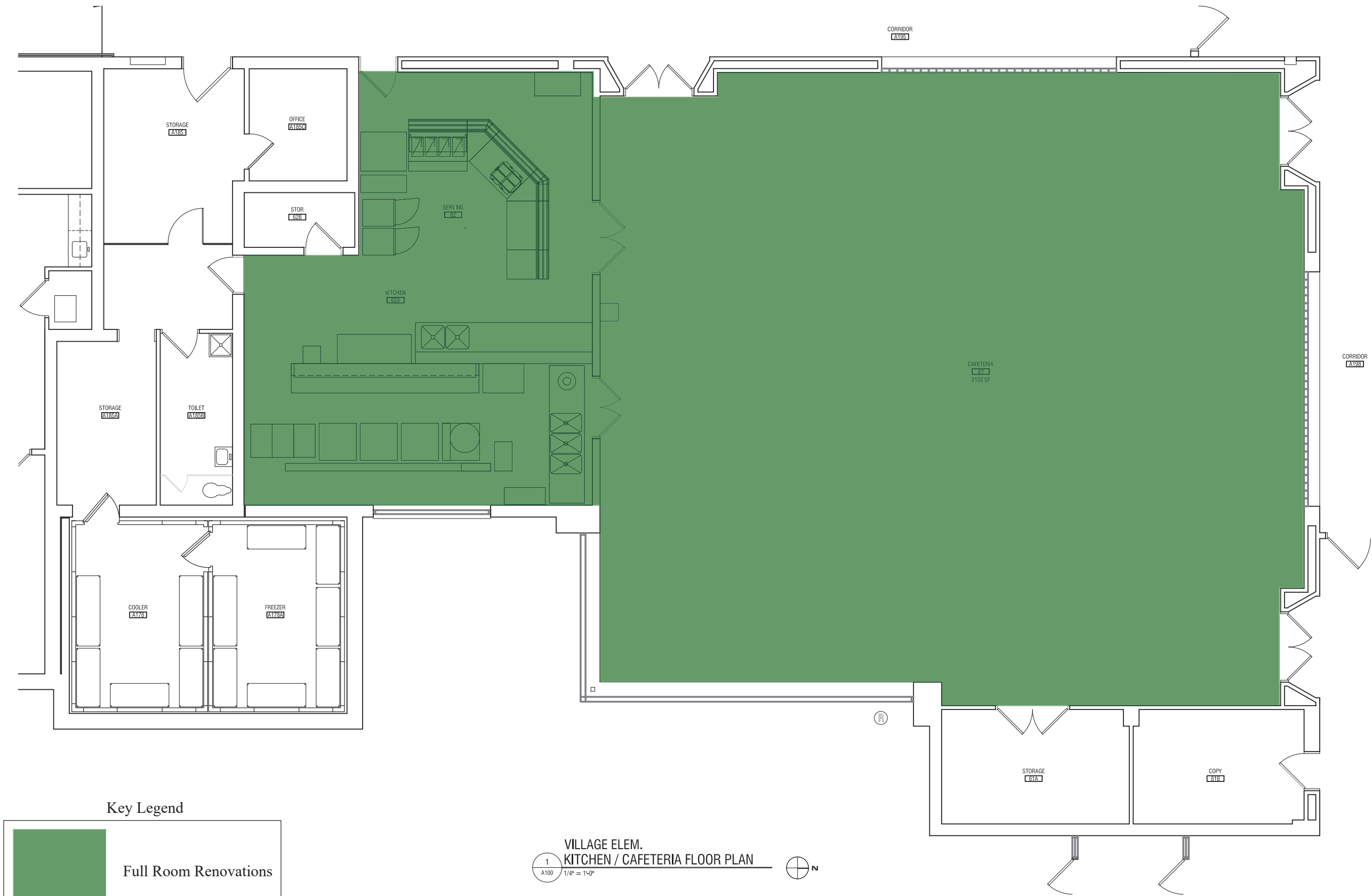
ISSUED FOR: CONSTRUCTION

DATE: AUGUST 2022

DRAWING NAME: \_\_\_\_\_

KITCHEN / CAFETERIA  
FLOOR PLAN

DRAWING NUMBER: **VE  
A100**





It is a violation of New York Education Law Article 145 Sec.7209, for any person, unless acting under the direction of a licensed architect, professional engineer, or land surveyor, to alter an item in any way. If an item bearing the seal of an architect, engineer, or land surveyor is altered, the altering architect, engineer, or land surveyor shall affix to the item their seal and notation "altered by" followed by their signature and date of such alteration, and a specific description of the alteration.

© 2018 LaBella Associates

**HILTON CSD  
CAPITAL PROJECTS 2023  
PHASE 1**

225 WEST AVENUE  
HILTON, NEW YORK 14468



**VILLAGE ELEMENTARY  
SCHOOL**  
100 SCHOOL LANE  
HILTON, NEW YORK 14468

S.E.D. NO. 26-10-01-06-0-004-022

REVISIONS		
NO.	DATE:	DESCRIPTION:

PROJECT NUMBER: 2221581.01  
DRAWN BY:  
REVIEWED BY:  
ISSUED FOR: CONSTRUCTION  
DATE: AUGUST 2022  
DRAWING NAME:

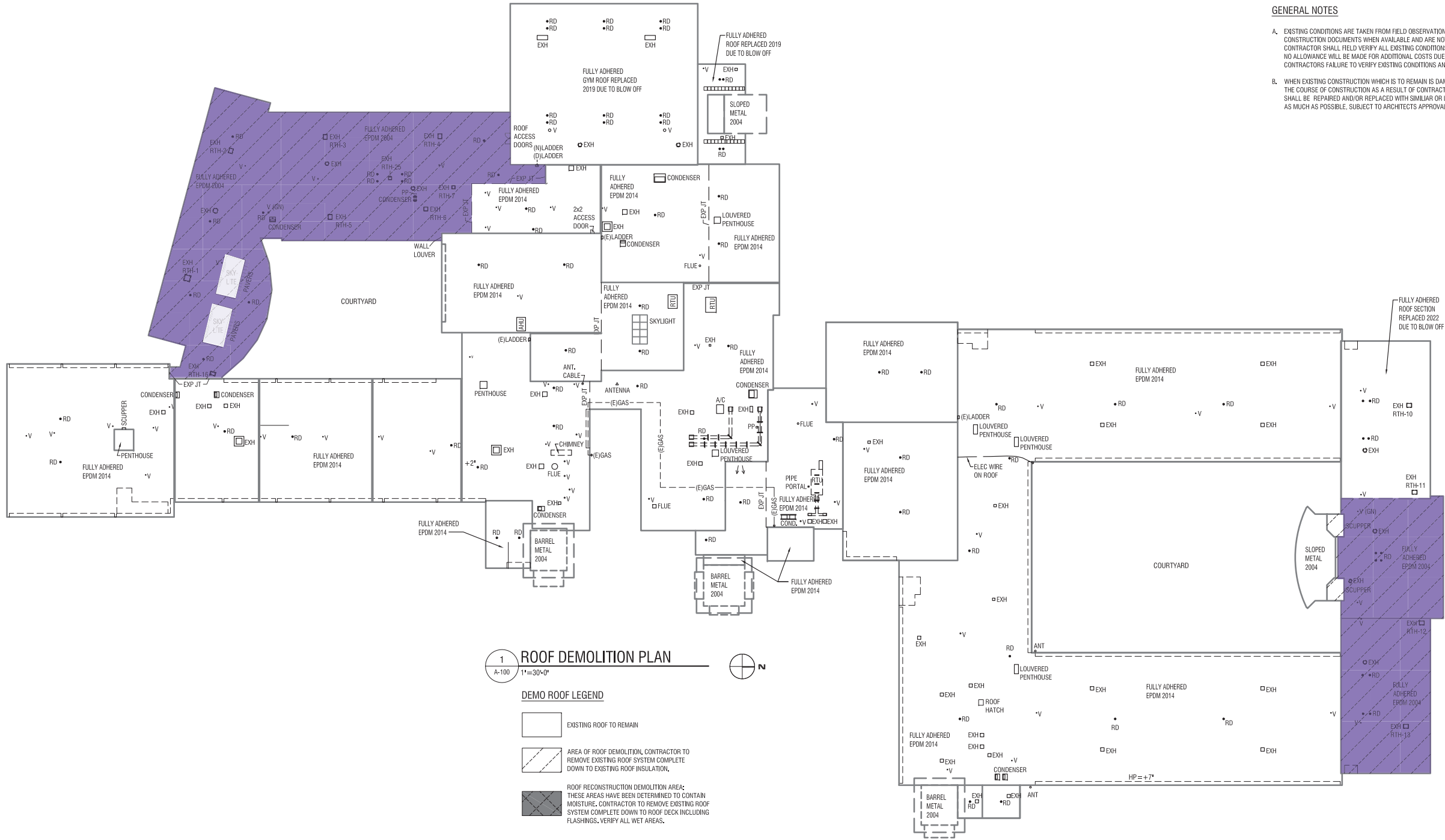
**ROOF DEMOLITION PLAN**

DRAWING NUMBER:

**VE  
A100**

**GENERAL NOTES**

- A. EXISTING CONDITIONS ARE TAKEN FROM FIELD OBSERVATIONS AND PRIOR CONSTRUCTION DOCUMENTS WHEN AVAILABLE AND ARE NOT GUARANTEED. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO BID. NO ALLOWANCE WILL BE MADE FOR ADDITIONAL COSTS DUE TO CONTRACTORS FAILURE TO VERIFY EXISTING CONDITIONS AND DIMENSIONS.
- B. WHEN EXISTING CONSTRUCTION WHICH IS TO REMAIN IS DAMAGED DURING THE COURSE OF CONSTRUCTION AS A RESULT OF CONTRACTORS WORK, IT SHALL BE REPAIRED AND/OR REPLACED WITH SIMILAR OR LIKE MATERIALS AS MUCH AS POSSIBLE, SUBJECT TO ARCHITECTS APPROVAL.



**1 ROOF DEMOLITION PLAN**  
A-100 1"=30'-0"

**DEMO ROOF LEGEND**

- EXISTING ROOF TO REMAIN
- AREA OF ROOF DEMOLITION, CONTRACTOR TO REMOVE EXISTING ROOF SYSTEM COMPLETE DOWN TO EXISTING ROOF INSULATION.
- ROOF RECONSTRUCTION DEMOLITION AREA:  
THESE AREAS HAVE BEEN DETERMINED TO CONTAIN MOISTURE. CONTRACTOR TO REMOVE EXISTING ROOF SYSTEM COMPLETE DOWN TO ROOF DECK INCLUDING FLASHINGS. VERIFY ALL WET AREAS.

**Key Legend**

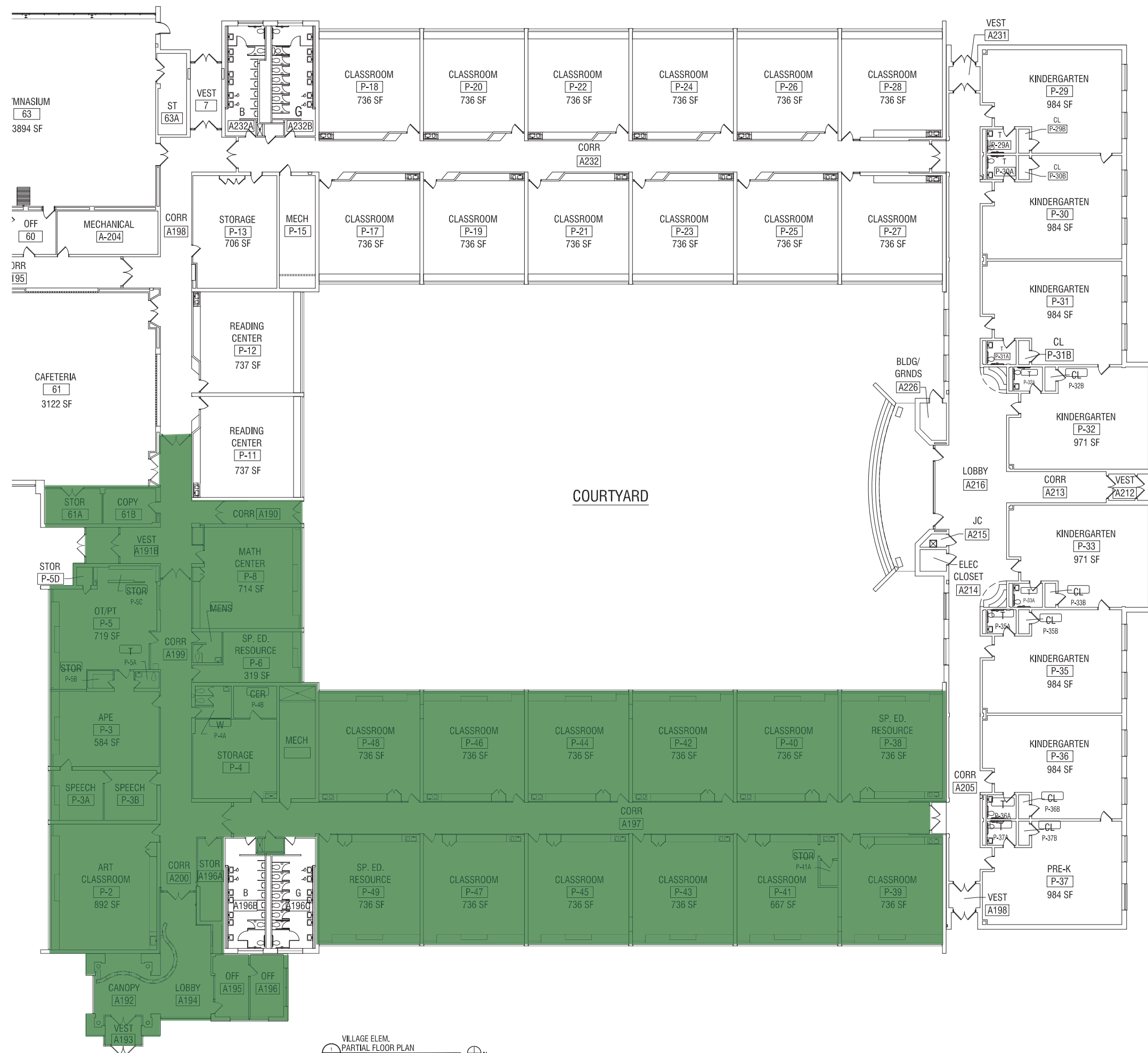


Full Room Renovations



Roof Renovations





VILLAGE ELEM.  
PARTIAL FLOOR PLAN

### Key Legend

## Full Room Renovations

## Roof Renovations







## **APPENDIX C:**

# **SAMPLE LOCATION DRAWINGS**



It is a violation of New York Education Law Article 145 Sec.7209, for any person, unless acting under the direction of a licensed architect, professional engineer, or land surveyor, to alter an item in any way. If an item bearing the seal of an architect, engineer, or land surveyor is altered, the altering architect, engineer, or land surveyor shall affix to the item their seal and notation "altered by" followed by their signature and date of such alteration, and a specific description of the alteration.

© 2018 LaBella Associates

**HILTON CSD  
CAPITAL PROJECTS 2023  
PHASE 1**

225 WEST AVENUE  
HILTON, NEW YORK 14468



**VILLAGE ELEMENTARY  
SCHOOL**  
100 SCHOOL LANE  
HILTON, NEW YORK 14468

S.E.D. NO. 26-10-01-06-0-004-022

REVISIONS		
NO.	DATE	DESCRIPTION

PROJECT NUMBER: 2221581.01

DRAWN BY:

REVIEWED BY:

ISSUED FOR: CONSTRUCTION

DATE: AUGUST 2022

DRAWING NAME:

ROOF DEMOLITION PLAN

DRAWING NUMBER:

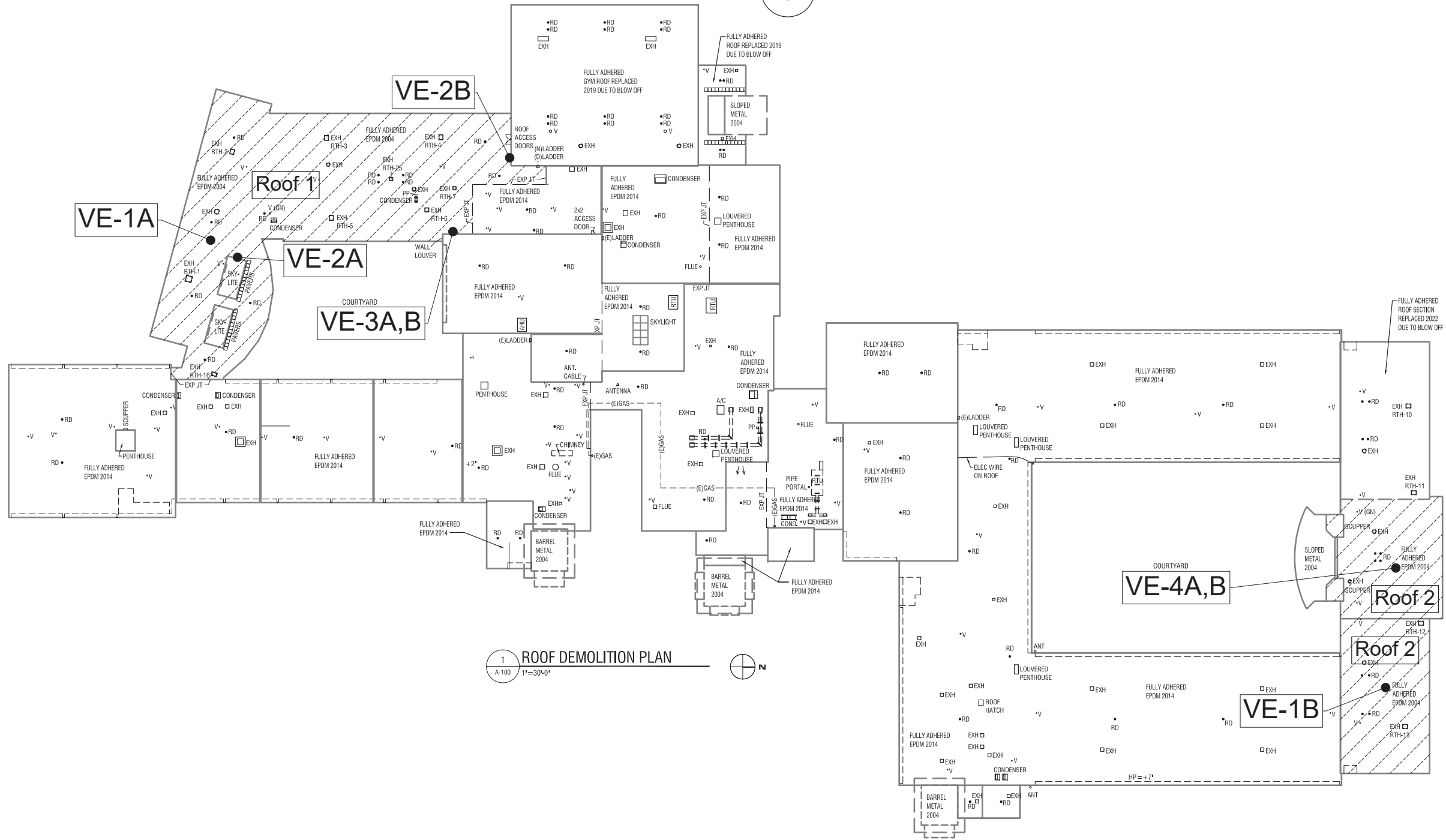
**VE  
A100**

C

D

A

B



1 ROOF DEMOLITION PLAN  
A-100 1"=30'-0"

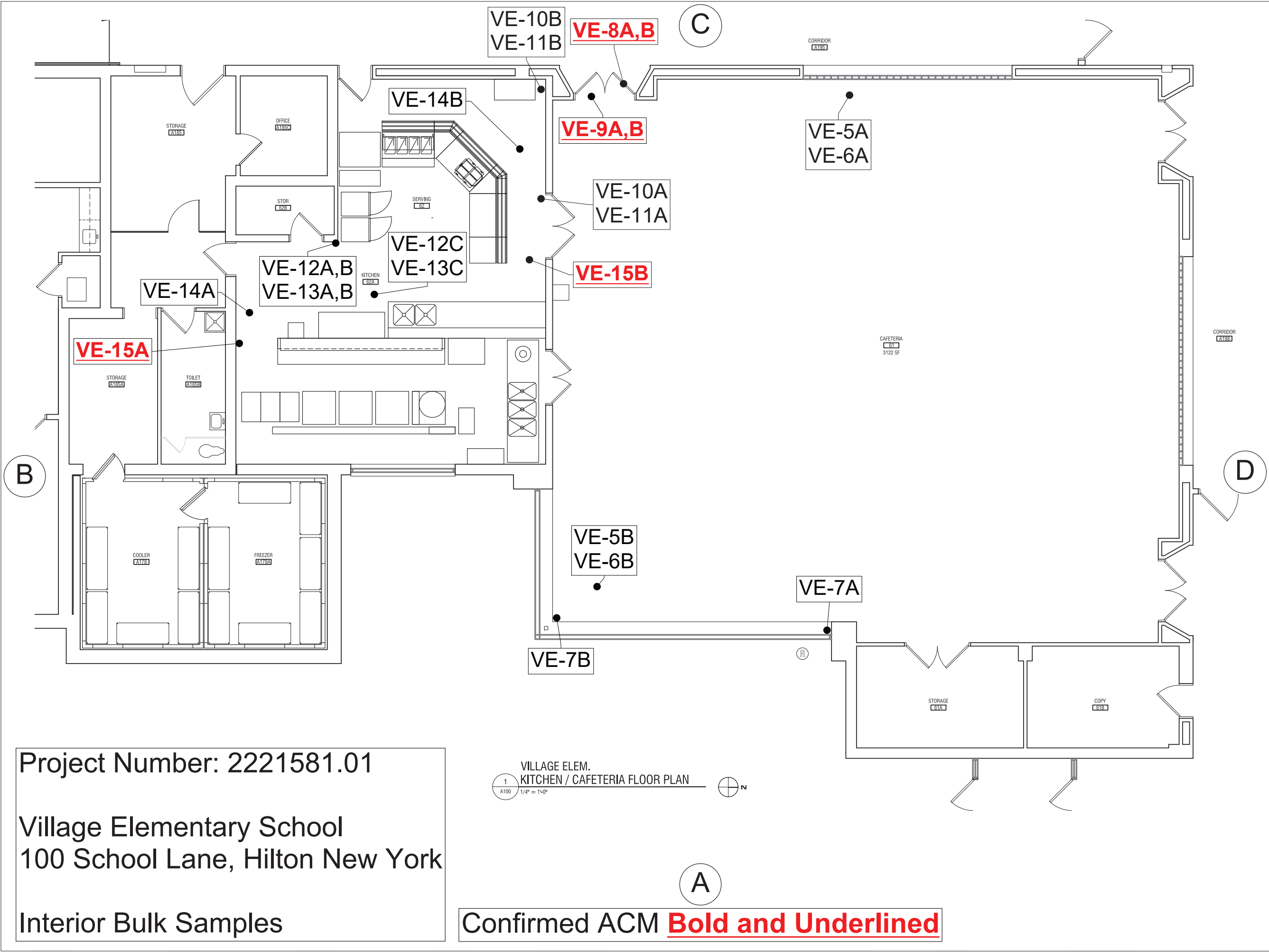
Project Number: 2221581.01

Village Elementary School  
100 School Lane, Hilton New York

Roof Bulk Samples

Confirmed ACM **Bold and Underlined**





Project Number: 2221581.01

Village Elementary School  
100 School Lane, Hilton New York

Interior Bulk Samples

Confirmed ACM **Bold and Underlined**

**HILTON CSD  
CAPITAL PROJECTS 2023  
PHASE 1**

225 WEST AVENUE  
HILTON, NEW YORK 14468



**VILLAGE ELEMENTARY  
SCHOOL**  
100 SCHOOL LANE  
HILTON, NEW YORK 14468

S.E.D. NO. 26-10-01-06-0-004-022

REVISIONS		
NO.	DATE	DESCRIPTION

PROJECT NUMBER: 2221581.01

DRAWN BY: \_\_\_\_\_

REVIEWED BY: \_\_\_\_\_

ISSUED FOR: CONSTRUCTION

DATE: AUGUST 2022

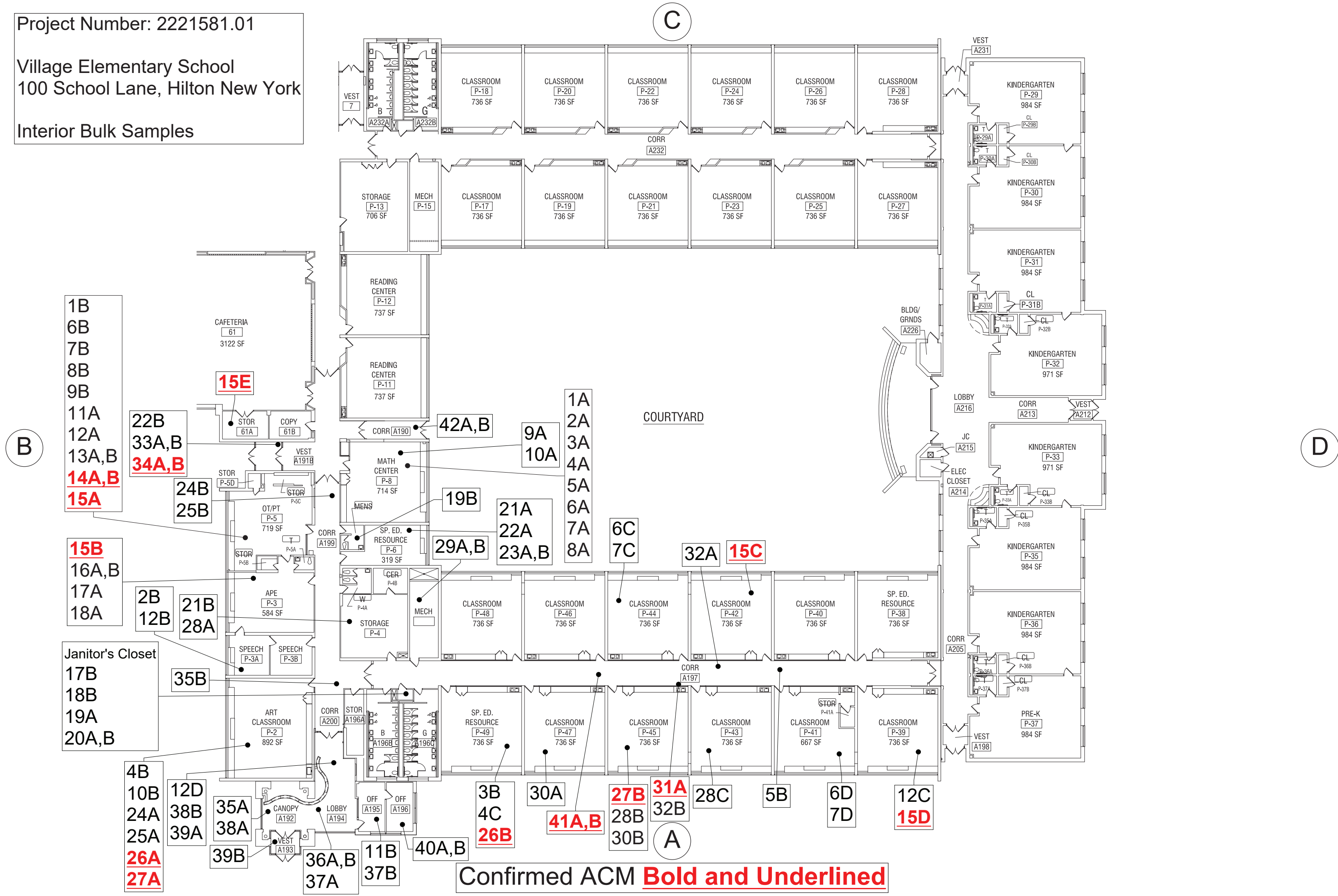
DRAWING NAME: \_\_\_\_\_

KITCHEN / CAFETERIA  
FLOOR PLAN

DRAWING NUMBER: **VE  
A100**



## Interior Bulk Samples









## **APPENDIX D:**

## **INSPECTION PHOTOS**





Photo 1

View of Gray Asbestos-Containing Glazing Compound in Room 61 (Cafeteria)



Photo 2

View of Gray Asbestos-Containing Mud Fittings Above the Metal Ceiling in Room 62A (Kitchen)



Photo 3

View of Lead-Glazed Block on the Lower Walls in Room 61 (Cafeteria)

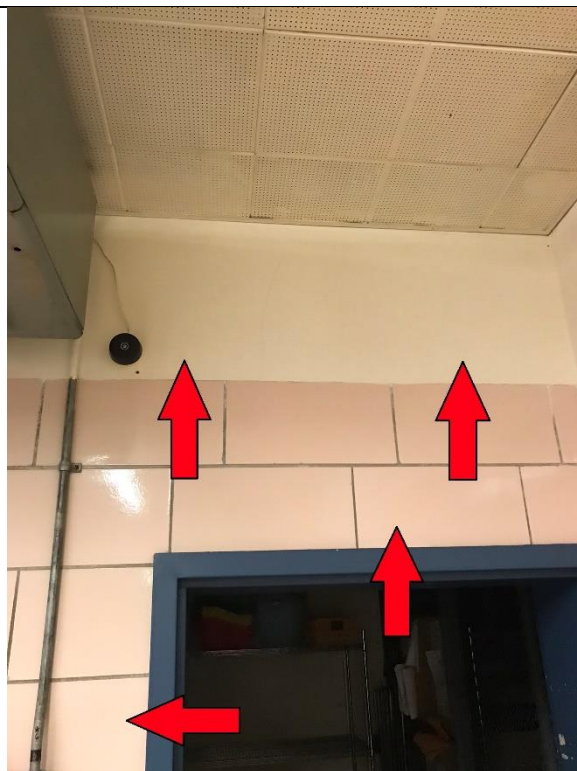


Photo 4

View of Lead-Based Paint on Plaster Walls & Lead-Glazed Block in Room 62A (Kitchen)



Photo 5

View of Gray Asbestos-Containing Transite Panel Around Old Skylight Above Ceiling in Room P5

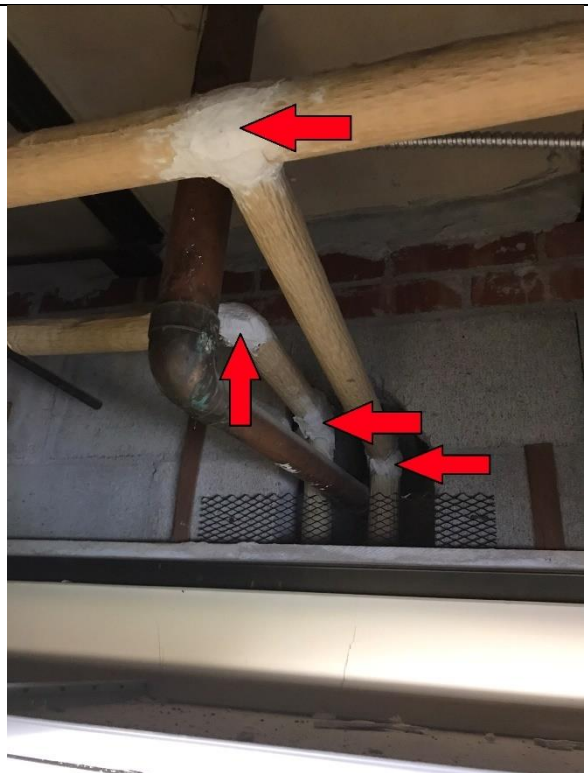


Photo 6

View of White Asbestos-Containing Mud Fitting on Fiberglass Lines Above the Ceiling in Room P3



Photo 7

View of Gray Asbestos-Containing Window/Door Glazing Around Glass Panes of Wooden Doors



Photo 8

View of Purple Asbestos-Containing Sink Coating Underneath Stainless Steel Sink in Room P2



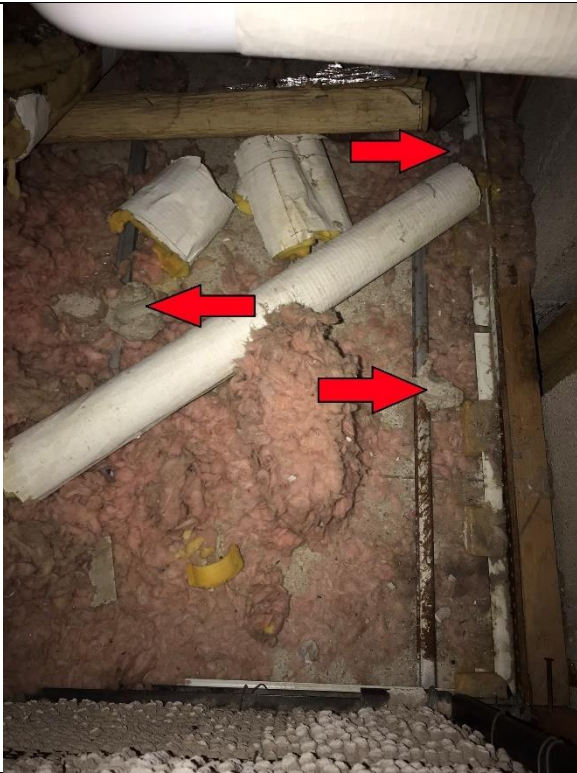


Photo 9

View of Asbestos-Containing Debris on the Fiberglass Insulation in Corridor A197



Photo 10

View of Tan Asbestos-Containing Caulk along the Interior Door Frame in Vestibule A191B



Photo 11

View of Loose-Fill Vermiculite Mixed in the Soil of the Garden Bed in Room A192

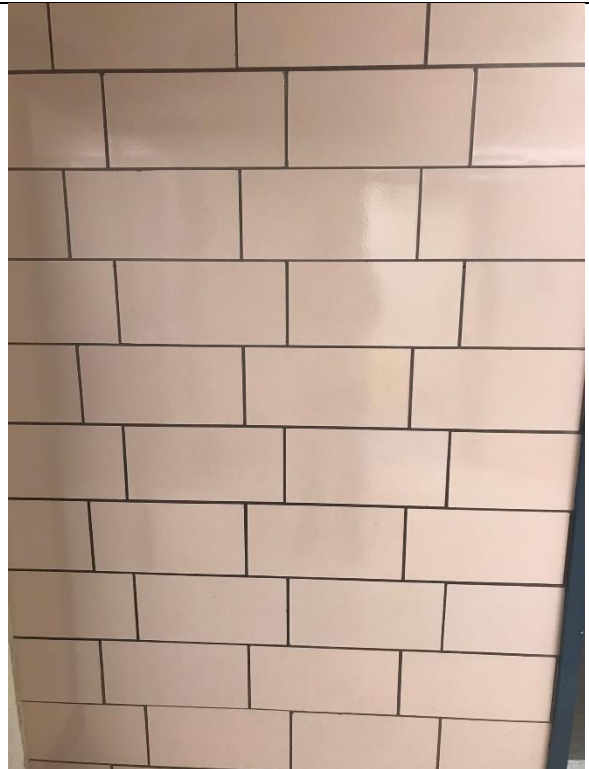


Photo 12

View of Lead-Glazed Block on the Walls Throughout the Inspected Corridors



[Photo 13](#)

View of Lead-Glazed Porcelain Sink in Room P4A



[Photo 14](#)

View of Lead-Glazed Porcelain Toilet in Room P5A



**APPENDIX E:**  
**LABORATORY ANALYTICAL**  
**REPORTS**





# Bulk Sample Asbestos Analytical Report

**ABELLA ASSOCIATES, DPC**  
**ANALYTICAL LABORATORY**  
300 STATE STREET  
ROCHESTER, NY 14614  
585.454.6110 FAX 585.454.3066

LBL ELAP # 11184  
All TEM analysis by AMA Lab, ELAP # 10920  
PLM Methods: 198.1, 198.4 & 198.6  
RSD: 18.3

LBL JOB # 86723

Page 1 of 2

Client Code:

CLIENT: Labella Associates

Project Number: 2221581.01

ADDRESS: 300 State Street

Rochester, NY 14614

Sample Type: PLM Bulk

Sample Date: 8/4/2023

PROJECT LOCATION: Village Elementary School

Field ID	LBL ID	Method	Asbestos Type	%	Other Fibers	%	Matrix	%	Color/Description
VE-1A	86723-1	P	ND		CELL/GLASS	80	BINDER	20	GRAY PAPER
VE-1B	86723-2	P	ND		CELL/GLASS	80	BINDER	20	GRAY PAPER
VE-2A	86723-3	G	ND		ND		TAR	100	BLACK FLASHING
VE-2B	86723-4	G	ND		ND		TAR	100	BLACK FLASHING
VE-3A	86723-5	T	ND		ND		MIN/BINDER	100	GRAY CAULK
VE-3B	86723-6	T	ND		ND		MIN/BINDER	100	GRAY CAULK
VE-4A	86723-7	P	ND		CELL/GLASS	10	MIN	90	WHITE INSULATION
VE-4B	86723-8	P	ND		CELL/GLASS	10	MIN	90	WHITE INSULATION
VE-5A	86723-9	G	ND		ND		MIN/VINYL	100	WHITE FLOOR TILE
VE-5B	86723-10	G	ND		ND		MIN/VINYL	100	WHITE FLOOR TILE
VE-6A	86723-11	T	ND		ND		MIN/BINDER	100	TAN MASTIC
VE-6B	86723-12	T	ND		ND		MIN/BINDER	100	TAN MASTIC
VE-7A	86723-13	P	ND		GLASS	100	ND		GRAY CEILING TILE
VE-7B	86723-14	P	ND		GLASS	100	ND		GRAY CEILING TILE
VE-8A	86723-15	N	CHYRSOTILE	3	ND		MIN/BINDER	97	GRAY WINDOW/DOOR GLAZING COMP.
VE-9A	86723-16	N	CHYRSOTILE	2	ND		MIN/BINDER	98	GRAY WINDOW GLAZING COMPOUND
VE-10A	86723-17	P	ND		ND		MIN	100	GRAY GROUT
VE-10B	86723-18	P	ND		ND		MIN	100	GRAY GROUT
VE-11A	86723-19	P	ND		ND		MIN	100	GRAY CEMENT
VE-11B	86723-20	P	ND		ND		MIN	100	GRAY CEMENT
VE-12A	86723-21	P	ND		ND		MIN	100	WHITE PLASTER

LAB DIRECTOR:

Matthew Smith

Date:

8/7/23

**Method Code:** P - Friable PLM result N - NOB PLM result T - TEM result IN\* - Inconclusive G - Gravimetric Matrix Reduction where sample residue weight is less than 1% of original sample weight, TEM not required.

**Terms:** ND\*\* - None Detected CELL - Cellulose JC - Joint Compound MIN - Mineral GLASS - Fiberglass <1\*\* - Trace PLAS - Plaster Vermiculite - Vermiculite is reported as an asbestos-containing mineral in accordance with NYSDOH determinations and requirements. See NYSDOH guidance, available upon request.

\* "Polarized-light microscopy (PLM) is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can be used to determine if this material can be considered to be non-asbestos containing."

\*\* Please note: Due to interference from sample matrix components results reported via PLM method ELAP 198.1 as negative (ND) or less than 1% (Trace) may be inaccurate and reported as a False Negative. It is recommended that additional analytical techniques such as gravimetric reduction, TEM and others be used to reduce obscuring effects of some matrix components yielding more accurate results.

\* Please note: Due to interference from sample matrix components results reported via PLM method ELAP 198.1 as negative (ND) or less than 1% (Trace) may be inaccurate and reported as a False Negative. It is recommended that additional analytical techniques such as gravimetric reduction, TEM and others be used to reduce obscuring effects of some matrix components yielding more accurate results.

**ASBESTOS SAMPLING SURVEY  
BULK SAMPLE LOG  
AND CHAIN OF CUSTODY**

Location: Village Elementary School

Client: Hilton CSD

Job No.: 2221581.01

Rates: 12/20/35

Date: 8/4/2023

Relinquished by: Chris Enright

Sampled By: Chris Enright

Received by: Matt Smith 8/5/23

LaBella Lab No.: 86723

Number of Samples: \_\_\_\_\_

STOP Positive: YES NO

Field ID #	Sample Location	Type of Suspect ACM to be Analyzed	Approx. Amount
P 1 VE-1A	Roof 1, Field (SW Section)	Gray Paper	
P 2 VE-1B	Roof 2, Field (NE Section)	Gray Paper	
G 3 VE-2A	Roof 1, Between Brick & Curbing	Black Thru Flashing	
G 4 VE-2B	Roof 1, Between Brick & Curbing	Black Thru Flashing	
T 5 VE-3A	Roof 1, Along Top of Metal Flashing	Gray Caulk	
T 6 VE-3B	Roof 1, Along Top of Metal Flashing	Gray Caulk	
P 7 VE-4A	Roof 2, Field (NE Section)	White Insulation	
P 8 VE-4B	Roof 2, Field (NE Section)	White Insulation	
G 9 VE-5A	Cafeteria (61), Floor	White 12" Floor Tile	
G 10 VE-5B	Cafeteria (61), Floor	White 12" Floor Tile	
T 11 VE-6A	Cafeteria (61), Floor	Tan Floor Tile Mastic	
T 12 VE-6B	Cafeteria (61), Floor	Tan Floor Tile Mastic	
P 13 VE-7A	Cafeteria (61), Ceiling	Gray 1'x1' Ceiling Tile	
P 14 VE-7B	Cafeteria (61), Ceiling	Gray 1'x1' Ceiling Tile	
+N 15 V VE-8A	Cafeteria (61), Around Glass Windowpane of Door	Gray Window/Door Glazing Compound	
V VE-8B	Cafeteria (61), Around Glass Windowpane of Door	Gray Window/Door Glazing Compound	
+N 16 V VE-9A	Cafeteria (61), Around Glass Pane of Transom Window	Gray Window Glazing Compound	
V VE-9B	Cafeteria (61), Around Glass Pane of Transom Window	Gray Window Glazing Compound	

**ASBESTOS SAMPLING SURVEY  
BULK SAMPLE LOG  
AND CHAIN OF CUSTODY**

Location: Village Elementary School

Client: Hilton CSD

Job No.: 2221581.01

Rates: 12/20/35

Date: 8/4/2023

Relinquished by: Chris Enright

Sampled By: Chris Enright

Received by: Matt Smith

LaBella Lab No.: 86723

Number of Samples: \_\_\_\_\_

STOP Positive: YES NO

Field ID #	Sample Location	Type of Suspect ACM to be Analyzed	Approx. Amount
P 17	VE-10A	Kitchen (62A), Floor	Gray Grout
P 18	VE-10B	Kitchen (62A), Floor	Gray Grout
P 19	VE-11A	Kitchen (62A), Floor	Gray Ceramic Tile
P 20	VE-11B	Kitchen (62A), Floor	Cement
P 21	VE-12A	Kitchen (62A), Upper Wall	Gray Ceramic Tile
P 22	VE-12B	Kitchen (62A), Upper Wall	Cement
P 23	VE-12C	Kitchen (62A), Upper Wall	Gray Ceramic Tile
P 24	VE-13A	Kitchen (62A), Upper Wall	Cement
P 25	VE-13B	Kitchen (62A), Upper Wall	White Plaster
P 26	VE-13C	Kitchen (62A), Upper Wall	White Plaster
P 27	VE-14A	Kitchen (62A), Ceiling	White Plaster
P 28	VE-14B	Kitchen (62A), Ceiling	White Plaster
+ P 29	VE-15A	Kitchen (62A), On Fiberglass Lines Above Metal Pan Ceiling	Black Metal Pan Paper
+ P 30	VE-15B	Kitchen (62A), On Fiberglass Lines Above Metal Pan Ceiling	Black Metal Pan Paper

# Bulk Sample Asbestos Analytical Report

LABELLA ASSOCIATES, DPC  
ANALYTICAL LABORATORY  
300 STATE STREET  
ROCHESTER, NY 14614  
585.454.6110 FAX 585.454.3066

LBL ELAP # 11184  
All TEM analysis by AMA Lab, ELAP # 10920  
PLM Methods: 198.1, 198.4 & 198.6  
RSD: 18.3

LBL JOB # 86723

Page 1 of 4

Client Code:

CLIENT: Labella Associates  
ADDRESS: 300 State Street  
Rochester, NY 14614

Project Number: 2221581.01

Sample Type: PLM Bulk

Sample Date: 8/4/2023

PROJECT LOCATION: Village Elementary School

Field ID	LBL ID	Method	Asbestos Type	%	Other Fibers	%	Matrix	%	Color/Description
1A	86723-1	T	ND		CELL/GLASS	100	ND		GRAY CEILING TILE
1B	86723-2	T	ND		CELL/GLASS	100	ND		GRAY CEILING TILE
2A	86723-3	P	ND		ND		MIN	100	GRAY DRYWALL
2B	86723-4	P	ND		ND		MIN	100	GRAY DRYWALL
3A	86723-5	P	ND		ND		MIN	100	WHITE DRYWALL
3B	86723-6	P	ND		ND		MIN	100	WHITE DRYWALL
4A	86723-7	P	ND		ND		MIN	100	WHITE MASTIC
4B	86723-8	P	ND		ND		MIN	100	WHITE MASTIC
4C	86723-9	P	ND		ND		MIN	100	WHITE MASTIC
5A	86723-10	P	ND		ND		MIN	100	WHITE GYPSUM DECK
5B	86723-11	P	ND		ND		MIN	100	WHITE GYPSUM DECK
6A	86723-12	P	ND		ND		MIN	100	WHITE PLASTER
6B	86723-13	P	ND		ND		MIN	100	WHITE PLASTER
6C	86723-14	P	ND		ND		MIN	100	WHITE PLASTER
6D	86723-15	P	ND		ND		MIN	100	WHITE PLASTER
7A	86723-16	P	ND		ND		MIN	100	GRAY PLASTER
7B	86723-17	P	ND		ND		MIN	100	GRAY PLASTER
7C	86723-18	P	ND		ND		MIN	100	GRAY PLASTER
7D	86723-19	P	ND		ND		MIN	100	GRAY PLASTER
8A	86723-20	T	ND		ND		MIN/BINDER	100	TAN MASTIC
8B	86723-21	T	ND		ND		MIN/BINDER	100	TAN MASTIC

LAB DIRECTOR: Matthew Smith Date: 9/23/23

Method Code: P - Friable PLM result N - NOB PLM result T - TEM result IN\* - Inconclusive G - Gravimetric Matrix Reduction where sample residue weight is less than 1% of original sample weight, TEM not required.

Terms: ND\*\* - None Detected CELL - Cellulose JC - Joint Compound MIN - Mineral GLASS - Fiberglass <1\*\* - Trace PLAS - Plaster Vermiculite - Vermiculite is reported as an asbestos-containing mineral in accordance with NYSDOH determinations and requirements. See NYSDOH guidance, available upon request.

\* "Polarized-light microscopy (PLM) is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can be used to determine if this material can be considered to be non-asbestos containing."

\*\* Please note: Due to interference from sample matrix components results reported via PLM method ELAP 198.1 as negative (ND) or less than 1% (Trace) may be inaccurate and reported as a False Negative. It is recommended that additional analytical techniques such as gravimetric reduction, TEM and others be used to reduce obscuring effects of some matrix components yielding more accurate results.



# LaBella Lab Bulk Sample Asbestos Analytical Report

LBL JOB # 86723

Client Code:

Page 2 of 4

CLIENT: Labella Associates

Project Number: 2221581.01

PROJECT LOCATION: Village Elementary School

Field ID	LBL ID	Method	Asbestos Type	%	Other Fibers	%	Matrix	%	Color/Description
9A	86723-22	T	ND		ND		MIN/BINDER	100	WHITE MASTIC
9B	86723-23	T	ND		ND		MIN/BINDER	100	WHITE MASTIC
10A	86723-24	T	ND		ND		MIN/BINDER	100	GRAY WINDOW GLAZING COMPOUND
10B	86723-25	T	ND		ND		MIN/BINDER	100	GRAY WINDOW GLAZING COMPOUND
11A	86723-26	P	ND		ND		MIN	100	GRAY FLOOR LEVELER
11B	86723-27	P	ND		ND		MIN	100	GRAY FLOOR LEVELER
12A	86723-28	P	ND		ND		MIN	100	WHITE JOINT COMPOUND
12B	86723-29	P	ND		ND		MIN	100	WHITE JOINT COMPOUND
12C	86723-30	P	ND		ND		MIN	100	WHITE JOINT COMPOUND
12D	86723-31	P	ND		ND		MIN	100	WHITE JOINT COMPOUND
13A	86723-32	T	ND		ND		MIN/BINDER	100	GRAY WINDOW GLAZING COMPOUND
13B	86723-33	T	ND		ND		MIN/BINDER	100	GRAY WINDOW GLAZING COMPOUND
14A	86723-34	N	CHRYSTILE	36	ND		MIN/BINDER	64	GRAY TRANSITE PANEL
15A	86723-35	P	CHRYSTILE	18	GLASS	10	MIN	72	WHITE MUD FITTING
15B	86723-36	P	CHRYSTILE	23	GLASS	10	MIN	77	WHITE MUD FITTING
15C	86723-37	P	CHRYSTILE	16	GLASS	10	MIN	74	GRAY MUD FITTING
15D	86723-38	P	CHRYSTILE	19	GLASS	10	MIN	71	GRAY MUD FITTING
15E	86723-39	P	CHRYSTILE	25	GLASS	10	MIN	65	WHITE MUD FITTING
16A	86723-40	P	ND		ND		MIN	100	BLACK SINK COATING
16B	86723-41	P	ND		ND		MIN	100	BLACK SINK COATING
17A	86723-42	P	ND		ND		MIN	100	WHITE GROUT
17B	86723-43	P	ND		ND		MIN	100	WHITE GROUT
18A	86723-44	T	ND		ND		MIN/BINDER	100	BEIGE MASTIC
18B	86723-45	T	ND		ND		MIN/BINDER	100	BEIGE MASTIC
19A	86723-46	P	ND		ND		MIN	100	GRAY GROUT
19B	86723-47	P	ND		ND		MIN	100	GRAY GROUT
20A	86723-48	P	ND		ND		MIN	100	GRAY CEMENT
20B	86723-49	P	ND		ND		MIN	100	GRAY CEMENT

LAB DIRECTOR:

*Matthew Smith*

Date:

*9/23/23*

Method Code: P - Friable PLM result N - NOB PLM result T - TEM result IN\* - Inconclusive G - Gravimetric Matrix Reduction where sample residue weight is less than 1% of original sample weight, TEM not required.

Terms: ND\*\* - None Detected CELL - Cellulose JC - Joint Compound MIN - Mineral GLASS - Fiberglass <1\*\* - Trace PLAS - Plaster Vermiculite - Vermiculite is reported as an asbestos-containing mineral in accordance with NYSDOH determinations and requirements. See NYSDOH guidance, available upon request.

\* "Polarized-light microscopy (PLM) is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can be used to determine if this material can be considered to be non-asbestos containing."

\*\* Please note: Due to interference from sample matrix components results reported via PLM method ELAP 198.1 as negative (ND) or less than 1% (Trace) may be inaccurate and reported as a False Negative. It is recommended that additional analytical techniques such as gravimetric reduction, TEM and others be used to reduce obscuring effects of some matrix components yielding more accurate results.



# LaBella Lab Bulk Sample Asbestos Analytical Report

LBL JOB # 86723

Page 3 of 4

Client Code:

CLIENT: Labella Associates

Project Number: 2221581.01

PROJECT LOCATION: Village Elementary School

Field ID	LBL ID	Method	Asbestos Type	%	Other Fibers	%	Matrix	%	Color/Description
21A	86723-50	T	ND		ND		MIN/BINDER	100	BROWN MASTIC
21B	86723-51	T	ND		ND		MIN/BINDER	100	BROWN MASTIC
22A	86723-52	P	ND		GLASS	100	ND		GRAY CEILING TILE
22B	86723-53	P	ND		GLASS	100	ND		GRAY CEILING TILE
23A	86723-54	T	ND		ND		MIN/BINDER	100	BLACK WINDOW/DOOR GLAZING COMP.
23B	86723-55	T	ND		ND		MIN/BINDER	100	BLACK WINDOW/DOOR GLAZING COMP.
24A	86723-56	G	ND		ND		MIN/VINYL	100	WHITE FLOOR TILE
24B	86723-57	G	ND		ND		MIN/VINYL	100	WHITE FLOOR TILE
25A	86723-58	T	ND		ND		MIN/BINDER	100	YELLOW MASTIC
25B	86723-59	T	ND		ND		MIN/BINDER	100	YELLOW MASTIC
26A	86723-60	N	CHRYSTILE	4	ND		MIN/BINDER	96	GRAY WINDOW/DOOR GLAZING COMP.
27A	86723-61	N	CHRYSTILE	15	ND		MIN/BINDER	85	PURPLE SINK COATING
28A	86723-62	G	ND		ND		TAR	100	BLACK TAR
28B	86723-63	G	ND		ND		TAR	100	BLACK TAR
28C	86723-64	G	ND		ND		TAR	100	BLACK TAR
29A	86723-65	T	ND		ND		MIN/BINDER	100	TAN MASTIC
29B	86723-66	T	ND		ND		MIN/BINDER	100	TAN MASTIC
30A	86723-67	T	ND		ND		MIN/BINDER	100	TAN MASTIC
30B	86723-68	T	ND		ND		MIN/BINDER	100	TAN MASTIC
31A	86723-69	P	CHRYSTILE	20	GLASS	15	MIN	65	GRAY DEBRIS
32A	86723-70	P	ND		CELL/GLASS	60	MIN	40	GRAY DEBRIS
32B	86723-71	P	ND		CELL/GLASS	60	MIN	40	GRAY DEBRIS
33A	86723-72	T	ND		ND		MIN/BINDER	100	GREEN MASTIC
33B	86723-73	T	ND		ND		MIN/BINDER	100	GREEN MASTIC
34A	86723-74	N	CHRYSTILE	5	ND		MIN/BINDER	95	TAN DOOR CAULK
35A	86723-75	G	ND		ND		MIN/VINYL	100	CREAM FLOOR TILE
35B	86723-76	G	ND		ND		MIN/VINYL	100	CREAM FLOOR TILE
36A	86723-77	T	ND		ND		MIN/BINDER	100	BLACK WINDOW GLAZING COMPOUND

LAB DIRECTOR:

Matthew Smith

Date:

9/23/23

Method Code: P - Friable PLM result N - NOB PLM result T - TEM result IN\* - Inconclusive G - Gravimetric Matrix Reduction where sample residue weight is less than 1% of original sample weight, TEM not required.

Terms: ND\*\* - None Detected CELL - Cellulose JC - Joint Compound MIN - Mineral GLASS - Fiberglass <1\*\* - Trace PLAS - Plaster Vermiculite - Vermiculite is reported as an asbestos-containing mineral in accordance with NYSDOH determinations and requirements. See NYSDOH guidance, available upon request.

\* "Polarized-light microscopy (PLM) is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can be used to determine if this material can be considered to be non-asbestos containing."

\*\* Please note: Due to interference from sample matrix components results reported via PLM method ELAP 198.1 as negative (ND) or less than 1% (Trace) may be inaccurate and reported as a False Negative. It is recommended that additional analytical techniques such as gravimetric reduction, TEM and others be used to reduce obscuring effects of some matrix components yielding more accurate results.

\*\* Please note: Due to interference from sample matrix components results reported via PLM method ELAP 198.1 as negative (ND) or less than 1% (Trace) may be inaccurate and reported as a False Negative. It is recommended that additional analytical techniques such as gravimetric reduction, TEM and others be used to reduce obscuring effects of some matrix components yielding more accurate results.



**ASBESTOS SAMPLING SURVEY  
BULK SAMPLE LOG  
AND CHAIN OF CUSTODY**

Location: Village Elementary School

Client: Hilton CSD

Job No.: 2221581.02

Rates: 12/20/35

Date: 9/20/2023-9/21/2023

Relinquished by: Chris Enright

Sampled By: Chris Enright

Received by: Matt Smith 9/22/23

LaBella Lab No.: 86723

Number of Samples: \_\_\_\_\_

STOP Positive: ☒ YES ☐ NO

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21

Field ID #	Sample Location	Type of Suspect ACM to be Analyzed	Approx. Amount
1A	Room P8, Ceiling	Gray 2'x4' Suspended Ceiling Tile	
1B	Room P5, Ceiling	Gray 2'x4' Suspended Ceiling Tile	
2A	Room P8, Top Fill Above Ceiling	Gray Drywall	
2B	Room P3A, Interior Wall	Gray Drywall	
3A	Room P8, Ceiling Above Drop Ceiling	White Drywall	
3B	Room P49, Ceiling Above Drop Ceiling	White Drywall	
4A	Room P8, Ceiling Above Drop Ceiling	White Mastic	
4B	Room P2, Ceiling Above Drop Ceiling	White Mastic	
4C	Room P49, Ceiling Above Drop Ceiling	White Mastic	
5A	Room P8, Deck	White Gypsum Deck	
5B	Corridor A197, Deck	White Gypsum Deck	
6A	Room P8, Wall	White Plaster	
6B	Room P5, Wall	White Plaster	
6C	Room P44, Wall	White Plaster	
6D	Room P41, Wall	White Plaster	
7A	Room P8, Wall	Gray Plaster	
7B	Room P5, Wall	Gray Plaster	
7C	Room P44, Wall	Gray Plaster	
7D	Room P41, Wall	Gray Plaster	
8A	Room P8, Wall Base	Tan Cove Molding Mastic	
8B	Room P5, Wall Base	Tan Cove Molding Mastic	

**ASBESTOS SAMPLING SURVEY  
BULK SAMPLE LOG  
AND CHAIN OF CUSTODY**

Location: Village Elementary School

Client: Hilton CSD

Job No.: 2221581.02

Rates: 12/20/35

Date: 9/20/2023-9/21/2023

Relinquished by: Chris Enright

Sampled By: Chris Enright

Received by: Matt Smith

LaBella Lab No.: 86723

Number of Samples: \_\_\_\_\_

STOP Positive: YES NO

Field ID #	Sample Location	Type of Suspect ACM to be Analyzed	Approx. Amount
22 9A	Room P8, Floor Under Carpet	White Carpet Mastic	
23 9B	Room P5, Floor Under Carpet	White Carpet Mastic	
24 10A	Room P8, Around Glass Pane of Transom Window	Gray Window Glazing Compound	
25 10B	Room P2, Around Glass Pane of Transom Window	Gray Window Glazing Compound	
26 11A	Room P5, Floor Under Carpet	Gray Floor Leveler	
27 11B	Room A195, Floor Under Carpet	Gray Floor Leveler	
28 12A	Room P5, Interior Wall	White Joint Compound	
29 12B	Room P3A, Interior Wall	White Joint Compound	
30 12C	Room P39, Interior Wall	White Joint Compound	
31 12D	Room A194, Wall	White Joint Compound	
32 13A	Room P5, Around Glass Panes of Wood Windows	Gray Window Glazing Compound	
33 13B	Room P5, Around Glass Panes of Wood Windows	Gray Window Glazing Compound	
34 14A	Room P5, Skylight Above Ceiling	Gray Transite Panel	
14B	Room P5, Skylight Above Ceiling	Gray Transite Panel	
35 15A	Room P5, Fittings on Fiberglass Line	White Mud Fitting	
36 15B	Room P3, Fittings on Fiberglass Line	White Mud Fitting	
37 15C	Room P42, Fittings on Fiberglass Line	Gray Mud Fitting	
38 15D	Room P39, Fittings on Fiberglass Line	Gray Mud Fitting	
39 15E	Room 61A, Fittings on Fiberglass Line	White Mud Fitting	
40 16A	Room P3, Under Sink	Black Sink Coating	
41 16B	Room P3, Under Sink	Black Sink Coating	



**ASBESTOS SAMPLING SURVEY  
BULK SAMPLE LOG  
AND CHAIN OF CUSTODY**

Location: Village Elementary School

Client: Hilton CSD

Job No.: 2221581.02

Rates: 12/20/35

Date: 9/20/2023-9/21/2023

Relinquished by: Chris Enright

Sampled By: Chris Enright

Received by: Matt Smith

LaBella Lab No.: 86723

Number of Samples: \_\_\_\_\_

STOP Positive: YES NO

	Field ID #	Sample Location	Type of Suspect ACM to be Analyzed	Approx. Amount
P 42	17A	Room P3, Wall	White Grout	
P 43	17B	Janitor's Closet, Wall	White Grout	
T 44	18A	Room P3, Wall	Beige Ceramic Tile Mastic	
T 45	18B	Janitor's Closet, Wall	Beige Ceramic Tile Mastic	
P 46	19A	Janitor's Closet, Floor	Gray Grout	
P 47	19B	Men's Room, Floor	Gray Grout	
P 48	20A	Janitor's Closet, Floor	Dark Gray Ceramic Tile Cement	
P 49	20B	Janitor's Closet, Floor	Dark Gray Ceramic Tile Cement	
T 50	21A	Room P6, Wall Base	Brown Cove Molding Mastic	
T 51	21B	Room P4, Wall Base	Brown Cove Molding Mastic	
P 52	22A	Room P6, Ceiling	Gray 1'x1' Ceiling Tile	
P 53	22B	Vestibule A191B, Ceiling	Gray 1'x1' Ceiling Tile	
T 54	23A	Room P6, Around Glass Windowpane Of Door	Black Window/Door Glazing Compound	
T 55	23B	Room P6, Around Glass Windowpane Of Door	Black Window/Door Glazing Compound	
G 56	24A	Room P2, Floor	White with black streaks 12" Floor Tile	
G 57	24B	Corridor A197, Floor	White with black streaks 12" Floor Tile	
T 58	25A	Room P2, Floor	Yellow Floor tile mastic	
T 59	25B	Corridor A197, Floor	Yellow Floor tile mastic	

**ASBESTOS SAMPLING SURVEY  
BULK SAMPLE LOG  
AND CHAIN OF CUSTODY**

Location: Village Elementary School Client: Hilton CSD  
 Job No.: 2221581.02 Rates: 12/20/35  
 Date: 9/20/2023-9/21/2023 Relinquished by: Chris Enright  
 Sampled By: Chris Enright Received by: Matt Smith  
 LaBella Lab No.: \_\_\_\_\_ Number of Samples: \_\_\_\_\_  
 STOP Positive: YES NO

	Field ID #	Sample Location	Type of Suspect ACM to be Analyzed	Approx. Amount
+N 60	26A	Room P2, Around Glass Windowpane Of Door	Gray Window/Door Glazing Compound	
V	26B	Room P49, Around Glass Windowpane Of Door	Gray Window/Door Glazing Compound	
+N 61	27A	Room P2, Under Sink	Purple Sink Coating	
V	27B	Room P45, Under Sink	Purple Sink Coating	
G 62	28A	Room P4, On Fiberglass Line	Black Tar	
G 63	28B	Room P45, On Fiberglass Line	Black Tar	
G 64	28C	Room P43, On Fiberglass Line	Black Tar	
T 65	29A	Mech Room, On Ductwork	Tan Pin Mastic	
T 66	29B	Mech Room, On Ductwork	Tan Pin Mastic	
T 67	30A	Room P47, Under Wood at Base of UV	Beige Mastic	
T 68	30B	Room P45, Under Wood at Base of UV	Beige Mastic	
+P 69	31A	Corridor A197, On Fiberglass Insulation (Outside Room P45)	Gray Debris	
P 70	32A	Corridor A197, On Fiberglass Insulation (Outside Room P42)	Gray Debris	
P 71	32B	Corridor A197, On Fiberglass Insulation (Outside Room P45)	Gray Debris	
T 72	33A	Vestibule A191B, Floor Under Carpet	Green Carpet Mastic	
T 73	33B	Vestibule A191B, Floor Under Carpet	Green Carpet Mastic	
+N 74	34A	Vestibule A191B, Around Door Frame	Tan Door Caulk	
V	34B	Vestibule A191B, Around Door Frame	Tan Door Caulk	
G 75	35A	Canopy A192, Floor	Cream Mottled 12" floor Tile	
G 76	35B	Corridor A199/A200, Floor	Cream Mottled 12" floor Tile	



**ASBESTOS SAMPLING SURVEY  
BULK SAMPLE LOG  
AND CHAIN OF CUSTODY**

Location: Village Elementary School

Client: Hilton CSD

Job No.: 2221581.02

Rates: 12/20/35

Date: 9/20/2023-9/21/2023

Relinquished by: Chris Enright

Sampled By: Chris Enright

Received by: Matt Smith

LaBella Lab No.: 86723

Number of Samples: \_\_\_\_\_

STOP Positive: YES NO

	Field ID #	Sample Location	Type of Suspect ACM to be Analyzed	Approx. Amount
T 77	36A	Lobby A194, Around Glass Panes of Interior Window	Black Window Glazing Compound	
T 78	36B	Lobby A194, Around Glass Panes of Interior Window	Black Window Glazing Compound	
T 79	37A	Lobby A194, Ceiling	Gray 2'x2' Suspended Ceiling Tile	
T 80	37B	Office A195, Ceiling	Gray 2'x2' Suspended Ceiling Tile	
T 81	38A	Canopy A192, Along Top of Rubber Inside Garden Bed	Black Caulk	
T 82	38B	Lobby A194, Along Top of Rubber Inside Garden Bed	Black Caulk	
T 83	39A	Lobby A194, Along Window Frame	Light Gray Caulk	
T 84	39B	Vestibule A193, Along Door Frame	Light Gray Caulk	
T 85	40A	Office A196, Around Glass windowpane Of Door	Black Window/Door Glazing Compound	
T 86	40B	Office A196, Around Glass windowpane Of Door	Black Window/Door Glazing Compound	
+N 87	41A	Corridor A197, Around Glass Panes of Interior Windows	Gray Window Glazing Compound	
V	41B	Corridor A197, Around Glass Panes of Interior Windows	Gray Window Glazing Compound	
G 88	42A	Corridor A190, Floor	White with Black specks 12" Floor Tile	
G 89	42B	Corridor A190, Floor	White with Black specks 12" Floor Tile	

**XRF Lead Sampling Summary Table**  
**Village Elementary School**  
**100 School Lane**  
**Hilton, New York 14468**  
**LaBella Project No. 2221581.01**

Reading No.	Location (Room)	Wall (A, B, C D) & Structure	Substrate	Color	XRF Result
1	Calibration Check	-----	-----	-----	PASS
2	Calibration Check	-----	-----	-----	PASS
3	Calibration Check	-----	-----	-----	PASS
4	Calibration Check	-----	-----	-----	PASS
5	Calibration Check	-----	-----	-----	PASS
6	Calibration Check	-----	-----	-----	PASS
<i>Shots Taken on August 4, 2023</i>					
7	Room 61 (Cafeteria)	A, Upper	CMU	Yellow	0.0
8	<b>Room 61 (Cafeteria)</b>	<b>A, Lower</b>	<b>Glazed Block</b>	<b>Tan</b>	<b>3.1+ I</b>
9	Room 61 (Cafeteria)	A, Wall Base	Vinyl	Gray	0.0
10	Room 61 (Cafeteria)	A, Support Post	Metal	Red	0.0
11	Room 61 (Cafeteria)	C, Upper	CMU	Yellow	0.0
12	<b>Room 61 (Cafeteria)</b>	<b>C, Lower</b>	<b>Glazed Block</b>	<b>Tan</b>	<b>3.5+ I</b>
13	Room 61 (Cafeteria)	C, Door Case	Metal	Purple	0.3
14	Room 61 (Cafeteria)	C, Door	Wood	Brown	0.0
15	<b>Room 62A (Kitchen)</b>	<b>B, Lower</b>	<b>Glazed Block</b>	<b>Tan</b>	<b>2.8+ I</b>
16	<b>Room 62A (Kitchen)</b>	<b>D, Lower</b>	<b>Glazed Block</b>	<b>Tan</b>	<b>3.8+ I</b>
17	<b>Room 62A (Kitchen)</b>	<b>B, Upper</b>	<b>Plaster</b>	<b>White</b>	<b>2.2+ I</b>
18	Room 62A (Kitchen)	Ceiling	Metal	White	0.0
19	Room 62A (Kitchen)	Floor	Ceramic	Pink	0.0
20	Room 62A (Kitchen)	B, Door Case	Metal	Blue	0.2
21	Room 62A (Kitchen)	D, Upper	Plaster	White	0.0
22	<b>Room 62A (Kitchen)</b>	<b>C, Upper</b>	<b>Plaster</b>	<b>White</b>	<b>2.0+ I</b>
23	Calibration Check	-----	-----	-----	PASS

I = Intact Condition. No visible damage or deterioration

P = Poor Condition. Paint is chipped, peeling, or otherwise damaged

**XRF Lead Sampling Summary Table**  
**Village Elementary School**  
**100 School Lane**  
**Hilton, New York 14468**  
**LaBella Project No. 2221581.01**

Reading No.	Location (Room)	Wall (A, B, C D) & Structure	Substrate	Color	XRF Result
24	Calibration Check	----	----	----	PASS
25	Calibration Check	----	----	----	PASS
26	Calibration Check	----	----	----	PASS
27	Calibration Check	----	----	----	PASS
28	Calibration Check	----	----	----	PASS
<i>Shots Taken on September 20-21, 2023</i>					
29	Calibration Check	----	----	----	PASS
30	Calibration Check	----	----	----	PASS
31	Calibration Check	----	----	----	PASS
32	Calibration Check	----	----	----	PASS
33	Calibration Check	----	----	----	PASS
34	Calibration Check	----	----	----	PASS
35	Room P49	B, Lower	Ceramic	Pink	0.0
36	Room P49	B, Wall Base	Vinyl	Blue	0.0
37	Room P49	C, Door Case	Metal	Blue	0.2
38	Room P49	C, Door	Wood	Brown	0.0
39	Room P49	C, Upper	Plaster	White	0.0
40	Room P49	D, Upper Pegboard	Wood	White	0.0
41	Room P47	D, Lower	Ceramic	Green	0.0
42	Room P45	B, Lower	Ceramic	Yellow	0.0
43	Room P43	D, Lower	Ceramic	Blue	0.0
44	Room P43	D, Upper	Drywall	White	0.0
45	Room P41	D, Door Case	Metal	Blue	0.2
46	Room P41	C	Plaster	White	0.0

I = Intact Condition. No visible damage or deterioration

P = Poor Condition. Paint is chipped, peeling, or otherwise damaged

**XRF Lead Sampling Summary Table**  
**Village Elementary School**  
**100 School Lane**  
**Hilton, New York 14468**  
**LaBella Project No. 2221581.01**

Reading No.	Location (Room)	Wall (A, B, C D) & Structure	Substrate	Color	XRF Result
47	Room P39	B, Lower	Ceramic	Blue	0.0
48	Room P39	C, Door Case	Metal	Blue	0.3
49	Room P38	D, Lower	Ceramic	Yellow	0.0
50	Room P38	D, Wall Base	Vinyl	Blue	0.0
51	Room P40	B, Lower	Ceramic	Green	0.0
52	Room P40	A	Plaster	White	0.0
53	Room P42	A, Door Case	Metal	Blue	0.4
54	Room P42	A, Door	Wood	Brown	0.0
55	Room P42	D, Lower	Ceramic	Pink	0.0
56	Room P42	D, Upper Pegboard	Wood	White	0.0
57	Room P44	B, Lower	Ceramic	Blue	0.0
58	Room P46	D, Lower	Ceramic	Yellow	0.0
59	Room P46	A	Plaster	White	0.0
60	Room P46	D, Wall Base	Vinyl	Blue	0.0
61	Room P48	B, Lower	Ceramic	Green	0.0
62	Room P48	B, Upper	Drywall	White	0.0
<b>63</b>	<b>Room A197</b>	<b>A</b>	<b>Glazed Block</b>	<b>Salmon</b>	<b>3.3+ I</b>
64	Room A197	A, Window Case	Metal	Blue	0.1
65	Room A197	A, Door Case 5	Metal	Blue	0.3
66	Room A197	A, Door Case 8	Metal	Blue	0.5
67	Room A197	I-Beam	Metal	Red	0.1
68	Room Mech	B	CMU	Green	0.0
69	Room P4	A	CMU	Green	0.0
70	Room P4	A, Ladder	Metal	Tan	0.0

I = Intact Condition. No visible damage or deterioration

P = Poor Condition. Paint is chipped, peeling, or otherwise damaged



**XRF Lead Sampling Summary Table**  
**Village Elementary School**  
**100 School Lane**  
**Hilton, New York 14468**  
**LaBella Project No. 2221581.01**

Reading No.	Location (Room)	Wall (A, B, C D) & Structure	Substrate	Color	XRF Result
71	Room P4	Ceiling Joist	Metal	White	0.0
72	Janitor's Closet	A, Lower	Ceramic	Yellow	0.0
73	Janitor's Closet	Floor	Ceramic	Tan/Green	0.0
74	Janitor's Closet	A, Hatch Door	Metal	Tan	0.1
75	Janitor's Closet	Ceiling	Plaster	White	0.0
76	Room A194	D	Drywall	White	0.0
77	Room A194	D, Window Case	Metal	Blue	0.0
78	Room A194	D, Wall Base	Vinyl	Blue	0.0
79	Room A194	C, Door Case	Metal	Gray	0.0
80	Room A196C	A, Upper	Ceramic	Pink	0.0
81	Room A196C	Floor	Ceramic	Tan/Green	0.0
82	Room A196C	B, Toilet 1	Porcelain	White	0.0
<b>83</b>	<b>Room A196C</b>	<b>D, Sink</b>	<b>Porcelain</b>	<b>White</b>	<b>8.5+ I</b>
84	Room A196C	Stall Partition	Metal	Tan	0.1
85	Room A196B	A, Upper	Plaster	White	0.0
86	Room A196B	A, Lower	Ceramic	Peach	0.0
<b>87</b>	<b>Room A196B</b>	<b>B, Sink 5</b>	<b>Porcelain</b>	<b>White</b>	<b>3.5+ I</b>
88	Room A196B	D, Urinal 3	Porcelain	White	0.0
89	Room A196B	D, Toilet 2	Porcelain	White	0.1
90	Room A196B	Stall Partition	Metal	Tan	0.1
91	Room P6	B	Drywall	White	0.0
92	Room P5	C	Plaster	White	0.0
93	Room P5	C, Wall Base	Vinyl	Blue	0.0
94	Room P5A	C, Sink	Porcelain	White	0.0

I = Intact Condition. No visible damage or deterioration

P = Poor Condition. Paint is chipped, peeling, or otherwise damaged

**XRF Lead Sampling Summary Table**  
**Village Elementary School**  
**100 School Lane**  
**Hilton, New York 14468**  
**LaBella Project No. 2221581.01**

Reading No.	Location (Room)	Wall (A, B, C D) & Structure	Substrate	Color	XRF Result
<b>95</b>	<b>Room P5A</b>	<b>C, Toilet</b>	<b>Porcelain</b>	<b>White</b>	<b>1.1+ I</b>
96	Room P5A	C	Ceramic	Peach	0.0
<b>97</b>	<b>Room A199/A200</b>	<b>B</b>	<b>Glazed Block</b>	<b>Salmon</b>	<b>3.2+ I</b>
98	Room A199/A200	I-Beam	Metal	Red	0.1
99	Room A191B	D, Door Case	Metal	Blue	0.6
100	Room A191B	D, Door	Metal	Blue	0.0
101	Calibration Check	-----	-----	-----	PASS
102	Calibration Check	-----	-----	-----	PASS
103	Calibration Check	-----	-----	-----	PASS
104	Calibration Check	-----	-----	-----	PASS
105	Calibration Check	-----	-----	-----	PASS
106	Calibration Check	-----	-----	-----	PASS

I = Intact Condition. No visible damage or deterioration

P = Poor Condition. Paint is chipped, peeling, or otherwise damaged



## Analysis Report

# Schneider Laboratories Global, Inc

2512 W. Cary Street • Richmond, Virginia • 23220-5117  
804-353-6778 • 800-785-LABS (5227) • Fax 804-359-1475

**Customer:** Labella Associates (1126)  
**Address:** 300 State Street  
Rochester, NY 14614-1098

**Order #:** 533805

**Matrix** Bulk  
**Received** 09/26/23  
**Reported** 09/28/23

**Attn:**

**Project:** RBM Inspection-Hilton CSD  
**Location:** 100 School Lane Hilton, NY  
**Number:** 2221581.02

**PO Number:**

Sample ID	Cust. Sample ID	Location	Result	RL*	Units	Analysis Date	Analyst
Parameter		Method					
533805-001	G-10						
<b>Semi-volatile Organic Compounds</b>							
Aroclor - 1016		SW846 8082A	<86500	86500	µg/kg	09/28/23	KF
Aroclor - 1221		SW846 8082A	<86500	86500	µg/kg	09/28/23	KF
Aroclor - 1232		SW846 8082A	<86500	86500	µg/kg	09/28/23	KF
Aroclor - 1242		SW846 8082A	<86500	86500	µg/kg	09/28/23	KF
Aroclor - 1248		SW846 8082A	<86500	86500	µg/kg	09/28/23	KF
Aroclor - 1254		SW846 8082A	1510000	86500	µg/kg	09/28/23	KF
Aroclor - 1260		SW846 8082A	<86500	86500	µg/kg	09/28/23	KF
Aroclor - 1262		SW846 8082A	<86500	86500	µg/kg	09/28/23	KF
Aroclor - 1268		SW846 8082A	<86500	86500	µg/kg	09/28/23	KF
533805-002	G-26						
<b>Semi-volatile Organic Compounds</b>							
Aroclor - 1016		SW846 8082A	<64600	64600	µg/kg	09/28/23	KF
Aroclor - 1221		SW846 8082A	<64600	64600	µg/kg	09/28/23	KF
Aroclor - 1232		SW846 8082A	<64600	64600	µg/kg	09/28/23	KF
Aroclor - 1242		SW846 8082A	<64600	64600	µg/kg	09/28/23	KF
Aroclor - 1248		SW846 8082A	<64600	64600	µg/kg	09/28/23	KF
Aroclor - 1254		SW846 8082A	313000	64600	µg/kg	09/28/23	KF
Aroclor - 1260		SW846 8082A	<64600	64600	µg/kg	09/28/23	KF
Aroclor - 1262		SW846 8082A	<64600	64600	µg/kg	09/28/23	KF
Aroclor - 1268		SW846 8082A	<64600	64600	µg/kg	09/28/23	KF
533805-003	G-36						
<b>Semi-volatile Organic Compounds</b>							
Aroclor - 1016		SW846 8082A	<2410	2410	µg/kg	09/28/23	KF
Aroclor - 1221		SW846 8082A	<2410	2410	µg/kg	09/28/23	KF
Aroclor - 1232		SW846 8082A	<2410	2410	µg/kg	09/28/23	KF
Aroclor - 1242		SW846 8082A	<2410	2410	µg/kg	09/28/23	KF
Aroclor - 1248		SW846 8082A	<2410	2410	µg/kg	09/28/23	KF
Aroclor - 1254		SW846 8082A	<2410	2410	µg/kg	09/28/23	KF

All internal QC parameters were met. Unusual sample conditions, if any, are described. Surrogate Spike results designated with "D" indicate that the analyte was diluted out. "MI" indicates matrix interference. Concentration and \*Reporting Limit (RL) based on areas provided by client. Values are reported to three significant figures. Solid PPM = mg/kg | PPB = µg/kg and Water PPM = mg/L | PPB = µg/L. The test results apply to the sample as received.



## Analysis Report

# Schneider Laboratories Global, Inc

2512 W. Cary Street • Richmond, Virginia • 23220-5117  
804-353-6778 • 800-785-LABS (5227) • Fax 804-359-1475

**Customer:** Labella Associates (1126)  
**Address:** 300 State Street  
Rochester, NY 14614-1098

**Order #:** 533805

**Matrix** Bulk  
**Received** 09/26/23  
**Reported** 09/28/23

**Attn:**

**Project:** RBM Inspection-Hilton CSD  
**Location:** 100 School Lane Hilton, NY  
**Number:** 2221581.02

**PO Number:**

Sample ID	Cust. Sample ID	Location	Result	RL*	Units	Analysis Date	Analyst
Parameter		Method					
<b>533805-003</b>	G-36						
Aroclor - 1260		SW846 8082A	<2410	2410	µg/kg	09/28/23	KF
Aroclor - 1262		SW846 8082A	<2410	2410	µg/kg	09/28/23	KF
Aroclor - 1268		SW846 8082A	<2410	2410	µg/kg	09/28/23	KF
<b>533805-004</b>	G-41						
<b>Semi-volatile Organic Compounds</b>							
Aroclor - 1016		SW846 8082A	<497000	497000	µg/kg	09/28/23	KF
Aroclor - 1221		SW846 8082A	<497000	497000	µg/kg	09/28/23	KF
Aroclor - 1232		SW846 8082A	<497000	497000	µg/kg	09/28/23	KF
Aroclor - 1242		SW846 8082A	<497000	497000	µg/kg	09/28/23	KF
Aroclor - 1248		SW846 8082A	<497000	497000	µg/kg	09/28/23	KF
Aroclor - 1254		SW846 8082A	627000	497000	µg/kg	09/28/23	KF
Aroclor - 1260		SW846 8082A	<497000	497000	µg/kg	09/28/23	KF
Aroclor - 1262		SW846 8082A	<497000	497000	µg/kg	09/28/23	KF
Aroclor - 1268		SW846 8082A	<497000	497000	µg/kg	09/28/23	KF

**Not enough sample submitted for MS and/or Duplicate analyses.**

All internal QC parameters were met. Unusual sample conditions, if any, are described. Surrogate Spike results designated with "D" indicate that the analyte was diluted out. "MI" indicates matrix interference. Concentration and \*Reporting Limit (RL) based on areas provided by client. Values are reported to three significant figures. Solid PPM = mg/kg | PPB = µg/kg and Water PPM = mg/L | PPB = µg/L. The test results apply to the sample as received.



## Analysis Report

# Schneider Laboratories Global, Inc

2512 W. Cary Street • Richmond, Virginia • 23220-5117  
804-353-6778 • 800-785-LABS (5227) • Fax 804-359-1475

**Customer:** Labella Associates (1126)  
**Address:** 300 State Street  
Rochester, NY 14614-1098

**Order #:** 533805

**Matrix** Bulk  
**Received** 09/26/23  
**Reported** 09/28/23

**Attn:**

**Project:** RBM Inspection-Hilton CSD  
**Location:** 100 School Lane Hilton, NY  
**Number:** 2221581.02

**PO Number:**

Sample ID	Cust. Sample ID	Location	Result	RL*	Units	Analysis Date	Analyst
Parameter		Method					
533805-09/28/23 04:51 PM							

Reviewed By: **Ahmed Elnasseh**  
Analyst

### Surrogate Recoveries

**533805-001 - PCB**

DCB D  
TCMX D

**533805-002 - PCB**

DCB D  
TCMX D

**533805-003 - PCB**

DCB D  
TCMX D

**533805-004 - PCB**

DCB D  
TCMX D

### State Certifications

Method	Parameter	New York	Virginia
SW846 8082A	Aroclor - 1016	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1221	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1232	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1242	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1248	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1254	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1260	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1262	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1268	ELAP Certified	VELAP Certified

State	Certificate Number
New York	ELAP 66375
Virginia	VELAP 12299

All internal QC parameters were met. Unusual sample conditions, if any, are described. Surrogate Spike results designated with "D" indicate that the analyte was diluted out. "MI" indicates matrix interference. Concentration and \*Reporting Limit (RL) based on areas provided by client. Values are reported to three significant figures. Solid PPM = mg/kg | PPB = µg/kg and Water PPM = mg/L | PPB = µg/L. The test results apply to the sample as received.





## **APPENDIX F:**

# **LICENSES AND CERTIFICATIONS**

**WE ARE YOUR DOL**



**Department  
of Labor**

DIVISION OF SAFETY & HEALTH LICENSE AND CERTIFICATE UNIT, STATE OFFICE CAMPUS, BLDG. 12, ALBANY, NY 12226

# ASBESTOS HANDLING LICENSE

LaBella Associates, D.P.C.  
300 State Street, Suite 201, Rochester, NY, 14614

License Number: 29278

License Class: RESTRICTED

Date of Issue: 03/24/2023

Expiration Date: 03/31/2024

Duly Authorized Representative: Greg Senecal

This license has been issued in accordance with applicable provisions of Article 30 of the Labor Law of New York State and of the New York State Codes, Rules and Regulations (12 NYCRR Part 56). It is subject to suspension or revocation for a (1) serious violation of state, federal or local laws with regard to the conduct of an asbestos project, or (2) demonstrated lack of responsibility in the conduct of any job involving asbestos or asbestos material.

This license is valid only for the contractor named above and this license or a photocopy must be prominently displayed at the asbestos project worksite. This license verifies that all persons employed by the licensee on an asbestos project in New York State have been issued an Asbestos Certificate, appropriate for the type of work they perform, by the New York State Department of Labor.

Amy Phillips, Director  
For the Commissioner of Labor

EXCELSIOR



NEW YORK STATE DEPARTMENT OF HEALTH  
WADSWORTH CENTER



Expires 12:01 AM April 01, 2024  
Issued April 01, 2022  
Revised March 30, 2023

**CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE**

*Issued in accordance with and pursuant to section 502 Public Health Law of New York State*

MR. MATTHEW SMITH  
LABELLA ASSOCIATES  
300 STATE STREET SUITE 200  
ROCHESTER, NY 14614

NY Lab Id No: 11184

*is hereby APPROVED as an Environmental Laboratory for the category  
ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE  
All approved subcategories and/or analytes are listed below:*

**Miscellaneous**

Asbestos in Friable Material      Item 198.1 of Manual  
Asbestos in Non-Friable Material-PLM      Item 198.6 of Manual (NOB by PLM)

Serial No.: 66308

Property of the New York State Department of Health. Certificates are valid only at the address shown and must be conspicuously posted by the laboratory. Continued accreditation depends on the laboratory's successful ongoing participation in the Program. Consumers may verify a laboratory's accreditation status online at <https://apps.health.ny.gov/pubdoh/applinks/wc/elappublicweb/>, by phone (518) 485-5570 or by email to [elap@health.ny.gov](mailto:elap@health.ny.gov).

NEW YORK STATE DEPARTMENT OF HEALTH  
WADSWORTH CENTER



Expires 12:01 AM April 01, 2024  
Issued April 01, 2022  
Revised March 30, 2023

**CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE**

*Issued in accordance with and pursuant to section 502 Public Health Law of New York State*

**MICHAEL GREENBERG**  
**AMA ANALYTICAL SERVICES INC**  
**4475 FORBES BLVD**  
**LANHAM, MD 20706**

**NY Lab Id No: 10920**

*is hereby APPROVED as an Environmental Laboratory for the category*  
**ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE**  
*All approved subcategories and/or analytes are listed below:*

**Metals I**

Lead, Total EPA 7000B

**Miscellaneous**

Asbestos in Friable Material Item 198.1 of Manual  
EPA 600/M4/82/020  
Asbestos in Non-Friable Material-PLM Item 198.6 of Manual (NOB by PLM)  
Asbestos in Non-Friable Material-TEM Item 198.4 of Manual  
Lead in Dust Wipes EPA 7000B  
Lead in Paint EPA 7000B

**Sample Preparation Methods**

ASTM E-1979-17

**Serial No.: 66247**

Property of the New York State Department of Health. Certificates are valid only at the address shown and must be conspicuously posted by the laboratory. Continued accreditation depends on the laboratory's successful ongoing participation in the Program. Consumers may verify a laboratory's accreditation status online at <https://apps.health.ny.gov/pubdoh/applinks/wc/elappublicweb/>, by phone (518) 485-5570 or by email to [elap@health.ny.gov](mailto:elap@health.ny.gov).

NEW YORK STATE DEPARTMENT OF HEALTH  
WADSWORTH CENTER



Expires 12:01 AM April 01, 2024  
Issued April 01, 2022  
Revised March 30, 2023

**CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE**

*Issued in accordance with and pursuant to section 502 Public Health Law of New York State*

MR. FAYEZ ABOUZAKI  
SCHNEIDER LABORATORIES GLOBAL, INC  
2512 WEST CARY STREET  
RICHMOND, VA 23220-5117

NY Lab Id No: 11413

*is hereby APPROVED as an Environmental Laboratory in conformance with the  
National Environmental Laboratory Accreditation Conference Standards (2016) for the category  
ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE  
All approved analytes are listed below:*

**Metals III**

Cobalt, Total	EPA 6010D
Molybdenum, Total	EPA 6010D
Thallium, Total	EPA 6010D
Tin, Total	EPA 6010D
Titanium, Total	EPA 6010D

**Miscellaneous**

Boron, Total	EPA 6010D
--------------	-----------

**Polychlorinated Biphenyls**

Aroclor 1016 (PCB-1016)	EPA 8082A
Aroclor 1221 (PCB-1221)	EPA 8082A
Aroclor 1232 (PCB-1232)	EPA 8082A
Aroclor 1242 (PCB-1242)	EPA 8082A
Aroclor 1248 (PCB-1248)	EPA 8082A
Aroclor 1254 (PCB-1254)	EPA 8082A
Aroclor 1260 (PCB-1260)	EPA 8082A
Aroclor 1262 (PCB-1262)	EPA 8082A
Aroclor 1268 (PCB-1268)	EPA 8082A

**Sample Preparation Methods**

EPA 3010A
EPA 3050B
EPA 3550C

Serial No.: 66375

Property of the New York State Department of Health. Certificates are valid only at the address shown and must be conspicuously posted by the laboratory. Continued accreditation depends on the laboratory's successful ongoing participation in the Program. Consumers may verify a laboratory's accreditation status online at <https://apps.health.ny.gov/pubdoh/applinks/wc/elappublicweb/>, by phone (518) 485-5570 or by email to [elap@health.ny.gov](mailto:elap@health.ny.gov).



# United States Environmental Protection Agency

This is to certify that

LaBella Associates, D.P.C.

has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402, and has received certification to conduct lead-based paint activities pursuant to 40 CFR Part 745.226

In the Jurisdiction of:

All EPA Administered Lead-based Paint Activities Program States, Tribes and Territories

This certification is valid from the date of issuance and expires September 26, 2024

LBP-2226-2

Certification #

August 24, 2021

Issued On



A handwritten signature in black ink, appearing to read "Michelle Price".

Michelle Price, Chief

Lead, Heavy Metals, and Inorganics Branch

# United States Environmental Protection Agency

This is to certify that



Chris Enright

has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402, and has received certification to conduct lead-based paint activities pursuant to 40 CFR Part 745.226 as:

Risk Assessor

In the Jurisdiction of:

All EPA Administered Lead-based Paint Activities Program States, Tribes and Territories

This certification is valid from the date of issuance and expires October 24, 2025

LBP-R-22573-2

Certification #

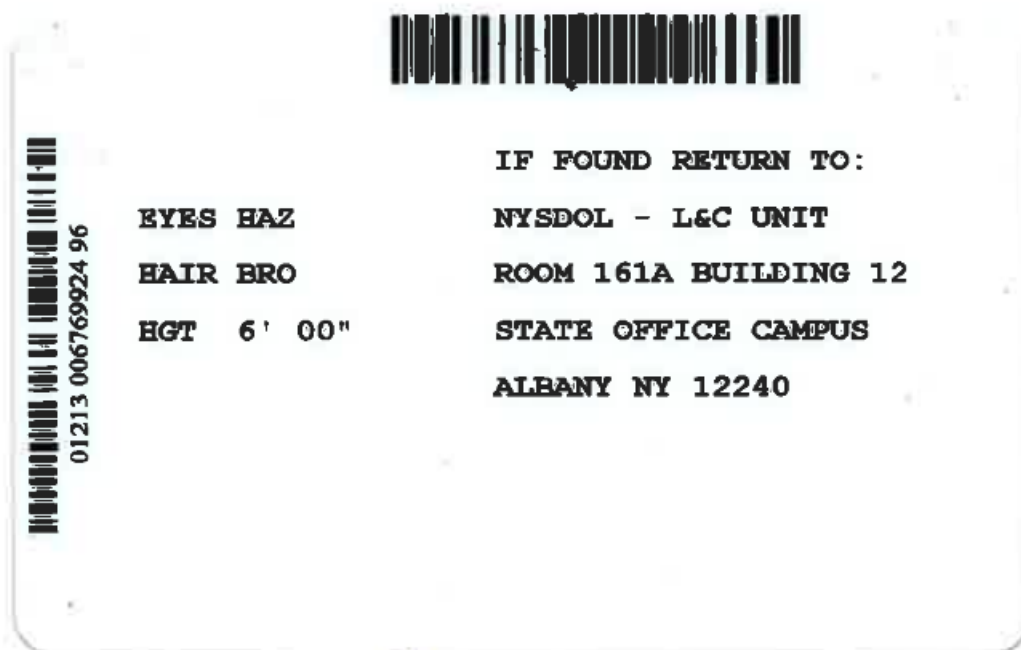
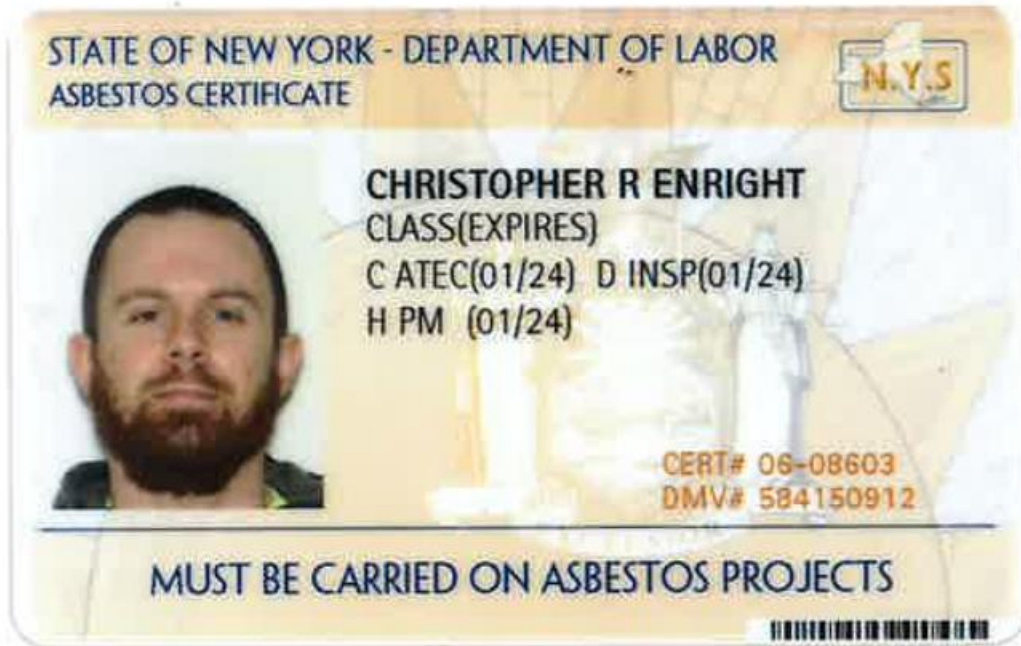
August 02, 2022

Issued On

Ben Conetta, Chief

Chemicals and Multimedia Programs Branch







**ATTACHMENT D:**  
**ASBESTOS CONTAMINATION**  
**ASSESSMENT**  
**NORTHWOOD ELEMENTARY**  
**SCHOOL**





April 1, 2024

Mr. Mark Edwards  
Director, Buildings and Grounds  
Hilton Central School District  
130 Old Hojack Lane  
Hilton New York 14468

**RE: Asbestos Contamination Assessment  
Northwood Elementary School – D-Pod  
433 N. Greece Road  
Hilton, NY 14468**

Dear Mr. Edwards:

The following report documents the findings of an Asbestos Contamination Assessment conducted by LaBella Associates, D.P.C. (LaBella) within Northwood Elementary School located at 433 North Greece Road in Hilton, New York. Certified Asbestos Inspector/Project Designers, Mr. Jarrod Miner (cert #23-6TSK8-SHAB) and Mr. Chris Enright (cert #24-6I30A-SHAB), conducted the investigation in accordance with applicable regulations. Mr. Miner and Mr. Enright used their professional judgement, coupled with bulk sampling, to determine the limits of possible contamination.

This report outlines the findings from the assessment completed on February 13, 2024.

## SCOPE OF WORK

---

In preparation for an upcoming fire alarm replacement project, LaBella was tasked with performing a contamination assessment of suspect asbestos-containing (AC) debris located above the suspended ceiling system throughout D-Pod. Based on historical records, a certified asbestos abatement contractor removed AC acoustical ceiling plaster throughout the space. However, concerns have been raised surrounding the idea that remnants of the old AC acoustical plaster remain above the existing ceiling system.

As required under standard operating procedures, LaBella was directed to assess the current conditions, and determine if an asbestos contamination issue exists within the spaces. The intent is to ensure the safety of all personnel (contractors, maintenance staff, etc.) required to access the ceiling space for future work. Subsequently, personnel access to the ceiling plenum has been restricted by the District until the issue could be resolved during the upcoming Capital Improvement Project.

The Contamination Assessment included the following investigative techniques:

- ❑ **Review Historical Asbestos Records**
- ❑ **Visual Inspection**
- ❑ **Bulk Sampling**
- ❑ **Photo Documentation** – Digital photos were taken to document the condition of the area at the time of the assessment. Photo documentation of LaBella's visual assessment is provided in Appendix C.



## ASSESSMENT FINDINGS

---

On February 13, 2024, New York State certified asbestos Inspectors, Mr. Jarrod Miner and Mr. Chris Enright, performed an assessment above the suspended ceiling system throughout D-Pod. Based on historical records, asbestos-containing acoustical ceiling plaster was known to be present but was removed during a previous abatement project. A reasonable effort was made to assess conditions throughout the D-Pod, focusing on the ceiling plenum that would be accessed to facilitate the fire alarm replacement project. Below is a summary of the observations made on the date of the assessment:

### D-POD

- Suspect debris was observed above the ceiling system in various areas throughout, although debris was mainly concentrated along the wall system (top plate) separating the main corridor from the interior rooms.
  - Debris was observed atop ceiling tiles, metal top plate, wooden structural framing (windows), metal roofing trusses/beams, etc.
- Residual staining observed on fiberglass roof decking in various areas.

The following list includes specific areas of contamination observed during the assessment, including the approximate extents of the debris field at each location:

- Room D-15 (Art)
  - Area #1 - Debris observed atop ceiling tiles along the west wall – approximately 36 square feet (12' x 3')
- Corridor 5
  - Area #2 - Debris observed atop ceiling tiles, on metal top plate (wall) and on structural framing adjacent to Room D-15 – approximately 27 square feet (54' x 0.5')
  - Area #3 - Debris observed atop metal ductwork in NW Corner of Corridor – approximately 2 square feet.
- Corridor 17
  - Area #4 - Debris observed along metal top plate (wall) and on wooden structural framing (windows) adjacent to Room D-8 – approximately 12 square feet (24' x 0.5')
  - Area #5 - Debris observed atop ceiling tiles, on metal top plate (wall) and on wooden structural framing (windows) adjacent to Room D-8 – approximately 54 square feet (18' x 3')
- Corridor 13
  - Area #6 - Debris observed along metal top plate (wall) and on wooden structural framing (windows) adjacent to Room D-7 – approximately 12 square feet (24' x 0.5').
- Corridor 9
  - Area #7 - Debris observed along metal top plate (wall) and on wooden structural framing (windows) adjacent to Room D-1 – approximately 6 square feet (12' x 0.5').

Please note, the assessment was limited to accessible areas located throughout the D-Pod. Although this assessment was conducted in a manner consistent with recognized professional practices, the potential does exist for additional plaster debris to be inaccessible, hidden, and undiscovered in the areas of concern. If additional suspect debris is encountered at any point, it is recommended that the debris be sampled by a certified asbestos inspector or treated as asbestos and cleaned up by a licensed abatement contractor.



## ASBESTOS BULK SAMPLE RESULTS

---

### Asbestos Bulk Sampling

During the assessment, LaBella collected seven (7) bulk samples of suspect debris observed above the ceiling system. **Laboratory results indicated that six of the samples were asbestos-containing (greater than 1% asbestos).** The following table summarizes the results of the bulk sampling. See attached laboratory report (Appendix A) for additional information.

Sample #	Type of Material	Sample Location	Results % Asbestos
NES-1A	Gray Debris	D-Pod – Corridor 9 (above drop ceiling)	None Detected
NES-2A	Gray Debris	D-Pod – Corridor 5 (above drop ceiling)	4.0% Chrysotile
NES-3A	Gray Debris	D-Pod – Room D15 (above drop ceiling)	3.1% Chrysotile
NES-4A	Gray Debris	D-Pod – Corridor 5 (above drop ceiling)	2.3% Chrysotile
NES-5A	Gray Debris	D-Pod – Corridor 5 (above drop ceiling)	2.8% Chrysotile
NES-6A	Gray Debris	D-Pod – Corridor 17 (above drop ceiling)	2.9% Chrysotile
NES-7A	Gray Debris	D-Pod – Corridor 9 (above drop ceiling)	3.7% Chrysotile

## CONCLUSIONS & RECOMMENDATIONS

---

As stated above, the presence of asbestos-containing acoustical ceiling plaster debris scattered throughout the ceiling plenum of D-Pod represents an “Incidental Asbestos Disturbance” as defined by New York State Asbestos Regulations, (i.e., Industrial Code Rule 56). According to these regulations, personnel access to the areas affected shall be restricted until such time as the material is cleaned up by a licensed asbestos abatement contractor. The clean-up of this material shall take place as soon as possible.

For contamination cleanup scenarios, the notifiable quantity is the square footage of potentially contaminated surfaces. In addition, any cleanup scenario over a minor size (10 sq. ft), requires a site-specific variance. While on site, the extent of contamination was quantified and assessed in accordance with all New York State Regulations. The certified asbestos inspectors used their professional experience, as well as bulk sampling/analysis of the debris, to define the limits of the contamination that must be cleaned up. The data collected during this assessment may be incorporated into an emergency site-specific variance application.

Additionally, based on the scattered nature of the debris observed during the assessment, and the likelihood that other areas of suspect debris may be encountered during the fire alarm replacement project, it is recommended that a licensed abatement contractor remove all suspended ceiling tiles under containment. All suspended ceiling tiles shall be disposed of as asbestos-contaminated waste, and areas above the suspended ceiling system shall be thoroughly cleaned. Abatement and cleaning operations shall be performed in accordance with all applicable local, state, and federal regulations.



If you have any questions or need additional information, please feel free to contact me directly at 585-295-6241. We hope you will consider LaBella Associates for your health, safety & environmental needs in the future.

**LABELLA ASSOCIATES, D.P.C.**

Jarrod Miner  
Regulated Building Materials Program Manager

Attachments:



# **APPENDIX A**

## LABORATORY ANALYTICAL RESULTS



**LABELLA ASSOCIATES, DPC  
ANALYTICAL LABORATORY  
300 STATE STREET  
ROCHESTER, NY 14614  
585.454.6110 FAX 585.454.3066**

Page 1 of 1

LBL ELAP # 11184  
All TEM analysis by AMA Lab, ELAP # 10920  
PLM Methods: 198.1, 198.4 & 198.6  
RSD: 18.3

Sample Date: 2/13/2024

\*\* Please note: Due to interference from sample matrix components results reported via PLM method ELAP 198.1 as negative (ND) or less than 1% (Trace) may be inaccurate and reported as a False Negative. It is recommended that additional analytical techniques such as gravimetric reduction, TEM and others be used to reduce obscuring effects of some matrix components yielding more accurate results.



300 State St. Suite 201  
Rochester, NY 14614  
Ph. 585-454-6110  
Labellapc.com

**CHAIN  
OF  
CUSTODY**

Project #: 2221581.02 Project Address: Northwood ES  
Client: Hilton CSD Contact: \_\_\_\_\_  
Date: 2/13/2024 Rates: \$12/20/35  
Labella Lab #: 15424 # of Samples: 7

Lab ID #	Sample #	Type of Material	Sample Location
P1	NES-1A	Gray Debris	D-Pod - Corr. 9 (above drop ceiling)
+ P2	NES-2A		D-Pod - Corr. 5 (above drop ceiling)
+ P3	NES-3A		D-Pod - Room D15 (above drop ceiling)
+ P4	NES-4A		D-Pod - Corr. 5 (above drop ceiling)
+ P5	NES-5A		D-Pod - Corr. 5 (above drop ceiling)
+ P6	NES-6A		D-Pod - Corr. 17 (above drop ceiling)
+ P7	NES-7A		D-Pod - Corr. 9 (above drop ceiling)

Positive Stop: ☐

Email Results To: \_\_\_\_\_

Jminer@labellapc.com

Sampled By: \_\_\_\_\_

Print Name: Jarrold Miner Date: 2/13/24

Relinquished By: \_\_\_\_\_

Print Name: Jarrold Miner Date: 3/13/24

Received By: \_\_\_\_\_

Print Name: Matt Smith Date: 3/14/24





# **APPENDIX B**

## FLOOR PLAN



It is a violation of New York Education Law Article 145 Sec.7209, for any person, unless acting under the direction of a licensed architect, professional engineer, or land surveyor, to alter an item in any way. If an item bearing the seal of an architect, engineer, or land surveyor is altered, the altering architect, engineer, or land surveyor shall affix to the item their seal and notation "altered by" followed by their signature and date of such alteration, and a specific description of the alteration.

© 2018 LaBella Associates

## HILTON CSD CAPITAL PROJECTS 2023 PHASE 2

225 WEST AVENUE  
HILTON, NEW YORK 14468



**NORTHWOOD  
ELEMENTARY SCHOOL**  
433 NORTH GREECE ROAD  
HILTON, NEW YORK 14468

S.E.D. NO. 26-10-01-06-0-003-023

REVISIONS		
NO.	DATE	DESCRIPTION

PROJECT NUMBER: 2221581.02

DRAWN BY: JDM

REVIEWED BY:

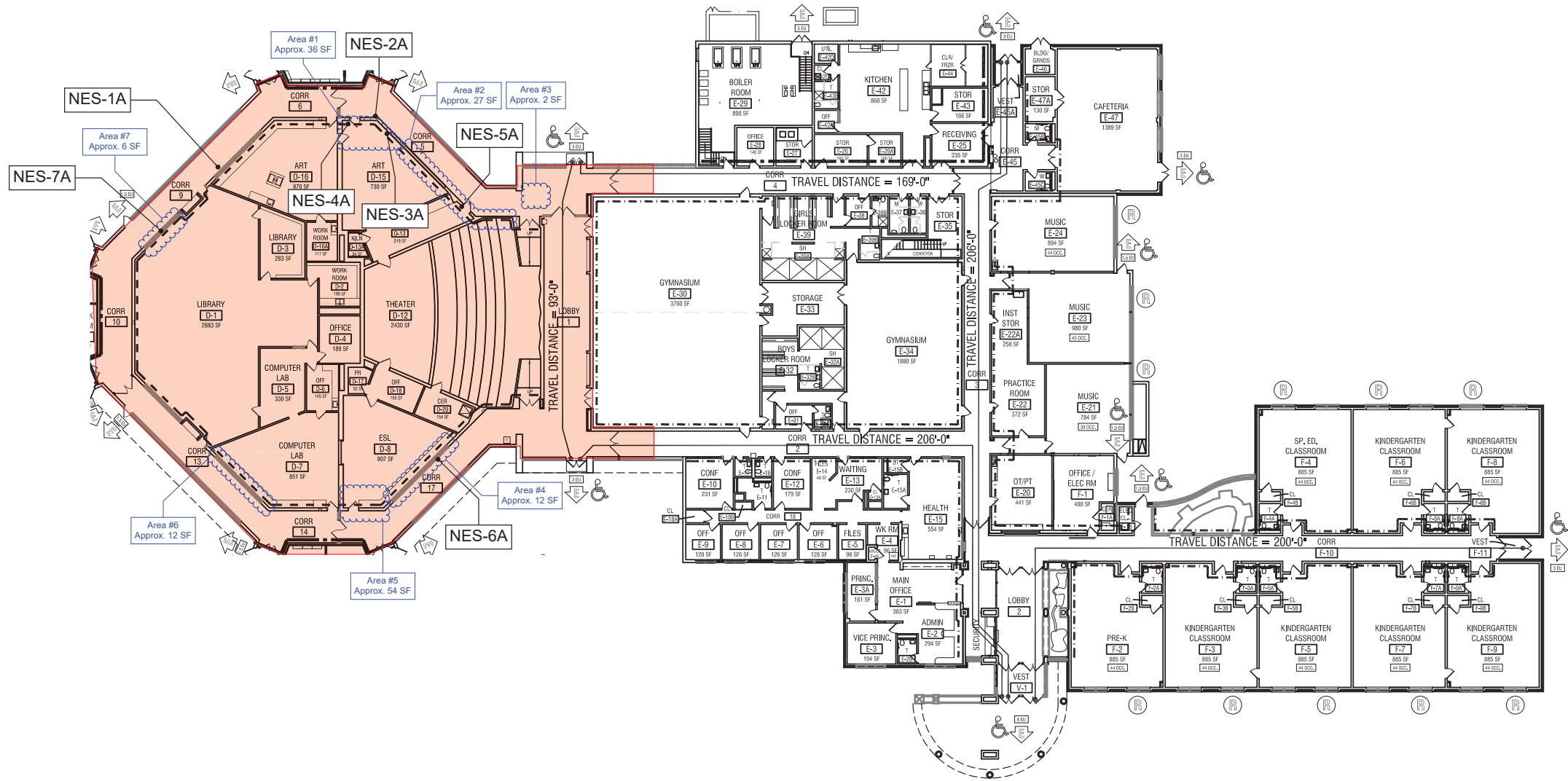
ISSUED FOR:

DATE: 4/1/2024

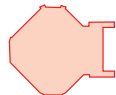
DRAWING NAME:

## Asbestos Contamination Assessment

DRAWING NUMBER:



## LEGEND



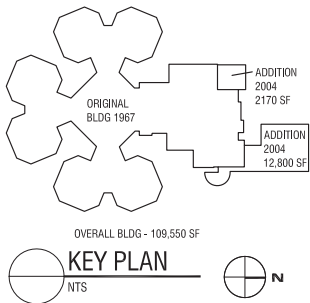
- Area of Investigation (D-Pod)



— Area of Visible AC Debris



Sample Location







# APPENDIX C

## PHOTOS





**Photo 1**

General View of Contaminated Items above the Ceiling in Room D-15 (Art)



**Photo 2**

General View of Contaminated Top Plate (wall) in Main Corridor of D-Pod



**Photo 3**

View of Asbestos-Containing Acoustical Plaster Debris noted on Metal Top Plate (Corridor 5)



**Photo 4**

View of Residual Suspect Debris noted on the Fiberglass Roof Decking in D-Pod





Photo 5

View of Contaminated Metal Top Plate (wall) in Main Corridor of D-Pod



Photo 6

General View of Contaminated Wood Framing (window) in Main Corridor of D-Pod





# **APPENDIX D**

## LICENSES AND CERTIFICATIONS



**WE ARE YOUR DOL**



DIVISION OF SAFETY & HEALTH LICENSE AND CERTIFICATE UNIT, STATE OFFICE CAMPUS, BLDG. 12, ALBANY, NY 12226

# ASBESTOS HANDLING LICENSE

LaBella Associates, D.P.C.  
300 State Street, Suite 201, Rochester, NY, 14614

License Number: 29278

License Class: RESTRICTED

Date of Issue: 03/24/2023

Expiration Date: 03/31/2024

Duly Authorized Representative: Greg Senecal

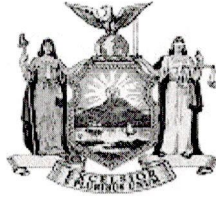
This license has been issued in accordance with applicable provisions of Article 30 of the Labor Law of New York State and of the New York State Codes, Rules and Regulations (12 NYCRR Part 56). It is subject to suspension or revocation for a (1) serious violation of state, federal or local laws with regard to the conduct of an asbestos project, or (2) demonstrated lack of responsibility in the conduct of any job involving asbestos or asbestos material.

This license is valid only for the contractor named above and this license or a photocopy must be prominently displayed at the asbestos project worksite. This license verifies that all persons employed by the licensee on an asbestos project in New York State have been issued an Asbestos Certificate, appropriate for the type of work they perform, by the New York State Department of Labor.

Amy Phillips, Director  
For the Commissioner of Labor

EXCELSIOR

NEW YORK STATE DEPARTMENT OF HEALTH  
WADSWORTH CENTER



Expires 12:01 AM April 01, 2025  
Issued April 01, 2024

**CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE**

*Issued in accordance with and pursuant to section 502 Public Health Law of New York State*

MR. MATTHEW SMITH  
LABELLA ASSOCIATES  
300 STATE STREET SUITE 200  
ROCHESTER, NY 14614

NY Lab Id No: 11184

*is hereby APPROVED as an Environmental Laboratory for the category  
ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE  
All approved subcategories and/or analytes are listed below:*

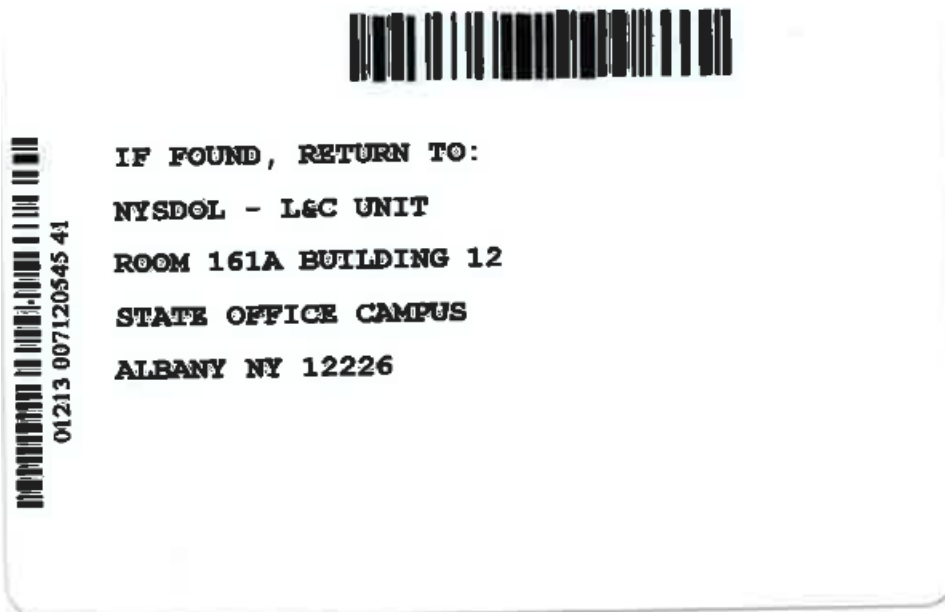
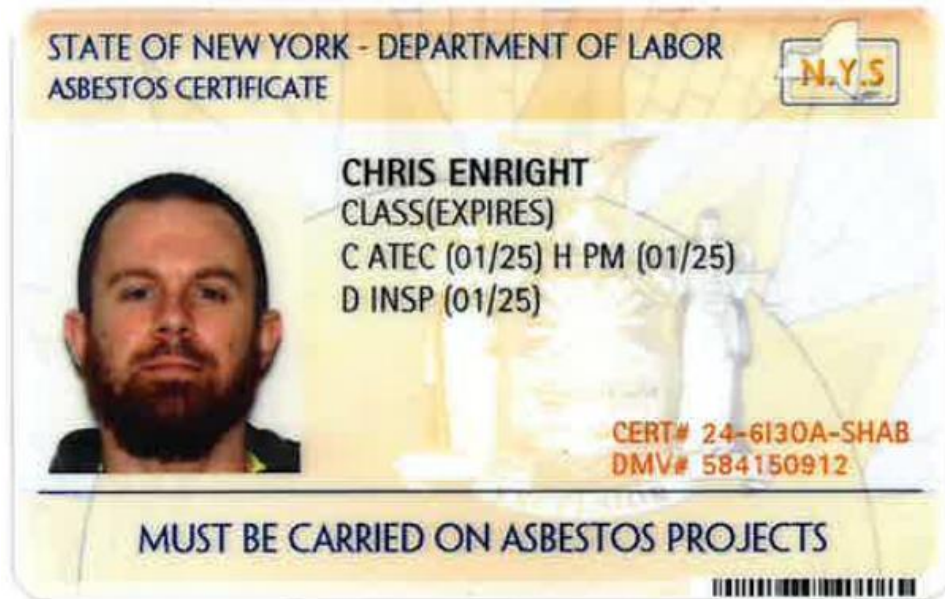
**Miscellaneous**

Asbestos in Friable Material      Item 198.1 of Manual  
Asbestos in Non-Friable Material-PLM      Item 198.6 of Manual (NOB by PLM)

Serial No.: 68695

Property of the New York State Department of Health. Certificates are valid only at the address shown and must be conspicuously posted by the laboratory. Continued accreditation depends on the laboratory's successful ongoing participation in the Program. Consumers may verify a laboratory's accreditation status online at <https://apps.health.ny.gov/pubdoh/applinks/wc/elappublicweb/>, by phone (518) 485-5570 or by email to [elap@health.ny.gov](mailto:elap@health.ny.gov).







## SECTION 022900 - ABATEMENT OF LEAD-CONTAINING MATERIALS

### PART 1 GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes: removal, disposal and or disturbance of lead-containing materials as indicated on the Contract Drawings. Penetrations of and attachments to lead-containing materials shall also be considered to be lead abatement work covered by the requirement of this section.
- B. This Section specifies the requirements for protection of workers; prevention of contamination of adjacent areas; performing lead-abatement, post-abatement cleaning, pre-disposal testing of removed materials; and appropriate disposal of removed materials.

#### 1.02 RELATED SECTIONS

- A. Division 01 Section “Execution” for cutting and patching.

#### 1.03 REFERENCES

- A. New York State Department of Environmental Conservation (DEC) 6NYCRR:
  - 1. Part 360 Solid Waste Management Facilities.
  - 2. Part 364 Waste Transporter Permits.
  - 3. Part 370 Hazardous Waste Management System- General.
  - 4. Part 371 Identification and Listing of Hazardous Wastes.
  - 5. Part 372 Hazardous Waste Manifest System and Related Standards for Generators, Transporters and Facilities.
  - 6. Part 373 Hazardous Waste Management Facilities.
- B. Occupational Safety and Health Administration (OSHA): Lead Exposure in Construction: Interim Final Rule 29 CFR 1926.62.
- C. U.S. Environmental Protection Agency (EPA): Resource Conservation and Recovery Act (RCRA) Section 3004 Hazardous and Solid Waste Amendments.
- D. U.S. Environmental Protection Agency (EPA): Lead-based Paint Poisoning Prevention 40 CFR 745.
- E. U.S. Environmental Protection Agency (EPA): Toxicity Characteristics Leaching Procedure EPA Method 1311.
- E. H.U.D. Lead Paint Removal Guidelines.

#### 1.04 DEFINITIONS

- A. **Lead-Containing Materials:** Lead testing has been completed at this facility. Results of the lead testing are available from the owner or the owner's representative for review. Painted items such as, but limited to, steel doors, door frames, ventilation units, stairway components, etc may be coated with lead-based paint. Various glazed tiles have been found to be lead-containing.
- B. **Lead Control Area:** A restricted access area, or structure with containment, to prevent the spread of lead dust, paint chips, or debris from lead-containing material or paint removal operations.

#### 1.05 SUBMITTALS

- A. **Product Data:** Catalog sheets, specifications, and application instructions for chemical paint removal products, if used.
- B. **Quality Control Submittals:**
  - 1. **Worker's Qualifications Data:**
    - a. Name of each person who will be performing the Work and their employer's name, business address and telephone number.
    - b. Names and addresses of 3 similar projects that each person has worked on during the past 3 years, or documentation of completion of an approved lead-abatement certification program.
  - 2. **Work Plan:** Submit one copy of the work plan required under Quality Assurance Article.
  - 3. **Waste Transporter Permit:** One copy of transporter's current waste transporter permit.
- C. **Contract Closeout Submittals:**
  - 1. **Disposal Site Receipts:** Copy of each receipt showing the lead-containing materials have been properly disposed.
  - 2. **Certification:** Certify in writing that inside and outside the lead control area samples are below the levels specified under cleaning criteria. Provide copies of laboratory reports of clearance tests.

#### 1.06 QUALITY ASSURANCE

- A. **Worker's Qualifications:** The persons performing lead abatement and their supervisor shall be personally experienced in lead abatement work and shall have been regularly employed by a company performing lead abatement for a minimum of 3 years. Successful completion of a lead-abatement certification program as approved by the Director may be considered instead of actual work experience.
- B. **Regulatory Requirements:** Comply with the referenced standards.
- C. **Pre-Work Conference:** Before the Work of this Section is scheduled to commence, a conference will be held by the Director's Representative at the Site for the purpose of reviewing the Contract Documents, discussing requirements for the Work, and reviewing the Work procedures. The conference shall be attended by the Contractor, the lead removal subcontractor, and the testing laboratory employed by the Director.

- D. Lead-Containing Material Removal Work Plan: At the conclusion of the pre-work conference, before the physical lead abatement Work begins, prepare a detailed lead-containing material removal work plan. The work plan shall include, but not be limited to, a drawing indicating the location, size, and details of lead control areas, location and details of decontamination facilities, sequencing of lead removal, work procedures, types of equipment, crew size, and emergency procedures for fire and medical emergencies.

#### 1.07 PROJECT CONDITIONS

- A. Shut-down of Air Handling System: Complete the Work of this Section within the time limitation allowed for shut-down of the air handling system serving the work area. The air handling system will not be restarted until approval of the post-abatement tests following the last cleaning.

### PART 2 PRODUCTS

#### 2.01 PAINT REMOVAL PRODUCTS

- A. Paint Removal with Heat Guns: If heat guns are used, provide heat guns that are flameless, electrical, paint-softener type, with controls to prevent operation in excess of 1,100<sup>0</sup> F.
- B. Chemical Paint Removal Products: If a chemical paint remover is used, provide a product that will not produce noxious fumes and does not contain methylene chloride.
- C. Mechanical Paint Removal: If paint is removed by mechanical methods, provide UL 586 labeled, high efficiency particulate air (HEPA) filter system, certified as being capable of trapping and retaining mono-dispersed particles as small as 0.3 micrometers at a minimum efficiency of 99.97 percent.

### PART 3 EXECUTION

#### 3.01 NOTIFICATION

- A. Notify the Owner's representative a minimum of 5 working days prior to the start of any work involving the disturbance of lead-containing materials.

#### 3.02 PRE-ABATEMENT TESTING

- A. The Owner will employ the services of an independent testing laboratory to perform pre-abatement testing of surfaces within the lead control area and areas adjacent to the lead control area. The testing laboratory will be New York State Department of Health, Environmental Laboratory Approval Program certified (NYS ELAP).

#### 3.03 EMPLOYEE PROTECTION

- A. Comply with all applicable Occupational Safety and Health Administration (OSHA) Requirements.

### 3.04 PROTECTION

- A. Lead Control Area Requirements: Provide a lead control area where the disturbance of lead-containing materials will be performed in accordance with the approved Work Plan.
- B. Protection of Existing Work to Remain: Perform lead removal work without damage or contamination of adjacent areas.

### 3.05 LEAD-CONTAINING MATERIAL REMOVAL

- A. Perform removal of lead-containing materials in accordance with approved lead-containing material removal work plan. Use procedures and equipment as required to limit occupational and environmental exposure to lead when lead-containing materials are removed in accordance with referenced standards. Limit the production and dissemination of dust as much as possible. Perform manual wet sanding and scraping to the maximum extent feasible.

### 3.06 POST-ABATEMENT TESTING

- A. The Owner will employ the services of an independent testing laboratory to perform post-abatement testing of surfaces within the lead control area, and areas adjacent to the lead control area. The testing laboratory will be New York State Department of Health, Environmental Laboratory Approval Program certified (NYS ELAP).

### 3.07 CLEANING CRITERIA

- A. Cleaning criteria is separated into 2 categories; surfaces within the lead control area, and areas adjacent to the lead control area:
  - 1. Surfaces within the Lead Control Area: In each area where the abatement has been performed, compare the sample results with the criteria listed below. If any of the samples exceed these criteria, reclean and the Owner's Representative will retest failed areas until the criteria is met. All costs associated with the retesting of failed areas will be charged back to the Contractor.
    - a. Floors: 40 micrograms of lead per square foot.
    - b. Window Sills: 250 micrograms of lead per square foot.
    - c. Window Troughs: 400 micrograms of lead per square foot.
  - 2. Area's Adjacent to the Lead Control Area: If the post-abatement test results indicate an increase in lead concentration over Pre-abatement concentrations or the above listed criteria, whichever is higher, the area has been contaminated by the abatement process and cleaning is mandatory.
    - a. Clean all affected surfaces, the laboratory will retest, and if results still exceed pre-abatement levels reclean surfaces until lead concentrations are below pre-abatement levels. The Owner's Representative will retest failed areas until the criteria

is met. All costs associated with the retesting of failed areas will be charged back to the Contractor.

### 3.08 CERTIFICATION OF ABATEMENT

- A. Prior to removal of the lead control area by the Contractor, the Owner's Representative at the Site shall receive a report from the independent testing laboratory indicating that the lead control area, and the areas adjacent to the lead control areas have lead concentrations below the levels specified under cleaning criteria. The Owner's Representative will notify the Contractor of sample results.

### 3.09 PRE-DISPOSAL TESTING

- A. Prior to disposal, test the removed materials for toxicity in accordance with EPA Method 1311, Toxicity Characteristic Leaching Procedure (TCLP).
  - 1. Test results indicating a value greater than 5 ppm lead classifies the removed material as Hazardous Waste.
  - 2. Waste that has exceeded TCLP criteria stated above shall be treated as regulated hazardous waste and disposed of as per all applicable regulations.

### 3.10 DISPOSAL OF LEAD-CONTAINING MATERIAL AND RELATED DEBRIS

- A. Transport and dispose of lead-containing material classified as Hazardous Waste in accordance with the standards referenced in Part 1 of this Section.
- B. Transport and dispose of lead-containing material classified as Non-Hazardous Waste in accordance with standards referenced in Part 1 of this Section.

### 3.11 RESTORATION

- A. Remove temporary decontamination facilities and restore area designated for these facilities to its original condition or better.
- B. Where existing work is damaged or contaminated, restore work to its original condition or better.

END OF SECTION 022900



## SECTION 024119 - SELECTIVE DEMOLITION

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:

- 1. Demolition and removal of selected portions of building or structure.
  - 2. Demolition and removal of selected site elements.
  - 3. Salvage of existing items to be reused or recycled.

- B. Related Requirements:

- 1. Section 011000 "Summary of Work" for restrictions on the use of the premises and Owner-occupancy requirements.
  - 2. Section 011215 "Project Schedule" for phasing requirements.
  - 3. Section 017300 "Execution" for cutting and patching procedures.
  - 4. Section 311000 "Site Clearing" for site clearing and removal of above- and below-grade improvements.

#### 1.3 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged or removed and reinstalled.
- B. Remove and Salvage: Carefully detach from existing construction, in a manner to prevent damage, and deliver to Owner.
- C. Remove and Reinstall: Detach items from existing construction, prepare for reuse, and reinstall where indicated.
- D. Existing to Remain: Existing items of construction that are not to be permanently removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

#### 1.4 MATERIALS OWNERSHIP

- A. Unless otherwise indicated, demolition waste becomes property of Contractor.

## 1.5 PREINSTALLATION MEETINGS

- A. Predemolition Conference: Conduct conference at Project site.
  - 1. Inspect and discuss condition of construction to be selectively demolished.
  - 2. Review structural load limitations of existing structure.
  - 3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
  - 4. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
  - 5. Review areas where existing construction is to remain and requires protection.

## 1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For refrigerant recovery technician.
- B. Proposed Protection Measures: Submit report, including drawings, that indicates the measures proposed for protecting individuals and property, for environmental protection, for dust control and, for noise control. Indicate proposed locations and construction of barriers.
- C. Schedule of Selective Demolition Activities: Indicate the following:
  - 1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's on-site operations are uninterrupted.
  - 2. Interruption of utility services. Indicate how long utility services will be interrupted.
  - 3. Coordination for shutoff, capping, and continuation of utility services.
  - 4. Use of elevator and stairs.
  - 5. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.
- D. Inventory: Submit a list of items to be removed and salvaged and deliver to Owner prior to start of demolition.
- E. Pre-demolition Photographs or Video: Submit before Work begins.
- F. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.
- G. Warranties: Documentation indicated that existing warranties are still in effect after completion of selective demolition.

## 1.7 CLOSEOUT SUBMITTALS

- A. Inventory: Submit a list of items that have been removed and salvaged.



- B. Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

## 1.8 QUALITY ASSURANCE

- A. Refrigerant Recovery Technician Qualifications: Certified by an EPA-approved certification program.

## 1.9 FIELD CONDITIONS

- A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.
- B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
  - 1. Before selective demolition, Owner will remove the following items:
    - a. Furniture and equipment that is not attached to walls or floors.
- C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- D. Hazardous Materials: Hazardous materials are present in buildings and structures to be selectively demolished. A report on the presence of hazardous materials is on file for review and use. Examine report to become aware of locations where hazardous materials are present.
  - 1. Hazardous material remediation is specified elsewhere in the Contract Documents.
  - 2. Do not disturb hazardous materials or items suspected of containing hazardous materials except under procedures specified elsewhere in the Contract Documents.
  - 3. Owner will provide material safety data sheets for suspected hazardous materials that are known to be present in buildings and structures to be selectively demolished because of building operations or processes performed there.
- E. Storage or sale of removed items or materials on-site is not permitted.
- F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
  - 1. Maintain fire-protection facilities in service during selective demolition operations.

## PART 2 - PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

- B. Standards: Comply with ANSI/ASSE A10.6 and NFPA 241.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped before starting selective demolition operations.
- B. Review record documents of existing construction provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in record documents.
- C. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.
- E. Survey of Existing Conditions: Record existing conditions by use of preconstruction photographs.
  - 1. Comply with requirements specified in Section 013233 "Photographic Documentation."
  - 2. Inventory and record the condition of items to be removed and salvaged. Provide photographs of conditions that might be misconstrued as damage caused by salvage operations.
  - 3. Before selective demolition or removal of existing building elements that will be reproduced or duplicated in final Work, make permanent record of measurements, materials, and construction details required to make exact reproduction.

#### 3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.
  - 1. Comply with requirements for existing services/systems interruptions specified in Section 011000 "Summary."
- B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.
  - 1. Construction Manager will arrange to shut off indicated services/systems when requested by Contractor.
  - 2. Arrange to shut off indicated utilities with utility companies.
  - 3. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.

4. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated to be removed.
  - a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
  - b. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material.
  - c. Equipment to Be Removed: Disconnect and cap services and remove equipment.
  - d. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
  - e. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.
  - f. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
  - g. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material.
- C. Refrigerant: Remove refrigerant from mechanical equipment to be selectively demolished according to 40 CFR 82 and regulations of authorities having jurisdiction.

### 3.3 PREPARATION

- A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
  1. Comply with requirements for access and protection specified in Section 015000 "Temporary Facilities and Controls."
- B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
  1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
  2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
  3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
  4. Cover and protect furniture, furnishings, and equipment that have not been removed.
  5. Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Section 015000 "Temporary Facilities and Controls."
- C. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.
  1. Strengthen or add new supports when required during progress of selective demolition.

### 3.4 SELECTIVE DEMOLITION, GENERAL

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
  2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
  3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
  4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
  5. Maintain adequate ventilation when using cutting torches.
  6. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
  7. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
  8. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
  9. Dispose of demolished items and materials promptly.
- B. Removed and Salvaged Items:
1. Clean salvaged items.
  2. Pack or crate items after cleaning. Identify contents of containers.
  3. Store items in a secure area until delivery to Owner.
  4. Transport items to Owner's storage area designated by Construction Manager.
  5. Protect items from damage during transport and storage.
- C. Removed and Reinstalled Items:
1. Clean and repair items to functional condition adequate for intended reuse.
  2. Pack or crate items after cleaning and repairing. Identify contents of containers.
  3. Protect items from damage during transport and storage.
  4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.
- D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

### 3.5 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

- A. Concrete: Demolish in small sections. Using power-driven saw, cut concrete to a depth of at least 3/4 inch at junctures with construction to remain. Dislodge concrete from reinforcement at perimeter of areas being demolished, cut reinforcement, and then remove remainder of concrete. Neatly trim openings to dimensions indicated.
- B. Concrete: Demolish in sections. Cut concrete full depth at junctures with construction to remain and at regular intervals using power-driven saw, then remove concrete between saw cuts.
- C. Masonry: Demolish in small sections. Cut masonry at junctures with construction to remain, using power-driven saw, then remove masonry between saw cuts.
- D. Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished, then break up and remove.
- E. Resilient Floor Coverings: Remove floor coverings and adhesive according to recommendations in RFCI's "Recommended Work Practices for the Removal of Resilient Floor Coverings." Do not use methods requiring solvent-based adhesive strippers.
- F. Roofing: Remove no more existing roofing than what can be covered in one day by new roofing and so that building interior remains watertight and weathertight. See Roofing 07 Sections for new roofing requirements.

### 3.6 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Except for items or materials indicated to be[ **recycled,**] reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.
  - 1. Do not allow demolished materials to accumulate on-site.
  - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
  - 3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
  - 4. Comply with requirements specified in Section 017419 "Construction Waste Management and Disposal."
- B. Burning: Do not burn demolished materials.
- C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

### 3.7 CLEANING

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 024119

## SECTION 024300 – PETROLEUM IMPACTED SOIL AND GROUNDWATER

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes the transport, disposal and any other handling required for the proper management and disposal of petroleum-contaminated soil and groundwater. The soils and groundwater covered by this specification are contaminated with petroleum product but do not meet the criteria for definition as a hazardous waste.

Disposal of petroleum-contaminated soil and groundwater includes the following:

- Temporary on-site storage, transport and off-site disposal of non-hazardous petroleum impacted soil and groundwater at a New York State Department of Environmental Conservation (NYSDEC) Part 360 Permitted treatment or disposal facility. Transportation of non-hazardous petroleum impacted soil must be completed in vehicles with a valid 6 NYCRR Part 364 Waste Transporter Permit.
- C. A recent environmental investigation report entitled *Phase II Environmental Site Assessment, 200 School Lane, Hilton, New York* (July 17, 2013) details subsurface conditions in the area of 10,000-gallon fuel oil UST. The results of the investigation indicate there does not appear any gross or widespread contamination in the area of the UST. A copy of this report is included in the specifications package.
- D. Related Sections:
1. Division 01 Section “Unit Prices” for unit prices related to the Work of this Section.

### PART 2 - PRODUCTS

#### 2.1 MATERIALS AND EQUIPEMENT

- A. The Contractor shall provide all necessary material and equipment as selected by the Contractor to manage non-hazardous petroleum related waste, including but not limited to soil and groundwater.

### PART 3 - EXECUTION

#### 3.1 FIELD IDENTIFICATION

- A. The Owner shall provide an independent firm (Environmental Consultant) experienced in air vapor monitoring to provide trained personnel as necessary to perform photo ionization detector (PID) monitoring as described in this Specification. The Contractor shall provide a minimum of 48-hours notice to the Owner in regard for the need for an Environmental Consultant to be on-site.

- B. The Environmental Consultant shall perform testing consisting of visual and odor observation and organic vapor monitoring of the soil during excavation or as directed by the Owner. *Note: Odor determinations are intended to be observations of general odors of the excavated soil; For health and safety reasons, personnel should not directly smell grab samples.*
- C. The Environmental Consultant shall conduct organic vapor monitoring and provide and operate field organic vapor test equipment that is either a photo ionization detector (PID) with a 10.2-volt lamp. The PID must be capable of detection of 0.2 ppm general organic vapor levels. Calibrate the PID daily, just before starting fieldwork. Testing shall be conducted at sufficient intervals to continuously observe and monitor soil excavations for contamination. The Environmental Consultant shall maintain and provide legible field notes to the Owner indicating weather conditions, PID readings, visual and odor observations, quantities of both contaminated and non-contaminated soils excavated, stockpile locations for all contaminated soil and any unusual conditions encountered. The PID shall be operated by a person thoroughly trained in sampling protocols, organic vapor monitoring procedures, and equipment calibration procedures.
- D. The Environmental Consultant shall and/or the Contractor shall notify the Owner immediately of any soil that appears to contain unknown contaminants (based on visual, odor or PID testing) or that varies significantly than those expected.
- E. If groundwater needs to be removed from the excavation, the Environmental Consultant shall determine if the groundwater is contaminated based on evidence of impairment (e.g. petroleum odor, sheen, etc.), results of prior environmental investigations, and/or laboratory results of groundwater samples collected and analyzed from the tank excavation.

### 3.2 SEGREGATION AND STOCKPILING

- A. The Contractor shall segregate soil as follows or as directed by the Environmental Consultant or the Owner:
  - 1. Non-Contaminated Soil – Soil with no visual or odor evidence of contamination for which PID readings are under 10 ppm above background or as otherwise directed by the Environmental Consultant or the Owner shall be considered non-contaminated and be disposed of off-site or re-utilized on-site as required under this Contract as backfill within the UST removal excavations. However, sampling of the soil considered to be non-contaminated based on the aforementioned conditions, shall be sampled by the Environmental Consultant in general accordance with NYSDEC Division of Environmental Remediation (DER) DER-10 Technical Guidance for Site Investigation and Remediation, Chapter 5, Section 5.4 Remedial Action Implementation Compliance, Table 5.4(e) 10. Analytical results shall be provided to the Owner for review prior to the on-site re-use or off-site disposal of Non-Contaminated Soil.
  - 2. Contaminated Soil – Soils determined by visual, odor, and/or with PID testing values greater than 10 ppm above background, confirmed by laboratory analysis, or as determined by the Environmental Consultant or the Owner shall be segregated into contaminated soil piles.
  - 3. The Environmental Consultant and Owner shall make the sole determination of non-contaminated and contaminated soil.



B. Stockpile contaminated soil as follows or as directed by the Environmental Consultant or the Owner:

1. Contaminated soil staging areas shall be on asphalt surfaces where possible. If asphalt surfaces are not available, prepare the stockpile area by removing all large stones, roots, or other debris that may puncture the liner. For all contaminated soil stockpiles (i.e. whether on asphalt or earth) place the stockpile on a minimum of 6-millimeter or equivalent plastic ground cloth and cover by 6-millimeter minimum polyethylene sheeting or equivalent to protect against leaching or runoff of contaminants into ground surface, groundwater, storm water and/or surface water. Weight or secure the sheeting by appropriate means and seal seams to prevent tearing or removal by weather. If necessary, grade surrounding surface to provide for positive drainage away from the pile. Maintain covering and grading for as long as stockpile exists. Storage must not exceed 30 days, unless approved by the Owner and the NYSDEC.
2. Do not mix contaminated material with soils that are determined to be non-contaminated.
3. Institute appropriate procedures and security measures to ensure the protection of site personnel and the public from petroleum-contaminated materials.

3.3 DISPOSAL OF PETROLEUM IMPACTED SOIL

A. Disposal Plan – At least 30 days prior to commencing work in the potentially petroleum-contaminated area, prepare and submit a Disposal Plan (the Plan) to the Owner for review and acceptance. The Plan must be accepted by the owner prior to the commencement of work. The Disposal Plan shall include;

1. The method of disposal that will be used for both non-contaminated and contaminated soil;
2. For the off-site disposal of non-contaminated soil, the address and owner information, included contact phone number, of the proposed dump site;
3. For off-site transport of contaminated soil, identification of and information of the proposed waste transporter to include: Name; address; telephone number; contact person; EPA and NYS Transporter ID number; and any and all necessary permit authorizations for waste to be transported from the site to treatment/storage/disposal facilities;
4. For off-site disposal of contaminated soil, identification of and information on the proposed permitted disposal facilities to be include: Facility name; address; contact person; signed letter of agreement from the facility of intent to accept the waste; and a listing of all permits, licenses, letters of approval authorizing the disposal of wastes of this description at the designated facility as they pertain to this Contract.

B. Transportation Off-Site

1. The Contractor shall load and transport contaminated materials in vehicles with a valid 6 NYCRR Part 364 Waste Transporter Permit (and permits for any other states as applicable). Verify and document that the transporter has a current waste transporter's permit authorizing the transport of the project waste materials to the intended off-site facility. Coordinate all shipments and arrivals at the disposal facility to meet project schedule

requirements. Complete any required shipping papers, placarding, and weighing/load measurements and provide documentation to the Owner.

2. Cover roll-offs and trucks with waterproof tarpaulins to prevent runoff or evaporation of contaminants and blowing of soil.
3. Perform actions necessary to remedy situations involving material spilled in transit. No mud or dust shall be tracked off site associated with this project.
4. Do not combine material from any other source with material from the Project Site.
5. No payment for this item shall be made until proper documentation of its disposal is forwarded to the Owner.

C. Disposal

1. The Contractor shall dispose of contaminated material by methods and procedures described in the Disposal Plan, as accepted by the Owner. Dispose of all contaminated materials within 30 days of stockpiling or within 30 days of the results of laboratory analysis, whichever is later, unless additional time is approved by the Owner. Do not however, dispose of any material prior to the receipt and acceptance of the analytical results by the Owner. The cost of any waste characterization analyses required by the contractor's intended disposal facility is the Contractor's responsibility and should be included in the cost for this disposal item. *Note: If the Owner approves additional stockpiling time, the Contractor must also request approval from NYSDEC for any storage greater than 60 days as required by NYS Solid Waste Management regulations, 6 NYCRR Part 360.1.7(b)(4).*
2. Any waste products removed must be disposed of in accordance with all applicable state and federal requirements. The Contractor shall submit all waste profiles to the Owner for approval prior to the removal of any material from the Site. The Contractor is required to submit copies to the Owner of all waste manifests and or disposal receipts for any material removed from the Site.
3. No payment for this item shall be made until proper documentation (i.e. signed waste manifests and weight tickets) of its disposal is forwarded to the Owner.

3.5 EXCAVATION CLOSURE

- A. The soils at the limits of any impaired soil excavations shall be sampled by the Environmental Consultant hired by the Owner and in general accordance with the NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation, Chapter 5, Section 5.4 Remedial Action Implementation Compliance (b):

1. The following are minimum confirmation sampling frequencies for soil excavations of:
  - i. Less than 20 feet in perimeter, include one bottom sample and one sidewall sample biased in the direction of surface runoff.
  - ii. 20 to 300 feet in perimeter, where the remedy is seeking to achieve:

- (1) Surface soil levels, one soil sample from the top of each sidewall for every 30 linear feet of sidewall and one sample from the excavation bottom for every 900 square feet of bottom area; and
      - (2) Subsurface soil cleanup levels, one sample from the bottom of each sidewall for every 30 linear feet of sidewall and one sample from the excavation bottom for every 900 square feet of bottom area;
    - iii. greater than 300 feet in perimeter, should be in accordance with either:
      - (1) subparagraph ii above; or
      - (2) a DER-approved reduced sampling frequency, where the remedial party submits a proposed sampling frequency, with supporting rationale, in accordance with section 1.6.
    - iv. in an excavation where multiple layers of contamination have been visually or analytically identified, additional side wall samples in the horizon in which contamination was identified are necessary;
    - v. each excavation within a larger excavation will be considered a separate excavation and should comply with subparagraphs i through iii above; and
    - vi. for side or bottom samples, for volatile organic compounds in an excavation:
      - (1) within 24 hours of excavation, they should be taken from the zero to six-inch interval at the excavation floor; or
      - (2) after 24 hours, the samples should be taken at six to twelve inches.
    - vii. no water should be present in the excavation bottom where bottom samples are collected.
  - B. The soil samples will be submitted to a NYS approved Laboratory for NYSDEC Commissioner Policy 51 (CP-51) list Volatile Organic Compounds (VOCs) analysis, by USEPA Method 8260 and for NYSDEC CP-51 list Semi Volatile Organic Compounds (SVOCs) by USEPA Method 8270. The cost of any analyses required by the NYSDEC for excavation closure is the responsibility of the Owner. Soil samples will be submitted for a 2 business day turnaround time.
  - C. The Contractor will be required to assist the Environmental Consultant with the collection of soil samples as directed by the Environmental Consultant.
  - D. The Contractor shall not backfill a contaminated soil excavation without permission from the Owner and Environmental Consultant pending the results of excavation closure soil samples.
- 3.6 PETROLEUM IMPACTED GROUNDWATER
- A. The Contractor shall collect, handle, filter or otherwise treat as necessary and properly dispose of petroleum-impacted groundwater removed as needed for project construction. Conduct all tasks associated with these items in accordance with all Federal, State, County and local regulations.
  - B. The Environmental Consultant will determine the identification of petroleum impacted groundwater based on evidence of impairment (e.g. petroleum odor, sheen, etc.), results of prior environmental

- investigations, and/or laboratory results of groundwater samples collected and analyzed from the tank excavation.
- B. Advanced Preparation - At least 30 days prior to commencing work, the Contractor shall prepare and submit the following information as part of the submittal package for review and approval:
1. Identification of and information on the proposed treatment/disposal facilities to include: Facility name, address, and contact person. First preference for disposal facility shall be a local Publicly Owned Treatment Works (POTW);
  2. Information on any intended on-site treatment/filtration; any required permits and/or approvals must be obtained;
  3. If transportation off-site is necessary, the identification of an information on the proposed waste transporter to include: Name, address, telephone number, contact person, and EPA and NYS Transportation ID number; and
  4. Name, address, and telephone number of the proposed laboratory for analysis of any waste samples.
- C. Material Handling and Disposal – If feasible, the petroleum-contaminated groundwater shall be disposed by the Contractor through a local POTW. At least 30 days prior to commencing work the Contractor shall provide a materials handling plan. This plan shall stipulate provisions for dewatering, pumping, filtering or otherwise treating as necessary, collection, temporary storage, and discharge or disposal of contaminated water to including obtaining, but not limited to, a Monroe County Pure Waters Specialty Short Term Discharge Permit:
1. The local POTW per conditions of the preliminary agreement for the discharge approval received by the wastewater treatment plant; or if disposal at the POTW is not feasible, to;
  2. Other permitted facilities,
  3. Dispose of all contaminated waters according to approved material handling plan within 30 days of collection or within 30 days of the results of any required laboratory analysis, whichever is later, unless additional time is approved by the Owner. Do not, however, dispose of any material prior to the receipt of laboratory results by the Owner, if contaminated groundwater is to be disposed of off-site.
- D. Sampling and Laboratory Analysis – If additional analysis and testing is required as identified by the materials handling plan or if required by the POTW, results shall be obtained within 7 working days from sample collection. The Contractor shall perform all required analyses at a laboratory approved by the New York State Department of Health Environmental Laboratory Approval Program (ELAP) for the intended analyses. The Contractor shall provide a copy of the analysis report to the Owner and Environmental Consultant within 24 hours of receipt. No disposal shall occur prior to the Owners receipt and acceptance of any laboratory reports. The cost of any analyses required is not included in other items within this contract and is the Contractor's responsibility and should be included in the cost for this disposal item.
- E. Transportation Off Site – If off-site transportation of wastewater is necessary, a valid 6 NYCRR Part 364 Waste Transporter Permit shall be required. The contractor will also be required to provide all

disposal documentation at an approved treatment storage and disposal facility. No payment for this item shall be made until proper documentation of its disposal is forwarded to the Owner.

3.7 BACKFILL

- A. Backfill and compaction of the excavations will be addressed in CIVIL SECTION 312000 - EARTH MOVING.
- B. The Contractor shall obtain pre-approval from the Owner or Environmental Consultant prior to backfilling a contaminated soil excavation. The Environmental Consultant and Owner reserves the right to delay the backfilling of a contaminated soil excavation based on pending results of excavation closure samples.

3.8 CLEAN UP

- A. At completion of work, entire premises shall be left broom clean. The cost of any clean up required are not included in other items within this contract and are the Contractor's responsibility and should be included in the base bid.

3.9 SITE RESTORATION

- A. Restore site to original grades. Provide positive drainage away from building or other sensitive areas as directed by the Owner.

3.10 METHOD OF MEASUREMENT

- A. Field Identification - No payment will be made under this contract for the field identification of petroleum-impacted soil and groundwater. Field identification of petroleum-impacted soil and groundwater is the responsibility of the Owner.
- B. Segregation and Stockpiling - No payment will be made under this contract for the segregation and stockpiling of petroleum-impacted soil. Costs associated with the segregation and stockpiling of petroleum-impacted soil are the Contractor's responsibility and should be included in the unit costs.
- C. Disposal of Petroleum Impacted Soil - The quantity shall be measured by the number of tons of contaminated soil disposed of in accordance with the methods and procedures described in the Disposal Plan.
- D. Excavation Closure - No payment will be made under this contract for excavation closure sampling. Costs associated with the collection and laboratory analyses of excavation closure sampling are the responsibility of the Owner.
- E. Petroleum Impacted Groundwater - Quantities of contaminated water will be measured by an approved water-gauging instrument at the Site or measured within a holding tank or tanker truck prior to leaving the site for disposal. The contractor is responsible for all costs relating to waste characterization sampling and the costs should be included in the disposal item.
- F. Backfill – No extra costs will be made to the Contractor to provide and install backfill material in accordance with the specification. Costs to provide and install backfill should be included in the unit costs.

- G. Clean up - No payment will be made under this contract for site. Costs associated with site clean up are the Contractor's responsibility and should be included in the unit costs.

3.11 BASIS OF PAYMENT

- A. The unit prices shall include the cost of furnishing all planning, labor, materials, equipment, transportation, pumping, temporary storage, discharge or disposal, sampling and analysis, documentation, permits, treatment or off-site disposal, stockpiling, clean up of spillage and any other incidentals necessary to complete the work.

END OF SECTION 024300

## SECTION 030130 - MAINTENANCE OF CAST-IN-PLACE CONCRETE

### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

### 1.2 SUMMARY

- A. Section Includes:
  - 1. Removal of deteriorated concrete and subsequent replacement and patching.
  - 2. Floor joint repair.
  - 3. Corrosion-inhibiting treatment.

### 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
  - 1. Include construction details, material descriptions, chemical composition, physical properties, test data, and mixing, preparation, and application instructions.
- B. Samples: Cured Samples for each exposed product and for each color and texture specified, in manufacturer's standard size appropriate for each type of work.
- C. Samples for Initial Selection: Cured Samples for each exposed product and for each color and texture.
  - 1. Include sets of patching-material Samples in the form of briquettes, at least 3 inches long by 1-1/2 inches wide representative of the range of concrete colors on the building. Document each Sample with product, mix, and or other information necessary to replicate it.
  - 2. Have each set of Samples contain a close color range of at least three Samples of different mixes of materials that match the variations in existing, adjacent concrete when cured and dry.
- D. Samples for Verification: Cured Samples for each exposed product and for each color and texture specified.
  - 1. Include Samples of each required type, color, and texture of patching material in the form of patches in drilled holes or sawed joints in sample concrete representative of the range of concrete colors on the building.

### 1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For concrete-maintenance specialist.

- B. Material Certificates: For each type of portland cement and aggregate supplied for mixing or adding to products at Project site.
- C. Product Test Reports: For each manufactured bonding agent, cementitious patching mortar, and joint-filler, for tests performed by manufacturer and witnessed by a qualified testing agency.
- D. Quality-Control Program: Submit before work begins.

#### 1.5 QUALITY ASSURANCE

- A. Concrete-Maintenance Specialist Qualifications: Engage an experienced concrete-maintenance firm that employs installers and supervisors who are trained and approved by manufacturer to apply packaged patching-mortar to perform work of this Section. Firm shall have completed work similar in material, design, and extent to that indicated for this Project with a record of successful in-service performance. Experience in only installing or patching new concrete is insufficient experience for concrete-maintenance work.
- B. Quality-Control Program: Prepare a written plan for concrete maintenance to systematically demonstrate the ability of personnel to properly perform maintenance work, including each phase or process, protection of surrounding materials during operations, and control of debris and runoff during the Work. Describe in detail materials, methods, equipment, and sequence of operations to be used for each phase of the Work.
- C. Mockups: Build mockups to demonstrate aesthetic effects and to set quality standards for materials and execution.
  - 1. Concrete Removal and Patching: Remove and repair an approximately 100 sq. in. area of deteriorated concrete wall.
  - 2. Floor Joint Repair: Cut out and reinstall joints in two separate areas, each approximately 48 inches long.
  - 3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
  - 4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Comply with manufacturer's written instructions for minimum and maximum temperature requirements and other conditions for storage.
- B. Store cementitious materials off the ground, under cover, and in a dry location.
- C. Store aggregates covered and in a dry location; maintain grading and other required characteristics and prevent contamination.



## 1.7 FIELD CONDITIONS

- A. Cold-Weather Requirements for Cementitious Materials: Comply with the following procedures:
  - 1. When air temperature is below 40 deg F, heat patching-material ingredients and existing concrete to produce temperatures between 40 and 90 deg F.
  - 2. When mean daily air temperature is between 25 and 40 deg F, cover completed Work with weather-resistant insulating blankets for 48 hours after repair or provide enclosure and heat to maintain temperatures above 32 deg F within the enclosure for 48 hours after repair.
  - 3. When mean daily air temperature is below 25 deg F, provide enclosure and heat to maintain temperatures above 32 deg F within the enclosure for 48 hours after repair.
- B. Hot-Weather Requirements for Cementitious Materials: Protect repair work when temperature and humidity conditions produce excessive evaporation of water from patching materials. Provide artificial shade and wind breaks, and use cooled materials as required. Do not apply to substrates with temperatures of 90 deg F and above.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Source Limitations: For repair products, obtain each color, grade, finish, type, and variety of product from single source and from single manufacturer with resources to provide products of consistent quality in appearance and physical properties.

### 2.2 BONDING AGENTS

- A. Epoxy-Modified, Cementitious Bonding and Anticorrosion Agent: Manufactured product that consists of water-insensitive epoxy adhesive, portland cement, and water-based solution of corrosion-inhibiting chemicals that forms a protective film on steel reinforcement.
- B. Epoxy Bonding Agent: ASTM C 881/C 881M, bonding system Type V and free of VOCs.

### 2.3 PATCHING MORTAR

- A. Patching Mortar Requirements:
  - 1. Only use patching mortars that are recommended by manufacturer for each applicable horizontal, vertical, or overhead use orientation.
  - 2. Color and Aggregate Texture: Provide patching mortar and aggregates of colors and sizes necessary to produce patching mortar that matches existing, adjacent, exposed concrete. Blend several aggregates if necessary to achieve suitable matches.
  - 3. Coarse Aggregate for Patching Mortar: ASTM C 33/C 33M, washed aggregate, Size No. 8, Class 5S. Add to patching-mortar mix only as permitted by patching-mortar manufacturer.

- B. Job-Mixed Patching Mortar: 1 part portland cement and 2-1/2 parts fine aggregate complying with ASTM C 144, except 100 percent passing a No. 16 sieve.
- C. Cementitious Patching Mortar: Packaged, dry mix for repair of concrete.
  - 1. Compressive Strength: Not less than 5000 psi at 28 days when tested according to ASTM C 109/C 109M.

## 2.4 JOINT FILLER

- A. Epoxy Joint Filler: Two-component, semirigid, 100 percent solids, epoxy resin with a Type A Shore durometer hardness of at least 80 according to ASTM D 2240.
- B. Color: Matching existing joint filler.

## 2.5 CORROSION-INHIBITING MATERIALS

- A. Corrosion-Inhibiting Treatment: Waterborne solution of alkaline corrosion-inhibiting chemicals for concrete-surface application that penetrates concrete by diffusion and forms a protective film on steel reinforcement.

## 2.6 MISCELLANEOUS MATERIALS

- A. Portland Cement: ASTM C 150/C 150M, Type I, II, or III unless otherwise indicated.
- B. Water: Potable.

## 2.7 MIXES

- A. General: Mix products, in clean containers, according to manufacturer's written instructions.
  - 1. Do not add water, thinners, or additives unless recommended by manufacturer.
  - 2. When practical, use manufacturer's premeasured packages to ensure that materials are mixed in proper proportions. When premeasured packages are not used, measure ingredients using graduated measuring containers; do not estimate quantities or use shovel or trowel as unit of measure.
  - 3. Do not mix more materials than can be used within time limits recommended by manufacturer. Discard materials that have begun to set.
- B. Dry-Pack Mortar: Mix required type(s) of patching-mortar dry ingredients with just enough liquid to form damp cohesive mixture that can be squeezed by hand into a ball but is not plastic.
- C. Concrete: Comply with Section 033000 "Cast-in-Place Concrete."

## PART 3 - EXECUTION

### 3.1 CONCRETE MAINTENANCE

- A. Have concrete-maintenance work performed only by qualified concrete-maintenance specialist.
- B. Comply with manufacturers' written instructions for surface preparation and product application.

### 3.2 EXAMINATION

- A. Notify Architect seven days in advance of dates when areas of deteriorated or delaminated concrete and deteriorated reinforcing bars will be located.
- B. Locate areas of deteriorated or delaminated concrete using hammer or chain-drag sounding and mark boundaries. Mark areas for removal by simplifying and squaring off boundaries. At columns and walls make boundaries level and plumb unless otherwise indicated.
- C. Pachometer Testing: Locate at least three reinforcing bars using a pachometer, and drill test holes to determine depth of cover. Calibrate pachometer using depth of cover measurements, and verify depth of cover in removal areas using pachometer.
- D. Perform surveys as the Work progresses to detect hazards resulting from concrete-maintenance work.

### 3.3 PREPARATION

- A. Ensure that supervisory personnel are on-site and on duty when concrete maintenance work begins and during its progress.
- B. Protect persons, motor vehicles, surrounding surfaces of building being repaired, building site, plants, and surrounding buildings from harm resulting from concrete maintenance work.
  - 1. Comply with each product manufacturer's written instructions for protections and precautions. Protect against adverse effects of products and procedures on people and adjacent materials, components, and vegetation.
  - 2. Use only proven protection methods appropriate to each area and surface being protected.
  - 3. Provide temporary barricades, barriers, and directional signage to exclude public from areas where concrete maintenance work is being performed.
  - 4. Erect temporary protective covers over walkways and at points of pedestrian and vehicular entrance and exit that must remain in service during course of concrete maintenance work.
  - 5. Contain dust and debris generated by concrete maintenance work and prevent it from reaching the public or adjacent surfaces.
  - 6. Use water-mist sprinkling and other wet methods to control dust only with adequate, approved procedures and equipment that ensure that such water will not create a hazard or adversely affect other building areas or materials.
  - 7. Protect floors and other surfaces along haul routes from damage, wear, and staining.

8. Provide supplemental sound-control treatment to isolate removal and dismantling work from other areas of the building.
  9. Protect adjacent surfaces and equipment by covering them with heavy polyethylene film and waterproof masking tape or a liquid strippable masking agent. If practical, remove items, store, and reinstall after potentially damaging operations are complete.
  10. Neutralize and collect alkaline and acid wastes for disposal off Owner's property.
  11. Dispose of debris and runoff from operations by legal means and in a manner that prevents soil erosion, undermining of paving and foundations, damage to landscaping, and water penetration into building interiors.
- C. Existing Drains: Prior to the start of work in an area, test drainage system to ensure that it is functioning properly. Notify Architect immediately of inadequate drainage or blockage. Do not begin work in an area until the drainage system is in working order.
1. Prevent solids such as aggregate or mortar residue from entering the drainage system. Clean out drains and drain lines that become sluggish or blocked by sand or other materials resulting from concrete maintenance work.
  2. Protect drains from pollutants. Block drains or filter out sediments, allowing only clean water to pass.
- D. Preparation for Concrete Removal: Examine construction to be repaired to determine best methods to safely and effectively perform concrete maintenance work. Examine adjacent work to determine what protective measures will be necessary. Make explorations, probes, and inquiries as necessary to determine condition of construction to be removed in the course of repair.
1. Verify that affected utilities have been disconnected and capped.
  2. Inventory and record the condition of items to be removed for reinstallation or salvage.
  3. Provide and maintain shoring, bracing, and temporary structural supports as required to preserve stability and prevent unexpected or uncontrolled movement, settlement, or collapse of construction being demolished and construction and finishes to remain. Strengthen or add new supports when required during progress of removal work.
- E. Reinforcing-Bar Preparation: Remove loose and flaking rust from exposed reinforcing bars by abrasive blast cleaning until only tightly adhered light rust remains.
1. Where section loss of reinforcing bar is more than 25 percent, or 20 percent in two or more adjacent bars, cut bars and remove and replace as indicated on Drawings.
  2. Remove additional concrete as necessary to provide at least 3/4-inch clearance at existing and replacement bars.
  3. Splice replacement bars to existing bars according to ACI 318 by lapping, welding, or using mechanical couplings.
- F. Preparation of Floor Joints for Repair: Saw-cut joints full width to edges and depth of spalls, but not less than 3/4 inch deep. Clean out debris and loose concrete; vacuum or blow clear with compressed air.

### 3.4 CONCRETE REMOVAL

- A. Do not overload structural elements with debris.

- B. Saw-cut perimeter of areas indicated for removal to a depth of at least 1 inch. Make cuts perpendicular to concrete surfaces and no deeper than cover on reinforcement.
- C. Remove deteriorated and delaminated concrete by breaking up and dislodging from reinforcement.
- D. Remove additional concrete if necessary to provide a depth of removal of at least 1 inch over entire removal area.
- E. Where half or more of the perimeter of reinforcing bar is exposed, bond between reinforcing bar and surrounding concrete is broken, or reinforcing bar is corroded, remove concrete from entire perimeter of bar and to provide at least 3/4-inch clearance around bar.
- F. Test areas where concrete has been removed by tapping with hammer, and remove additional concrete until unsound and disbonded concrete is completely removed.
- G. Provide surfaces with a fractured profile of at least 1/8 inch that are approximately perpendicular or parallel to original concrete surfaces. At columns and walls, make top and bottom surfaces level unless otherwise directed.
- H. Thoroughly clean removal areas of loose concrete, dust, and debris.

### 3.5 BONDING AGENT APPLICATION

- A. Epoxy-Modified, Cementitious Bonding and Anticorrosion Agent: Apply to reinforcing bars and concrete by stiff brush or hopper spray according to manufacturer's written instructions. Apply to reinforcing bars in two coats, allowing first coat to dry two to three hours before applying second coat. Allow to dry before placing patching mortar or concrete.
- B. Epoxy Bonding Agent: Apply to reinforcing bars and concrete by brush, roller, or spray according to manufacturer's written instructions, leaving no pinholes or other uncoated areas. Apply to reinforcing bars in at least two coats, allowing first coat to dry before applying second coat. Place patching mortar or concrete while epoxy is still tacky. If epoxy dries, recoat before placing patching mortar or concrete.

### 3.6 PATCHING MORTAR APPLICATION

- A. Place patching mortar as specified in this article unless otherwise recommended in writing by manufacturer.
  - 1. Provide forms where necessary to confine patch to required shape.
  - 2. Wet substrate and forms thoroughly and then remove standing water.
- B. Pretreatment: Apply specified bonding agent.
- C. General Placement: Place patching mortar by troweling toward edges of patch to force intimate contact with edge surfaces. For large patches, fill edges first and then work toward center, always troweling toward edges of patch. At fully exposed reinforcing bars, force patching mortar to fill space behind bars by compacting with trowel from sides of bars.

- D. Vertical Patching: Place material in lifts of not more than 2 inches or less than 1/4 inch. Do not feather edge.
- E. Consolidation: After each lift is placed, consolidate material and screed surface.
- F. Multiple Lifts: Where multiple lifts are used, score surface of lifts to provide a rough surface for placing subsequent lifts. Allow each lift to reach final set before placing subsequent lifts.
- G. Finishing: Allow surfaces of lifts that are to remain exposed to become firm and then finish to a surface matching adjacent concrete.
- H. Curing: Wet-cure cementitious patching materials, including polymer-modified cementitious patching materials, for not less than seven days by water-fog spray or water-saturated absorptive cover.

### 3.7 CONCRETE PLACEMENT

- A. Place concrete according to Section 033000 "Cast-in-Place Concrete" and as specified in this article.
- B. Pretreatment: Apply epoxy bonding agent to reinforcement and concrete substrate.
- C. Standard Placement: Place concrete by form-and-pump method unless otherwise indicated.
  - 1. Use vibrators to consolidate concrete as it is placed.
  - 2. At unformed surfaces, screed concrete to produce a surface that when finished with patching mortar will match required profile and surrounding concrete.
- D. Form-and-Pump Placement: Place concrete by form-and-pump method where indicated.
  - 1. Design and construct forms to resist pumping pressure in addition to weight of wet concrete. Seal joints and seams in forms and where forms abut existing concrete.
  - 2. Pump concrete into place from bottom to top, releasing air from forms as concrete is introduced. When formed space is full, close air vents and pressurize to 14 psi.
- E. Wet-cure concrete for not less than seven days by leaving forms in place or keeping surfaces continuously wet by water-fog spray or water-saturated absorptive cover.
- F. Fill placement cavities with dry-pack mortar and repair voids with patching mortar. Finish to match surrounding concrete.

### 3.8 FLOOR-JOINT REPAIR

- A. Cut out deteriorated concrete and reconstruct sides of joint with patching mortar as indicated on Drawings. Install joint filler in nonmoving floor joints where indicated and as specified in this article.

- B. Depth: Install joint filler to a depth of at least 1 inch. Use fine silica sand no more than 1/4 inch deep to close base of joint. Do not use sealant backer rods or compressible fillers below joint filler.
- C. Top Surface: Install joint filler so that when cured, it is flush at top surface of adjacent concrete. If necessary, overfill joint and remove excess when filler has cured.

### 3.9 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.
- B. Product will be considered defective if it does not pass tests and inspections.
- C. Prepare test and inspection reports.

END OF SECTION 030130





**SECTION 031000  
CONCRETE FORMING AND ACCESSORIES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Formwork for cast-in-place concrete, with shoring, bracing and anchorage.
- B. Openings for other work.
- C. Form accessories.
- D. Form stripping.

**1.02 RELATED REQUIREMENTS**

- A. Section 032000 - Concrete Reinforcing.
- B. Section 033000 - Cast-in-Place Concrete.
- C. Section 042900 - Engineered Unit Masonry: Reinforcement for engineered masonry.
- D. Section 051200 - Structural Steel Framing: Placement of embedded steel anchors and plates in cast-in-place concrete.

**1.03 REFERENCE STANDARDS**

- A. ACI CODE-318 - Building Code Requirements for Structural Concrete and Commentary; 2019 (Reapproved 2022).
- B. ACI PRC-347 - Guide to Formwork for Concrete; 2014 (Reapproved 2021).
- C. ACI SPEC-117 - Specification for Tolerances for Concrete Construction and Materials; 2010 (Reapproved 2015).
- D. ACI SPEC-301 - Specifications for Concrete Construction; 2020.
- E. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2021.
- F. ASTM B221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric); 2021.
- G. COE CRD-C 513 - Handbook for Concrete and Cement Corps of Engineers Specifications for Rubber Waterstops; 1974.

**1.04 SUBMITTALS**

- A. See Section 013000 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate pertinent dimensions, materials, bracing, and arrangement of joints and ties.
- C. Designer's Qualification Statement.
- D. Design Data: As required by authorities having jurisdiction.

**1.05 QUALITY ASSURANCE**

- A. Designer Qualifications: Design formwork under direct supervision of a Professional Structural Engineer experienced in design of concrete formwork and licensed in the State in which the Project is located.

**1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver prefabricated forms and installation instructions in manufacturer's packaging.
- B. Store prefabricated forms off ground in ventilated and protected manner to prevent deterioration from moisture.
- C. Protect plastic foam products from damage and exposure to sunlight.

**PART 2 PRODUCTS**

**2.01 FORMWORK - GENERAL**

- A. Provide concrete forms, accessories, shoring, and bracing as required to accomplish cast-in-place concrete work.
- B. Design and construct concrete that complies with design with respect to shape, lines, and dimensions.
- C. Chamfer outside corners of beams, joists, columns, and walls.
- D. Comply with applicable state and local codes with respect to design, fabrication, erection, and removal of formwork.
- E. Comply with relevant portions of ACI CODE-318, ACI PRC-347, and ACI SPEC-301.

## **2.02 WOOD FORM MATERIALS**

- A. Form Materials: At the discretion of the Contractor.

## **2.03 REMOVABLE PREFABRICATED FORMS**

- A. Preformed Steel Forms: Minimum 16 gauge, 0.0598 inch thick, matched, tight fitting, stiffened to support weight of concrete without deflection detrimental to tolerances and appearance of finished surfaces.
- B. Preformed Aluminum Forms: ASTM B221 (ASTM B221M), 6061-T6 alloy, matched, tight fitting, stiffened to support weight of concrete without deflection detrimental to tolerances and appearance of finished surfaces.
- C. Preformed Plastic Forms: Thermoplastic polystyrene form liner, tight fitting, stiffened to support weight of concrete without deflection detrimental to tolerances and appearance of finished surfaces.
- D. Void Forms: Moisture resistant treated paper faces, biodegradable, structurally sufficient to support weight of wet concrete mix until initial set; 2 inches thick.

## **2.04 FORMWORK ACCESSORIES**

- A. Form Ties: Removable type, galvanized metal, fixed length, cone type, with waterproofing washer, 1 inch back break dimension, free of defects that could leave holes larger than 1 inch in concrete surface.
- B. Form Release Agent: Capable of releasing forms from hardened concrete without staining or discoloring concrete or forming bugholes and other surface defects, compatible with concrete and form materials, and not requiring removal for satisfactory bonding of coatings to be applied.
  - 1. Do not use materials containing diesel oil or petroleum-based compounds.
- C. Dowel Sleeves: Plastic sleeve and nailable plastic base for smooth, round, steel load-transfer dowels.
- D. Filler Strips for Chamfered Corners: Rigid plastic type; 3/4 x 3/4 inch size; maximum possible lengths.
- E. Flashing Reglets: Galvanized steel, at least 22 gauge, 0.0299 inch thick, longest possible lengths, with alignment splines for joints, foam filled, release tape sealed slots, anchors for securing to concrete formwork.
- F. Nails, Spikes, Lag Bolts, Through Bolts, Anchorages: Sized as required, of sufficient strength and character to maintain formwork in place while placing concrete.
- G. Embedded Anchor Shapes, Plates, Angles and Bars: As specified in Section 051200.
- H. Waterstops: Rubber, complying with COE CRD-C 513, maximum possible lengths, ribbed profile, preformed corner sections, heat welded jointing.
  - 1. Configuration: As indicated on drawings.
  - 2. Size: 3/4 inch by 1 inch or as indicated on drawings.
- I. Waterstops: Bentonite and butyl rubber.
  - 1. Configuration: As indicated on drawings.
  - 2. Size: 3/8 inch by 3/4 inch or as indicated on drawings.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify lines, levels and centers before proceeding with formwork. Ensure that dimensions agree with drawings.

### **3.02 ERECTION - FORMWORK**

- A. Erect formwork, shoring and bracing to achieve design requirements, in accordance with requirements of ACI SPEC-301.
- B. Provide bracing to ensure stability of formwork. Shore or strengthen formwork subject to overstressing by construction loads.
- C. Arrange and assemble formwork to permit dismantling and stripping. Do not damage concrete during stripping. Permit removal of remaining principal shores.
- D. Align joints and make watertight. Keep form joints to a minimum.
- E. Obtain approval before framing openings in structural members that are not indicated on drawings.
- F. Install void forms in accordance with manufacturer's recommendations. Protect forms from moisture or crushing.
- G. Coordinate this section with other sections of work that require attachment of components to formwork.

### **3.03 APPLICATION - FORM RELEASE AGENT**

- A. Apply form release agent on formwork in accordance with manufacturer's recommendations.
- B. Do not apply form release agent where concrete surfaces will receive special finishes or applied coverings that are affected by agent. Soak inside surfaces of untreated forms with clean water. Keep surfaces coated prior to placement of concrete.

### **3.04 INSERTS, EMBEDDED PARTS, AND OPENINGS**

- A. Provide formed openings where required for items to be embedded in passing through concrete work.
- B. Locate and set in place items that will be cast directly into concrete.
- C. Coordinate with work of other sections in forming and placing openings, slots, reglets, recesses, sleeves, bolts, anchors, other inserts, and components of other work.
- D. Install accessories in accordance with manufacturer's instructions, so they are straight, level, and plumb. Ensure items are not disturbed during concrete placement.
- E. Install waterstops in accordance with manufacturer's instructions, so they are continuous without displacing reinforcement.
- F. Provide temporary ports or openings in formwork where required to facilitate cleaning and inspection. Locate openings at bottom of forms to allow flushing water to drain.
- G. Close temporary openings with tight fitting panels, flush with inside face of forms, and neatly fitted so joints will not be apparent in exposed concrete surfaces.

### **3.05 FORM CLEANING**

- A. Clean forms as erection proceeds, to remove foreign matter within forms.
- B. Clean formed cavities of debris prior to placing concrete.
  - 1. Flush with water or use compressed air to remove remaining foreign matter. Ensure that water and debris drain to exterior through clean-out ports.
  - 2. During cold weather, remove ice and snow from within forms. Do not use de-icing salts. Do not use water to clean out forms, unless formwork and concrete construction proceed within heated enclosure. Use compressed air or other means to remove foreign matter.

**3.06 FORMWORK TOLERANCES**

- A. Construct formwork to maintain tolerances required by ACI SPEC-117, unless otherwise indicated.

**3.07 FIELD QUALITY CONTROL**

- A. An independent testing agency will perform field quality control tests, as specified in Section 014000 - Quality Requirements.
- B. Inspect erected formwork, shoring, and bracing to ensure that work is in accordance with formwork design, and to verify that supports, fastenings, wedges, ties, and items are secure.

**3.08 FORM REMOVAL**

- A. Do not remove forms or bracing until concrete has gained sufficient strength to carry its own weight and imposed loads.
- B. Loosen forms carefully. Do not wedge pry bars, hammers, or tools against finish concrete surfaces scheduled for exposure to view.
- C. Store removed forms to prevent damage to form materials or to fresh concrete. Discard damaged forms.

**END OF SECTION**

**SECTION 032000  
CONCRETE REINFORCING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Reinforcing steel for cast-in-place concrete.
- B. Supports and accessories for steel reinforcement.

**1.02 RELATED REQUIREMENTS**

- A. Section 031000 - Concrete Forming and Accessories.
- B. Section 033000 - Cast-in-Place Concrete.
- C. Section 042900 - Engineered Unit Masonry: Reinforcement for engineered masonry.

**1.03 REFERENCE STANDARDS**

- A. ACI CODE-318 - Building Code Requirements for Structural Concrete and Commentary; 2019 (Reapproved 2022).
- B. ACI MNL-66 - ACI Detailing Manual; 2020.
- C. ACI SPEC-301 - Specifications for Concrete Construction; 2020.
- D. ASTM A184/A184M - Standard Specification for Welded Deformed Steel Bar Mats for Concrete Reinforcement; 2019.
- E. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement; 2022.
- F. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete; 2022.
- G. AWS B2.1/B2.1M - Specification for Welding Procedure and Performance Qualification; 2021.
- H. AWS D1.4/D1.4M - Structural Welding Code - Steel Reinforcing Bars; 2018, with Amendment (2020).
- I. CRSI (DA4) - Manual of Standard Practice; 2023.

**1.04 SUBMITTALS**

- A. See Section 013000 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Comply with requirements of ACI MNL-66 Include bar schedules, shapes of bent bars, spacing of bars, and location of splices.
- C. Manufacturer's Certificate: Certify that reinforcing steel and accessories supplied for this project meet or exceed specified requirements.
- D. Welders' Qualification Statement: Welders' certificates in accordance with AWS B2.1/B2.1M and dated no more than 12 months before start of scheduled welding work.
- E. Reports: Submit certified copies of mill test report of reinforcement materials analysis.

**1.05 QUALITY ASSURANCE**

- A. Perform work of this section in accordance with ACI SPEC-301.
- B. Welder Qualifications: Welding processes and welding operators qualified in accordance with AWS D1.4/D1.4M and no more than 12 months before start of scheduled welding work.

**PART 2 PRODUCTS**

**2.01 REINFORCEMENT**

- A. Reinforcing Steel: ASTM A615/A615M, Grade 60 (60,000 psi).
  - 1. Deformed billet-steel bars.
  - 2. Unfinished.
- B. Steel Welded Wire Reinforcement (WWR): Plain type; ASTM A1064/A1064M.

1. WWR Style: As indicated on drawings.
- C. Reinforcement Accessories:
  1. Tie Wire: Annealed, minimum 16 gauge, 0.0508 inch.
  2. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement.

## **2.02 FABRICATION**

- A. Fabricate concrete reinforcing in accordance with CRSI (DA4) - Manual of Standard Practice.
- B. Welding of reinforcement is permitted only with the specific approval of Engineer of Record. Perform welding in accordance with AWS D1.4/D1.4M.

## **PART 3 EXECUTION**

### **3.01 PLACEMENT**

- A. Place, support and secure reinforcement against displacement. Do not deviate from required position.
- B. Do not displace or damage vapor barrier.
- C. Accommodate placement of formed openings.
- D. Maintain concrete cover around reinforcing as indicated on drawings.
- E. Comply with applicable code for concrete cover over reinforcement.
- F. Bond and ground all reinforcement to requirements of Section 260526.

### **3.02 FIELD QUALITY CONTROL**

- A. Owner will engage an independent testing agency, as specified in Section 014000 - Quality Requirements, to inspect installed reinforcement for compliance with contract documents before concrete placement.

**END OF SECTION**

**SECTION 033000  
CAST-IN-PLACE CONCRETE**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Floors and slabs on grade.
- B. Joint devices associated with concrete work.
- C. Miscellaneous concrete elements, including equipment pads.
- D. Concrete curing.

**1.02 RELATED REQUIREMENTS**

- A. Section 031000 - Concrete Forming and Accessories: Forms and accessories for formwork.
- B. Section 032000 - Concrete Reinforcing.
- C. Section 079200 - Joint Sealants: Products and installation for sealants and joint fillers for saw cut joints and isolation joints in slabs.

**1.03 REFERENCE STANDARDS**

- A. ACI CODE-318 - Building Code Requirements for Structural Concrete and Commentary; 2019 (Reapproved 2022).
- B. ACI PRC-211.1 - Selecting Proportions for Normal-Density and High Density-Concrete - Guide; 2022.
- C. ACI PRC-302.1 - Guide to Concrete Floor and Slab Construction; 2015.
- D. ACI PRC-304 - Guide for Measuring, Mixing, Transporting, and Placing Concrete; 2000 (Reapproved 2009).
- E. ACI PRC-305 - Guide to Hot Weather Concreting; 2020.
- F. ACI PRC-306 - Guide to Cold Weather Concreting; 2016.
- G. ACI PRC-308 - Guide to External Curing of Concrete; 2016.
- H. ACI SPEC-301 - Specifications for Concrete Construction; 2020.
- I. ASTM C33/C33M - Standard Specification for Concrete Aggregates; 2023.
- J. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; 2023.
- K. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete; 2024.
- L. ASTM C109/C109M - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 50 mm [2 in.] Cube Specimens); 2023.
- M. ASTM C143/C143M - Standard Test Method for Slump of Hydraulic-Cement Concrete; 2020.
- N. ASTM C150/C150M - Standard Specification for Portland Cement; 2022.
- O. ASTM C171 - Standard Specification for Sheet Materials for Curing Concrete; 2020.
- P. ASTM C173/C173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method; 2023.
- Q. ASTM C260/C260M - Standard Specification for Air-Entraining Admixtures for Concrete; 2010a (Reapproved 2016).
- R. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete; 2019, with Editorial Revision (2022).
- S. ASTM C618 - Standard Specification for Coal Ash and Raw or Calcined Natural Pozzolan for Use in Concrete; 2023, with Editorial Revision.
- T. ASTM C845/C845M - Standard Specification for Expansive Hydraulic Cement; 2018.

- U. ASTM C881/C881M - Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete; 2020a.
- V. ASTM C1059/C1059M - Standard Specification for Latex Agents for Bonding Fresh to Hardened Concrete; 2021.
- W. ASTM C1107/C1107M - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink); 2020.
- X. ASTM C1240 - Standard Specification for Silica Fume Used in Cementitious Mixtures; 2020.
- Y. ASTM C1602/C1602M - Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete; 2022.
- Z. ASTM C1708/C1708M - Standard Test Methods for Self-Leveling Mortars Containing Hydraulic Cements; 2023.
- AA. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Asphalt Types); 2023.
- BB. ASTM D1752 - Standard Specification for Preformed Sponge Rubber, Cork, and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction; 2018 (Reapproved 2023).
- CC. ASTM D2103 - Standard Specification for Polyethylene Film; 2023a.
- DD. ASTM D8139 - Standard Specification for Semi-Rigid, Closed-Cell Polypropylene Foam, Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction; 2023.
- EE. ASTM E1155 - Standard Test Method for Determining FF Floor Flatness and FL Floor Levelness Numbers; 2020.
- FF. ASTM E1155M - Standard Test Method for Determining FF Floor Flatness and FL Floor Levelness Numbers (Metric); 2014.
- GG. ASTM E1643 - Standard Practice for Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs; 2018a.
- HH. ASTM E1745 - Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs; 2017 (Reapproved 2023).

#### **1.04 SUBMITTALS**

- A. See Section 013000 - Administrative Requirements for submittal procedures.
- B. Product Data: Submit manufacturers' data on manufactured products showing compliance with specified requirements and installation instructions, including but not limited to the following:
  - 1. Portland Cement
  - 2. Fly ash
  - 3. Slag Cement
  - 4. Blended hydraulic cement
  - 5. Silica Fume
  - 6. Performance- based hydraulic cement
  - 7. Aggregates
  - 8. Admixtures
  - 9. Vapor Retarders
  - 10. Floor and slab treatments
  - 11. Liquid floor treatments
  - 12. Curing materials
  - 13. Joint fillers
  - 14. Repair materials
- C. Mix Design: Submit proposed concrete mix design for each concrete mix.
  - 1. Indicate proposed mix design complies with requirements of ACI CODE-318, Chapter 5 - Concrete Quality, Mixing and Placing.



2. Indicate proposed mix design complies with admixture manufacturer's written recommendations.
3. The contractor shall warranty by the submission of the design mixes that such mixes are a complete representative of the concrete mixtures that the contractor intends to supply to meet the requirements of the contract documents. Submit alternate design mixes when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.
4. Indicate amounts of mixing water to be withheld for later addition at Project Site.
5. Include the following information for each concrete mix design:
  - a. Mixture identification
  - b. Minimum 28 day compressive strength. Submit strength records in accordance with ACI 318 Chapter 5; mix design materials, conditions, and proportions used for record of test; standard deviation calculation, and determination of required average compressive strength.
  - c. Durability exposure class
  - d. Maximum water/cementitious materials content.
  - e. Slump limit
  - f. Air content
  - g. Nominal maximum aggregate size. Include ASTM test results for susceptibility of aggregates to alkali-silica reaction.
  - h. Submit alternate design mixtures when characteristics of materials, Project conditions, test results, or other circumstances warrant adjustments.
  - i. Intended placement method.
  - j. Manufacturer's Spec Data Sheets of each concrete admixture, including brand name, manufacturer, and dosage rate.
  - k. Mill test report of fly ash and certification of compliance with ASTM C618, Class C or F, if used.
- D. Material Test Reports: Submit report for each test or series of tests specified.
  1. Portland Cement
  2. Fly ash
  3. Slag cement
  4. Blended hydraulic cement
  5. Silica Fume
  6. Performance- based hydraulic cement
  7. Aggregates
  8. Admixtures
- E. Manufacturer's Installation Instructions: For concrete accessories, indicate installation procedures and interface required with adjacent construction.
- F. Project Record Documents: Accurately record actual locations of embedded utilities and components that will be concealed from view upon completion of concrete work.
- G. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.
- H. Preconstruction Test Reports: For each mix design.
- I. Field Quality-control reports
- J. Material Certificates: For each of the following:
  1. Cementitious materials
  2. Admixtures
  3. Floor and slab treatments
  4. Adhesives
  5. Vapor Retarders
  6. Semirigid Joint Filler

7. Joint-filler Strips
8. Repair materials

#### **1.05 QUALITY ASSURANCE**

- A. Perform work of this section in accordance with ACI SPEC-301 and ACI CODE-318.
- B. Installer Qualifications: A qualified installer who employs Project personnel qualified as an ACI-certified Flatwork Technician and Finisher and a supervisor who is a certified ACI Flatwork Concrete Finisher/Technician or an ACI Concrete Flatwork Technician
  1. Post-Installed Concrete Anchors Installers: ACI-certified Adhesive Anchor Installer.
- C. Ready-Mixed Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C94/C94M requirements for production facilities and equipment.
  1. Manufacturer certified in accordance with NRMCA's "Certification of Ready Mixed Concrete Production Facilities."
- D. Laboratory Testing Agency Qualifications: A testing agency qualified in accordance with ASTM C1077 and ASTM E329 for testing indicated and employing an ACI-certified Concrete Quality Control Technical Manager.
  1. Personnel performing laboratory tests to be an ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician, Grade I. Testing agency laboratory supervisor to be an ACI-certified Concrete Laboratory Testing Technician, Grade II.
- E. Field Quality-Control Testing Agency Qualifications: An independent agency, acceptable to authorities having jurisdiction, qualified in accordance with ASTM C1077 and ASTM E329 for testing indicated.
  1. Personnel conducting field tests to be qualified as an ACI Concrete Field Testing Technician, Grade 1, in accordance with ACI CPP 610.1 or an equivalent certification program.

#### **1.06 PRECONSTRUCTION TESTING**

- A. Preconstruction Testing Service: Engage a qualified testing agency to perform preconstruction testing on each concrete mixture.
- B. Include the following information in each test report:
  1. Admixture dosage rates.
  2. Slump.
  3. Air content.
  4. Seven-day compressive strength.
  5. 28-day compressive strength.

#### **1.07 DELIVERY, STORAGE, AND HANDLING**

- A. Comply with ASTM C94/C94M and ACI 301.

#### **1.08 FIELD CONDITIONS:**

- A. Cold-Weather Placement: Comply with ACI 301 and ACI 306.1 and as follows.
  1. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
  2. When average high and low temperature is expected to fall below 40 deg F for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.
  3. Do not use frozen materials or materials containing ice or snow.

4. Do not place concrete in contact with surfaces less than 35 deg F, other than reinforcing steel.
  5. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.
- B. Hot-Weather Placement: Comply with ACI 301 and ACI 305.1, and as follows:
1. Maintain concrete temperature at time of discharge to not exceed 95 deg F.
  2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

## **1.09 WARRANTY**

- A. Manufacturer's Warranty: Manufacturer agrees to furnish replacement sheet vapor retarder material and accessories that do not comply with requirements within specified warranty period.
1. Warranty period: 10 years from date of Substantial Completion.
- B. See Section 017800 - Closeout Submittals for additional warranty requirements.

## **PART 2 PRODUCTS**

### **2.01 FORMWORK**

- A. Comply with requirements of Section 031000.

### **2.02 REINFORCEMENT MATERIALS**

- A. Comply with requirements of Section 032000.

### **2.03 CONCRETE MATERIALS**

- A. Cement: ASTM C150/C150M, Type I - Normal Portland type.
1. Acquire cement for entire project from same source.
- B. Blended, Expansive Hydraulic Cement: ASTM C845/C845M, Type K.
- C. Fine and Coarse Aggregates: ASTM C33/C33M.
1. Acquire aggregates for entire project from same source.
- D. Fly Ash: ASTM C618, Class C or F.
- E. Silica Fume: ASTM C1240, proportioned in accordance with ACI PRC-211.1.
- F. Water: ASTM C1602/C1602M; clean, potable, and not detrimental to concrete.

### **2.04 ADMIXTURES**

- A. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.
- B. Air Entrainment Admixture: ASTM C260/C260M.
- C. High Range Water Reducing and Retarding Admixture: ASTM C494/C494M Type G.
- D. High Range Water Reducing Admixture: ASTM C494/C494M Type F.
- E. Water Reducing and Accelerating Admixture: ASTM C494/C494M Type E.
- F. Water Reducing and Retarding Admixture: ASTM C494/C494M Type D.
- G. Retarding Admixture: ASTM C494/C494M Type B.
- H. Water Reducing Admixture: ASTM C494/C494M Type A.
- I. Corrosion Inhibiting Admixture: ASTM C494/C494M, Type C.

## **2.05 CONCRETE REPAIR MATERIALS**

- A. Repair Underlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch and that can be feathered at edges to match adjacent floor elevations.
  - 1. Cement Binder: ASTM C150/C150M portland cement or hydraulic or blended hydraulic cement, as defined in ASTM C219.
  - 2. Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.
  - 3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand, as recommended by underlayment manufacturer.
  - 4. Compressive Strength: Not less than 5000psi at 28 days when tested in accordance with ASTM C109/C109M.
- B. Repair Overlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/4 inch and that can be filled in over a scarified surface to match adjacent floor elevations.
  - 1. Cement Binder: ASTM C150/C150M portland cement or hydraulic or blended hydraulic cement, as defined in ASTM C219.
  - 2. Primer: Product of topping manufacturer recommended for substrate, conditions, and application.
  - 3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by topping manufacturer.
  - 4. Compressive Strength: Not less than 5000 psi at 28 days when tested in accordance with ASTM C109/C109M.

## **2.06 ACCESSORY MATERIALS**

- A. Underslab Vapor Retarder:
  - 1. Sheet Material: ASTM E1745, Class A; stated by manufacturer as suitable for installation in contact with soil or granular fill under concrete slabs. Single-ply polyethylene is prohibited.
  - 2. Accessory Products: Vapor retarder manufacturer's recommended tape, adhesive, mastic, prefabricated boots, etc., for sealing seams and penetrations.
  - 3. Products:
    - a. Stego Industries, LLC; 15-mil (Class A)\_\_\_\_: [www.stegoindustries.com/#sle](http://www.stegoindustries.com/#sle).
    - b. Substitutions: See Section 016000 - Product Requirements.
- B. Non-Shrink Cementitious Grout: Premixed compound consisting of nonmetallic aggregate, cement, water reducing and plasticizing agents.
  - 1. Grout: Comply with ASTM C1107/C1107M.
  - 2. Minimum Compressive Strength at 28 Days, ASTM C109/C109M: 7,000 pounds per square inch.

## **2.07 BONDING AND JOINTING PRODUCTS**

- A. Latex Bonding Agent: Non-redispersable acrylic latex, complying with ASTM C1059/C1059M, Type II.
- B. Epoxy Bonding System:
  - 1. Complying with ASTM C881/C881M and of Type required for specific application.
- C. Slab Isolation Joint Filler: 1/2-inch thick, height equal to slab thickness, with removable top section forming 1/2-inch deep sealant pocket after removal.
  - 1. Material: ASTM D1751, cellulose fiber cellulose fiber.
  - 2. Material: ASTM D1752, sponge rubber (Type I).
  - 3. Material: ASTM D8139, semi-rigid, closed-cell polypropylene foam.
- D. Slab Contraction Joint Device: Preformed linear strip intended for pressing into wet concrete to provide straight route for shrinkage cracking.

- E. Slab Construction Joint Devices: Combination keyed joint form and screed, galvanized steel, with rectangular or round knockout holes for conduit or rebar to pass through joint form at 6 inches on center; ribbed steel stakes for setting.
- F. Dowel Sleeves: Plastic sleeve for smooth, round, steel load-transfer dowels.

## **2.08 LIQUID FLOOR TREATMENTS**

- A. Penetrating Liquid Floor Treatment: Clear, chemically reactive, waterborne solution of inorganic silicate or silicate materials and proprietary components; odorless; that penetrates, hardens, and densifies concrete surfaces.
  - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
    - a. Euclid Chemical Company (The); an RPM company; Euco Diamond Hard.
    - b. W.R. Meadows, Inc; Liqui-Hard.
    - c. Or approved equal.
  - 2. Apply to interior floors as indicated as sealed concrete in Architectural drawings.
- B. Sealer/Dustproofer for Exterior Slabs and Interior Slabs without Floor Coverings: Water-acrylic sealer that shall not yellow under ultraviolet light after 200 hrs of testing in accordance with ASTM C1315, Class A.

## **2.09 CURING MATERIALS**

- A. Moisture-Retaining Sheet: ASTM C171.
  - 1. Curing paper, regular.
  - 2. Polyethylene film, white opaque, minimum nominal thickness of 4 mil, 0.004 inch.
  - 3. White-burlap-polyethylene sheet, weighing not less than 3.8 ounces per square yard.
- B. Polyethylene Film: ASTM D2103, 4 mil, 0.004 inch thick, clear.
- C. Water: Potable, not detrimental to concrete.

## **2.10 CONCRETE MIX DESIGN**

- A. Proportioning Normal Weight Concrete: Comply with ACI PRC-211.1 recommendations.
- B. Concrete Strength: Establish required average strength for each type of concrete on the basis of field experience or trial mixtures, as specified in ACI SPEC-301.
  - 1. For trial mixtures method, employ independent testing agency acceptable to Architect for preparing and reporting proposed mix designs.
- C. Admixtures: Add acceptable admixtures as recommended in ACI PRC-211.1 and at rates recommended or required by manufacturer.
  - 1. See QE S001.2 for concrete mix design.

## **2.11 MIXING**

- A. Transit Mixers: Comply with ASTM C94/C94M.
- B. Adding Water: If concrete arrives on-site with slump less than suitable for placement, do not add water that exceeds the maximum water-cement ratio or exceeds the maximum permissible slump.
- C. Do not use shrinkage-reducing admixture (SRA) in same concrete batch with MVRA or PIA.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify lines, levels, and dimensions before proceeding with work of this section.
- B. Before placing concrete, verify that installation of concrete forms, accessories, and reinforcement, and embedded items is complete and that required inspections have been performed.
- C. Do not proceed until unsatisfactory conditions have been corrected.

### **3.02 PREPARATION**

- A. Formwork: Comply with requirements of ACI SPEC-301. Design and fabricate forms to support all applied loads until concrete is cured and for easy removal without damage to concrete.
- B. Verify that forms are clean and free of rust before applying release agent.
- C. Coordinate placement of embedded items with erection of concrete formwork and placement of form accessories.
- D. Where new concrete is to be bonded to previously placed concrete, prepare existing surface by cleaning and applying bonding agent in according to bonding agent manufacturer's instructions.
  - 1. Use epoxy bonding system for bonding to damp surfaces, for structural load-bearing applications, and where curing under humid conditions is required.
  - 2. Use latex bonding agent only for non-load-bearing applications.
- E. Where new concrete with integral waterproofing is to be bonded to previously placed concrete, prepare surfaces to be treated in accordance with waterproofing manufacturer's instructions. Saturate cold joint surface with clean water, and remove excess water before application of coat of waterproofing admixture slurry. Apply slurry coat uniformly with semi-stiff bristle brush at rate recommended by waterproofing manufacturer.
- F. In locations where new concrete is doweled to existing work, drill holes in existing concrete, insert steel dowels and pack solid with non-shrink grout.
- G. Interior Slabs on Grade: Install vapor retarder under interior slabs on grade. Comply with ASTM E1643. Lap joints minimum 6 inches. Seal joints, seams and penetrations watertight with manufacturer's recommended products and follow manufacturer's written instructions. Repair damaged vapor retarder before covering.

### **3.03 INSTALLING REINFORCEMENT AND OTHER EMBEDDED ITEMS**

- A. Comply with requirements of ACI SPEC-301. Clean reinforcement of loose rust and mill scale, and accurately position, support, and secure in place to achieve not less than minimum concrete coverage required for protection.
- B. Install welded wire reinforcement in maximum possible lengths, and offset end laps in both directions. Splice laps with tie wire.
- C. Verify that anchors, seats, plates, reinforcement and other items to be cast into concrete are accurately placed, positioned securely, and will not interfere with concrete placement.

### **3.04 INSTALLATION OF VAPOR RETARDER**

- A. Sheet Vapor Retarders: Place, protect, and repair sheet vapor retarder in accordance with ASTM E1643 and manufacturer's written instructions.
  - 1. Install vapor retarder with longest dimension parallel with direction of concrete pour.
  - 2. Face laps away from exposed direction of concrete pour.
  - 3. Lap vapor retarder over footings and grade beams not less than 6 inches, sealing vapor retarder to concrete.
  - 4. Lap joints 6 inches and seal with manufacturer's recommended tape.
  - 5. Terminate vapor retarder at the top of floor slabs, grade beams, and pile caps, sealing entire perimeter to floor slabs, grade beams, foundation walls, or pile caps.
  - 6. Seal penetrations in accordance with vapor retarder manufacturer's instructions.
  - 7. Protect vapor retarder during placement of reinforcement and concrete.
    - a. Repair damaged areas by patching with vapor retarder material, overlapping damages area by 6 inches on all sides, and sealing to vapor retarder.

### **3.05 PLACING CONCRETE**

- A. Place concrete in accordance with ACI PRC-304.
- B. Place concrete for floor slabs in accordance with ACI PRC-302.1.

- C. Notify Architect and Engineer of Record not less than 24 hours prior to commencement of placement operations.
- D. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.
- E. Ensure reinforcement, inserts, waterstops, embedded parts, and formed construction joint devices will not be disturbed during concrete placement.
- F. Place concrete continuously without construction (cold) joints wherever possible; where construction joints are necessary, before next placement prepare joint surface by removing laitance and exposing the sand and sound surface mortar, by sandblasting or high-pressure water jetting.
- G. Finish floors level and flat, unless otherwise indicated, within the tolerances specified below.

### **3.06 SLAB JOINTING**

- A. Locate joints as indicated on drawings.
- B. Anchor joint fillers and devices to prevent movement during concrete placement.
- C. Isolation Joints: Use preformed joint filler with removable top section for joint sealant, total height equal to thickness of slab, set flush with top of slab.
- D. Saw Cut Contraction Joints: Saw cut joints before concrete begins to cool, within 4 to 12 hours after placing; use 3/16 inch thick blade and cut at least 1 inch deep but not less than one quarter (1/4) the depth of the slab.
- E. Contraction Joint Devices: Use preformed joint device, with top set flush with top of slab.
- F. Construction Joints: Where not otherwise indicated, use metal combination screed and key form, with removable top section for joint sealant.

### **3.07 FLOOR FLATNESS AND LEVELNESS TOLERANCES**

- A. An independent testing agency, as specified in Section 014000, will inspect finished slabs for compliance with specified tolerances.
- B. Minimum F(F) Floor Flatness and F(L) Floor Levelness Values:
  - 1. Exposed to View and Foot Traffic: F(F) of 20; F(L) of 15, on-grade only..
  - 2. Under Thick-Bed Tile: F(F) of 20; F(L) of 15, on-grade only.
  - 3. Under Carpeting: F(F) of 25; F(L) of 20, on-grade only.
  - 4. Under Thin Resilient Flooring and Thinset Tile: F(F) of 35; F(L) of 25, on-grade only.
- C. Measure F(F) Floor Flatness and F(L) Floor Levelness in accordance with ASTM E1155 (ASTM E1155M), within 48 hours after slab installation; report both composite overall values and local values for each measured section.
- D. Correct the slab surface if composite overall value is less than specified and if local value is less than two-thirds of specified value or less than F(F) 13/F(L) 10.
- E. Correct defects by grinding or by removal and replacement of the defective work. Areas requiring corrective work will be identified. Re-measure corrected areas by the same process.

### **3.08 CONCRETE FINISHING**

- A. Repair surface defects, including tie holes, immediately after removing formwork.
- B. Unexposed Form Finish: Rub down or chip off fins or other raised areas 1/4 inch or more in height.
- C. Exposed Form Finish: Rub down or chip off and smooth fins or other raised areas 1/4 inch or more in height. Provide finish as follows:
  - 1. Smooth Rubbed Finish: Wet concrete and rub with carborundum brick or other abrasive, not more than 24 hours after form removal.
  - 2. Grout Cleaned Finish: Wet areas to be cleaned and apply grout mixture by brush or spray; scrub immediately to remove excess grout. After drying, rub vigorously with clean burlap, and keep moist for 36 hours.

3. Cork Floated Finish: Immediately after form removal, apply grout with trowel or firm rubber float; compress grout with low-speed grinder, and apply final texture with cork float.
- D. Concrete Slabs: Finish to requirements of ACI PRC-302.1 and as follows:
  1. Surfaces to Receive Thick Floor Coverings: "Wood float" as described in ACI PRC-302.1; thick floor coverings include quarry tile, ceramic tile, and Portland cement terrazzo with full bed setting system.
  2. Surfaces to Receive Thin Floor Coverings: "Steel trowel" as described in ACI PRC-302.1; thin floor coverings include carpeting, resilient flooring, seamless flooring, resinous matrix terrazzo, thin set quarry tile, and thin set ceramic tile.
  3. Other Surfaces to Be Left Exposed: Trowel as described in ACI PRC-302.1, minimizing burnish marks and other appearance defects.
- E. In areas with floor drains, maintain floor elevation at walls; pitch surfaces uniformly to drains at 1/8" per foot or as indicated on drawings.

### **3.09 CURING AND PROTECTION**

- A. Comply with requirements of ACI PRC-308. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
- B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.
  1. Normal concrete: Not less than seven days.
- C. Formed Surfaces: Cure by moist curing with forms in place for full curing period.
- D. Surfaces Not in Contact with Forms:
  1. Slabs are to be wet cured only. Other chemical curing agents and methods are not approved for use on slabs.
  2. Initial Curing: Start as soon as free water has disappeared and before surface is dry. Keep continuously moist for not less than three days by water ponding, water-saturated sand, water-fog spray, or saturated burlap.
    - a. Ponding: Maintain 100 percent coverage of water over floor slab areas, continuously for 4 days.
    - b. Spraying: Spray water over floor slab areas and maintain wet.
    - c. Saturated Burlap: Saturate burlap-polyethylene and place burlap-side down over floor slab areas, lapping ends and sides; maintain in place.
  3. Final Curing: Begin after initial curing but before surface is dry.
    - a. Moisture-Retaining Sheet: Lap strips not less than 3 inches and seal with waterproof tape or adhesive; secure at edges.

### **3.10 JOINT FILLING**

- A. Prepare, clean, and install joint filler in accordance with manufacturer's written instructions.
  1. Defer joint filling until concrete has aged at least one month.
  2. Do not fill joints until construction traffic has permanently ceased.
- B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joints clean and dry.
- C. Install semi-rigid joint filler full depth in saw-cut joints and at least 2 inches deep in formed joints.
- D. Overfill joint, and trim joint filler flush with top of joint after hardening.

### **3.11 APPLICATION OF LIQUID FLOOR TREATMENTS**

- A. Penetrating Liquid Floor Treatment: Prepare, apply, and finish penetrating liquid floor treatment in accordance with manufacturer's written instructions.
- B. Remove curing compounds, sealers, oil, dirt, laitance, and other contaminants and complete surface repairs.



1. Do not apply to concrete that is less than seven days' old.
  2. Apply liquid until surface is saturated, scrubbing into surface until a gel forms; rewet; and repeat brooming or scrubbing.
  3. Rinse with water; remove excess material until surface is dry.
  4. Apply a second coat in a similar manner if surface is rough or porous.
- C. Sealing Coat: Uniformly apply a continuous sealing coat of sealing compound to hardened concrete by power spray or roller in accordance with manufacturer's written instructions.

### **3.12 FIELD QUALITY CONTROL**

- A. Special Inspections: Owner will engage a special inspector to perform field tests and inspections and prepare testing and inspection reports.
- B. Testing Agency: Owner will engage a qualified testing and inspecting agency to perform tests and inspections and to submit reports.
1. Testing agency to be responsible for providing curing container for composite samples on Site and verifying that field-cured composite samples are cured in accordance with ASTM C31/C31M.
  2. Testing agency to immediately report to Architect, Contractor, and concrete manufacturer any failure of Work to comply with Contract Documents.
  3. Testing agency to report results of tests and inspections, in writing, to Owner, Architect, Contractor, and concrete manufacturer within 48 hours of inspections and tests.
    - a. Test reports to include reporting requirements of ASTM C31/C31M, ASTM C39/C39M, and ACI 301, including the following as applicable to each test and inspection:
      - 1) Project name.
      - 2) Name of testing agency.
      - 3) Names and certification numbers of field and laboratory technicians performing inspections and testing.
      - 4) Name of concrete manufacturer.
      - 5) Date and time of inspection, sampling, and field testing.
      - 6) Date and time of concrete placement.
      - 7) Location in Work of concrete represented by samples.
      - 8) Date and time sample was obtained.
      - 9) Truck and batch ticket numbers.
      - 10) Design compressive strength at 28 days.
      - 11) Concrete mixture designation, proportions, and materials.
      - 12) Field test results.
      - 13) Information on storage and curing of samples before testing, including curing method and maximum and minimum temperatures during initial curing period.
      - 14) Type of fracture and compressive break strengths at seven days and 28 days.
- C. Batch Tickets: For each load delivered, submit three copies of batch delivery ticket to testing agency, indicating quantity, mix identification, admixtures, design strength, aggregate size, design air content, design slump at time of batching, and amount of water that can be added at Project site.
- D. Inspections:
1. Verification of use of required design mixture.
  2. Concrete placement, including conveying and depositing.
  3. Curing procedures and maintenance of curing temperature.
  4. Verification of concrete strength before removal of shores and forms from beams and slabs.
  5. Batch Plant Inspections: On a random basis, as determined by Architect.
- E. Concrete Tests: Testing of composite samples of fresh concrete obtained in accordance with ASTM C 172/C 172M to be performed in accordance with the following requirements:

1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd., but less than 25 cu. yd., plus one set for each additional 50 cu. yd. or fraction thereof.
  - a. When frequency of testing provides fewer than five compressive-strength tests for each concrete mixture, testing to be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
2. Slump: ASTM C143/C143M:
  - a. One test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture.
  - b. Perform additional tests when concrete consistency appears to change.
3. Slump Flow: ASTM C1611/C1611M:
  - a. One test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture.
  - b. Perform additional tests when concrete consistency appears to change.
4. Air Content: ASTM C231/C231M pressure method, for normal-weight concrete; ASTM C173/C173M volumetric method, for structural lightweight concrete.
  - a. One test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
5. Concrete Temperature: ASTM C1064/C1064M:
  - a. One test hourly when air temperature is 40 deg F and below or 80 deg F and above, and one test for each composite sample.
6. Unit Weight: ASTM C567/C567M fresh unit weight of structural lightweight concrete.
  - a. One test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
7. Compression Test Specimens: ASTM C31/C31M:
  - a. Cast and laboratory cure three sets of two 6-inch by 12-inch or three 4-inch by 8-inch cylinder specimens for each composite sample.
  - b. Cast, initial cure, and field cure three sets of two 6-inch by 12-inch or three 4-inch by 8-inch standard cylinder specimens for each composite sample.
8. Compressive-Strength Tests: ASTM C39/C39M.
  - a. Test one set of two 6-inch by 12-inch or three 4-inch by 8-inch laboratory-cured specimens at seven days and at 28 days, hold one set for 56 days.
  - b. Test one set of two 6-inch by 12-inch or three 4-inch by 8-inch field-cured specimens at seven days and at 28 days, hold one set for 56 days..
  - c. A compressive-strength test to be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.
  - d. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor to evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
  - e. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength, and no compressive-strength test value falls below specified compressive strength by more than 500 psi if specified compressive strength is 5000 psi, or no compressive strength test value is less than 10 percent of specified compressive strength if specified compressive strength is greater than 5000 psi.
  - f. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.

9. Additional Tests:
  - a. Testing and inspecting agency to make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect.
  - b. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C42/C42M or by other methods as directed by Architect.
    - 1) Acceptance criteria for concrete strength to be in accordance with ACI 301, Section 1.6.6.3.
10. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
11. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.
12. Measure floor and slab flatness and levelness in accordance with ASTM E1155 within 24 hours of completion of floor finishing and promptly report test results to Architect.

### **3.13 CONCRETE SURFACE REPAIRS AND DEFECTIVE CONCRETE**

- A. Test Results: The testing agency shall report test results in writing to Architect and Contractor within 24 hours of test.
- B. Defective Concrete: Concrete not complying with required lines, details, dimensions, tolerances or specified requirements.
  1. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Architect for each individual area.
  2. Repair defective concrete areas when approved by the Architect.
  3. Remove and replace concrete that cannot be repaired and patched to Architect's approval.
  4. The cost of concrete repairs, removal, replacement, and additional testing shall be borne by Contractor when defective concrete is identified.
- C. Patching Mortar: Mix dry-pack patching mortar, consisting of 1 part Portland cement to 2-1/2 parts fine aggregate passing a No. 16 sieve, using only enough water for handling and placing.
- D. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projects on the surface, and stains and other discolorations that cannot be removed by cleaning.
  1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch in any dimension to solid concrete.
    - a. Limit cut depth to 3/4 inch.
    - b. Make edges of cuts perpendicular to concrete surface.
    - c. Clean, dampen with water, and brush-coat holes and voids with bonding agent.
    - d. Fill and compact with patching mortar before bonding agent has dried.
    - e. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
  2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement, so that, when dry, patching mortar matches surrounding color.
    - a. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching.
    - b. Compact mortar in place and strike off slightly higher than surrounding surface.
  3. Repair defects on concealed formed surfaces that will affect concrete's durability and structural performance as determined by Architect.
- E. Repairing Unformed Surfaces:
  1. Test unformed surfaces, such as floors and slabs, for finish, and verify surface tolerances specified for each surface.

2. Correct low and high areas.
  3. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.
  4. Repair finished surfaces containing surface defects, including spalls, popouts, honeycombs, rock pockets, crazing, and cracks in excess of 0.01 inch wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width and other objectionable conditions.
  5. After concrete has cured for at least 14 days, correct high areas by grinding.
  6. Correct localized low areas during, or immediately after, completing surface-finishing operations by cutting out low areas and replacing with patching mortar.
  7. Finished repaired areas to blend into adjacent concrete.
  8. Repair defective areas, except random cracks and single holes 1 inch or less in diameter by cutting out and replacing with fresh concrete.
  9. Remove defective areas with clean, square cuts, and expose steel reinforcement with at least a 3/4" clearance all around.
  10. Dampen concrete surfaces in contact with patching concrete and apply bonding agent.
  11. Mix patching concrete of same materials and mixture as original concrete, except without coarse aggregate.
  12. Place, compact, and finish to blend with adjacent finished concrete.
  13. Cure in same manner as adjacent concrete.
  14. Repair random cracks and single holes 1 inch or less in diameter with patching mortar.
  15. Groove top of cracks and cut out holes to sound concrete, and clean.
  16. Dampen cleaned concrete surfaces and apply bonding agent.
  17. Place patching mortar before bonding agent has dried.
  18. Compact patching mortar and finish to match adjacent concrete.
  19. Keep patched area continuously moist for at least 72 hours.
  20. Perform structural repairs of concrete, subject to Architect's approval, using epoxy adhesive and patching mortar.
  21. Repair materials and installation not specified above may be used, subject to Architect's approval.
- F. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Architect for each individual area.

### **3.14 PROTECTION**

- A. Do not permit traffic over unprotected concrete floor surface until fully cured.
- B. Protect concrete surfaces as follows:
1. Protect from petroleum stains.
  2. Diaper hydraulic equipment used over concrete surfaces.
  3. Prohibit vehicles from interior concrete slabs.
  4. Prohibit use of pipe-cutting machinery over concrete surfaces.
  5. Prohibit placement of steel items on concrete surfaces.
  6. Prohibit use of acids or acidic detergents over concrete surfaces.
  7. Protect liquid floor treatment from damage and wear during the remainder of construction period. Use protective methods and materials, including temporary covering, recommended in writing by liquid floor treatments installer.
  8. Protect concrete surfaces scheduled to receive surface hardener or polished concrete finish using Floor Slab Protective Covering.

### **END OF SECTION**

SECTION 035416 – HYDRAULIC CEMENT UNDERLAYMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes hydraulic-cement-based, polymer-modified, self-leveling underlayment for application below interior floor coverings.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Include plans indicating substrates, locations, and average depths of underlayment based on survey of substrate conditions.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified Installer.
- B. Product Certificates: Signed by manufacturers of underlayment and floor-covering systems certifying that products are compatible.
- C. Minutes of pre-installation conference.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Installer who is approved by manufacturer for application of underlayment products required for this Project.
- B. Product Compatibility: Manufacturers of underlayment and floor-covering systems certify in writing that products are compatible.
- C. Fire-Resistance Ratings: Where indicated, provide hydraulic-cement underlayment systems identical to those of assemblies tested for fire resistance per ASTM E 119 by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
  - 1. Indicate design designations from UL's "Fire Resistance Directory" or from the listings of another qualified testing agency.
- D. Sound Transmission Characteristics: Where indicated, provide hydraulic-cement underlayment systems identical to those of assemblies tested for STC and IIC ratings per ASTM E 90 and ASTM E 492 by a qualified testing agency.
- E. Pre-installation Conference: Attend conference at Project site.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store materials to comply with manufacturer's written instructions to prevent deterioration from moisture or other detrimental effects.

1.7 PROJECT CONDITIONS

- A. Environmental Limitations: Comply with manufacturer's written instructions for substrate temperature, ventilation, ambient temperature and humidity, and other conditions affecting underlayment performance.
  - 1. Place hydraulic-cement-based underlayments only when ambient temperature and temperature of substrates are between 50 and 80 deg F.

1.8 COORDINATION

- A. Coordinate application of underlayment with requirements of floor-covering products and adhesives, to ensure compatibility of products.

PART 2 - PRODUCTS

2.1 HYDRAULIC-CEMENT-BASED UNDERLAYMENTS

- A. Products: Subject to compliance with requirements, available manufacturers that may be incorporated into the Work include, but are not limited to the following:
  - 1. Ardex (Basis of Design)
  - 2. CMP Bostik
  - 3. Architect approved equal
- B. Moisture Control System:
  - 1. Products: Subject to compliance with requirements, provide:
    - a. Ardex; MC Rapid One- Coat Moisture Control System (Basis of Design)
    - b. 100% solids epoxy moisture management system
  - 2. Refer to Hydraulic Cement Underlayment Installation Schedule at the end of this Section and drawings for locations scheduled to receive moisture control system.
- C. Underlayment: Hydraulic-cement-based, polymer-modified, self-leveling product that can be applied in minimum uniform thickness of 1/8 inch and that can be feathered at edges to match adjacent floor elevations. Minimum thickness of 1/16 inch at the highest portion in the substrate. Maximum thickness of 1/2 inches.
  - 1. Products: Subject to compliance with requirements, provide:
    - a. Ardex; K-10 Reactivable, High- Flow, Self-Leveling Underlayment Concrete (Basis of Design)
    - b. Cement Binder: ASTM C 150, Portland cement, or hydraulic or blended hydraulic cement as defined by ASTM C 219.
    - c. Compressive Strength: Not less than 4700 psi at 28 days when tested according to ASTM C 109.
    - d. Underlayment Additive: Resilient-emulsion product of underlayment manufacturer, formulated for use with underlayment when applied to substrate and conditions indicated.
  - 2. Refer to Hydraulic Cement Underlayment Installation Schedule at the end of this Section and drawings for locations scheduled to receive self- leveling underlayments.

- D. Flash Patch/ Skim Coat: A blend of Portland-cement and other hydraulic cements mixed with water to produce a trowel- on underlayment that can be applied in feather- edge thickness minimum to a maximum thickness of 1/2 inch.
1. Products: Subject to compliance with requirements, provide:
    - a. Ardex; Feather Finish Self Drying, Cement Based Finish Underlayment (**Basis of Design**)
    - b. Compressive Strength: Not less than 4200 psi at 28 days when tested according to ASTM C 109
  2. Refer to Hydraulic Cement Underlayment Installation Schedule at the end of this Section and drawings for locations scheduled to receive double skim coat.
- E. Primer: Product of underlayment manufacturer recommended in writing for substrate, conditions, and application indicated. For use in the bonding of underlayments and toppings.
1. Products: Subject to compliance with requirements, provide:
    - a. Ardex; P 82 Primer (**Basis of Design**)
    - b. Waterborne two- component primer
- F. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch; or coarse sand as recommended by underlayment manufacturer.
1. Provide aggregate when recommended in writing by underlayment manufacturer for underlayment thickness required.
- G. Water: Potable and at a temperature of not more than 70 deg F.
- H. Reinforcement: For underlayment applied to wood substrates, provide galvanized metal lath or other corrosion-resistant reinforcement recommended in writing by underlayment manufacturer.
- I. Corrosion-Resistant Coating: Recommended in writing by underlayment manufacturer for metal substrates.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine substrates, with Installer present, for conditions affecting performance.
1. Proceed with application only after unsatisfactory conditions have been corrected.

#### 3.2 PREPARATION

- A. General: Prepare and clean substrate according to manufacturer's written instructions.
1. Treat nonmoving substrate cracks according to manufacturer's written instructions to prevent cracks from telegraphing (reflecting) through underlayment.
  2. Fill substrate voids to prevent underlayment from leaking.
- B. Concrete Substrates: Mechanically remove, according to manufacturer's written instructions, laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil, and other contaminants that might impair underlayment bond.
1. Perform relative humidity test using in situ probes, ASTM F 2170. Proceed with installation only after substrates have maximum 75 percent relative humidity level measurement.

2. Both tests shall be performed according to testing methods described in referenced standards.
- C. Wood Substrates: Mechanically fasten loose boards and panels to eliminate substrate movement and squeaks. Sand to remove coatings that might impair underlayment bond and remove sanding dust.
  1. Install underlayment reinforcement recommended in writing by manufacturer.
- D. Metal Substrates: Mechanically remove, according to manufacturer's written instructions, rust, foreign matter, and other contaminants that might impair underlayment bond. Apply corrosion-resistant coating compatible with underlayment if recommended in writing by underlayment manufacturer.
- E. Nonporous Substrates: For ceramic tile, quarry tile, and terrazzo substrates, remove waxes, sealants, and other contaminants that might impair underlayment bond, and prepare surfaces according to manufacturer's written instructions.
- F. Adhesion Tests: After substrate preparation, test substrate for adhesion with underlayment according to manufacturer's written instructions.

### 3.3 APPLICATION

- A. General: Mix and apply underlayment components according to manufacturer's written instructions.
  1. Close areas to traffic during underlayment application and for time period after application recommended in writing by manufacturer.
  2. Coordinate application of components to provide optimum underlayment-to-substrate and intercoat adhesion.
  3. At substrate expansion, isolation, and other moving joints, allow joint of same width to continue through underlayment.
- B. Apply primer over prepared substrate at manufacturer's recommended spreading rate.
- C. Apply underlayment to produce uniform, level surface.
  1. Apply a final layer without aggregate to product surface.
  2. Feather edges to match adjacent floor elevations.
- D. In areas scheduled to receive flash patch, double skim- coat using the specified product. Floor tolerance prior to installation of new flooring shall be 1/8" in 10'-0" by use of a straight edge in any direction. Skim coat material shall be ground to a smooth finish prior to finish floor installation. Floor level to be approved by Architect prior to finish floor installation.
- E. Cure underlayment according to manufacturer's written instructions. Prevent contamination during application and curing processes.
- F. Do not install floor coverings over underlayment until after time period recommended in writing by underlayment manufacturer.
- G. Remove and replace underlayment areas that evidence lack of bond with substrate, including areas that emit a "hollow" sound when tapped.



3.4 PROTECTION

- A. Protect underlayment from concentrated and rolling loads for remainder of construction period.

3.5 HYDRAULIC CEMENT BASED UNDERLAYMENT INSTALLATION SCHEDULE

- A. Pourable, self- leveling underlayment with moisture control system at locations of resilient flooring replacement. Refer to drawings for locations scheduled to receive self- leveling underlayment.
1. Shotblast, grind edges, and prepare substrate according to underlayment manufacturer's written instructions.
  2. Apply Ardex MC Rapid
  3. Apply Ardex P 82 Ultra Prime
  4. Pour Ardex K-10 in strict accordance with manufacturer's curing time instructions for MC Rapid to ensure adhesion of moisture control system to underlayment.
- B. Trowel – applied skim coat with moisture control system at locations of resilient flooring replacement. Refer to drawings for locations scheduled to receive skim coat.
1. Apply Ardex MC Rapid
  2. Apply Ardex P 82 Ultra Prime
  3. Pour Ardex Feather Finish in strict accordance with manufacturer's curing time instructions for MC Rapid to ensure adhesion of moisture control system to underlayment.

END OF SECTION 03 5416



## SECTION 040120 - MAINTENANCE OF UNIT MASONRY

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes maintenance of unit masonry consisting of brick clay masonry restoration and cleaning as follows:
  - 1. Repairing unit masonry, including replacing units.
  - 2. Repointing joints.
  - 3. Cleaning exposed unit masonry surfaces.
- B. Related Sections:
  - 1. Section 042000 "Unit Masonry" for new clay masonry construction.

#### 1.3 DEFINITIONS

- A. Very Low-Pressure Spray: Under 100 psi.
- B. Low-Pressure Spray: 100 to 400 psi; 4 to 6 gpm.
- C. Medium-Pressure Spray: 400 to 800 psi; 4 to 6 gpm.
- D. High-Pressure Spray: 800 to 1200 psi; 4 to 6 gpm.
- E. Saturation Coefficient: Ratio of the weight of water absorbed during immersion in cold water to weight absorbed during immersion in boiling water; used as an indication of resistance of masonry units to freezing and thawing.

#### 1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated. Include recommendations for application and use. Include test data substantiating that products comply with requirements.
- B. Samples for Initial Selection: For the following:
  - 1. Pointing Mortar: Submit sets of mortar for pointing in the form of sample mortar strips, 6 inches long by 1/2 inch wide, set in aluminum or plastic channels.

- a. Have each set contain a close color range of at least three Samples of different mixes of colored sands and cements that produce a mortar matching the cleaned masonry when cured and dry.
    - b. Submit with precise measurements on ingredients, proportions, gradations, and sources of colored sands from which each Sample was made.
  2. Patching Compound: Submit sets of patching compound Samples in the form of plugs (patches in drilled holes) in sample units of masonry representative of the range of masonry colors on the building.
    - a. Have each set contain a close color range of at least three Samples of different mixes of patching compound that matches the variations in existing masonry when cured and dry.
  3. Sealant Materials: See Section 079200 "Joint Sealants."
  4. Include similar Samples of accessories involving color selection.
- C. Samples for Verification: For the following:
1. Each type of masonry unit to be used for replacing existing units. Include sets of Samples as necessary to show the full range of shape, color, and texture to be expected.
    - a. For each brick type, provide straps or panels containing at least four bricks. Include multiple straps for brick with a wide range.
  2. Each type of sand used for pointing mortar; minimum 1 lb of each in plastic screw-top jars.
    - a. For blended sands, provide Samples of each component and blend.
    - b. Identify sources, both supplier and quarry, of each type of sand.
  3. Each type, color, and texture of pointing mortar in the form of sample mortar strips, 6 inches long by 1/2 inch wide, set in aluminum or plastic channels.
    - a. Include with each Sample a list of ingredients with proportions of each. Identify sources, both supplier and quarry, of each type of sand and brand names of cementitious materials and pigments if any.

## 1.5 QUALITY ASSURANCE

- A. Chemical-Cleaner Manufacturer Qualifications: A firm regularly engaged in producing masonry cleaners that have been used for similar applications with successful results, and with factory-trained representatives who are available for consultation and Project-site inspection and assistance at no additional cost.
- B. Source Limitations: Obtain each type of material for masonry restoration (face brick, cement, sand, etc.) from one source with resources to provide materials of consistent quality in appearance and physical properties.

- C. Quality-Control Program: Prepare a written quality-control program for this Project to systematically demonstrate the ability of personnel to properly follow methods and use materials and tools without damaging masonry. Include provisions for supervising performance and preventing damage due to worker fatigue.
- D. Cleaning Program: Prepare a written cleaning program that describes cleaning process in detail, including materials, methods, and equipment to be used, protection of surrounding materials, and control of runoff during operations.
  - 1. If materials and methods other than those indicated are proposed for any phase of restoration work, add to the Quality-Control Program a written description of such materials and methods, including evidence of successful use on comparable projects, and demonstrations to show their effectiveness for this Project and worker's ability to use such materials and methods properly.
- E. Cleaning and Repair Appearance Standard: Cleaned and repaired surfaces are to have a uniform appearance as viewed from 50 feet away by Architect. Perform additional paint and stain removal, general cleaning, and spot cleaning of small areas that are noticeably different, so that surface blends smoothly into surrounding areas.
- F. Preinstallation Conference: Conduct conference at Project site.
  - 1. Review methods and procedures related to masonry restoration and cleaning including, but not limited to, the following:
    - a. Construction schedule. Verify availability of materials, Restoration Specialist's personnel, equipment, and facilities needed to make progress and avoid delays.
    - b. Materials, material application, sequencing, tolerances, and required clearances.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver masonry units to Project site strapped together in suitable packs or pallets or in heavy-duty cartons.
- B. Deliver other materials to Project site in manufacturer's original and unopened containers, labeled with manufacturer's name and type of products.
- C. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.
- D. Store hydrated lime in manufacturer's original and unopened containers. Discard lime if containers have been damaged or have been opened for more than two days.
- E. Store lime putty covered with water in sealed containers.
- F. Store sand where grading and other required characteristics can be maintained and contamination avoided.

## 1.7 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit masonry restoration and cleaning work to be performed according to manufacturers' written instructions and specified requirements.
- B. Repair masonry units and repoint mortar joints only when air temperature is between 40 and 90 deg F and is predicted to remain so for at least 7 days after completion of the Work unless otherwise indicated.
- C. Cold-Weather Requirements: Comply with the following procedures for masonry repair and mortar-joint pointing unless otherwise indicated:
  - 1. When air temperature is below 40 deg F, heat mortar ingredients, masonry repair materials, and existing masonry walls to produce temperatures between 40 and 120 deg F.
  - 2. When mean daily air temperature is below 40 deg F, provide enclosure and heat to maintain temperatures above 32 deg F within the enclosure for 7 days after repair and pointing.
- D. Hot-Weather Requirements: Protect masonry repair and mortar-joint pointing when temperature and humidity conditions produce excessive evaporation of water from mortar and repair materials. Provide artificial shade and wind breaks and use cooled materials as required to minimize evaporation. Do not apply mortar to substrates with temperatures of 90 deg F and above unless otherwise indicated.
- E. For manufactured repair materials, perform work within the environmental limits set by each manufacturer.
- F. Clean masonry surfaces only when air temperature is 40 deg F and above and is predicted to remain so for at least 7 days after completion of cleaning.

## 1.8 SEQUENCING AND SCHEDULING

- A. Order replacement materials at earliest possible date to avoid delaying completion of the Work.
- B. Order sand and gray portland cement for pointing mortar immediately after approval of Samples. Take delivery of and store at Project site a sufficient quantity to complete Project.
- C. Perform masonry restoration work in the following sequence:
  - 1. Inspect for open mortar joints and repair before cleaning to prevent the intrusion of water and other cleaning materials into the wall.
  - 2. Clean masonry surfaces.
  - 3. Rake out mortar from joints surrounding masonry to be replaced and from joints adjacent to masonry repairs along joints.
  - 4. Repair masonry, including replacing existing masonry with new masonry materials.
  - 5. Rake out mortar from joints to be repointed.
  - 6. Point mortar joints.
  - 7. After repairs and repointing have been completed and cured, perform a final cleaning to remove residues from this work.

## PART 2 - PRODUCTS

### 2.1 MASONRY MATERIALS

- A. Face Brick: Provide face brick, including specially molded, ground, cut, or sawed shapes where required to complete masonry restoration work.
  - 1. Provide units with colors, color variation within units, surface texture, size, and shape to match existing brickwork and with physical properties within 10 percent of those determined from preconstruction testing of selected existing units.
    - a. For existing brickwork that exhibits a range of colors or color variation within units, provide brick that proportionally matches that range and variation rather than brick that matches an individual color within that range.

### 2.2 MORTAR MATERIALS

- A. Portland Cement: ASTM C 150, Type I or Type II, white or gray or both where required for color matching of exposed mortar.
  - 1. Provide cement containing not more than 0.60 percent total alkali when tested according to ASTM C 114.
- B. Hydrated Lime: ASTM C 207, Type S.
- C. Factory-Prepared Lime Putty: ASTM C 1489.
- D. Quicklime: ASTM C 5, pulverized lime.
- E. Mortar Sand: ASTM C 144 unless otherwise indicated.
  - 1. Color: Provide natural sand of color necessary to produce required mortar color.
  - 2. For pointing mortar, provide sand with rounded edges.
  - 3. Match size, texture, and gradation of existing mortar sand as closely as possible. Blend several sands if necessary to achieve suitable match.
- F. Mortar Pigments: Natural and synthetic iron oxides, compounded for mortar mixes. Use only pigments with a record of satisfactory performance in masonry mortars.
- G. Water: Potable.

### 2.3 MANUFACTURED REPAIR MATERIALS

- A. Masonry Patching Compound: Factory-mixed cementitious product that is custom manufactured for patching masonry.
  - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

- a. Cathedral Stone Products, Inc.; Jahn M100 Terra Cotta and Brick Repair Mortar.
  - b. Conproco Corporation; Matrix.
  - c. Edison Coatings, Inc.; Custom System 45.
2. Use formulation that is vapor- and water permeable (equal to or more than the masonry unit), exhibits low shrinkage, has lower modulus of elasticity than the masonry units being repaired, and develops high bond strength to all types of masonry.
  3. Use formulation having working qualities and retardation control to permit forming and sculpturing where necessary.
  4. Formulate patching compound used for patching brick in colors and textures to match each masonry unit being patched. Provide sufficient number of colors to enable matching the color, texture, and variation of each unit.

## 2.4 CLEANING MATERIALS

- A. Water: Potable.
- B. Hot Water: Water heated to a temperature of 140 to 160 deg F.
- C. Job-Mixed Detergent Solution: Solution prepared by mixing 2 cups of tetrasodium polyphosphate, 1/2 cup of laundry detergent, and 20 quarts of hot water for every 5 gal. of solution required.

## 2.5 ACCESSORY MATERIALS

- A. Masonry Repair Anchors, Expansion Type: Mechanical fasteners designed for masonry veneer stabilization consisting of 1/4-inch- diameter, Type 304 stainless-steel rod with brass expanding shells at each end and water-shedding washer in the middle. Expanding shells shall be designed to provide positive mechanical anchorage to veneer on one end and backup masonry on the other.
  1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. BLOK-LOK Limited; Torq-Lok.
    - b. Dur-O-Wal, a division of Dayton Superior; Dur-O-Wal Repair Anchor or Dur-O-Wal Panel Anchor.
    - c. Hohmann & Barnard, Inc.; #521RA-B Restoration Anchor.
- B. Sealant Materials:
  1. Provide manufacturer's standard chemically curing, elastomeric sealant(s) of base polymer and characteristics indicated below that comply with applicable requirements in Section 079200 "Joint Sealants."
    - a. Single-component, nonsag urethane sealant.
  2. Colors: Provide colors of exposed sealants to match colors of masonry adjoining installed sealant unless otherwise indicated.



3. Ground-Mortar Aggregate: Custom crushed and ground pointing mortar sand or existing mortar retrieved from joints. Grind to a particle size that matches the adjacent mortar aggregate and color.
- C. Joint-Sealant Backing:
  1. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin) or Type B (bicellular material with a surface skin), and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
  2. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where acceptable.
- D. Setting Buttons: Resilient plastic buttons, nonstaining to masonry, sized to suit joint thicknesses and bed depths of masonry units without intruding into required depths of pointing materials.
- E. Masking Tape: Nonstaining, nonabsorbent material, compatible with pointing mortar, joint primers, sealants, and surfaces adjacent to joints; that will easily come off entirely, including adhesive.

## 2.6 MORTAR MIXES

- A. Preparing Lime Putty: Slake quicklime and prepare lime putty according to appendix to ASTM C 5 and manufacturer's written instructions.
- B. Measurement and Mixing: Measure cementitious materials and sand in a dry condition by volume or equivalent weight. Do not measure by shovel; use known measure. Mix materials in a clean, mechanical batch mixer.
  1. Mixing Pointing Mortar: Thoroughly mix cementitious materials and sand together before adding any water. Then mix again adding only enough water to produce a damp, unworkable mix that will retain its form when pressed into a ball. Maintain mortar in this dampened condition for 15 to 30 minutes. Add remaining water in small portions until mortar reaches desired consistency. Use mortar within one hour of final mixing; do not retemper or use partially hardened material.
- C. Colored Mortar: Produce mortar of color required by using specified ingredients. Do not alter specified proportions without Architect's approval.
  1. Mortar Pigments: Where mortar pigments are indicated, do not exceed a pigment-to-cement ratio of 1:10 by weight.
- D. Do not use admixtures in mortar unless otherwise indicated.
- E. Mortar Proportions: Mix mortar materials in the following proportions:
  1. Pointing Mortar for Brick: 1 part portland cement, 2 parts lime, and 6 parts sand.

- a. Add mortar pigments to produce mortar colors required.
2. Rebuilding (Setting) Mortar: Same as pointing mortar except mortar pigments are not required.

## 2.7 CHEMICAL CLEANING SOLUTIONS

- A. Dilute chemical cleaners with water to produce solutions not exceeding concentration recommended by chemical-cleaner manufacturer.
- B. Acidic Cleaner Solution for Brick: Dilute with water to produce hydrofluoric acid content of 3 percent or less, but not greater than that recommended by chemical-cleaner manufacturer.

## PART 3 - EXECUTION

### 3.1 PROTECTION

- A. Protect persons, motor vehicles, surrounding surfaces of building being restored, building site, plants, and surrounding buildings from harm resulting from masonry restoration work.
  1. Erect temporary protective covers over walkways and at points of pedestrian and vehicular entrance and exit that must remain in service during course of restoration and cleaning work.
- B. Comply with chemical-cleaner manufacturer's written instructions for protecting building and other surfaces against damage from exposure to its products. Prevent chemical-cleaning solutions from coming into contact with people, motor vehicles, landscaping, buildings, and other surfaces that could be harmed by such contact.
  1. Cover adjacent surfaces with materials that are proven to resist chemical cleaners used unless chemical cleaners being used will not damage adjacent surfaces. Use materials that contain only waterproof, UV-resistant adhesives. Apply masking agents to comply with manufacturer's written instructions. Do not apply liquid masking agent to painted or porous surfaces. When no longer needed, promptly remove masking to prevent adhesive staining.
  2. Keep wall wet below area being cleaned to prevent streaking from runoff.
  3. Do not clean masonry during winds of sufficient force to spread cleaning solutions to unprotected surfaces.
  4. Neutralize and collect alkaline and acid wastes for disposal off Owner's property.
  5. Dispose of runoff from cleaning operations by legal means and in a manner that prevents soil erosion, undermining of paving and foundations, damage to landscaping, and water penetration into building interiors.
- C. Prevent mortar from staining face of surrounding masonry and other surfaces.
  1. Cover sills, ledges, and projections to protect from mortar droppings.
  2. Keep wall area wet below rebuilding and pointing work to discourage mortar from adhering.

3. Immediately remove mortar in contact with exposed masonry and other surfaces.
4. Clean mortar splatters from scaffolding at end of each day.

### 3.2 BRICK REMOVAL AND REPLACEMENT

- A. At locations indicated on the Drawings, remove bricks that are damaged, spalled, or deteriorated. Carefully demolish or remove entire units from joint to joint, without damaging surrounding masonry, in a manner that permits replacement with full-size units.
  1. When removing single bricks, remove material from center of brick and work toward outside edges.
- B. Support and protect remaining masonry that surrounds removal area. Maintain flashing, reinforcement, lintels, and adjoining construction in an undamaged condition.
- C. Notify Architect of unforeseen detrimental conditions including voids, cracks, bulges, and loose units in existing masonry backup, rotted wood, rusted metal, and other deteriorated items.
- D. Remove in an undamaged condition as many whole bricks as possible.
  1. Remove mortar, loose particles, and soil from brick by cleaning with hand chisels, brushes, and water.
  2. Remove sealants by cutting close to brick with utility knife and cleaning with solvents.
  3. Store brick for reuse. Store off ground, on skids, and protected from weather.
  4. Deliver cleaned brick not required for reuse to Owner unless otherwise indicated.
- E. Clean bricks surrounding removal areas by removing mortar, dust, and loose particles in preparation for replacement.
- F. Replace removed damaged brick with other removed brick in good quality, where possible, or with new brick matching existing brick, including size. Do not use broken units unless they can be cut to usable size.
- G. Install replacement brick into bonding and coursing pattern of existing brick. If cutting is required, use a motor-driven saw designed to cut masonry with clean, sharp, unchipped edges.
  1. Maintain joint width for replacement units to match existing joints.
  2. Use setting buttons or shims to set units accurately spaced with uniform joints.
- H. Lay replacement brick with completely filled bed, head, and collar joints. Butter ends with sufficient mortar to fill head joints and shove into place. Wet both replacement and surrounding bricks that have ASTM C 67 initial rates of absorption (suction) of more than 30 g/30 sq. in. per min.. Use wetting methods that ensure that units are nearly saturated but surface is dry when laid.
  1. Tool exposed mortar joints in repaired areas to match joints of surrounding existing brickwork.
  2. Rake out mortar used for laying brick before mortar sets and point new mortar joints in repaired area to comply with requirements for repointing existing masonry, and at same time as repointing of surrounding area.

3. When mortar is sufficiently hard to support units, remove shims and other devices interfering with pointing of joints.

### 3.3 REANCHORING VENEERS

- A. Install masonry repair anchors in horizontal mortar joints and according to manufacturer's written instructions. Install at not more than 16 inches o.c. vertically and 32 inches o.c. horizontally unless otherwise indicated. Install at locations to avoid penetrating flashing.
- B. Recess anchors at least 5/8 inch from surface of mortar joint and fill recess with pointing mortar.

### 3.4 CLEANING MASONRY, GENERAL

- A. Proceed with cleaning in an orderly manner; work from top to bottom of each scaffold width and from one end of each elevation to the other. Ensure that dirty residues and rinse water will not wash over cleaned, dry surfaces.
- B. Use only those cleaning methods indicated for each masonry material and location.
  1. Do not use wire brushes or brushes that are not resistant to chemical cleaner being used. Do not use plastic-bristle brushes if natural-fiber brushes will resist chemical cleaner being used.
  2. Use spray equipment that provides controlled application at volume and pressure indicated, measured at spray tip. Adjust pressure and volume to ensure that cleaning methods do not damage masonry.
    - a. Equip units with pressure gages.
  3. For water-spray application, use fan-shaped spray tip that disperses water at an angle of 25 to 50 degrees.
  4. For high-pressure water-spray application, use fan-shaped spray tip that disperses water at an angle of at least 40 degrees.
- C. Perform each cleaning method indicated in a manner that results in uniform coverage of all surfaces, including corners, moldings, and interstices, and that produces an even effect without streaking or damaging masonry surfaces.
- D. Water Application Methods:
  1. Water-Soak Application: Soak masonry surfaces by applying water continuously and uniformly to limited area for time indicated. Apply water at low pressures and low volumes in multiple fine sprays using perforated hoses or multiple spray nozzles. Erect a protective enclosure constructed of polyethylene sheeting to cover area being sprayed.
  2. Water-Spray Applications: Unless otherwise indicated, hold spray nozzle at least 6 inches from surface of masonry and apply water in horizontal back and forth sweeping motion, overlapping previous strokes to produce uniform coverage.
- E. After cleaning is complete, remove protection no longer required. Remove tape and adhesive marks.

### 3.5        CLEANING BRICKWORK

#### A.     Cold-Water Soak:

1.     Apply cold water by intermittent spraying to keep surface moist.
2.     Use perforated hoses or other means that will apply a fine water mist to entire surface being cleaned.
3.     Apply water in cycles with at least 30 minutes between cycles.
4.     Continue spraying until surface encrustation has softened sufficiently to permit its removal by water wash, as indicated by cleaning tests.
5.     Continue spraying for 72 hours.
6.     Remove soil and softened surface encrustation from masonry with cold water applied by low-pressure spray.

#### B.     Cold-Water Wash: Use cold water applied by low-pressure spray.

#### C.     Hot-Water Wash: Use hot water applied by low-pressure spray.

#### D.     Detergent Cleaning:

1.     Wet masonry with cold water applied by low-pressure spray.
2.     Scrub masonry with detergent solution using medium-soft brushes until soil is thoroughly dislodged and can be removed by rinsing. Use small brushes to remove soil from mortar joints and crevices. Dip brush in solution often to ensure that adequate fresh detergent is used and that masonry surface remains wet.
3.     Rinse with cold water applied by low-pressure spray to remove detergent solution and soil.
4.     Repeat cleaning procedure above where required to produce cleaning effect established by mockup.

### 3.6        REPOINTING MASONRY

#### A.     Rake out and repoint joints to the following extent:

1.     All joints in areas indicated.
2.     Joints where mortar is missing or where they contain holes.
3.     Cracked joints where cracks can be penetrated at least 1/4 inch by a knife blade 0.027 inch thick.
4.     Joints where they sound hollow when tapped by metal object.
5.     Joints where they are worn back 1/4 inch or more from surface.
6.     Joints where they are deteriorated to point that mortar can be easily removed by hand, without tools.
7.     Joints where they have been filled with substances other than mortar.
8.     Joints indicated as sealant-filled joints.

#### B.     Do not rake out and repoint joints where not required.

#### C.     Rake out joints as follows, according to procedures demonstrated in approved mockup:

1. Remove mortar from joints to depth of joint width plus 1/8 inch, but not less than 1/2 inch or not less than that required to expose sound, unweathered mortar.
  2. Remove mortar from masonry surfaces within raked-out joints to provide reveals with square backs and to expose masonry for contact with pointing mortar. Brush, vacuum, or flush joints to remove dirt and loose debris.
  3. Do not spall edges of masonry units or widen joints. Replace or patch damaged masonry units as directed by Architect.
    - a. Cut out mortar by hand with chisel and resilient mallet. Do not use power-operated grinders without Architect's written approval based on approved quality-control program.
    - b. Cut out center of mortar bed joints using angle grinders with diamond-impregnated metal blades. Remove remaining mortar by hand with chisel and resilient mallet. Strictly adhere to approved quality-control program.
- D. Notify Architect of unforeseen detrimental conditions including voids in mortar joints, cracks, loose masonry units, rotted wood, rusted metal, and other deteriorated items.
- E. Pointing with Mortar:
1. Rinse joint surfaces with water to remove dust and mortar particles. Time rinsing application so, at time of pointing, joint surfaces are damp but free of standing water. If rinse water dries, dampen joint surfaces before pointing.
  2. Apply pointing mortar first to areas where existing mortar was removed to depths greater than surrounding areas. Apply in layers not greater than 3/8 inch until a uniform depth is formed. Fully compact each layer thoroughly and allow it to become thumbprint hard before applying next layer.
  3. After low areas have been filled to same depth as remaining joints, point all joints by placing mortar in layers not greater than 3/8 inch. Fully compact each layer and allow to become thumbprint hard before applying next layer. Where existing masonry units have worn or rounded edges, slightly recess finished mortar surface below face of masonry to avoid widened joint faces. Take care not to spread mortar beyond joint edges onto exposed masonry surfaces or to featheredge the mortar.
  4. When mortar is thumbprint hard, tool joints to match original appearance of joints as demonstrated in approved mockup. Remove excess mortar from edge of joint by brushing.
  5. Cure mortar by maintaining in thoroughly damp condition for at least 72 consecutive hours including weekends and holidays.
    - a. Acceptable curing methods include covering with wet burlap and plastic sheeting, periodic hand misting, and periodic mist spraying using system of pipes, mist heads, and timers.
    - b. Adjust curing methods to ensure that pointing mortar is damp throughout its depth without eroding surface mortar.
  6. Hairline cracking within the mortar or mortar separation at edge of a joint is unacceptable. Completely remove such mortar and repoint.
- F. Where repointing work precedes cleaning of existing masonry, allow mortar to harden at least 30 days before beginning cleaning work.

3.7 FINAL CLEANING

- A. After mortar has fully hardened, thoroughly clean exposed masonry surfaces of excess mortar and foreign matter; use wood scrapers, stiff-nylon or -fiber brushes, and clean water, spray applied at low pressure.
  - 1. Do not use metal scrapers or brushes.
  - 2. Do not use acidic or alkaline cleaners.
- B. Wash adjacent woodwork and other nonmasonry surfaces. Use detergent and soft brushes or cloths.
- C. Clean mortar and debris from roof; remove debris from gutters and downspouts. Rinse off roof and flush gutters and downspouts.
- D. Sweep and rake adjacent pavement and grounds to remove mortar and debris. Where necessary, pressure wash pavement surfaces to remove mortar, dust, dirt, and stains.

END OF SECTION 040120





**SECTION 042000 - UNIT MASONRY**

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

**1.2 SUMMARY**

- A. Section Includes:
  - 1. Concrete masonry units (CMU's), for non-load bearing walls.
  - 2. Decorative concrete masonry units.
  - 3. Face brick.
  - 4. Mortar and grout.
  - 5. Steel reinforcing bars.
  - 6. Masonry-joint reinforcement.
  - 7. Ties and anchors.
  - 8. Embedded flashing.
  - 9. Miscellaneous masonry accessories (lintels, base plates, bearing plates, etc.).
  - 10. Masonry-cell fill.
- B. Products Installed but not Furnished under This Section:
  - 1. Cast-stone trim in unit masonry.
  - 2. Steel lintels in unit masonry.
  - 3. Steel shelf angles for supporting unit masonry.
  - 4. Cavity wall insulation.
- C. Related Requirements:
  - 1. Section 042300 "Glass Unit Masonry" for glass block.
  - 2. Section 044200 "Exterior Stone Cladding" for stone trim secured with stone anchors.
  - 3. Section 042900 "Engineered Unit Masonry" for concrete masonry units in structural and load bearing walls.
  - 4. Section 055000 "Metal Fabrications" for loose lintels and miscellaneous framing and supports.
  - 5. Section 071900 "Water Repellents" for water repellents applied to unit masonry assemblies.
  - 6. Section 072100 "Thermal Insulation" for cavity wall insulation.
  - 7. Section 076200 "Sheet Metal Flashing and Trim" for sheet metal flashing and for furnishing manufactured reglets installed in masonry joints.
  - 8. Section 089516 "Wall Vents" for wall vents (brick vents).

**1.3 ALLOWANCES**

- A. Face brick is part of the Face Brick Allowance.

**1.4 DEFINITIONS**

- A. CMU(s): Concrete masonry unit(s).
- B. Reinforced Masonry: Masonry containing reinforcing steel in grouted cells.

**1.5 ACTION SUBMITTALS**

- A. Product Data: For each type of product.

- B. Shop Drawings: For the following:
  - 1. Masonry Units: Show sizes, profiles, coursing, and locations of special shapes.
  - 2. Reinforcing Steel: Detail bending, lap lengths, and placement of unit masonry reinforcing bars. Comply with ACI 315. Show elevations of reinforced walls.
  - 3. Fabricated Flashing: Detail corner units, end-dam units, and other special applications.
- C. Samples for Initial Selection:
  - 1. Decorative CMUs, in the form of small-scale units.
  - 2. Concrete face brick, in the form of small-scale units.
  - 3. Colored mortar.
  - 4. Weep holes/cavity vents.
- D. Samples for Verification: For each type and color of the following:
  - 1. Decorative CMUs.
  - 2. Face brick, in the form of straps of five or more bricks.
  - 3. Pigmented and colored-aggregate mortar. Make Samples using same sand and mortar ingredients to be used on Project.
  - 4. Weep holes and cavity vents.
  - 5. Accessories embedded in masonry.

#### **1.6 INFORMATIONAL SUBMITTALS**

- A. List of Materials Used in Constructing Mockups: List generic product names together with manufacturers, manufacturers' product names, model numbers, lot numbers, batch numbers, source of supply, and other information as required to identify materials used. Include mix proportions for mortar and grout and source of aggregates.
  - 1. Submittal is for information only. Receipt of list does not constitute approval of deviations from the Contract Documents unless such deviations are specifically brought to the attention of Architect and approved in writing.
- B. Qualification Data: For testing agency.
- C. Material Certificates: For each type and size of the following:
  - 1. Masonry units.
    - a. Include data on material properties material test reports substantiating compliance with requirements.
    - b. For brick, include size-variation data verifying that actual range of sizes falls within specified tolerances.
    - c. For exposed brick, include test report for efflorescence according to ASTM C 67.
    - d. For surface-coated brick, include test report for durability of surface appearance after 50 cycles of freezing and thawing according to ASTM C 67.
    - e. For masonry units used in structural masonry, include data and calculations establishing average net-area compressive strength of units.
  - 2. Cementitious materials. Include name of manufacturer, brand name, and type.
  - 3. Mortar admixtures.
  - 4. Preblended, dry mortar mixes. Include description of type and proportions of ingredients.
  - 5. Grout mixes. Include description of type and proportions of ingredients.
  - 6. Reinforcing bars.
  - 7. Joint reinforcement.
  - 8. Anchors, ties, and metal accessories.

- D. Mix Designs: For each type of mortar and grout. Include description of type and proportions of ingredients.
  - 1. Include test reports for mortar mixes required to comply with property specification. Test according to ASTM C 109/C 109M for compressive strength, ASTM C 1506 for water retention, and ASTM C 91/C 91M for air content.
  - 2. Include test reports, according to ASTM C 1019, for grout mixes required to comply with compressive strength requirement.
- E. Statement of Compressive Strength of Masonry: For each combination of masonry unit type and mortar type, provide statement of average net-area compressive strength of masonry units, mortar type, and resulting net-area compressive strength of masonry determined according to TMS 602/ACI 530.1/ASCE 6.
- F. Cold-Weather Procedures: Detailed description of methods, materials, and equipment to be used to comply with requirements.

#### **1.7 QUALITY ASSURANCE**

- A. Testing Agency Qualifications: Qualified according to ASTM C 1093 for testing indicated.
- B. Source Limitations for Masonry Units: Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, through one source from a single manufacturer for each product required.
- C. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from a single manufacturer for each cementitious component and from one source or producer for each aggregate.
- D. Preconstruction Testing Service: Owner or Construction Manager will engage a qualified independent testing agency to perform preconstruction testing indicated below. Payment for these services will be made by Owner. Retesting of materials that fail to meet specified requirements shall be done at Contractor's expense.
  - 1. Clay Masonry Unit Test: For each type of unit required, per ASTM C 67.
  - 2. Concrete Masonry Unit Test: For each type of unit required, per ASTM C 140.
- E. Sample Panels: Build sample panels to verify selections made under Sample submittals and to demonstrate aesthetic effects. Comply with requirements in Section 014000 "Quality Requirements" for mockups.
  - 1. Build sample panels for [each type of exposed unit masonry construction] in sizes approximately 60 inches long by 48 inches high by full thickness.
  - 2. Clean exposed faces of panels with masonry cleaner indicated.
  - 3. Protect approved sample panels from the elements with weather-resistant membrane.
  - 4. Approval of sample panels is for color, texture, and blending of masonry units; relationship of mortar and sealant colors to masonry unit colors; tooling of joints; aesthetic qualities of workmanship; and other material and construction qualities specifically approved by Architect in writing.
    - a. Approval of sample panels does not constitute approval of deviations from the Contract Documents contained in sample panels unless Architect specifically approves such deviations in writing.
- F. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.
  - 1. Build mockups for each type of exposed unit masonry construction in sizes approximately 60 inches long by 48 inches high by full thickness, including face and backup wythes and accessories.
    - a. Include a sealant-filled joint at least 16 inches long in exterior wall mockup.

- b. Include lower corner of window opening. Make opening approximately 12 inches wide by 16 inches high.
  - c. Include through-wall flashing installed for a 24-inch length in corner of exterior wall mockup approximately 16 down from top of mockup, with a 12-inch length of flashing left exposed to view (omit masonry above half of flashing).
  - d. Include metal studs, sheathing, water-resistive barrier sheathing joint-and-penetration treatment, veneer anchors, flashing, cavity drainage material, and weep holes in exterior masonry-veneer wall mockup.
2. Clean exposed faces of mockups with masonry cleaner as indicated.
3. Protect accepted mockups from the elements with weather-resistant membrane.
4. Approval of mockups is for color, texture, and blending of masonry units; relationship of mortar and sealant colors to masonry unit colors; tooling of joints; and aesthetic qualities of workmanship.
  - a. Approval of mockups is also for other material and construction qualities specifically approved by Architect in writing.
  - b. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
5. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

#### **1.8 DELIVERY, STORAGE, AND HANDLING**

- A. Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.
- B. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.
- C. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.
- D. Deliver preblended, dry mortar mix in moisture-resistant containers. Store preblended, dry mortar mix in delivery containers on elevated platforms in a dry location or in covered weatherproof dispensing silos.
- E. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

#### **1.9 FIELD CONDITIONS**

- A. Protection of Masonry: During construction, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.
  1. Extend cover a minimum of 24 inches down both sides of walls, and hold cover securely in place.
  2. Where one wythe of multiwythe masonry walls is completed in advance of other wythes, secure cover a minimum of 24 inches down face next to unconstructed wythe, and hold cover in place.
- B. Do not apply uniform floor or roof loads for at least 12 hours and concentrated loads for at least three days after building masonry walls or columns.
- C. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.

1. Protect base of walls from rain-splashed mud and from mortar splatter by spreading coverings on ground and over wall surface.
  2. Protect sills, ledges, and projections from mortar droppings.
  3. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.
  4. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt onto completed masonry.
- D. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.
1. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F and higher and will remain so until masonry has dried, but not less than seven days after completing cleaning.
- E. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.

## **PART 2 - PRODUCTS**

### **2.1 MANUFACTURERS**

- A. Source Limitations for Masonry Units: Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, from single source from single manufacturer for each product required.
- B. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from single manufacturer for each cementitious component and from single source or producer for each aggregate.

### **2.2 PERFORMANCE REQUIREMENTS**

- A. Provide unit masonry that develops indicated net-area compressive strengths at 28 days.
  1. Determine net-area compressive strength of masonry from average net-area compressive strengths of masonry units and mortar types (unit-strength method) according to TMS 602/ACI 530.1/ASCE 6.
  2. Determine net-area compressive strength of masonry by testing masonry prisms according to ASTM C 1314.

### **2.3 UNIT MASONRY, GENERAL**

- A. Masonry Standard: Comply with TMS 602/ACI 530.1/ASCE 6, except as modified by requirements in the Contract Documents.
- B. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other defects exceeding limits stated. Do not use units where such defects are exposed in the completed Work.
- C. Fire-Resistance Ratings: Comply with requirements for fire-resistance-rated assembly designs indicated.
  1. Where fire-resistance-rated construction is indicated, units shall be listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction.

### **2.4 CONCRETE MASONRY UNITS**

- A. Shapes: Provide shapes indicated and as follows, with exposed surfaces matching exposed faces of adjacent units unless otherwise indicated.
  1. Provide special shapes for lintels, corners, jambs, sashes, movement joints, headers, bonding, and other special conditions.
  2. Provide square-edged units for outside corners unless otherwise indicated.

- B. Integral Water Repellent: Provide units made with integral water repellent for exposed units and where indicated.
  - 1. Integral Water Repellent: Liquid polymeric, integral water-repellent admixture that does not reduce flexural bond strength. Units made with integral water repellent, when tested according to ASTM E 514/E 514M as a wall assembly made with mortar containing integral water-repellent manufacturer's mortar additive, with test period extended to 24 hours, shall show no visible water or leaks on the back of test specimen.
    - a. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to the following:
      - 1) GCP Applied Technologies Inc. (formerly Grace Construction Products); Dry-Block.
- C. CMUs: ASTM C 90.
  - 1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 2800 psi.
  - 2. Density Classification: Normal weight unless otherwise indicated.
  - 3. Size (Width): Manufactured to dimensions 3/8 inch less than nominal dimensions.
  - 4. Exposed Faces: Provide color and texture matching the range represented by Architect's sample.
  - 5. Faces to Receive Plaster: Where units are indicated to receive a direct application of plaster, provide textured-face units made with gap-graded aggregates.
- D. Decorative CMUs: ASTM C90.
  - 1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 2800 psi.
  - 2. Density Classification: Normal weight.
  - 3. Size (Width): Manufactured to dimensions specified in "CMUs" Paragraph.
  - 4. Pattern and Texture:
    - a. Standard pattern, split-face finish. Match Architect's samples.
  - 5. Colors: As selected by Architect from manufacturer's full range.
  - 6. Special Aggregate: Provide units made with aggregate matching aggregate in Architect's sample.

## **2.5 MASONRY LINTELS**

- A. General: Provide the following:
- B. Masonry Lintels: Prefabricated or built-in-place masonry lintels made from bond beam CMUs matching adjacent CMUs in color, texture, and density classification, with reinforcing bars placed as indicated and filled with coarse grout. Cure precast lintels before handling and installing. Temporarily support built-in-place lintels until cured.

## **2.6 BRICK**

- A. General: Provide shapes indicated and as follows, with exposed surfaces matching finish and color of exposed faces of adjacent units:
  - 1. For ends of sills and caps and for similar applications that would otherwise expose unfinished brick surfaces, provide units without cores or frogs and with exposed surfaces finished.
  - 2. Provide special shapes for applications where stretcher units cannot accommodate special conditions, including those at corners, movement joints, bond beams, sashes, and lintels.

3. Provide special shapes for applications requiring brick of size, form, color, and texture on exposed surfaces that cannot be produced by sawing.
4. Provide special shapes for applications where shapes produced by sawing would result in sawed surfaces being exposed to view.
- B. Face Brick: Facing brick complying with ASTM C 216.
  1. Grade: SW.
  2. Type: FBS
  3. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 5500 psi.
  4. Initial Rate of Absorption: Less than 30 g/30 sq. in. per minute when tested according to ASTM C 67.
  5. Efflorescence: Provide brick that has been tested according to ASTM C 67 and is rated "not effloresced."
  6. Surface Coating: Brick with colors or textures produced by application of coatings shall withstand 50 cycles of freezing and thawing according to ASTM C 67 with no observable difference in the applied finish when viewed from 10 feet or shall have a history of successful use in Project's area.
  7. Size (Actual Dimensions): 3-5/8 inches wide by 2-1/4 inches high by 7-5/8 inches long.
  8. Application: Use where brick is exposed unless otherwise indicated.
  9. Color and Texture: As selected by Architect.

## **2.7 MORTAR AND GROUT MATERIALS**

- A. Portland Cement: ASTM C 150/C 150M, Type II except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.
  1. Alkali content shall not be more than 0.1 percent when tested according to ASTM C 114.
- B. Hydrated Lime: ASTM C 207, Type S.
- C. Portland Cement-Lime Mix: Packaged blend of portland cement complying with ASTM C 150, Type II or Type III, and hydrated lime complying with ASTM C 207, Type S.
- D. Mortar Cement: ASTM C 1329/C 1329M.
  1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to the following:
    - a. Lafarge North America Inc.; Lafarge Mortar Cement or Magnolia Superbond Mortar Cement.
- E. Mortar Pigments: Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes and complying with ASTM C 979/C 979M. Use only pigments with a record of satisfactory performance in masonry mortar.
  1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to the following:
    - a. Davis Colors; True Tone Mortar Colors.
    - b. Lanxess Corporation; Bayferrox Iron Oxide Pigments.
    - c. Solomon Colors, Inc.; SGS Mortar Colors.
- F. Colored Cement Products: Packaged blend made from portland cement and hydrated lime or masonry cement and mortar pigments, all complying with specified requirements, and containing no other ingredients.
  1. Colored Portland Cement-Lime Mix:

- a. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to the following:
      - 1) Lafarge North America Inc.; Eaglebond Portland & Lime.
  - 2. Colored Masonry Cement:
    - a. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to the following:
      - 1) Lafarge North America Inc.; U.S. Cement Custom Color Masonry Cement.
  - 3. Formulate blend as required to produce color indicated or, if not indicated, as selected from manufacturer's standard colors.
  - 4. Pigments shall not exceed 10 percent of portland cement by weight.
  - 5. Pigments shall not exceed 5 percent of masonry cement or mortar cement by weight.
  - G. Aggregate for Mortar: ASTM C 144.
    - 1. For mortar that is exposed to view, use washed aggregate consisting of natural sand or crushed stone.
    - 2. For joints less than 1/4 inch thick, use aggregate graded with 100 percent passing the No. 16 sieve.
    - 3. White-Mortar Aggregates: Natural white sand or crushed white stone.
    - 4. Colored-Mortar Aggregates: Natural sand or crushed stone of color necessary to produce required mortar color.
  - H. Aggregate for Grout: ASTM C 404.
  - I. Cold-Weather Admixture: Non-chloride, noncorrosive, accelerating admixture complying with ASTM C 494/C 494M, Type C, and recommended by manufacturer for use in masonry mortar of composition indicated.
    - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to the following:
      - a. Euclid Chemical Company (The); an RPM company; Accelguard 80.
      - b. GCP Applied Technologies Inc. (formerly Grace Construction Products); Morset.
  - J. Water-Repellent Admixture: Liquid water-repellent mortar admixture intended for use with CMUs containing integral water repellent from same manufacturer.
    - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to the following:
      - a. GCP Applied Technologies Inc. (formerly Grace Construction Products); Dry-Block Mortar Admixture.
  - K. Water: Potable.
- 2.8 REINFORCEMENT**
- A. Uncoated-Steel Reinforcing Bars: ASTM A 615/A 615M or ASTM A 996/A 996M, Grade 60.
  - B. Masonry-Joint Reinforcement, General: ASTM A 951/A 951M.
    - 1. Interior Walls: Hot-dip galvanized carbon steel.
    - 2. Exterior Walls: Hot-dip galvanized carbon steel.
    - 3. Wire Size for Side Rods: W1.7 (0.148-inch or 9-gage) diameter.
    - 4. Wire Size for Cross Rods: W1.7 (0.148-inch or 9-gage) diameter.
    - 5. Wire Size for Veneer Ties: W2.8 (0.188-inch) diameter.
    - 6. Spacing of Cross Rods, Tabs, and Cross Ties: Not more than 16 inches o.c.
    - 7. Provide in lengths of not less than 10 feet with prefabricated corner and tee units].



- C. Masonry-Joint Reinforcement for Single-Wythe Masonry: Ladder or truss type with single pair of side rods.
- D. Masonry-Joint Reinforcement for Multiwythe Masonry:
  - 1. Adjustable (two-piece) type, either ladder or truss design, with one side rod at each face shell of backing wythe and with separate ties that extend into facing wythe. Ties have two hooks that engage eyes or slots in reinforcement and resist movement perpendicular to wall. Ties extend at least halfway through facing wythe but with at least 5/8-inch cover on outside face.
- E. Masonry-Joint Reinforcement for Veneers Anchored with Seismic Masonry-Veneer Anchors: Single 0.188-inch diameter, hot-dip galvanized carbon-steel continuous wire.

## **2.9 TIES AND ANCHORS**

- A. General: Ties and anchors shall extend at least 1-1/2 inches (38 mm) into veneer but with at least a 5/8-inch (16-mm) cover on outside face.
- B. Materials: Provide ties and anchors specified in this article that are made from materials that comply with the following unless otherwise indicated:
- A. Materials: Provide ties and anchors specified in subsequent paragraphs that are made from materials that comply with subparagraphs below, unless otherwise indicated.
  - 1. Hot-Dip Galvanized, Carbon-Steel Wire: ASTM A 82; with ASTM A 153/A 153M, Class B-2 coating.
  - 2. Stainless-Steel Wire: ASTM A 580/A 580M, Type 316.
  - 3. Steel Sheet, Galvanized after Fabrication: ASTM A 1008/A 1008M, Commercial Steel, hot-dip galvanized after fabrication to comply with ASTM A 153/A 153M.
  - 4. Stainless-Steel Sheet: ASTM A 666, Type 316.
  - 5. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M, hot-dipped galvanized as indicated.
  - 6. Stainless Steel bars: ASTM A 276 or ASTM a 666, Type 304.
- B. Corrugated Metal Ties: Metal strips not less than 7/8 inch wide with corrugations having a wavelength of 0.3 to 0.5 inch and an amplitude of 0.06 to 0.10 inch made from steel sheet, galvanized after fabrication not less than 0.043 inch thick.
- C. Wire Ties, General: Unless otherwise indicated, size wire ties to extend at least halfway through veneer but with at least 5/8-inch cover on outside face. Outer ends of wires are bent 90 degrees and extend 2 inches parallel to face of veneer.
- D. Individual Wire Ties: Rectangular units with closed ends and not less than 4 inches wide.
  - 1. Z-shaped ties with ends bent 90 degrees to provide hooks not less than 2 inches long may be used for masonry constructed from solid units or hollow units laid with cells horizontal.
  - 2. Where wythes do not align or are of different materials, use adjustable ties with pintle-and-eye connections having a maximum adjustment of 1-1/4 inches.
  - 3. Wire: Fabricate from 1/4-inch diameter, hot-dip galvanized steel wire.
- E. Adjustable Anchors for Connecting to Structural Steel Framing: Provide anchors that allow vertical or horizontal adjustment but resist tension and compression forces perpendicular to plane of wall.
  - 1. Anchor Section for Welding to Steel Frame: Crimped 1/4-inch diameter, hot-dip galvanized steel wire.
  - 2. Tie Section: Triangular-shaped wire tie made from 0.25-inch diameter, hot-dip galvanized steel wire.
- F. Adjustable Anchors for Connecting to Concrete: Provide anchors that allow vertical or horizontal adjustment but resist tension and compression forces perpendicular to plane of wall.

1. Connector Section: Dovetail tabs for inserting into dovetail slots in concrete and attached to tie section; formed from 0.108-inch- thick, stainless-steel sheet.
2. Tie Section: Triangular-shaped wire tie sized to extend within 1 inch of masonry face, made from 0.25-inch diameter, hot-dip galvanized steel wire.
- G. Partition Top anchors: 0.097-inch- thick metal plate with 3/8-inch- diameter metal rod 6 inches long welded to plate and with closed-end plastic tube fitted over rod that allows rod to move in and out of tube. Fabricate from steel, hot-dip galvanized after fabrication.
- H. Rigid Anchors: Fabricate from steel bars 1-1/2 inches wide by 1/4 inch thick by 24 inches long, with ends turned up not less than 2 inches or with cross pins, unless otherwise indicated.
  1. Corrosion Protection: Hot-dip galvanized to comply with ASTM A 153/A 153M.
- I. Adjustable Masonry-Veneer Anchors:
  1. General: Provide anchors that allow vertical adjustment but resist tension and compression forces perpendicular to plane of wall, for attachment over sheathing to metal studs, and as follows:
    - a. Structural Performance Characteristics: Capable of withstanding a 100-lbf load in both tension and compression without deforming or developing play in excess of 0.05 inch.
  2. Screw-Attached, Masonry-Veneer Anchors: Units consisting of a wire tie and a metal anchor section:
    - a. Anchor Section: Zinc-alloy barrel section with flanged head with eye and corrosion-resistant, self-drilling screw. Eye designed to receive wire tie and to serve as head for drilling fastener into framing. Barrel length to suit sheathing thickness, allowing screw to seat directly against framing with flanged head covering hole in sheathing.
    - b. Fabricate sheet metal anchor sections and other sheet metal parts from 0.097-inch- thick, steel sheet, galvanized after fabrication .
    - c. Wire Ties: Triangular-, rectangular-, or T-shaped wire ties fabricated from 0.25-inch- diameter, hot-dip galvanized steel wire.
    - d. Products:
    - e. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to the following:
      - 1) Heckmann Building Products Inc., Pos-I-Tie.
  3. Seismic Masonry-Veneer Anchors: Units consisting of a metal anchor section and a connector section designed to engage a continuous wire embedded in the veneer mortar joint.
    - a. Anchor Section: Rib-stiffened, sheet metal plate with screw holes top and bottom, 2-3/4 inches wide by 3 inches high; with projecting tabs having slotted holes for inserting vertical leg of connector section.
    - b. Connector Section: Rib-stiffened, sheet metal bent plate with down-turned leg designed to fit in anchor section slot and with integral tabs designed to engage continuous wire. Size connector to extend at least halfway through veneer but with at least 5/8 inch cover on outside face.
    - c. Fabricate sheet metal anchor sections and other sheet metal parts from 0.097-inch- thick, steel sheet, galvanized after fabrication.
    - d. Fabricate wire connector sections from 0.25 inch diameter, hot-dip galvanized, carbon-steel wire.
    - e. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to the following:

- 1) Dayton Superior Corporation, Dur-O-Wal Division; D/A 213S.

## **2.10 MISCELLANEOUS ANCHORS**

- A. Dovetail Slots in Concrete: Furnish dovetail slots with filler strips, of slot size indicated, fabricated from 0.034-inch, galvanized steel sheet.
- B. Anchor Bolts: Headed steel bolts complying with ASTM F 1554, Grade 36; with ASTM A 563 hex nuts and, where indicated, flat washers; hot-dip galvanized to comply with ASTM A 153/A 153M, Class C; of dimensions indicated.
- C. Post-installed Anchors: Provide chemical or torque-controlled expansion anchors, with capability to sustain, without failure, a load equal to six times the load imposed when installed in solid or grouted unit masonry and equal to four times the load imposed when installed in concrete, as determined by testing per ASTM E 488 conducted by a qualified independent testing agency.
  1. Corrosion Protection: Stainless-steel components complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2 for bolts and nuts; ASTM A 666 or ASTM A 276, Type 304 or 316, for anchors, or,
  2. Corrosion Protection: Carbon-steel components zinc plated to comply with ASTM B 633, Class Fe/Zn 5 (5 microns) for Class SC 1 service condition (mild), or approved equivalent.

## **2.11 EMBEDDED FLASHING MATERIALS**

- A. Metal Flashing: Provide metal flashing where flashing is exposed or partly exposed and/or where indicated complying with SMACNA's "Architectural Sheet Metal Manual, Division 7 Section "Sheet Metal Flashing and Trim" and as follows:
  1. Stainless Steel: ASTM A 240/A 240M, Type 304, 0.016 inch thick.
  2. Copper: ASTM B 370, Temper H00 or H01, cold-rolled copper sheet, 10-oz./sq. ft. weight or 0.0135 inch thick for fully concealed flashing; 16-oz./sq. ft. weight or 0.0216 inch thick elsewhere.
  3. Fabricate continuous flashings in sections 96 inches long minimum, but not exceeding 12 feet. Provide splice plates at joints of formed, smooth metal flashing.
  4. Fabricate through-wall metal flashing embedded in masonry from stainless steel or copper to match existing unless otherwise noted with ribs at 3-inch intervals along length of flashing to provide an integral mortar bond.
    - a. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to the following:
      - 1) Cheney Flashing Company; Cheney 3-Way Flashing (Sawtooth)
      - 2) Keystone Flashing Company, Inc; Keystone 3-Way Interlocking Thruwall Flashing.
  5. Fabricate through-wall flashing with snaplock receiver on exterior face where indicated to receive counterflashing.
  6. Fabricate through-wall flashing with drip edge unless otherwise indicated. Fabricate by extending flashing 1/2 inch out from wall, with outer edge bent down 30 degrees [ and hemmed.
  7. Fabricate through-wall flashing with sealant stop where indicated. Fabricate by bending metal back on itself 3/4 inch at exterior face of wall and down into joint 3/8 inch to form a stop for retaining sealant backer rod.
  8. Fabricate metal drip edges and sealant stops for ribbed metal flashing from plain metal flashing of same metal as ribbed flashing and extending at least 3 inches into wall with hemmed inner edge to receive ribbed flashing and form a hooked seam. Form hem on upper surface of metal so that completed seam will shed water.

9. Metal Drip Edges: Fabricate from stainless steel. Extend at least 3 inches into wall and 1/2 inch out from wall, with outer edge bent down 30 degrees and hemmed.
  10. Metal Flashing Terminations: Fabricate from stainless steel. Extend at least 3 inches into wall and out to exterior face of wall. At exterior face of wall, bend metal back on itself for 3/4 inch and down into joint 3/8 inch to form a stop for retaining sealant backer rod.
  11. Metal Expansion-Joint Strips: Fabricate from stainless steel to shapes indicated and/or required.
- A. Flexible Flashing: For flashing not exposed to the exterior, use the following, unless otherwise indicated:
1. Copper-Laminated Flashing: 7-oz./sq. ft. copper sheet bonded with asphalt between 2 layers of glass-fiber cloth.
    - a. Available Products:
      - 1) Advanced Building Products Inc.; Copper Fabric Flashing.
      - 2) AFCO Products Inc.; Copper Fabric.
      - 3) Hohmann & Barnard, Inc.; H & B C-Fab Flashing.
      - 4) Phoenix Building Products; Type FCC-Fabric Covered Copper.
      - 5) Polytite Manufacturing Corp.; Copper Fabric Flashing.
      - 6) Sandell Manufacturing Co., Inc.; Copper Fabric Flashing.
      - 7) York Manufacturing, Inc.; York Copper Fabric Flashing.
- B. Flexible Flashing with Adhesive backing: For flashing not exposed to the exterior and where the use of adhesive is required against sheathing or metal columns use the following, unless otherwise indicated:
1. Perm-A-Barrier Wall Flashing by Georgia Pacific.
- C. Solder and Sealants for Sheet Metal Flashings:
1. Solder for Stainless Steel: ASTM B 32, Grade Sn60, with acid flux of type recommended by stainless-steel sheet manufacturer.
  2. Solder for Copper: ASTM B 32, Grade Sn50, 50 percent tin and 50 percent lead.
  3. Elastomeric Sealant: ASTM C 920, chemically curing sealant; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.
- D. Adhesives, Primers, and Seam Tapes for Flashings: Flashing manufacturer's standard products or products recommended by flashing manufacturer for bonding flashing sheets to each other and to substrates.

## **2.12 MISCELLANEOUS MASONRY ACCESSORIES**

- A. Compressible Filler: Premolded filler strips complying with ASTM D 1056, Grade 2A1; compressible up to 35 percent; of width and thickness indicated; formulated from neoprene.
- B. Preformed Control-Joint Gaskets: Made from styrene-butadiene-rubber compound, complying with ASTM D 2000, Designation M2AA-805 and designed to fit standard sash block and to maintain lateral stability in masonry wall; size and configuration as indicated.
- C. Bond-Breaker Strips: Asphalt-saturated felt complying with ASTM D 226/D 226M, Type I (No. 15 asphalt felt).
- D. Weep/Cavity Vent Products: Use the following unless otherwise indicated:
1. Cellular Plastic Weep/Vent: One-piece, flexible extrusion made from UV-resistant polypropylene copolymer, full height and width of head joint and depth 1/8 inch less than depth of outer wythe, in color selected from manufacturer's standard.

- a. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to the following:
  - 1) Hohmann & Barnard, Inc; QV Quadro-Vent.
- E. Cavity Drainage Material: Free-draining mesh, made from polymer strands that will not degrade within the wall cavity.
  - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to the following:
    - a. Dayton Superior Corporation, Dur-O-Wal Division; Polytite MortarStop.
  - 2. Configuration: Provide one of the following:
    - a. Strips, full-depth of cavity and 10 inches wide, with dovetail shaped notches 7 inches deep that prevent mesh from being clogged with mortar droppings.
    - b. Strips, not less than 1-1/2 inches thick and 10 inches wide, with dimpled surface designed to catch mortar droppings and prevent weep holes from being clogged with mortar.
    - c. Sheets or strips full depth of cavity and installed to full height of cavity.
    - d. Sheets or strips not less than 1 inch thick and installed to full height of cavity with additional strips 4 inches high at weep holes and thick enough to fill entire depth of cavity and prevent weep holes from being clogged with mortar.
- A. Reinforcing Bar Positioners: Wire units designed to fit into mortar bed joints spanning masonry unit cells with loops for holding reinforcing bars in center of cells. Units are formed from 0.142-inch steel wire, hot-dip galvanized after fabrication. Provide units with either two loops or four loops as needed for number of bars indicated.
  - 1. Dayton Superior Corporation, Dur-O-Wal Division; D/A 810, D/A 812 or D/A 817.
  - 2. Approved equivalent.

## **2.13 CAVITY-WALL INSULATION**

- A. Extruded-Polystyrene Board Insulation with Increased R-Value: ASTM C 578, Type IV, but with an aged thermal resistance (R-value) for 1-inch thickness of 5.6 deg F x h x sq. ft./Btu at 75 deg F at 5 years; closed-cell product with a carbon-black filler and extruded with an integral skin. R-values as indicated on drawings.
- B. Polyisocyanurate Board Insulation: ASTM C 1289, Type I (aluminum-foil-faced), Class 2 (glass-fiber-reinforced). R-values as indicated on drawings.
- C. Adhesive: Type recommended by insulation board manufacturer for application indicated.

## **2.14 MASONRY CLEANERS**

- A. Proprietary Acidic Cleaner: Manufacturer's standard-strength cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from new masonry without discoloring or damaging masonry surfaces. Use product expressly approved for intended use by cleaner manufacturer and manufacturer of masonry units being cleaned.
  - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
    - a. Diedrich Technologies, Inc.; a division of Sandell Construction Solutions.

## **2.15 MORTAR AND GROUT MIXES**

- A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures unless otherwise indicated.
  - 1. Do not use calcium chloride in mortar or grout.
  - 2. Limit cementitious materials in mortar to portland cement and lime.

3. Limit cementitious materials in mortar for exterior and reinforced masonry to portland cement, mortar cement, and lime.
4. Add cold-weather admixture (if used) at same rate for all mortar that will be exposed to view, regardless of weather conditions, to ensure that mortar color is consistent.
- B. Preblended, Dry Mortar Mix: Furnish dry mortar ingredients in form of a preblended mix. Measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to Project site.
- C. Mortar for Unit Masonry: Comply with ASTM C 270, Proportion Specification. Provide the following types of mortar for applications stated unless another type is indicated or needed to provide required compressive strength of masonry.
  1. For masonry below grade or in contact with earth, use Type M.
  2. For reinforced masonry, use Type M.
  3. For mortar parge coats, use Type S.
  4. For exterior, above-grade, load-bearing and non-load-bearing walls and parapet walls; for interior load-bearing walls; for interior non-load-bearing partitions; and for other applications where another type is not indicated, use Type S.
- D. Pigmented Mortar: Use colored cement product or select and proportion pigments with other ingredients to produce color required. Do not add pigments to colored cement products.
  1. Pigments shall not exceed 10 percent of portland cement by weight.
  2. Pigments shall not exceed 5 percent of masonry cement or mortar cement by weight.
  3. Mix to match Architect's sample.
- E. Colored-Aggregate Mortar: Produce required mortar color by using colored aggregates and natural color or white cement as necessary to produce required mortar color.
  1. Mix to match Architect's sample.
- F. Grout for Unit Masonry: Comply with ASTM C 476.
  1. Use grout of type indicated or, if not otherwise indicated, of type (fine or coarse) that will comply with Table 1.15.1 in ACI 530.1/ASCE 6/TMS 602 for dimensions of grout spaces and pour height.
  2. Compressive strength shall not be less than 3000 psi at 28 days unless otherwise indicated.
  3. Provide grout with a slump of 8 to 11 inches as measured according to ASTM C 143/C 143M.
- G. Grout for Base and Bearing Plates: Comply with ASTM C 476.
  1. Products:
    - a. Embeco167, Masterbuilds.
    - b. Expandcrete, Anti-Hydro Waterproofing Company.
    - c. Approved equivalent.

## **2.16 SOURCE QUALITY CONTROL**

- A. Owner will engage a qualified independent testing agency to perform source quality-control testing indicated below:
  1. Payment for these services will be made by Owner.
  2. Retesting of materials failing to comply with specified requirements shall be done at Contractor's expense.
- B. Clay Masonry Unit Test: For each type of unit furnished, per ASTM C 67.
- C. Concrete Masonry Unit Test: For each type of unit furnished, per ASTM C 140.

### **PART 3 - EXECUTION**

#### **3.1 EXAMINATION**

- A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
  - 1. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.
  - 2. Verify that foundations are within tolerances specified.
  - 3. Verify that reinforcing dowels are properly placed.
  - 4. Verify that substrates are free of substances that impair mortar bond.
- B. Before installation, examine rough-in and built-in construction for piping systems to verify actual locations of piping connections.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

#### **3.2 INSTALLATION, GENERAL**

- A. Thickness: Build cavity and composite walls and other masonry construction to full thickness shown. Build single-wythe walls to actual widths of masonry units, using units of widths indicated.
- B. Build chases and recesses to accommodate items specified in this and other Sections.
- C. Leave openings for equipment to be installed before completing masonry. After installing equipment, complete masonry to match construction immediately adjacent to opening.
- D. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.
- E. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures. Mix units from several pallets or cubes as they are placed.
- F. Wetting of Brick: Wet brick before laying if initial rate of absorption exceeds 30 g/30 sq. in. per minute when tested according to ASTM C 67. Allow units to absorb water so they are damp but not wet at time of laying.
- G. Comply with construction tolerances in ACI 530.1/ASCE 6/TMS 602 and with the following:
  - 1. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/8 inch in 10 feet, 1/4 inch in 20 feet, or 1/2 inch maximum.
  - 2. For vertical alignment of exposed head joints, do not vary from plumb by more than 1/4 inch in 10 feet, or 1/2 inch maximum.
  - 3. For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than 1/8 inch in 10 feet, 1/4 inch in 20 feet, or 1/2 inch maximum.
  - 4. For exposed bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch, with a maximum thickness limited to 1/2 inch. Do not vary from bed-joint thickness of adjacent courses by more than 1/8 inch.
  - 5. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch. Do not vary from adjacent bed-joint and head-joint thicknesses by more than 1/8 inch.
  - 6. For faces of adjacent exposed masonry units, do not vary from flush alignment by more than 1/16 inch except due to warpage of masonry units within tolerances specified for warpage of units.

7. For exposed bed joints and head joints of stacked bond, do not vary from a straight line by more than 1/16 inch from one masonry unit to the next.
- H. No masonry work shall proceed when temperature is below 35 degrees F. or is expected to fall below 40 degrees within 48 hours, unless special cold weather provisions are made for heating the materials and protecting work as approved by the Engineer. No masonry having film of water or frost on their surfaces shall be laid in walls. No anti-freeze ingredients will be permitted in mortar.
- I. Construct intersection of load bearing block walls with control joints and tied with metal tie bar 3/16" x 1-1/4" x 24" long with 2" right angle bends each end, spaced not over 4'-0" apart vertically. Embed ends of the bar in cores filled with mortar. Rake out vertical mortar joint to 3/4" depth where walls meet. Caulk all exposed joints using backer rods full height of wall both sides.
- J. Masonry partition heights exceeding thirty six (36) times actual wall thickness shall be braced and reinforced in accordance with the New York State Building Code.
- K. Provide vertical rebar reinforcement and fill block cores solid with grout adjacent to all masonry wall openings. Weld vertical reinforcing to steel lintels and continue vertical reinforcement full height of wall.
- L. Construct intersection of non-bearing block walls to other walls with adjustable wire ties placed across joint between the walls in alternate courses (16" maximum vertical spacing). Rake out vertical mortar joint to 3/4" depth where walls meet. Caulk all exposed joints using backer rods full height of wall both sides.
- M. Where fresh masonry joins masonry that is partially set or totally set, clean exposed surface of set masonry and wet to obtain best possible bond with new work. Remove loose brick and mortar. If it is necessary to "stop off" a horizontal run of masonry, this shall be done by raking back one-half (1/2) block length in each course. Toothing will not be permitted.
- N. Cover top of all masonry walls unfinished with tarpaulins or suitable weather-resistant covering securely anchored in place to prevent entrance of water during period of construction.
- O. Provide masonry bond at corners of walls. Construct walls simultaneously so as to bond wall.
- P. Keep masonry of any type, including projection of mortar squeezed out of back of joints, 1/2" or more away from column webs or flanges of beams where masonry runs past.
- Q. Apply grout to base and bearing plates according to manufacturer's directions.
- R. Concrete block shall be laid in running bond and brick coursing to match existing. Provide clipped false headers when required to match existing brick bond.
- S. Construct low-lift masonry by placing reinforcement, laying masonry units and pouring grout as the work progresses. Grout and reinforce all horizontal concrete bond beams where shown on plans. Use knockout block for intermediate bond beams to allow vertical reinforcement to run continuous through the beam and provide 24" long reinforcement sleeves (greased) at control joints.
- T. Place vertical reinforcing bars and supports prior to laying masonry units. Extend above elevation of maximum pour height as required to allow for splicing. Minimum length of splices for reinforcing bars shall be as required by ACI 530.1/ASCE 6/TMS 602. Provide hook bars into concrete footings or foundation walls or drill and epoxy grout as approved by Engineer with 8" minimum embedment.
- U. Place grout and consolidate immediately by rodding or puddling; do not use trowels.
- V. Non-cavity Exterior composite walls shall have insulated block cores where indicated except for cores which contain vertical reinforcement and concrete filled bond beam courses.

### **3.3 LAYING MASONRY WALLS**

- A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets.



Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.

- B. Bond Pattern for Exposed Masonry: Unless otherwise indicated, lay exposed masonry in running bond and/or match existing unless otherwise noted; do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.
- C. Lay concealed masonry with all units in a wythe in running bond or bonded by lapping not less than 2 inches. Bond and interlock each course of each wythe at corners. Do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.
- D. Stopping and Resuming Work: Stop work by racking back units in each course from those in course below; do not tooth. When resuming work, clean masonry surfaces that are to receive mortar, remove loose masonry units and mortar, and wet brick if required before laying fresh masonry.
- E. Built-in Work: As construction progresses, build in items specified in this and other Sections. Fill in solidly with masonry around built-in items which require anchoring or securing to masonry, including but not limited to anchor bolts and bars, loose lintels, bearing plates, structural steel, (louver, door and window frames), access door and frames, fixture supports or back-up flashings, others when indicated or directed in advance. Sleeves for piping, conduit, etc., will be provided and set by sub-contractor or contractor involved.
- F. Fill space between steel frames and masonry solidly with mortar, unless otherwise indicated.
- G. Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath, wire mesh, or plastic mesh in the joint below and rod mortar or grout into core.
- H. Fill cores in hollow concrete masonry units with grout 24 inches under bearing plates, beams, lintels, posts, and similar items, unless otherwise indicated.
- I. Build non-load-bearing interior partitions full height of story to underside of solid floor or roof structure above, unless otherwise indicated.
  - 1. Install compressible filler in joint between top of partition and underside of structure above unless noted otherwise.
  - 2. Fasten partition top anchors to structure above and build into top of partition. Grout cells of CMUs solidly around plastic tubes of anchors and push tubes down into grout to provide 1-1/2-inch clearance between end of anchor rod and end of tube. Space anchors 48 inches o.c., unless otherwise indicated.
  - 3. At fire-rated partitions, treat joint between top of partition and underside of structure above to comply with Section 078443 "Joint Firestopping."

### **3.4 MORTAR BEDDING AND JOINTING**

- A. Lay hollow brick and concrete masonry units as follows:
  - 1. With face shells fully bedded in mortar and with head joints of depth equal to bed joints.
  - 2. With webs fully bedded in mortar in all courses of piers, columns, and pilasters.
  - 3. With webs fully bedded in mortar in grouted masonry, including starting course on footings.
  - 4. With entire units, including areas under cells, fully bedded in mortar at starting course on footings where cells are not grouted.
- B. Lay solid masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.
- C. Set stone or cast-stone trim units in full bed of mortar with full vertical joints. Fill dowel, anchor, and similar holes.
  - 1. Clean soiled surfaces with fiber brush and soap powder and rinse thoroughly with clear water.

2. Allow cleaned surfaces to dry before setting for impervious stones.
3. Wet joint surfaces thoroughly before applying mortar for adsorptive stones.
- D. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness, unless otherwise indicated.
  1. For glazed masonry units, use a nonmetallic jointer 3/4 inch or more in width.
- E. Cut joints flush for masonry walls to receive plaster or other direct-applied finishes (other than paint), unless otherwise indicated.

### **3.5 COMPOSITE MASONRY**

- A. Bond wythes of composite masonry together using one of the following methods:
  1. Individual Metal Ties: Provide ties as shown installed in horizontal joints, but not less than one metal tie for 2.67 sq. ft. of wall area spaced not to exceed 16 inches o.c. horizontally and 16 inches o.c. vertically. Stagger ties in alternate courses. Provide additional ties within 12 inches of openings and space not more than 16 inches apart around perimeter of openings. At intersecting and abutting walls, provide ties at no more than 16 inches o.c. vertically.
    - a. Where bed joints of wythes do not align, use adjustable (two-piece) type ties.
  2. Masonry Joint Reinforcement: Installed in horizontal mortar joints.
    - a. Where bed joints of both wythes align, use tab-type reinforcement.
    - b. Where bed joints of wythes do not align, use adjustable (two-piece) type reinforcement with continuous horizontal wire in facing wythe attached to ties.
  3. Header Bonding: Provide masonry unit headers extending not less than 3 inches into each wythe. Space headers not over 8 inches clear horizontally and 16 inches clear vertically.
- B. Bond wythes of composite masonry together using bonding system indicated on Drawings.
- C. Collar Joints: Solidly fill collar joints by parging face of first wythe that is laid and shoving units of other wythe into place.
- D. Corners: Provide interlocking masonry unit bond in each wythe and course at corners, unless otherwise indicated.
  1. Provide continuity with masonry joint reinforcement at corners by using prefabricated L-shaped units as well as masonry bonding.
- E. Intersecting and Abutting Walls: Unless vertical expansion or control joints are shown at juncture, bond walls together as follows:
  1. Provide individual metal ties not more than 16 inches o.c., unless indicated otherwise.

### **3.6 CAVITY WALLS**

- A. Bond wythes of cavity walls together using one of the following methods:
  1. Individual Metal Ties: Provide ties as shown installed in horizontal joints, but not less than one metal tie for 2.67 sq. ft. of wall area spaced not to exceed 16 inches o.c. horizontally and 16 inches o.c. vertically. Stagger ties in alternate courses. Provide additional ties within 12 inches of openings and space not more than 16 inches apart around perimeter of openings. At intersecting and abutting walls, provide ties at no more than 16 inches o.c. vertically.
    - a. Where bed joints of wythes do not align, use adjustable (two-piece) type ties.
    - b. Where one wythe is of clay masonry and the other of concrete masonry, use adjustable (two-piece) type ties to allow for differential movement regardless of whether bed joints align.
  2. Masonry Joint Reinforcement: Installed in horizontal mortar joints.

- a. Where bed joints of both wythes align, use tab-type reinforcement.
  - b. Where bed joints of wythes do not align, use adjustable (two-piece) type reinforcement with continuous horizontal wire in facing wythe attached to ties.
  - c. Where one wythe is of clay masonry and the other of concrete masonry, use adjustable (two-piece) type reinforcement with continuous horizontal wire in facing wythe attached to ties to allow for differential movement regardless of whether bed joints align.
3. Header Bonding: Provide masonry unit headers extending not less than 3 inches into each wythe. Space headers not over 8 inches clear horizontally and 16 inches clear vertically.
4. Masonry Veneer Anchors: Comply with requirements for anchoring masonry veneers.
- B. Bond wythes of cavity walls together using bonding system indicated on Drawings where applicable.
- C. Keep cavities clean of mortar droppings and other materials during construction. Bevel beds away from cavity, to minimize mortar protrusions into cavity. Do not attempt to trowel or remove mortar fins protruding into cavity.
- D. Installing Cavity-Wall Insulation: Place small dabs of adhesive, spaced approximately 12 inches o.c. both ways, on inside face of insulation boards, or attach with plastic fasteners designed for this purpose. Fit courses of insulation between wall ties and other confining obstructions in cavity, with edges butted tightly both ways. Press units firmly against inside wythe of masonry or other construction as shown.
1. Fill cracks and open gaps in insulation with crack sealer compatible with insulation and masonry.

### **3.7 ANCHORED MASONRY VENEERS**

- A. Anchor masonry veneers to wall framing, concrete, and masonry backup with masonry-veneer anchors to comply with the following requirements:
1. Fasten screw-attached and seismic (as indicated) anchors through sheathing to wall framing and to concrete and masonry backup with metal fasteners of type indicated. Use two fasteners unless anchor design only uses one fastener.
  2. Insert slip-in anchors in metal studs as sheathing is installed. Provide one anchor at each stud in each horizontal joint between sheathing boards.
  3. Embed connector sections and continuous wire in masonry joints. Provide not less than 2 inches of air space between back of masonry veneer and face of sheathing.
  4. Locate anchor sections to allow maximum vertical differential movement of ties up and down.
  5. Space anchors as indicated, but not more than 16 inches o.c. vertically and 24 inches o.c. horizontally with not less than 1 anchor for each 2.67 sq. ft. of wall area. Install additional anchors within 12 inches of openings and at intervals, not exceeding 8 inches, around perimeter.

### **3.8 MASONRY-JOINT REINFORCEMENT**

- A. General: Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch on exterior side of walls, 1/2 inch elsewhere. Lap reinforcement a minimum of 6 inches.
1. Space reinforcement not more than 16 inches o.c.
  2. Space reinforcement not more than 8 inches o.c. in foundation walls and parapet walls.
  3. Space reinforcement not more than 8 inches o.c. below finished grade and grout solid.
  4. Provide reinforcement not more than 8 inches above and below wall openings and extending 24 inches beyond openings.

5. Lap splices 6" minimum.
  - a. Reinforcement above is in addition to continuous reinforcement.
- B. Interrupt joint reinforcement at control and expansion joints, unless otherwise indicated.
- C. Provide continuity at wall intersections by using prefabricated T-shaped units unless rigid anchors are indicated.
- D. Provide continuity at corners by using prefabricated L-shaped units.
- E. Cut and bend reinforcing units as directed by manufacturer for continuity at corners, returns, offsets, column fireproofing, pipe enclosures, and other special conditions.

### **3.9 ANCHORING MASONRY TO STRUCTURAL STEEL AND CONCRETE**

- A. Anchor masonry to structural members where masonry abuts or faces structural members to comply with the following:
  1. Provide an open space not less than 1 inch in width between masonry and structural member, unless otherwise indicated. Keep open space free of mortar and other rigid materials.
  2. Anchor masonry to structural members with anchors embedded in masonry joints and attached to structure.
  3. Space anchors as indicated, but not more than 24 inches o.c. vertically and 36 inches o.c. horizontally

### **3.10 CONTROL AND EXPANSION JOINTS**

- A. General: Install control and expansion joint materials in unit masonry as masonry progresses. Do not allow materials to span control and expansion joints without provision to allow for in-plane wall or partition movement.
- B. Form control joints in concrete masonry using one of the following methods:
  1. Install preformed control-joint gaskets designed to fit standard sash block.
  2. Install temporary foam-plastic filler in head joints and remove filler when unit masonry is complete for application of sealant.
  3. Control and expansion joints shall be installed as recommended in NCMA TEK 10-02B and as follows:
    - a. Maximum joint spacing shall be the lesser of 1-1/2 times the wall height or 25 feet.
    - b. At changes in wall height,
    - c. At changes in wall thickness, such as at pipe and duct chases and pilasters,
    - d. At (above) movement joints in foundations and floors,
    - e. At (below) movement joints in roofs and floors that bear on a wall,
    - f. Near one or both sides of door and window openings. Place at one side of an opening less than 6 ft wide and at both jambs of openings over 6 ft wide. Control joints can be away from the opening if adequate tensile reinforcement is placed above, below and beside wall openings as approved by Engineer.
    - g. Adjacent to corners of walls or intersections within a distance equal to half the control joint spacing.
- C. Form expansion joints in brick made from clay or shale as follows:
  1. Build in compressible joint fillers where indicated.
  2. Form open joint full depth of brick wythe and of width indicated, but not less than 1/2 inch for installation of sealant and backer rod specified in Division 7 Section "Joint Sealants". Cases not covered by Division 7 shall be as follows:
    - a. Expansion Joint Sealants:

- 1) Comply with ASTM C 920, Grade NS, Use M
  - 2) Class 50 minimum extensibility
  - 3) Consult sealant manufacturer's literature for guidance regarding use of primer and backing materials
3. Vertical Expansion Joints in Brick Veneer:
  - a. For brickwork without openings, space no more than 25 ft.
  - b. For brickwork with multiple openings, provide symmetrical placement of expansion joints and reduced spacing of no more than 20 ft on center.
  - c. When spacing between vertical expansion joints in parapets is more than 15 ft, place additional expansion joints halfway between full-height expansion joints.
  - d. Place additional expansion joints extended to top of brickwork as follows:
    - 1) At or near corners
    - 2) At offsets and setbacks
    - 3) At wall intersections
    - 4) At changes in wall height
    - 5) Where wall backing system changes
    - 6) Where support of brick veneer changes
    - 7) Where wall function or climatic exposure changes
  - e. Extend all joints to top of brickwork, including parapets.
- D. Provide horizontal, pressure-relieving joints by inserting a compressible filler of width required for installing sealant and backer rod specified in Division 7 Section "Joint Sealants," but not less than 3/8 inch and meeting the requirements of 3.11.C.2.a, or as indicated.
  1. Locate horizontal, pressure-relieving joints beneath shelf angles supporting masonry.
  2. For brick infill, place between the top of brickwork and structural frame
  3. Brickwork Without Shelf Angles:
    - a. Place expansion joints around elements that are rigidly attached to the frame and project into the veneer, such as windows and door frames.
    - b. Install metal caps or copings that allow independent vertical movement of wythes.
    - c. Install jamb receptors between brick and window frames.
    - d. Install adjustable anchors or ties.

### **3.11 LINTELS**

- A. Install steel lintels where indicated.
- B. Provide masonry lintels where shown and where openings of more than 12 inches for brick-size units and 24 inches for block-size units are shown without structural steel or other supporting lintels.
- C. Provide minimum bearing of 8 inches at each jamb, unless otherwise indicated.
- D. Set steel lintels in beds of mortar or on bearing plates when noted, keep mortar back 1/4" from face of wall. Caulk exposed lintel joints. Fill solidly with grout spaces around jambs and heads of metal door bucks and hollow metal window frames. Build-in anchors and clips for aluminum windows where indicated and/or required.
- E. Provide minimum bearing of 8 inches (200 mm) at each jamb unless otherwise indicated.

### **3.12 FLASHING, WEEP HOLES, AND CAVITY VENTS**

- A. General: Install embedded flashing and weep holes in masonry at shelf angles, lintels, ledges, other obstructions to downward flow of water in wall, and where indicated. Install vents at shelf angles, ledges, and other obstructions to upward flow of air in cavities, and where indicated.
- B. Install flashing as follows, unless otherwise indicated:
  - 1. Prepare masonry surfaces so they are smooth and free from projections that could puncture flashing. Where flashing is within mortar joint, place through-wall flashing on sloping bed of mortar and cover with mortar. Before covering with mortar, seal penetrations in flashing with adhesive, sealant, or tape as recommended by flashing manufacturer.
  - 2. At multiwythe masonry walls, including cavity walls, extend flashing through outer wythe, turned up a minimum of 8 inches, and through inner wythe to within 1/2 inch of the interior face of wall in exposed masonry. Where interior face of wall is to receive furring or framing, carry flashing completely through inner wythe and turn flashing up approximately 2 inches on interior face.
  - 3. At multiwythe masonry walls, including cavity walls, extend flashing through outer wythe, turned up a minimum of 8 inches, and 1-1/2 inches into the inner wythe. Form 1/4-inch hook in edge of flashing embedded in inner wythe.
  - 4. At masonry-veneer walls, extend flashing through veneer, across air space behind veneer, and up face of sheathing at least 8 inches; with upper edge tucked under building paper or building wrap, lapping at least 4 inches.
  - 5. At lintels and shelf angles, extend flashing a minimum of 6 inches into masonry at each end. At heads and sills, extend flashing 6 inches at ends and turn up not less than 2 inches to form end dams.
  - 6. Interlock end joints of ribbed sheet metal flashing by overlapping ribs not less than 1-1/2 inches or as recommended by flashing manufacturer, and seal lap with elastomeric sealant complying with requirements in Division 7 Section "Joint Sealants" for application indicated.
  - 7. Install metal drip edges and sealant stops with ribbed sheet metal flashing by interlocking hemmed edges to form hooked seam. Seal seam with elastomeric sealant complying with requirements in Division 7 Section "Joint Sealants" for application indicated.
  - 8. Install metal drip edges beneath flexible flashing at exterior face of wall. Stop flexible flashing 1/2 inch back from outside face of wall and adhere flexible flashing to top of metal drip edge.
  - 9. Install metal flashing termination beneath flexible flashing at exterior face of wall. Stop flexible flashing 1/2 inch back from outside face of wall and adhere flexible flashing to top of metal flashing termination.
  - 10. Cut flexible flashing off flush with face of wall after masonry wall construction is completed.
- C. Install single-wythe CMU flashing system in bed joints of CMU walls where indicated to comply with manufacturer's written instructions. Install CMU cell pans with upturned edges located below face shells and webs of CMUs above and with weep spouts aligned with face of wall. Install CMU web covers so that they cover upturned edges of CMU cell pans at CMU webs and extend from face shell to face shell.
- D. Install reglets and nailers for flashing and other related construction where they are shown to be built into masonry.
- E. Install weep holes in head joints in exterior wythes of first course of masonry immediately above embedded flashing and as follows:
  - 1. Use specified weep/vent products to form weep holes.

- F. Place pea gravel in cavities as soon as practical to a height equal to height of first course above top of flashing, but not less than 2 inches, to maintain drainage.
  - 1. Fill cavities full height by placing pea gravel in cavities as masonry is laid so that at any point masonry does not extend more than 24 inches above top of pea gravel.
- G. Install vents in head joints in exterior wythes at 24 inches o.c. unless otherwise indicated. Use specified weep/vent products to form vents.
  - 1. Close cavities off vertically and horizontally with blocking in manner indicated. Install through-wall flashing and weep holes above horizontal blocking.

### **3.13 REINFORCED UNIT MASONRY INSTALLATION**

- A. Temporary Formwork and Shores: Construct formwork and shores as needed to support reinforced masonry elements during construction.
  - 1. Construct formwork to provide shape, line, and dimensions of completed masonry as indicated. Make forms sufficiently tight to prevent leakage of mortar and grout. Brace, tie, and support forms to maintain position and shape during construction and curing of reinforced masonry.
  - 2. Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and other temporary loads that may be placed on them during construction.
- B. Placing Reinforcement: Comply with requirements in ACI 530.1/ASCE 6/TMS 602.
- C. Grouting: Do not place grout until entire height of masonry to be grouted has attained enough strength to resist grout pressure.
  - 1. Comply with requirements in ACI 530.1/ASCE 6/TMS 602 for cleanouts and for grout placement, including minimum grout space and maximum pour height.
  - 2. Limit height of vertical grout pours to not more than 60 inches, unless lesser value required by item 1.

### **3.14 FIELD QUALITY CONTROL**

- A. Inspectors: Owner will engage qualified independent inspectors to perform inspections and prepare reports. Allow inspectors access to scaffolding and work areas, as needed to perform inspections.
  - 1. Place grout only after inspectors have verified compliance of grout spaces and grades, sizes, and locations of reinforcement.
- B. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections indicated below and prepare test reports:
  - 1. Payment for these services will be made by Owner.
  - 2. Retesting of materials failing to comply with specified requirements shall be done at Contractor's expense.
- C. Testing Frequency: One set of tests for each 5000 sq. ft. of wall area or portion thereof.
- D. Clay Masonry Unit Test: For each type of unit provided, per ASTM C 67.
- E. Concrete Masonry Unit Test: For each type of unit provided, per ASTM C 140.

### **3.15 PARGING**

- A. Parge exterior faces of below-grade masonry walls, where indicated, in 2 uniform coats to a total thickness of 3/4 inch. Dampen wall before applying first coat and scarify first coat to ensure full bond to subsequent coat.
- B. Use a steel-trowel finish to produce a smooth, flat, dense surface with a maximum surface variation of 1/8 inch per foot. Form a wash at top of parging and a cove at bottom.
- C. Damp-cure parging for at least 24 hours and protect parging until cured.

**3.16 REPAIRING, POINTING, AND CLEANING**

- A. Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Install new units to match adjoining units; install in fresh mortar, pointed to eliminate evidence of replacement.
- B. Pointing: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for sealant application, where indicated.
- C. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.
- D. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:
  - 1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
  - 2. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.
  - 3. Protect adjacent stone and non-masonry surfaces from contact with cleaner by covering them with liquid strippable masking agent or polyethylene film and waterproof masking tape.
  - 4. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing surfaces thoroughly with clear water.
  - 5. Clean brick by bucket-and-brush hand-cleaning method described in BIA Technical Notes 20 with job-mixed muriatic acid solution as recommended.
  - 6. Clean masonry with a proprietary acidic cleaner applied according to manufacturer's written instructions.
  - 7. Clean concrete masonry by cleaning method indicated in NCMA TEK 8-2A applicable to type of stain on exposed surfaces.

**3.17 MASONRY WASTE DISPOSAL**

- A. Salvageable Materials: Unless otherwise indicated, excess masonry materials are Contractor's property. At completion of unit masonry work, remove from Project site.
- B. Waste Disposal as Fill Material: Dispose of clean masonry waste, including excess or soil-contaminated sand, waste mortar, and broken masonry units, by crushing and mixing with fill material as fill is placed.
  - 1. Crush masonry waste to less than 4 inches in each dimension.
  - 2. Mix masonry waste with at least two parts of specified fill material for each part of masonry waste. Fill material is specified in Division 2 Section "Earthwork."
  - 3. Do not dispose of masonry waste as fill within 18 inches of finished grade.
- C. Excess Masonry Waste: Remove excess clean masonry waste that cannot be used as fill, as described above, and other masonry waste, and legally dispose of off Owner's property.

**END OF SECTION**



## SECTION 042201 –CAST STONE CONCRETE MASONRY VENEER

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes Architectural cast stone concrete masonry.
- B. Related Sections include the following:
  - 1. Section 042000 –Unit Masonry Assemblies
  - 2. Section 047201 – Custom Cast Stone.
  - 3. Section 079200– Joint Sealants.

#### 1.3 DEFINITIONS

- A. Concrete Masonry Veneer Units: An architectural cast stone concrete masonry veneer units manufactured to copy fine grain texture and color of natural cut stone. Meets ASTM C 90 requirements.
- B. Dry Cast Concrete Products: Manufactured from zero-slump concrete.

#### 1.4 REFERENCES

- A. ASTM A 615/A 615M - Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
- B. ASTM A767/A767M - Zinc-Coated (Galvanized) Steel Bars for Concrete Reinforcement.
- C. ASTM C 33 - Concrete Aggregates.
- D. ASTM C 150 - Portland Cement.
- E. ASTM C 270 - Mortar for Unit Masonry.
- F. ASTM C 426 - Linear Drying Shrinkage of Concrete Masonry Units.
- G. ASTM C 494 - Chemical Admixtures for Concrete.
- H. ASTM C 666 - Resistance of Concrete to Rapid Freezing and Thawing.
- I. ASTM C 979 - Pigments for Integrally Colored Concrete.
- J. ASTM C 1194 - Compressive Strength of Architectural Cast Stone.
- K. ASTM C 1195 - Absorption of Architectural Cast Stone.

- L. ASTM C 1364 - Architectural Cast Stone.
- M. Cast Stone Institute Technical Manual (Current Edition).
- O. ACI 530 “Building Code Requirements for Masonry Structures”

## 1.5 SUBMITTALS

- A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for cast stone units.
- B. Shop Drawings: Submit manufacturer's shop drawings, including profiles, cross sections, modular unit lengths, reinforcement (if required), exposed faces, anchors and anchoring method recommendations (if required), and annotation of cast stone types and location.
- C. Samples: Submit pieces of manufacturer's cast stone units that represent general range of texture and color proposed to be furnished for project.
- D. Qualification Data: For manufacturer.
  - 1. Include copies of material test reports for completed projects, indicating compliance of cast stone with ASTM C 1364.
- E. Quality-Control Plan: Manufacturer's written quality-control plan that includes all elements of the Cast Stone Institute's "Quality Control Procedures Required for Plant Inspection."
  - 1. Provide copies of documentation showing compliance with quality-control plan as requested by Architect.
- F. Material Test Reports: For each mix required to produce cast stone, based on testing according to ASTM C 1364, including test for resistance to freezing and thawing.
  - 1. Provide test reports based on testing within previous two years.

## 1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications:
  - 1. Sufficient plant facilities to provide quality, shapes, quantities, and sizes of cast stone units required without delaying progress of the Work.
  - 2. Minimum of 10 years experience in producing masonry units or cast stone.
  - 3. Fabricating plant shall be certified by the Architectural Precast Association (APA), Cast Stone Institute, or equivalent certification program.
  - 4. Manufacturer shall have an internal Quality Assurance Testing Program with certified laboratory technician(s).
- B. Mock-Ups: Provide fullsize cast stone units for use in construction of mock-ups.. approved mock-ups shall become the standard for appearance and workmanship for project.
  - 1. Mock-ups shall remain as part of the completed Work.

- C. Testing Agency Qualifications: An independent testing agency qualified according to ASTM E 329 for testing indicated, as documented according to ASTM E 548.
- D. Source Limitations for Cast Stone: Obtain cast stone units through one source from a single manufacturer.
- E. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color, from one manufacturer for each cementitious component and from one source or producer for each aggregate.

#### 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Coordinate delivery of cast stone with unit masonry work to minimize the need for on-site storage and to avoid delaying the Work.
- B. Pack, handle, and ship cast stone units in suitable packs or pallets.
  - 1. Lift with wide-belt slings; do not use wire rope or ropes that might cause staining. Move cast stone units, if required, using dollies with wood supports.
  - 2. Store cast stone units on wood skids or pallets with nonstaining, waterproof covers. Arrange to distribute weight evenly and to prevent damage to units. Ventilate under covers to prevent condensation.
- C. Store installation materials on elevated platforms, under cover, and in a dry location.
- D. Store mortar aggregates where grading and other required characteristics can be maintained and contamination can be avoided.

#### 1.8 PROJECT CONDITIONS

- A. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Comply with cold-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.
  - 1. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F and above and will remain so until cast stone has dried, but not less than 7 days after completing cleaning.
- B. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified
  - a. RockCast Quality Cast Stone from Reading Rock, Inc..
  - b. Arriscraft International.

## 2.2 ARCHITECTURAL CAST STONE MASONRY VENEER UNITS

- A. Subject to compliance with requirements, provide RockCast Architectural Masonry Veneer units.
- B. Compliance: ASTM C 90
- C. Casting Method: Machine.
- D. Texture: Smooth.
- E. Color: Match Architect's sample
- F. Units: As indicated on drawings.
- G. Test Results:
  1. Compressive Strength, ASTM C 140: 4,000 - 6,000 psi at 28 days.
  2. Absorption, ASTM C 140: Less than 6 percent at 28 days.
  3. Linear Shrinkage, ASTM C 426: Maximum .065 percent.
  4. Density, ASTM C 140: Greater than 120 pounds per cubic foot.
  5. Freeze-Thaw, ASTM C 666: Less than 5 percent cumulative mass loss after 300 cycles.
- H. Curing: Cure in enclosed chamber at 95 percent relative humidity and 95 to 120 degrees F for 12 to 18 hours and yard cure for 350 degree-days.

## 2.3 ARCHITECTURAL CAST STONE CONCRETE MASONRY VENEER UNITS MATERIALS

- A. Portland Cement: ASTM C 150, Type I or III. White and/or gray as required to match specified color.
- B. Coarse Aggregates: ASTM C 33, except for gradation. Granite, quartz, or limestone.
- C. Fine Aggregates: ASTM C 33, except for gradation. Manufactured or natural sands.
- D. Pigments: ASTM C 979, except do not use carbon black pigments. Inorganic iron oxide pigments.
- E. Water Reducing, Retarding, and Accelerating Admixtures: ASTM C 494.
- F. Other admixtures: integral water repellents and other chemicals, for which no ASTM Standard exists, shall be previously established as suitable for use in concrete by proven field performance or through laboratory testing.
- G. Water: Potable.

## 2.5 TEXTURE AND COLOR

- A. General: Match texture and color of full-size sample on file with Architect.
- B. Texture of Surfaces Exposed to View:
  - 1. Fine-grained texture similar to natural stone.
  - 2. Approximately equal to approved sample when viewed in direct daylight at 10 feet.
- C. Surface Air Voids:
  - 1. Size: Maximum 1/32 inch.
  - 2. Density: Less than 3 occurrences per any 1 square inch.
  - 3. Viewing Conditions: Not obvious under direct daylight at 10 feet.
- D. Finish:
  - 1. Minor chipping resulting from shipping and delivery shall not be grounds for rejection of units.
  - 2. Minor chips shall not be obvious under direct daylight at 20 feet, as determined by Architect.
  - 3. The occurrence of crazing or efflorescence shall not constitute a cause for rejection.
- E. Color Variation:
  - 1. Viewing Conditions: Compare in direct daylight at 10 feet, between units of similar age, subjected to similar weathering conditions.

## 2.6 MORTAR

- A. Mortar: ASTM C 270, Type N.
- B. Mortar Materials: As specified in Section 04200.

## 2.7 ACCESSORIES

- A. Anchors: Non-corrosive type, sized for conditions. Hot-dip galvanized steel.
- B. Sealant: As specified in Section 07920.
- C. Cleaner: Prosoco Sure Klean Custom Masonry Cleaner, Prosoco Sure Klean 600 Detergent, or Prosoco Sure Klean Vana Trol.

## 2.8 FABRICATION

- A. Shapes: As indicated on drawings.

## 2.9 TOLERANCES

- A. General: Manufacture cast stone concrete masonry veneer units within tolerances in accordance with ASTM C 90, unless otherwise specified.

- B. Length, height, width: Do not deviate by more than plus or minus 1/8 inch from approved dimensions. These requirements do not apply to split faced units.

## 2.10 PRODUCTION QUALITY CONTROL

- A. Mix Designs: Test new and existing mix designs for applicable compressive strength and absorption compliance before manufacturing cast stone concrete masonry veneer units.
- B. Plant Production Testing: Tests to be conducted by certified laboratory testing technicians. Test from specimens selected at random from plant production in accordance with ASTM C 140.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine construction to receive cast stone concrete masonry veneer units. Notify Architect if construction is not acceptable. Do not begin installation until unacceptable conditions have been corrected.
- B. Examine cast stone concrete masonry veneer units before installation. Do not install unacceptable units.
  - 1. Waste: For various reasons due to shipping, handling or the manufacturing process, a small amount of Architectural Masonry Veneer units may have blemishes or chips and should be used for field cutting for maximum material utilization. When ordering material, please allow for waste (approximately 2 to 3%) and saw cutting in your estimate.
  - 2. Architectural Masonry Veneer units have an unfinished back, one finished face, and approximately 40 to 60% of the units have one smooth finished end.

### 3.2 SETTING CAST STONE IN MORTAR

- A. Install cast stone units to comply with requirements in Division 4 Section "Unit Masonry Assemblies."
- B. Set cast stone as indicated on Drawings. Set units accurately in locations indicated with edges and faces aligned according to established relationships and indicated tolerances.
  - 1. Install anchors, supports, fasteners, and other attachments indicated or necessary to secure units in place.
- C. Wet joint surfaces thoroughly before applying mortar or setting in mortar.
- D. Set units in full bed of mortar with full head joints, unless otherwise indicated.
  - 1. If not indicated, set units with joints 3/8 to 1/2 inch wide.
  - 2. Build anchors and ties into mortar joints as units are set.
  - 3. Fill dowel holes and anchor slots with mortar.
  - 4. Fill collar joints solid as units are set.
  - 5. Build concealed flashing into mortar joints as units are set.

6. Keep head joints in coping and other units with exposed horizontal surfaces open to receive sealant.
7. Keep joints at shelf angles open to receive sealant.
- E. Rake out joints for pointing with mortar to depths of not less than 3/4 inch. Rake joints to uniform depths with square bottoms and clean sides. Scrub faces of units to remove excess mortar as joints are raked.
- F. Point mortar joints by placing and compacting mortar in layers not greater than 3/8 inch. Compact each layer thoroughly and allow it to become thumbprint hard before applying next layer.
- G. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness, unless otherwise indicated.
- H. Provide expansion, control, and pressure-relieving joints of widths and at locations indicated. Keep joints free of mortar and other rigid materials.
  1. Form open joint of width indicated, but not less than 3/8 inch.
- I. Prepare joints indicated to receive sealant and apply sealant of type and at locations indicated to comply with applicable requirements in Division 7 Section "Joint Sealants."
  1. Prime cast stone surfaces to receive sealant and install compressible backer rod in joints before applying sealant, unless otherwise indicated.

### 3.3 INSTALLATION

- A. Install units in conjunction with masonry, as specified in Section 04810.
- B. Pull units from multiple cubes during installation to minimize variation in color and help with natural blending.
- C. Cut units using motor-driven masonry saws. Finished ends should be turned to the visible side and the saw cut turned to the inside of the mortar joint to hide exposed aggregates and saw marks.
- D. Do not use pry bars or other equipment in a manner that could damage units.
- E. Fill dowel holes and anchor slots completely with mortar or non-shrink grout.
- F. Use Type N mortar (ASTM C 270), unless specified otherwise.
- G. Per ACI 530.1, it is not necessary, nor recommended, to wet the units prior to installation.
- H. Set units in full bed of mortar, unless otherwise indicated on the drawings.
- I. Fill vertical joints with mortar.
- J. Make joints 3/8 inch, unless otherwise indicated on the drawings.
- K. Tuck point mortar joints to slight concave profile (unless specified otherwise).
- L. Remove excess mortar immediately.
- M. Remove mortar fins and smears before tooling joints.
- N. Cover wainscot for protection and bond separation with plastic, felt paper or other approved

products.

O. Cover freshly installed masonry products as required to assist with the curing process.

P. Sealant Joints:

1. As specified in Section 07920.
2. Prime ends of units, insert properly sized backing rod, and install sealant.
3. Provide sealant joints at following locations:
  - a. Joints at relieving angles.
  - b. Control and expansion joints.
  - c. As indicated on the drawings.

### 3.4 INSTALLATION TOLERANCES

- A. Variation from Plumb: Do not exceed 1/8 inch in 5 feet, 1/4 inch in 20 feet
- B. Variation from Level: Do not exceed 1/8 inch in 5 feet, 1/4 inch in 20 feet, or 3/8 inch maximum.
- C. Variation in Joint Width: Do not vary joint thickness more than 1/8 inch or 1/4 of nominal joint width, whichever is greater.
- D. Variation in Plane between Adjacent Surfaces (Lipping): Do not vary from flush alignment with adjacent units or adjacent surfaces indicated to be flush with units by more than 1/8 inch

### 3.5 ADJUSTING AND CLEANING

- A. Remove and replace stained and otherwise damaged units and units not matching approved Samples. Cast stone may be repaired if methods and results are approved by Architect.
- B. Replace units in a manner that results in cast stone matching approved Samples, complying with other requirements, and showing no evidence of replacement.
- C. In-Progress Cleaning: Clean cast stone as work progresses.
  1. Remove mortar fins and smears before tooling joints.
  2. Remove excess sealant immediately, including spills, smears, and spatter.
- D. Final Cleaning: After mortar is thoroughly set and cured, clean exposed cast stone as follows:
  1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
  2. Test cleaning methods on sample; leave one sample uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of cast stone.
  3. Protect adjacent surfaces from contact with cleaner by covering them with liquid strippable masking agent or polyethylene film and waterproof masking tape.



4. Wet surfaces with water before applying cleaners; remove cleaners promptly by rinsing thoroughly with clear water.
5. Clean cast stone by bucket-and-brush hand-cleaning method described in BIA Technical Notes No. 20.
6. Clean cast stone with proprietary acidic cleaner applied according to manufacturer's written instructions.

END OF SECTION 04220



**SECTION 042900 - ENGINEERED UNIT MASONRY**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Concrete block (CMUs) for structural masonry walls
- B. Mortar and grout.
- C. Reinforcement and anchorage.
- D. Lintels.
- E. Accessories.

**1.02 RELATED REQUIREMENTS**

- A. Section 032000 - Concrete Reinforcing: Reinforcing steel for grouted masonry.
- B. Section 055000 - Metal Fabrications: Loose steel lintels.
- C.

**1.03 REFERENCE STANDARDS**

- A. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2023.
- B. ASTM A641/A641M - Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire; 2019.
- C. ASTM A951/A951M - Standard Specification for Steel Wire for Masonry Joint Reinforcement; 2022.
- D. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete; 2022.
- E. ASTM C55 - Standard Specification for Concrete Building Brick; 2023.
- F. ASTM C90 - Standard Specification for Loadbearing Concrete Masonry Units; 2023.
- G. ASTM C91/C91M - Standard Specification for Masonry Cement; 2023.
- H. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete; 2024.
- I. ASTM C140/C140M - Standard Test Methods for Sampling and Testing Concrete Masonry Units and Related Units; 2023a.
- J. ASTM C144 - Standard Specification for Aggregate for Masonry Mortar; 2018.
- K. ASTM C150/C150M - Standard Specification for Portland Cement; 2022.
- L. ASTM C207 - Standard Specification for Hydrated Lime for Masonry Purposes; 2018.
- M. ASTM C270 - Standard Specification for Mortar for Unit Masonry; 2019a, with Editorial Revision.
- N. ASTM C404 - Standard Specification for Aggregates for Masonry Grout; 2024.
- O. ASTM C476 - Standard Specification for Grout for Masonry; 2023.
- P. ASTM C780 - Standard Test Methods for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry; 2023.
- Q. ASTM C1019 - Standard Test Method for Sampling and Testing Grout for Masonry; 2020.
- R. ASTM C1072 - Standard Test Methods for Measurement of Masonry Flexural Bond Strength; 2022.
- S. ASTM C1314 - Standard Test Method for Compressive Strength of Masonry Prisms; 2023b.
- T. ASTM D226/D226M - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing; 2017 (Reapproved 2023).
- U. ASTM E518/E518M - Standard Test Methods for Flexural Bond Strength of Masonry; 2022.

- V. AWS B2.1/B2.1M - Specification for Welding Procedure and Performance Qualification; 2021.
- W. AWS D1.4/D1.4M - Structural Welding Code - Steel Reinforcing Bars; 2018, with Amendment (2020).
- X. TMS 402/602 - Building Code Requirements and Specification for Masonry Structures; 2022, with Errata (2024).

#### **1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Preinstallation Meeting: Convene one week before starting work of this section.

#### **1.05 SUBMITTALS**

- A. See Section 013000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data for masonry units, fabricated wire reinforcement, and mortar and grout.
- C. Shop Drawings: Indicate sizes, profiles, bar sizes, spacings, reinforcement quantities, bending and cutting schedules, reinforcement supporting and spacing devices, and accessories.
- D. Welders' Qualification Statement: Welders' certificates in accordance with AWS B2.1/B2.1M and dated no more than 12 months before start of scheduled welding work.
- E. Design Data: Indicate required mortar strength, unit assembly strength in each plane, and supporting test data.
- F. Material Certificates:
  - 1. Certify that masonry units meet or exceed specified requirements.
    - a. Include data on material properties
    - b. For masonry units used in structural masonry, include data and calculations establishing average net-area compressive strength of units.
  - 2. Integral water repellant used in CMUs.
  - 3. Cementitious materials. Include name of manufacturer, brand name, and type.
  - 4. Mortar admixtures.
  - 5. Preblended, dry mortar mixes. Include description of type and proportions of ingredients.
  - 6. Grout mixes. Include description of type and proportions of ingredients.
  - 7. Reinforcing bars.
  - 8. Joint reinforcement.
  - 9. Anchors, ties, and metal accessories.
- G. Mix Designs: For each type of mortar and grout. Include description of type and proportions of ingredients.
  - 1. Include test reports for mortar mixes required to comply with property specification. Test in accordance with ASTM C109/C109M for compressive strength, ASTM C1506 for water retention, and ASTM C91/C91M for air content.
  - 2. Include test reports, in accordance with ASTM C1019, for grout mixes required to comply with compressive strength requirement.
- H. Statement of Compressive Strength of Masonry: For each combination of masonry unit type and mortar type, provide statement of average net-area compressive strength of masonry units, mortar type, and resulting net-area compressive strength of masonry determined in accordance with TMS 602/ACI 530.1/ASCE 6.
- I. Cold-Weather and Hot-Weather Procedures: Detailed description of methods, materials, and equipment to be used to comply with requirements.
- J. Qualification Data: For testing agency.

#### **1.06 QUALITY ASSURANCE**

- A. Testing Agency Qualifications: Qualified in accordance with ASTM C1093 for testing indicated.

- B. Comply with provisions of TMS 402/602, except where exceeded by requirements of Contract Documents.
- C. Welder Qualifications: Welding processes and welding operators qualified in accordance with AWS D1.4/D1.4M and no more than 12 months before start of scheduled welding work.

#### **1.07 PRECONSTRUCTION TESTING**

- A. Testing will be conducted by an independent test agency, in accordance with provisions of Section 014000 - Quality Requirements.
- B. Concrete Masonry: Test each type, class, and grade of concrete masonry unit in accordance with ASTM C140/C140M for compliance with requirements of this specification.
- C. Mortar Mixes: Test mortars prebatched by weight in accordance with ASTM C780 recommendations for preconstruction testing.
- D. Grout Mixes: Test grout batches in accordance with ASTM C1019 procedures.
- E. Compressive Strength: Where indicated, test masonry prisms in accordance with ASTM C1314.
  - 1. Prepare two sets of prisms; test one set at 7 days and the other at 28 days.
  - 2. Concrete masonry prisms: Height-to-thickness ratio of not less than 1.33 and not more than 5.0; apply correction factor per TMS 402/602 for ratio other than 2.0.
- F. Flexural Bond Strength: Where indicated, test masonry prisms in accordance with ASTM E518/E518M, with tooled joints downward.

#### **1.08 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver, handle, and store masonry units by means that will prevent mechanical damage and contamination by other materials.

#### **1.09 FIELD CONDITIONS**

- A. Protection of Masonry: During construction, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.
- B. Extend cover a minimum of 24 inches down both sides of walls, and hold cover securely in place.
- C. Do not apply uniform floor or roof loads for at least 12 hours and concentrated loads for at least three days after building masonry walls or columns.
- D. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.
  - 1. Protect base of walls from rain-splashed mud and from mortar splatter by spreading coverings on ground and over wall surface.
  - 2. Protect sills, ledges, and projections from mortar droppings.
  - 3. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.
  - 4. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt onto completed masonry.
- E. Cold and Hot Weather Requirements: Comply with requirements of TMS 402/602 or applicable building code, whichever is more stringent.
- F. Maintain materials and surrounding air temperature to minimum 40 degrees F prior to, during, and 48 hours after completion of masonry work.
- G. Maintain materials and surrounding air temperature to maximum 90 degrees F prior to, during, and 48 hours after completion of masonry work.

## **PART 2 PRODUCTS**

### **2.01 CONCRETE MASONRY UNITS**

- A. Concrete Block: Comply with referenced standards and as follows:
  - 1. Size: Standard units with nominal face dimensions of 16 by 8 inches and nominal depths as indicated on drawings for specific locations.
  - 2. Special Shapes: Provide non-standard blocks configured for corners.
    - a. Provide square-edged units for outside corners.
  - 3. Load-Bearing Units: ASTM C90, normal weight.
    - a. Both hollow and solid block, as indicated.
    - b. Unit Compressive Strength: 3250psi.

### **2.02 MORTAR AND GROUT MATERIALS**

- A. Masonry Cement: ASTM C91/C91M Type N.
- B. Portland Cement: ASTM C150/C150M, Type I.
- C. Hydrated Lime: ASTM C207, Type S.
- D. Mortar Aggregate: ASTM C144.
- E. Grout Aggregate: ASTM C404.
- F. Water: Clean and potable.
- G. Accelerating Admixture: Nonchloride type for use in cold weather.
- H. Moisture-Resistant Admixture: Water repellent compound designed to reduce capillarity.

### **2.03 REINFORCEMENT AND ANCHORAGE**

- A. Reinforcing Steel: Type specified in Section 032000; size as indicated on drawings; uncoated finish.
- B. Joint Reinforcement: Use ladder type joint reinforcement where vertical reinforcement is involved and truss type elsewhere, unless otherwise indicated.
- C. Single Wythe Joint Reinforcement: ASTM A951/A951M.
  - 1. Type: Truss or ladder.
  - 2. Material: ASTM A1064/A1064M steel wire, mill galvanized to ASTM A641/A641M Class 3.
  - 3. Minimum Size: 0.1483 inch side rods with 0.1483 inch cross rods; width as required to provide not less than 5/8 inch of mortar coverage on each exposure.
- D. Strap Anchors: Bent steel shapes configured as required for specific situations, 1-1/4 in width, 0.105 in thick, lengths as required to provide not more than 1 inch and not less than 1/2 inch of mortar coverage from masonry face, corrugated for embedment in masonry joint, hot dip galvanized to ASTM A153/A153M Class B.

### **2.04 ACCESSORIES**

- A. Preformed Control Joints: Rubber, neoprene, or pvc material. Provide with corner and tee accessories, fused joints.
- B. Joint Filler: Closed cell polyvinyl chloride; oversized 50 percent to joint width; self expanding; in maximum lengths available.
- C. Building Paper: ASTM D226/D226M, Type I ("No. 15") asphalt felt.
- D. Nailing Strips: Softwood, preservative treated for moisture resistance, dovetail shape, sized to masonry joints.
- E. Cleaning Solution: Non-acidic, not harmful to masonry work or adjacent materials.

### **2.05 MORTAR MIXES**

- A. Mortar for Unit Masonry: ASTM C270, using the Proportion Specification.
  - 1. Engineered Masonry for structural walls; Type M.

2. Masonry below grade and in contact with earth; Type M.
3. Exterior, loadbearing masonry; Type M.
4. Interior, loadbearing masonry; Type N.

## **2.06 MORTAR MIXING**

- A. Thoroughly mix mortar ingredients using mechanical batch mixer, in accordance with ASTM C270 and in quantities needed for immediate use.
- B. Maintain sand uniformly damp immediately before the mixing process.
- C. Do not use anti-freeze compounds to lower the freezing point of mortar.
- D. If water is lost by evaporation, re-temper only within two hours of mixing.

## **2.07 GROUT MIXES**

- A. Bond Beams and Lintels: 3,000 psi strength at 28 days; 8-10 inches slump; provide premixed type in accordance with ASTM C94/C94M.
  1. Fine grout for spaces with smallest horizontal dimension of 2 inches or less.
  2. Coarse grout for spaces with smallest horizontal dimension greater than 2 inches.
- B. Engineered Masonry: 3,000 psi strength at 28 days; 8-10 inches slump; provide premixed type in accordance with ASTM C94/C94M.
  1. Fine grout for spaces with smallest horizontal dimension of 2 inches or less.
  2. Coarse grout for spaces with smallest horizontal dimension greater than 2 inches.

## **2.08 GROUT MIXING**

- A. Mix grout in accordance with ASTM C94/C94M.
- B. Thoroughly mix grout ingredients in quantities needed for immediate use in accordance with ASTM C476 for fine and coarse grout.
- C. Add admixtures in accordance with manufacturer's instructions; mix uniformly.
- D. Do not use anti-freeze compounds to lower the freezing point of grout.

# **PART 3 EXECUTION**

## **3.01 EXAMINATION**

- A. Verify that field conditions are acceptable and are ready to receive masonry.
- B. Verify that related items provided under other sections are properly sized and located.
- C. Verify that built-in items are in proper location, and ready for roughing into masonry work.

## **3.02 PREPARATION**

- A. Direct and coordinate placement of metal anchors supplied for installation under other sections.
- B. Clean reinforcement of loose rust.
- C. Provide temporary bracing during installation of masonry work. Maintain in place until building structure provides permanent bracing.
- D. For areas where high-lift grouting will be employed, provide cleanout openings as follows:
  1. Hollow Masonry: Not less than 8 inches high at the bottom of each cell to be grouted, formed by cutting out face shell of masonry unit.

## **3.03 COURSING**

- A. Establish lines, levels, and coursing indicated. Protect from displacement.
- B. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.
- C. Concrete Masonry Units:
  1. Bond: Running.
  2. Coursing: One unit and one mortar joint to equal 8 inches.
  3. Mortar Joints: Concave.

### **3.04 PLACING AND BONDING**

- A. Lay solid masonry units in full bed of mortar, with full head joints, uniformly jointed with other work.
- B. Lay hollow masonry units with face shell bedding on head and bed joints.
- C. Buttering corners of joints or excessive furrowing of mortar joints is not permitted.
- D. Remove excess mortar as work progresses.
- E. Interlock intersections and external corners, except for units laid in stack bond.
- F. Do not shift or tap masonry units after mortar has achieved initial set. Where adjustment must be made, remove mortar and replace.
- G. Perform job site cutting of masonry units with proper tools to provide straight, clean, unchipped edges. Prevent broken masonry unit corners or edges.

### **3.05 REINFORCEMENT AND ANCHORAGE**

- A. Reinforcement Bars: Secure at locations indicated and to avoid displacement during grouting. Minimum spacing between bars or to masonry surfaces shall be one bar diameter.
- B. Joint Reinforcement: Install horizontal joint reinforcement 16 inches on center.
  - 1. Place masonry joint reinforcement in first and second horizontal joints above and below openings. Extend minimum 16 inches each side of opening.
  - 2. Place continuous joint reinforcement in first and second joint below top of walls.
  - 3. Lap joint reinforcement ends minimum 6 inches.
- C. Anchors: Fasten anchors to structural framing and embed in masonry joints as masonry is laid. Unless otherwise indicated on drawings or closer spacing is indicated under specific wall type, space anchors at maximum of 36 inches horizontally and 24 inches vertically.
- D. Wall Ties: Install wall ties at locations indicated, spaced at not more than 24 inches on center horizontally and 16 inches on center vertically, unless otherwise indicated on drawings.
- E. Reinforced Hollow Unit Masonry: Keep vertical cores to be grouted clear of mortar, including bed area of first course.
  - 1. Bond Beams: At bond beams or other locations for horizontally reinforced masonry, provide special masonry units or saw to accommodate reinforcement.

### **3.06 GROUTING**

- A. Perform all grouting by means of low-lift technique. Do not employ high-lift grouting.
- B. Low-Lift Grouting:
  - 1. Limit height of pours to 60 inches.
  - 2. Limit height of masonry to 16 inches above each pour.
  - 3. Pour grout only after vertical reinforcing is in place; place horizontal reinforcing as grout is poured. Prevent displacement of bars as grout is poured.
  - 4. Place grout for each pour continuously and consolidate immediately; do not interrupt pours for more than 1-1/2 hours.

### **3.07 CONTROL AND EXPANSION JOINTS**

- A. Do not continue horizontal joint reinforcement through control or expansion joints.
- B. Install preformed control joint device in continuous lengths. Seal butt and corner joints in accordance with manufacturer's instructions.
- C. Size control joints as indicated on drawings; if not indicated, 3/4 inch wide and deep.
- D. Form expansion joint as detailed on drawings.

### **3.08 BUILT-IN WORK**

- A. As work progresses, install built-in metal door frames and other items to be built into the work and furnished under other sections.



- B. Install built-in items plumb, level, and true to line.
- C. Bed anchors of metal door and glazed frames in adjacent mortar joints. Fill frame voids solid with grout.
  - 1. Fill adjacent masonry cores with grout minimum 12 inches from framed openings.
- D. Do not build into masonry construction organic materials that are subject to deterioration.

### **3.09 TOLERANCES**

- A. Install masonry within the site tolerances found in TMS 402/602.
- B. Maximum Variation From Unit to Adjacent Unit: 1/16 inch.
- C. Maximum Variation from Plane of Wall: 1/4 inch in 10 ft and 1/2 inch in 20 ft or more.
- D. Maximum Variation from Plumb: 1/4 inch per story non-cumulative; 1/2 inch in two stories or more.
- E. Maximum Variation from Level Coursing: 1/8 inch in 3 ft and 1/4 inch in 10 ft; 1/2 inch in 30 ft.
- F. Maximum Variation of Joint Thickness: 1/8 inch in 3 ft.
- G. Maximum Variation from Cross Sectional Thickness of Walls: 1/4 inch.

### **3.10 CUTTING AND FITTING**

- A. Cut and fit for chases, pipes, conduit, sleeves, and grounds. Coordinate with other sections of work to provide correct size, shape, and location.
- B. Obtain approval prior to cutting or fitting masonry work not indicated or where appearance or strength of masonry work may be impaired.

### **3.11 FIELD QUALITY CONTROL**

- A. An independent testing agency will perform field quality control tests, as specified in Section 014000 - Quality Requirements.
- B. Concrete Masonry Unit Tests: Test each variety of concrete unit masonry in accordance with ASTM C140/C140M for compliance with requirements of this specification.
- C. Mortar Tests: Test each type of mortar in accordance with recommended procedures in ASTM C780, testing with same frequency as masonry samples.
- D. Test and evaluate grout in accordance with ASTM C1019 procedures.
  - 1. Test with same frequency as specified for masonry units.
- E. Prism Tests: Test masonry and mortar panels for compressive strength in accordance with ASTM C1314 and for flexural bond strength in accordance with ASTM C1072 or ASTM E518/E518M; perform tests and evaluate results.

### **3.12 CLEANING**

- A. Remove excess mortar and mortar smears as work progresses.
- B. Replace defective mortar. Match adjacent work.
- C. Clean soiled surfaces with cleaning solution.
- D. Use non-metallic tools in cleaning operations
- E. Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Install new units to match adjoining units; install in fresh mortar, pointed to eliminate evidence of replacement.
- F. Pointing: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for sealant application, where indicated.
- G. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.

H. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:

1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
2. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.
3. Protect adjacent stone and non-masonry surfaces from contact with cleaner by covering them with liquid strippable masking agent or polyethylene film and waterproof masking tape.
4. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing surfaces thoroughly with clear water.
5. Clean concrete masonry by applicable cleaning methods indicated in NCMA TEK 8-4A.
6. Clean masonry with a proprietary acidic masonry cleaner applied according to manufacturer's written instructions.

### **3.13 PROTECTION**

- A. Without damaging completed work, provide protective boards at exposed external corners that are subject to damage by construction activities.

**END OF SECTION**

## **SECTION 051200 - STRUCTURAL STEEL FRAMING**

### **PART 1 GENERAL**

#### **1.01 SECTION INCLUDES**

- A. Structural steel framing members.
- B. Hot-dipped galvanizing of steel materials
- C. Shop priming of steel materials.

#### **1.02 RELATED REQUIREMENTS**

- A. Section 055000 - Metal Fabrications: Steel fabrications affecting structural steel work.

#### **1.03 REFERENCE STANDARDS**

- A. AISC (MAN) - Steel Construction Manual; 2023.
- B. AISC 303 - Code of Standard Practice for Steel Buildings and Bridges; 2022.
- C. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2019.
- D. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2022.
- E. ASTM A108 - Standard Specification for Steel Bar, Carbon and Alloy, Cold-Finished; 2018.
- F. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2017.
- G. ASTM A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength; 2021.
- H. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; 2023.
- I. ASTM A563/A563M - Standard Specification for Carbon and Alloy Steel Nuts (Inch and Metric); 2021a.
- J. ASTM A992/A992M - Standard Specification for Structural Steel Shapes; 2022.
- K. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength; 2023.
- L. ASTM C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus; 2021.
- M. ASTM D638 - Standard Test Method for Tensile Properties of Plastics; 2022.
- N. ASTM D695 - Standard Test Method for Compressive Properties of Rigid Plastics; 2023.
- O. ASTM F436/F436M - Standard Specification for Hardened Steel Washers Inch and Metric Dimensions; 2019.
- P. ASTM F1554 - Standard Specification for Anchor Bolts, Steel, 36, 55, and 105-ksi Yield Strength; 2020.
- Q. ASTM F3125/F3125M - Standard Specification for High Strength Structural Bolts and Assemblies, Steel and Alloy Steel, Heat Treated, Inch Dimensions 120 ksi and 150 ksi Minimum Tensile Strength, and Metric Dimensions 830 MPa and 1040 MPa Minimum Tensile Strength; 2023.
- R. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination; 2020.
- S. AWS B2.1/B2.1M - Specification for Welding Procedure and Performance Qualification; 2021.
- T. AWS D1.1/D1.1M - Structural Welding Code - Steel; 2020, with Errata (2023).
- U. IAS AC172 - Accreditation Criteria for Fabricator Inspection Programs for Structural Steel AC172; 2019.

- V. RCSC (HSBOLT) - Specification for Structural Joints Using High-Strength Bolts; Research Council on Structural Connections; 2020.
- W. SSPC-SP 3 - Power Tool Cleaning; 2018.

#### **1.04 COORDINATION**

- A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written recommendations to ensure that shop primers and topcoats are compatible with one another.
- B. Coordinate installation of anchorage items to be embedded in or attached to other construction without delaying the Work. Provide setting diagrams, sheet metal templates, instructions, and directions for installation.

#### **1.05 ACTION SUBMITTALS**

- A. Product Data:
  - 1. Structural-steel materials.
  - 2. High-strength, bolt-nut-washer assemblies.
  - 3. Anchor rods.
  - 4. Threaded rods.
  - 5. Shop primer.
  - 6. Etching cleaner.
  - 7. Galvanized repair paint.
  - 8. Shrinkage-resistant grout.
- B. Shop Drawings: Show fabrication of structural-steel components.
  - 1. Prepare original shop drawings with no reproductions of the Contract Documents.
  - 2. Precheck the shop drawings prior to submission to the Architect for conformity of details to the Contract Documents and as coordinated with other work. The signature of a representative of the Construction Manager indicating that the drawings have been prechecked will be required. The Contractor is wholly responsible for the conformity of dimensions and details of the shop drawings to the Contract Documents.
  - 3. Anchor Rod/Embedded Item Layout Plans and Details: Show anchor rod layout, dimensions, elevation, orientation and details of anchor rods, leveling plates and other items embedded in concrete.
  - 4. Erection Plans and Details: Include member layout, dimensions, elevations, member sizes, erection details, and all information required for erection.
  - 5. Fabrication Details: Submit drawings indicating all details necessary for shop fabrication and erection of each individual steel member.
    - a. Include details of cuts, connections, splices, camber, holes, and other pertinent data.
    - b. Indicate welds by standard AWS symbols, distinguishing between shop and field welds, and show size, length, and type of each weld. Show backing bars that are to be removed and supplemental fillet welds where backing bars are to remain.
    - c. Indicate type, size, and length of bolts, distinguishing between shop and field bolts. Identify pretensioned and slip-critical, high-strength bolted connections.
  - 6. Prepare details avoiding interference of steel connections, gussets, and bracing elements with architectural details, shaft openings, and wall openings.
  - 7. Approval of the shop drawings is for size and arrangement of principal and auxiliary members and strength of connections. Approval does not relieve the Contractor's responsibility for dimensions, fabrications, and correct fitting of structural members.
- C. Resubmitted Drawings:
  - 1. Clearly and individually identify changes in resubmitted shop drawings whether the change results from a review comment or not
  - 2. Date and identify each shop drawing issue.

3. Identify each shop drawing by the same drawing number throughout the duration of the project.
- D. Forces imposed on the base building structure by temporary attachments for bracing cranes, hoists, or any other equipment imposing loads on the structure during construction. Provide drawings and calculations of temporary bracing stamped and signed by a Professional Engineer licensed in the state of New York.
- E. Welding Procedure Specifications (WPSs) and Procedure Qualification Records (PQRs): Provide in accordance with AWS D1.1/D1.1M for each welded joint whether prequalified or qualified by testing, including the following:
  1. Power source (constant current or constant voltage).
  2. Electrode manufacturer and trade name, for demand-critical welds.

#### **1.06 INFORMATIONAL SUBMITTALS**

- A. Qualification Data: For fabricator
- B. Welding certificates
- C. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers, certifying that shop primers are compatible with topcoats
- D. Mill test reports for structural-steel materials, including chemical and physical properties
- E. Product Test Reports: For the following:
  1. Bolts, nuts, and washers, including mechanical properties and chemical analysis.
  2. Direct-tension indicators.
  3. Tension-control, high-strength, bolt-nut-washer assemblies.
  4. Shop Primers.
  5. Non-shrink grout.
- F. Survey of existing conditions
- G. Source quality-control reports
- H. Field quality-control reports.

#### **1.07 QUALITY ASSURANCE**

- A. Fabricator Qualifications: A qualified fabricator that participates in the AISC Quality Certification Program and is designated an AISC-Certified Plant, Category BU or is accredited by the IAS Fabricator Inspection Program for Structural Steel (Acceptance Criteria 172). See QE S002.2 for special inspection requirements
- B. Installer Qualifications: A qualified Installer who participates in the AISC Quality Certification Program and is designated an AISC-Certified Erector, Category ASSE. AISC certification for the steel erector can be waived as special inspections are always required. See QE S002.2 for special inspection requirements.
- C. Welder Qualifications: Welding processes and welding operators qualified in accordance with AWS D1.1/D1.1M and no more than 12 months before start of scheduled welding work.

## **1.08 DELIVERY, STORAGE, AND HANDLING**

- A. Store materials to permit easy access for inspection and identification. Keep steel members off ground and spaced by using pallets, dunnage, or other supports and spacers. Protect steel members and packaged materials from corrosion and deterioration.
  - 1. Do not store materials on structure in a manner that might cause distortion, damage, or overload to members or supporting structures. Repair or replace damaged materials or structures as directed.
- B. Store fasteners in a protected place in sealed containers with manufacturer's labels intact.
  - 1. Fasteners may be repackaged provided Owner's testing and inspecting agency observes repackaging and seals containers.
  - 2. Clean and relubricate bolts and nuts that become dry or rusty before use.
  - 3. Comply with manufacturers' written recommendations for cleaning and lubricating ASTM F3125/F3125M, Grade F1852 bolt assemblies and for retesting bolt assemblies after lubrication.

## **PART 2 PRODUCTS**

### **2.01 PERFORMANCE REQUIREMENTS**

- A. Comply with applicable provisions of the following specifications and documents:
  - 1. ANSI/AISC 303.
  - 2. ANSI/AISC 341.
  - 3. ANSI/AISC 360.
  - 4. RCSC's "Specification for Structural Joints Using High-Strength Bolts."

### **2.02 CONNECTION DESIGN INFORMATION**

- A. Connection designs have been completed and connections indicated on the drawings.

### **2.03 MATERIALS**

- A. Steel Angles and Plates: ASTM A36/A36M.
- B. Steel W Shapes and Tees: ASTM A992/A992M.
- C. Rolled Steel Structural Shapes: ASTM A992/A992M.
- D. Cold-Formed Structural Tubing: ASTM A500/A500M, Grade B.
- E. Pipe: ASTM A53/A53M, Grade B, Finish black.
- F. Structural Bolts and Nuts: Carbon steel, ASTM A307, Grade A and galvanized in compliance with ASTM A153/A153M Class C.
- G. High-Strength Structural Bolts, Nuts, and Washers: ASTM F3125/F3125M, Type 1, with matching compatible ASTM A563/A563M nuts and ASTM F436/F436M washers.
- H. Tension Control Bolts: Twist-off type; ASTM F3125/F3125M.
- I. Unheaded Anchor Rods: ASTM F1554, Grade 36, plain, with matching ASTM A563/A563M nuts and ASTM F436/F436M Type 1 washers.
- J. Headed Anchor Rods: ASTM F1554 Grade 36, plain.
- K. Welding Materials: AWS D1.1/D1.1M; type required for materials being welded.
- L. Grout: ASTM C1107/C1107M; Non-shrink; premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents.
  - 1. Minimum Compressive Strength at 48 Hours: 2,000 pounds per square inch.
  - 2. Minimum Compressive Strength at 28 Days: 7,000 pounds per square inch.
- M. Shop and Touch-Up Primer: Fabricator's standard, complying with VOC limitations of authorities having jurisdiction.

1. Fabricator's standard lead- and chromate-free, nonasphaltic, rust-inhibiting primer complying with MPI#79 and compatible with topcoat unless otherwise noted.
- N. Touch-Up Primer for Galvanized Surfaces: Fabricator's standard, complying with VOC limitations of authorities having jurisdiction.
  1. Etching Cleaner: MPI#25 for galvanized steel
  2. Galvanizing Repair Paint: SSPC Paint 20, ASTM A780
- O. Adhesive Anchors:
  1. Products:
    - a. Hilti HIT-HY 200 for injection into concrete
    - b. Hilti HIT-HY 270 for injection into grouted masonry (CMUs)
    - c. Approved Equal.
  2. Rod: ASTM A36 or ASTM A307 carbon steel, zinc plated in accordance with SATM B633 Type III SC1.
  3. Nut and Washers: Match rod material.

## **2.04 FABRICATION**

- A. Shop fabricate to greatest extent possible.
- B. Fabricate connections for bolt, nut, and washer connectors.

## **2.05 FINISH**

- A. Surface Preparation of Steel: Clean surfaces to be painted. Remove loose rust and mill scale and spatter, slag, or flux deposits. Prepare surfaces in accordance with the following specifications and standards:
  1. SSPC-SP 2.
  2. SSPC-SP 3
  3. SSPC-SP 7 (WAB)/NACE WAB-4
  4. SSPC-SP 14 (WAB)/NACE WAB-8
  5. SSPC-SP 11
  6. SSPC-SP 6 (WAB)/NACE WAB-3
  7. SSPC-SP 10 (WAB)/NACE WAB-2
  8. SSPC-SP 5 (WAB)/NACE WAB-1
  9. SSPC-SP 8
- B. Shop Priming: Immediately after surface preparation, apply primer in accordance with manufacturer's written instructions and at rate recommended by SSPC to provide a minimum dry film thickness of 1.5 mils. Use priming methods that result in full coverage of joints, corners, edges, and exposed surfaces.
  1. Stripe paint corners, crevices, bolts, welds, and sharp edges.
  2. Apply two coats of shop paint to surfaces that are inaccessible after assembly or erection. Change color of second coat to distinguish it from first.
  3. Shop prime steel surfaces, except the following:
    - a. Surfaces embedded in concrete or mortar. Extend priming of partially embedded members to a depth of 2 inches.
    - b. Surfaces to be field welded.
    - c. Galvanized surfaces
    - d. Surfaces enclosed in interior construction.
- C. Hot Dipped Galvanized Finish: Apply zinc coating by the hot-dip process to structural steel in accordance with ASTM A123/A123M
  1. Galvanize exterior steel lintels, shelf angles and welded door frames attached to structural-steel frame and located in exterior walls.

2. Coat all items specified as galvanized on Structural Drawings and all exterior loose lintels, hung lintels, and shelf angles by hot-dip process in molten zinc, producing a continuous coating of uniform thickness not less than 2 oz per square foot of surface.
3. Surface Preparation: Prepare surfaces to be galvanized per SSPC-SP6/ NACE No. 3, "Commercial Blast Cleaning."
4. Galvanize bolts for connections of galvanized structural shapes and plates.
5. Mask areas that will be field welded prior to galvanizing.
6. Seal weld all seams not otherwise noted as welded prior to galvanizing.
7. Fill vent and drain holes that are exposed in the finished Work unless they function as weep holes, by plugging with zinc solder and filing off smooth.
8. Galvanizing Repair Paint: SSPC Paint 20, Type II, ASTM A780
9. Products:
  - a. ZCR Cold Galvanizing Compound by ZRC Products Company
  - b. Tneme-Zinc Series 90-97 by Tnemec
  - c. Or approved equal.

## **2.06 SOURCE QUALITY CONTROL**

- A. Testing Agency: Owner will engage a qualified testing agency to perform shop tests and inspections.
  1. Allow testing agency access to places where structural-steel work is being fabricated or produced to perform tests and inspections.
  2. Bolted Connections: Inspect and test shop-bolted connections in accordance with RCSC's "Specification for Structural Joints Using High-Strength Bolts."
  3. Welded Connections: Visually inspect shop-welded connections in accordance with AWS D1.1/D1.1M and the following inspection procedures, at testing agency's option:
    - a. Liquid Penetrant Inspection: ASTM E165/E165M.
    - b. Magnetic Particle Inspection: ASTM E709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration are not accepted.
    - c. Ultrasonic Inspection: ASTM E164.
    - d. Radiographic Inspection: ASTM E94/E94M.
  4. Prepare test and inspection reports.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that conditions are appropriate for erection of structural steel and that the work may properly proceed.

### **3.02 ERECTION**

- A. Erect structural steel in compliance with AISC 303.
- B. Allow for erection loads and provide sufficient temporary bracing to maintain structure in safe condition, plumb, and in true alignment until completion of erection and installation of permanent bracing.
- C. Field weld components indicated on shop drawings.
- D. Use carbon steel bolts only for temporary bracing during construction, unless otherwise specifically permitted on drawings. Install high-strength bolts in accordance with RCSC (HSBOLT) "Specification for Structural Joints Using High-Strength Bolts".
- E. Do not field cut or alter structural members without approval of Architect.
- F. After erection, prime welds, abrasions, and surfaces not shop primed, except surfaces to be in contact with concrete.



- G. Grout solidly between column plates and bearing surfaces, complying with manufacturer's instructions for nonshrink grout. Trowel grouted surfaces smooth, splaying neatly to 45 degrees.

### **3.03 FIELD QUALITY CONTROL**

- A. Special Inspections: Owner will engage a special inspector to perform the following special inspections:
  - 1. Verify structural-steel materials and inspect steel frame joint details.
  - 2. Verify weld materials and inspect welds.
  - 3. Verify connection materials and inspect high strength bolted connections.
- B. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.
  - 1. Bolted Connections: Inspect and test] bolted connections in accordance with RCSC's "Specification for Structural Joints Using High-Strength Bolts."
  - 2. Welded Connections: Visually inspect field welds in accordance with AWS D1.1/D1.1M.
  - 3. In addition to visual inspection, test and inspect field welds in accordance with AWS D1.1/D1.1M and the following inspection procedures, at testing agency's option:
    - a. Liquid Penetrant Inspection: ASTM E165/E165M.
    - b. Magnetic Particle Inspection: ASTM E709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration are not accepted
    - c. Ultrasonic Inspection: ASTM E164.
    - d. Radiographic Inspection: ASTM E94/E94M.

**END OF SECTION**



## **SECTION 055000 - METAL FABRICATIONS**

### **PART 1 GENERAL**

#### **1.01 SECTION INCLUDES**

- A. Shop fabricated steel items.
- B. Miscellaneous framing and supports.
- C. Loose bearing plates.

#### **1.02 RELATED REQUIREMENTS**

- A. Section 042900 - Engineered Unit Masonry: Placement of metal fabrications in masonry.

#### **1.03 REFERENCE STANDARDS**

- A. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2019.
- B. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2022.
- C. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2017.
- D. ASTM F3125/F3125M - Standard Specification for High Strength Structural Bolts and Assemblies, Steel and Alloy Steel, Heat Treated, Inch Dimensions 120 ksi and 150 ksi Minimum Tensile Strength, and Metric Dimensions 830 MPa and 1040 MPa Minimum Tensile Strength; 2023.
- E. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination; 2020.
- F. AWS B2.1/B2.1M - Specification for Welding Procedure and Performance Qualification; 2021.
- G. AWS D1.1/D1.1M - Structural Welding Code - Steel; 2020, with Errata (2023).
- H. AWS D1.2/D1.2M - Structural Welding Code - Aluminum; 2014, with Errata (2020).
- I. IAS AC172 - Accreditation Criteria for Fabricator Inspection Programs for Structural Steel AC172; 2019.
- J. SSPC-Paint 15 - Steel Joist Shop Primer/Metal Building Primer; 2004.
- K. SSPC-Paint 20 - Zinc-Rich Coating (Type I - Inorganic, and Type II - Organic); 2019.
- L. SSPC-SP 2 - Hand Tool Cleaning; 2018.

#### **1.04 SUBMITTALS**

- A. See Section 013000 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, plans, elevations, sections, and details of metal fabrications and their connections.
  - 1. Indicate welded connections using standard AWS A2.4 welding symbols. Indicate net weld lengths.
- C. Welders' Qualification Statement: Welders' certificates in accordance with AWS B2.1/B2.1M and dated no more than 12 months before start of scheduled welding work.
- D. Fabricator's Qualification Statement: Provide documentation showing steel fabricator is accredited under IAS AC172.

#### **1.05 QUALITY ASSURANCE**

- A. Welder Qualifications: Welding processes and welding operators qualified in accordance with AWS D1.1/D1.1M and AWS D1.2/D1.2M and dated no more than 12 months before start of scheduled welding work.
- B. Fabricator Qualifications: A qualified steel fabricator that is accredited by IAS AC172.

## **1.06 FIELD CONDITIONS**

- A. Field Measurements: Verify actual locations of walls, floor slabs, decks, and other construction contiguous with metal fabrications by field measurements before fabrication.

## **PART 2 PRODUCTS**

### **2.01 MATERIALS - STEEL**

- A. Steel Sections: See section 051200 - Structural Steel Framing.
- B. Plates: ASTM A36/A36M.
- C. Pipe: ASTM A53/A53M, Grade B Schedule 40, black finish.
- D. Mechanical Fasteners: Same material as or compatible with materials being fastened; type consistent with design and specified quality level.
- E. Bolts, Nuts, and Washers: ASTM F3125/F3125M, Type 1, plain.
- F. Welding Materials: AWS D1.1/D1.1M; type required for materials being welded.
- G. Shop and Touch-Up Primer: SSPC-Paint 15, complying with VOC limitations of authorities having jurisdiction.
- H. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, Type I - Inorganic, complying with VOC limitations of authorities having jurisdiction.

### **2.02 FABRICATION**

- A. Fit and shop assemble items in largest practical sections, for delivery to site.
- B. Fabricate items with joints tightly fitted and secured.
- C. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.
- D. Furnish components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

### **2.03 FABRICATED ITEMS**

- A. Lintels: As detailed; galvanized and prime painted finish.

### **2.04 MISCELLANEOUS FRAMING AND SUPPORTS**

- A. General: Provide steel framing and supports not specified in other Sections as needed to complete the Work.
- B. Fabricate units from steel shapes, plates, and bars of welded construction unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive adjacent construction.
- C. Galvanize miscellaneous framing and supports where indicated.

### **2.05 LOOSE BEARING AND LEVELING PLATES**

- A. Provide loose bearing and leveling plates for steel items bearing on masonry or concrete construction. Drill plates to receive anchor bolts and for grouting.
- B. Shop prime bearing and leveling plates, unless otherwise noted to be galvanized.

### **2.06 LOOSE STEEL LINTELS**

- A. Fabricate loose steel lintels from steel angles and shapes of size indicated for openings and recesses in masonry walls and partitions at locations indicated. Fabricate in single lengths for each opening unless otherwise indicated. Weld adjoining members together to form a single unit where indicated.

### **2.07 STEEL WELD PLATES AND ANGLES**

- A. Provide steel weld plates and angles not specified in other Sections, for items supported from concrete construction as needed to complete the Work. Provide each unit with no fewer than two integrally welded steel strap anchors for embedding in concrete.

## **2.08 FINISHES - STEEL**

- A. Prime paint steel items.
  - 1. Exceptions: Galvanize items for exterior applications and as indicated on drawing.
  - 2. Exceptions: Do not prime surfaces in direct contact with concrete, where field welding is required, and items to be covered with sprayed fireproofing.
- B. Prepare surfaces to be primed in accordance with SSPC-SP2.
- C. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.
- D. Prime Painting: One coat.
- E. Galvanizing of Structural Steel Members: Galvanize after fabrication to ASTM A123/A123M requirements. Provide minimum 1.7 oz/sq ft galvanized coating.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that field conditions are acceptable and are ready to receive work.

### **3.02 PREPARATION**

- A. Clean and strip primed steel items to bare metal where site welding is required.
- B. Furnish setting templates to the appropriate entities for steel items required to be cast into concrete or embedded in masonry.

### **3.03 INSTALLATION**

- A. General: Install framing and supports to comply with requirements of items being supported, including manufacturers' written instructions and requirements indicated on Shop Drawings.
- B. Install items plumb and level, accurately fitted, free from distortion or defects.
- C. Installation of loose bearing and leveling plates:
  - 1. Clean concrete and masonry bearing surfaces of bond-reducing materials, and roughen to improve bond to surfaces. Clean bottom surface of plates.
  - 2. Set bearing and leveling plates on wedges, shims, or leveling nuts. After bearing members have been positioned and plumbed, tighten anchor bolts. Do not remove wedges or shims but, if protruding, cut off flush with edge of bearing plate before packing with shrinkage-resistant grout. Pack grout solidly between bearing surfaces and plates to ensure that no voids remain.
- D. Provide for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.
- E. Field weld components as indicated on drawings.
- F. Perform field welding in accordance with AWS D1.1/D1.1M.
- G. Obtain approval prior to site cutting or making adjustments not scheduled.
- H. After erection, prime welds, abrasions, and surfaces not shop primed, except surfaces to be in contact with concrete.

### **3.04 REPAIRS**

- A. Touchup Painting:
  - 1. Immediately after erection, clean field welds, bolted connections, and abraded areas. Paint uncoated and abraded areas with same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
  - 2. Apply by brush or spray to provide a minimum 2.0-mil dry film thickness.
- B. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A780.

**END OF SECTION**



## SECTION 061000 - ROUGH CARPENTRY

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Framing with dimension lumber.
  - 2. Wood blocking, nailers, wood furring and grounds.

#### 1.3 DEFINITIONS

- A. A. Dimension Lumber: Lumber of 2 inches nominal (38 mm actual) or greater but less than 5 inches nominal (114 mm actual) in least dimension.
- B. Lumber grading agencies, and the abbreviations used to reference them, include the following: NeLMA: Northeastern Lumber Manufacturers' Association. NLGA: National Lumber Grades Authority. ACTION SUBMITTALS
- C. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details. Include data for woodpreservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site. Include copies of warranties from chemical treatment manufacturers for each type of treatment.

#### 1.4 SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
  - 1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.
  - 2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Include physical properties of treated materials based on testing by a qualified independent testing agency.

3. For fire-retardant treatments, include physical properties of treated lumber both before and after exposure to elevated temperatures, based on testing by a qualified independent testing agency according to ASTM D 5664.
4. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.
5. Include copies of warranties from chemical treatment manufacturers for each type of treatment.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Stack lumber flat with spacers beneath and between each bundle to provide air circulation. Protect lumber from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

### PART 2 - PRODUCTS

#### 2.1 WOOD PRODUCTS, GENERAL

- A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
  1. Factory mark each piece of lumber with grade stamp of grading agency.
  2. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.

#### 2.2 FIRE-RETARDANT-TREATED MATERIALS

- A. General: Where fire-retardant-treated materials are indicated, use materials complying with requirements in this article, that are acceptable to authorities having jurisdiction, and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.
- B. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Products with a flame spread index of 25 or less when tested according to ASTM E 84, and with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet beyond the centerline of the burners at any time during the test.
  1. Use treatment that does not promote corrosion of metal fasteners.
  2. Exterior Type: Treated materials shall comply with requirements specified above for fire-retardant-treated lumber and plywood by pressure process after being subjected to accelerated weathering according to ASTM D 2898. Use for exterior locations and where indicated.



- C. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent.
- D. Identify fire-retardant-treated wood with appropriate classification marking of qualified testing agency.

## 2.3 MISCELLANEOUS LUMBER

- A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction.
- B. For items of dimension lumber size, provide Construction or No. 2 grade lumber of any species.
- C. For blocking not used for attachment of other construction, Utility, Stud, or No. 3 grade lumber of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment and purpose.
- D. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.
- E. For furring strips for installing plywood or hardboard paneling, select boards with no knots capable of producing bent-over nails and damage to paneling.

## 2.4 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.
  - 1. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.
- B. Nails, Brads, and Staples: ASTM F 1667.
- C. Power-Driven Fasteners: NES NER-272.
- D. Wood Screws: ASME B18.6.1.
- E. Lag Bolts: ASME B18.2.1.
- F. Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers.

## PART 3 - EXECUTION

### 3.1 INSTALLATION, GENERAL

- A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit.

Locate furring, nailers, blocking, and similar supports to comply with requirements for attaching other construction.

- B. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.
- C. Do not splice structural members between supports unless otherwise indicated.
- D. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.
- E. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated.
- F. Use steel common nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood. Drive nails snug but do not countersink nail heads unless otherwise indicated.

### 3.2 WOOD BLOCKING, AND NAILER INSTALLATION

- A. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.
- B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces unless otherwise indicated.
- C. Where wood-preservative-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking where blocking is needed. Where there is a fire rated wall add blocking only.
- D. Provide permanent grounds of dressed, pressure-preservative-treated, key-beveled lumber not less than 1-1/2 inches wide and of thickness required to bring face of ground to exact thickness of finish material. Remove temporary grounds when no longer required.

### 3.3 WOOD FURRING INSTALLATION

- A. Install level and plumb with closure strips at edges and openings. Shim with wood as required for tolerance of finish work.
- B. Furring to Receive Plywood or Hardboard Paneling: Install 1-by-3-inch nominal- (19-by-63-mm actual-) size furring horizontally and vertically at 24 inches (610 mm) o.c.
- C. Furring to Receive Gypsum Board Plaster Lath: Install 1-by-2-inch nominal- (19- by-38-mm actual-) size furring vertically at 16 inches (406 mm) o.c.

END OF SECTION 061000

## SECTION 061053 - MISCELLANEOUS ROUGH CARPENTRY

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Rooftop equipment bases and support curbs.
  - 2. Wood blocking and nailers.
  - 3. Wood furring.
  - 4. Plywood backing panels.
- B. Related Requirements:
  - a. Section 062013 "Interior Finish Carpentry" for nonstructural carpentry items exposed to view and not specified in another Section.

#### 1.3 DEFINITIONS

- A. Dimension Lumber: Lumber of 2 inches nominal or greater but less than 5 inches nominal in least dimension.
- B. Lumber grading agencies, and the abbreviations used to reference them, include the following:
  - 1. NeLMA: Northeastern Lumber Manufacturers' Association.
  - 2. NHLA: National Hardwood Lumber Association.
  - 3. NLGA: National Lumber Grades Authority.
  - 4. SPIB: The Southern Pine Inspection Bureau.
  - 5. WCLIB: West Coast Lumber Inspection Bureau.
  - 6. WWPA: Western Wood Products Association.

#### 1.4 ACTION SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
  - 1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.
  - 2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Include

physical properties of treated materials based on testing by a qualified independent testing agency.

3. For fire-retardant treatments, include physical properties of treated lumber both before and after exposure to elevated temperatures, based on testing by a qualified independent testing agency according to ASTM D 5664.
4. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.
5. Include copies of warranties from chemical treatment manufacturers for each type of treatment.

## 1.5 INFORMATIONAL SUBMITTALS

### A. Evaluation Reports: For the following, from ICC-ES:

1. Preservative-treated wood.
2. Fire-retardant-treated wood.
3. Power-driven fasteners.
4. Powder-actuated fasteners.
5. Expansion anchors.
6. Metal framing anchors.

## 1.6 QUALITY ASSURANCE

- ### A. Testing Agency Qualifications: For testing agency providing classification marking for fire-retardant treated material, an inspection agency acceptable to authorities having jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.

## 1.7 DELIVERY, STORAGE, AND HANDLING

- ### A. Stack lumber flat with spacers beneath and between each bundle to provide air circulation. Protect lumber from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

## PART 2 - PRODUCTS

### 2.1 WOOD PRODUCTS, GENERAL

- #### A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
1. Factory mark each piece of lumber with grade stamp of grading agency.

2. For exposed lumber indicated to receive a stained or natural finish, mark grade stamp on end or back of each piece or omit grade stamp and provide certificates of grade compliance issued by grading agency.
  3. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.
  4. Provide dressed lumber, S4S, unless otherwise indicated.
- B. Maximum Moisture Content of Lumber: 15 percent for 2-inch nominal thickness or less, 19 percent for more than 2-inch nominal thickness unless otherwise indicated.

## 2.2 WOOD-PRESERVATIVE-TREATED MATERIALS

- A. Preservative Treatment by Pressure Process: AWP A U1; Use Category UC2 for interior construction not in contact with the ground, Use Category UC3b for exterior construction not in contact with the ground, and Use Category UC4a for items in contact with the ground.
1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
  2. For exposed items indicated to receive a stained or natural finish, use chemical formulations that do not require incising, contain colorants, bleed through, or otherwise adversely affect finishes.
- B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or does not comply with requirements for untreated material.
- C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.
1. For exposed lumber indicated to receive a stained or natural finish, mark end or back of each piece or omit marking and provide certificates of treatment compliance issued by inspection agency.
- D. Application: Treat items indicated on Drawings, and the following:
1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
  2. Wood sills, sleepers, blocking, and similar concealed members in contact with masonry or concrete.
  3. Wood framing and furring attached directly to the interior of below-grade exterior masonry or concrete walls.
  4. Wood framing members that are less than 18 inches above the ground in crawl spaces or unexcavated areas.
  5. Wood floor plates that are installed over concrete slabs-on-grade.

## 2.3 FIRE-RETARDANT-TREATED MATERIALS

- A. General: Where fire-retardant-treated materials are indicated, use materials complying with requirements in this article, that are acceptable to authorities having jurisdiction, and with fire-

test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.

- B. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Products with a flame spread index of 25 or less when tested according to ASTM E 84, and with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet beyond the centerline of the burners at any time during the test.
  - 1. Use treatment that does not promote corrosion of metal fasteners.
  - 2. Exterior Type: Treated materials shall comply with requirements specified above for fire-retardant-treated lumber and plywood by pressure process after being subjected to accelerated weathering according to ASTM D 2898. Use for exterior locations and where indicated.
  - 3. Interior Type A: Treated materials shall have a moisture content of 28 percent or less when tested according to ASTM D 3201 at 92 percent relative humidity. Use where exterior type is not indicated.
  - 4. Design Value Adjustment Factors: Treated lumber shall be tested according to ASTM D 5664, and design value adjustment factors shall be calculated according to ASTM D 6841. For enclosed roof framing, framing in attic spaces, and where high temperature fire-retardant treatment is indicated, provide material with adjustment factors of not less than 0.85 modulus of elasticity and 0.75 for extreme fiber in bending for Project's climatological zone.
  - 5. Where wood-preservative-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking where blocking is needed. Where there is a fire rated wall add blocking only.
- C. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent.
- D. Identify fire-retardant-treated wood with appropriate classification marking of testing and inspecting agency acceptable to authorities having jurisdiction.
- E. Application: Treat items indicated on Drawings, and the following:
  - 1. Framing for raised platforms.
  - 2. Concealed blocking.
  - 3. Roof framing and blocking.
  - 4. Wood cants, nailers, curbs, equipment support bases, blocking, and similar members in connection with roofing.
  - 5. Plywood backing panels.

## 2.4 MISCELLANEOUS LUMBER

- A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:
  - 1. Blocking.
  - 2. Nailers.
  - 3. Rooftop equipment bases and support curbs.
  - 4. Cants.

5. Furring.
  6. Grounds.
  7. Utility shelving.
- B. For items of dimension lumber size, provide Construction or No. 2 grade lumber of any species.
- C. For concealed boards, provide lumber with [15] [19] percent maximum moisture content and any of the following species and grades:
1. Mixed southern pine, No. 2 grade; SPIB.
  2. Hem-fir or hem-fir (north), Construction or No. 2 Common grade; NLGA, WCLIB, or WWP.
  3. Spruce-pine-fir (south) or spruce-pine-fir, Construction or No. 2 Common grade; NeLMA, NLGA, WCLIB, or WWP.
  4. Eastern softwoods, No. 2 Common grade; NELMA.
  5. Northern species, No. 2 Common grade; NLGA.
  6. Western woods, Construction or No. 2 Common grade; WCLIB or WWP.
- D. For blocking not used for attachment of other construction, Utility, Stud, or No. 3 grade lumber of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment and purpose.
- E. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.
- F. For furring strips for installing plywood or hardboard paneling, select boards with no knots capable of producing bent-over nails and damage to paneling.

## 2.5 PLYWOOD BACKING PANELS

- A. Equipment Backing Panels: DOC PS 1, Exterior, AC, fire-retardant treated, in thickness indicated or, if not indicated, not less than 3/4-inch nominal thickness.
1. Plywood shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

## 2.6 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.
1. Where carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.
- B. Nails, Brads, and Staples: ASTM F 1667.
- C. Power-Driven Fasteners: NES NER-272.

- D. Wood Screws: ASME B18.6.1.
- E. Screws for Fastening to Metal Framing: ASTM C 1002, length as recommended by screw manufacturer for material being fastened.
- F. Lag Bolts: ASME B18.2.1.
- G. Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers.
- H. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to 6 times the load imposed when installed in unit masonry assemblies and equal to 4 times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency.
  - 1. Material: Carbon-steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5.
  - 2. Material: Stainless steel with bolts and nuts complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2.

## 2.7 METAL FRAMING ANCHORS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - 1. Cleveland Steel Specialty Co.
  - 2. KC Metals Products, Inc.
  - 3. Phoenix Metal Products, Inc.
  - 4. Simpson Strong-Tie Co., Inc.
  - 5. USP Structural Connectors.
- B. Galvanized-Steel Sheet: Hot-dip, zinc-coated steel sheet complying with ASTM A 653/A 653M, G60 coating designation.
  - 1. Use for interior locations unless otherwise indicated.
- C. Hot-Dip Heavy-Galvanized Steel Sheet: ASTM A 653/A 653M; Structural Steel (SS), high-strength low-alloy steel Type A (HSLAS Type A), or high-strength low-alloy steel Type B (HSLAS Type B); G185 coating designation; and not less than 0.036 inch thick.
  - 1. Use for wood-preservative-treated lumber and where indicated.
- D. Stainless-Steel Sheet: ASTM A 666, Type 304.
  - 1. Use for exterior locations and where indicated.



## 2.8 MISCELLANEOUS MATERIALS

- A. Adhesives for Gluing Furring and Sleepers to Concrete or Masonry: Formulation complying with ASTM D 3498 that is approved for use indicated by adhesive manufacturer.
  - 1. Adhesives shall have a VOC content of 70 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
  - 2. Adhesives shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
- B. Flexible Flashing: Composite, self-adhesive, flashing product consisting of a pliable, butyl rubber or rubberized-asphalt compound, bonded to a high-density polyethylene film, aluminum foil, or spunbonded polyolefin to produce an overall thickness of not less than 0.025 inch.

## PART 3 - EXECUTION

### 3.1 INSTALLATION, GENERAL

- A. Set carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring, nailers, blocking, and similar supports to comply with requirements for attaching other construction.
- B. Where wood-preserved-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking.
- C. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.
- D. Install plywood backing panels by fastening to studs; coordinate locations with utilities requiring backing panels. Install fire-retardant treated plywood backing panels with classification marking of testing agency exposed to view.
- E. Metal Framing Anchors: Install metal framing anchors to comply with manufacturer's written instructions. Install fasteners through each fastener hole.
- F. Do not splice structural members between supports unless otherwise indicated.
- G. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.
  - 1. Provide metal clips for fastening gypsum board or lath at corners and intersections where framing or blocking does not provide a surface for fastening edges of panels. Space clips not more than 16 inches o.c.
- H. Provide fire blocking in furred spaces, stud spaces, and other concealed cavities as indicated and as follows:

1. Fire block furred spaces of walls, at each floor level, at ceiling, and at not more than 96 inches o.c. with solid wood blocking or noncombustible materials accurately fitted to close furred spaces.
  2. Fire block concealed spaces of wood-framed walls and partitions at each floor level, at ceiling line of top story, and at not more than 96 inches o.c. Where fire blocking is not inherent in framing system used, provide closely fitted solid wood blocks of same width as framing members and 2-inch nominal thickness.
  3. Fire block concealed spaces between floor sleepers with same material as sleepers to limit concealed spaces to not more than 100 sq. ft. and to solidly fill space below partitions.
  4. Fire block concealed spaces behind combustible cornices and exterior trim at not more than 20 feet o.c.
- I. Sort and select lumber so that natural characteristics will not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.
- J. Comply with AWPAC M4 for applying field treatment to cut surfaces of preservative-treated lumber.
1. Use inorganic boron for items that are continuously protected from liquid water.
  2. Use copper naphthenate for items not continuously protected from liquid water.
- K. Securely attach carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
1. NES NER-272 for power-driven fasteners.
  2. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.
  3. Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3(2), "Alternate Attachments," in ICC's International Residential Code for One- and Two-Family Dwellings.
- L. Use steel common nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood. Drive nails snug but do not countersink nail heads unless otherwise indicated.
- 3.2 WOOD BLOCKING, AND NAILER INSTALLATION
- A. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.
- B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces unless otherwise indicated.
- C. Provide permanent grounds of dressed, pressure-preservative-treated, key-beveled lumber not less than 1-1/2 inches wide and of thickness required to bring face of ground to exact thickness of finish material. Remove temporary grounds when no longer required.

3.3 WOOD FURRING INSTALLATION

- A. Install level and plumb with closure strips at edges and openings. Shim with wood as required for tolerance of finish work.

3.4 PROTECTION

- A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.
- B. Protect miscellaneous rough carpentry from weather. If, despite protection, miscellaneous rough carpentry becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION 061053



**SECTION 064100  
ARCHITECTURAL WOOD CASEWORK**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Specially fabricated cabinet units.
- B. Countertops.
- C. Hardware.
- D. Factory finishing.

**1.02 RELATED REQUIREMENTS**

- A. Section 061000 - Rough Carpentry: Support framing, grounds, and concealed blocking.

**1.03 REFERENCE STANDARDS**

- A. ANSI A208.1 - American National Standard for Particleboard; 2022.
- B. ANSI A208.2 - Medium Density Fiberboard (MDF) for Interior Applications; 2022.
- C. AWI (QCP) - Quality Certification Program; Current Edition.
- D. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards, 2nd Edition; 2014, with Errata (2016).
- E. AWMAC/WI (NAAWS) - North American Architectural Woodwork Standards; 2021, with Errata.
- F. BHMA A156.9 - Cabinet Hardware; 2020.
- G. HPVA HP-1 - American National Standard for Hardwood and Decorative Plywood; 2020.
- H. NEMA LD 3 - High-Pressure Decorative Laminates; 2005.

**1.04 DEFINITIONS**

- A. Interior architectural woodwork includes wood furring, blocking, shims, and hanging strips for installing woodwork items unless concealed within other construction before woodwork installation.
- B. MDF: Medium Density Fiberboard.
- C. ABS: Acrylonitrile Butadiene Styrene
- D. Exposed Surfaces of Casework: Surfaces visible when doors and drawers are closed, including bottoms of cabinets more than 48 inches above floor, and visible surfaces in open cabinets or behind glass doors.
  - 1. Ends of cabinets, including those installed directly against walls or other cabinets are defined as "exposed."
  - 2. Ends of cabinets indicated to be installed directly against and completely concealed by walls or other cabinets are defined as "concealed."
  - 3. Interior surfaces of open bookcases are defined as "exposed".
- E. Semi-exposed Surfaces of Casework: Surfaces behind opaque doors, such as cabinet interiors, shelves, and dividers; interiors and sides of drawers; and interior faces of doors. Tops of cabinets 78 inches or more above floor are defined as "semi-exposed."
- F. Concealed Surfaces of Casework: Include sleepers, web frames, dust panels, and other surfaces not usually visible after installation.
- G. Hardwood Plywood: Panel product composed of layers or plies of veneer or of veneers in combination with lumber core, hardboard core, MDF core or particleboard core, joined with adhesive and faced both front and back with hardwood veneers.

**1.05 ADMINISTRATIVE REQUIREMENTS**

- A. Preinstallation Meeting: Convene a preinstallation meeting not less than one week before starting work of this section; require attendance by all affected installers.

- B. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to ensure that interior architectural woodwork can be supported and installed as indicated. Coordinate installation of Casework with installation of specified appliances.
- C. Coordinate installation of Casework with installation of specified appliances.

#### **1.06 SUBMITTALS**

- A. See Section 013000 - Administrative Requirements for submittal procedures.
- B. Shop Drawings: Indicate materials, component profiles, fastening methods, jointing details, and accessories.
  - 1. Show location of each item, dimensioned plans, elevations, sections, details, and attachments to other work.
  - 2. Show locations and sizes of furring, blocking, and hanging strips, including concealed blocking and reinforcement specified in other Sections.
  - 3. Show locations and sizes of cutouts and holes for plumbing fixtures, faucets, soap dispensers, and other items installed in architectural woodwork.
  - 4. Show veneer leaves with dimensions, grain direction, exposed face, and identification numbers indicating the flitch and sequence within the flitch for each leaf.
  - 5. Indicate locations of and clearances from adjacent walls, doors, windows, other building components, and other equipment.
  - 6. Indicate locations of hardware and keying of locks.
- C. Product Data: For each type of product indicated, including cabinet hardware and accessories and finishing materials and processes.
- D. Product Data: For panel products high-pressure decorative laminate adhesive for bonding plastic laminate solid-surfacing material fire-retardant-treated materials cabinet hardware and accessories and finishing materials and processes.
  - 1. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements.
- E. Samples for Initial Selection:
  - 1. Shop-applied transparent finishes.
  - 2. Shop-applied opaque finishes.
  - 3. Plastic laminates.
  - 4. ABS edge material.
  - 5. Thermoset decorative panels.
  - 6. Solid-surfacing materials.
- F. Samples for Verification: Unless otherwise directed, approved full size Samples may become part of completed Work, if in an undisturbed condition at time of Substantial Completion. Notify Architect of their exact locations. If not incorporated into Work, retain acceptable full size Samples at Project site and remove when directed by Architect
  - 1. Lumber with or for transparent finish, not less than 6 by 6 inches, for each species and cut, finished on 1 side and 1 edge.
  - 2. Veneer leaves representative of and selected from flitches to be used for transparent-finished woodwork.
  - 3. Plastic laminates, 8 by 10 inches (200 by 250 mm), for each type, color, pattern, and surface finish, with 1 sample applied to core material and specified edge material applied to 1 edge.
  - 4. Thermoset decorative-panels, 8 by 10 inches (200 by 250 mm), for each type, color, pattern, and surface finish, with edge banding on 1 edge.
  - 5. Solid-surfacing materials, 6 inches (150 mm) square.
  - 6. One (1) full size, finished base cabinet complete with hardware, doors, and drawers.
  - 7. One (1) Sample each of hinged and sliding doors, if applicable to project.
  - 8. One (1) of each type of hardware item specified.
    - a. Sample submittal not required if specified product is submitted.

- 9. Exposed cabinet hardware and accessories, one unit for each type and finish.
- G. Certificate: Submit labels and certificates required by quality assurance and quality control programs.
- H. Woodwork Quality Standard Compliance Certificates: AWI Quality Certification Program certificates.
- I. Qualification Data: For Installer/fabricator.

#### **1.07 QUALITY ASSURANCE**

- A. Fabricator Qualifications: Company specializing in fabricating the products specified in this section with minimum five years of documented experience.
  - 1. Company with at least one project in the past 5 years with value of woodwork within 20 percent of cost of woodwork for this Project.
  - 2. Accredited participant in the specified certification program prior to the commencement of fabrication and throughout the duration of the project.
  - 3. Single Source Responsibility: Provide and install this work from single fabricator.
- B. Quality Certification:
  - 1. Comply with AWI (QCP) woodwork association quality certification service/program in accordance with requirements for work specified in this section: [www.awiqcp.org/#sle](http://www.awiqcp.org/#sle).
  - 2. Provide labels or certificates indicating that the installed work complies with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS) requirements for grade or grades specified.
  - 3. Provide designated labels on shop drawings as required by certification program.
  - 4. Provide designated labels on installed products as required by certification program.
  - 5. Submit certifications upon completion of installation that verifies this work is in compliance with specified requirements.
  - 6. Replace, repair, or rework all work for which certification is refused.
- C. Source Limitations: Engage a qualified woodworking firm to assume undivided responsibility for production of interior architectural woodwork with sequence-matched wood veneers.
- D. Fire-Test-Response Characteristics: Where fire-retardant materials or products are indicated, provide materials and products with specified fire-test-response characteristics as determined by testing identical products per test method indicated by UL, ITS, or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify with appropriate markings of applicable testing and inspecting agency in the form of separable paper label or, where required by authorities having jurisdiction, imprint on surfaces of materials that will be concealed from view after installation.

#### **1.08 DELIVERY, STORAGE, AND HANDLING**

- A. Protect units from moisture damage.
- B. Do not deliver woodwork until painting and similar operations that could damage woodwork have been completed in installation areas. If woodwork must be stored in other than installation areas, store only in areas where environmental conditions comply with requirements specified in "Field Conditions" Article.

#### **1.09 FIELD CONDITIONS**

- A. During and after installation of custom cabinets, maintain temperature and humidity conditions in building spaces at same levels planned for occupancy.
- B. Environmental Limitations: Do not deliver or install woodwork until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.
  - 1. Locate concealed framing, blocking, and reinforcements that support woodwork by field measurements before being enclosed, and indicate measurements on Shop Drawings.
  - 2. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating woodwork without field

measurements. Provide allowance for trimming at site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.

## **PART 2 PRODUCTS**

### **2.01 MATERIALS**

- A. General:
  - 1. Provide materials that comply with requirements of AWI's quality standard for each type of woodwork and quality grade specified, unless otherwise indicated.
  - 2. Low Emitting Materials: Provide manufactured casework, including countertops, made with adhesives and composite wood products containing no added urea formaldehyde.
- B. Wood Species and Cut for Transparent Finish: Red oak, rift cut.
  - 1. Lumber materials for exposed wood cabinet surfaces: Red oak grade FAS or better, air dried and kiln dried to 6 percent moisture content, then tempered to 7-8 percent prior to fabrication. Red oak exposed to view to be free of stains, splits, shakes, season checks, and other similar defects.
  - 2. Lumber materials for semi- exposed and concealed wood cabinet surfaces: Other hardwoods, grade FAS or better, air dried and kiln dried to 6 percent moisture content, then tempered to 7-8 percent prior to fabrication. Other hardwoods are used in semi-exposed, or, unexposed, areas and comply with NHLA grading for FAS or better lumber.
- C. Wood Species for Opaque Finish: Any closed-grain hardwood.
- D. Wood Products: Comply with the following:
  - 1. Hardboard: AHA A135.4, service tempered and consisting of steam-exploded wood fibers, highly compressed into a hard, dense, ¼ inch thick, homogeneous sheet, using natural resins and other added binders. Physical properties: Average modulus of rupture is 5,300-lbs. /sq. inch; density is 50 to 60 lbs. /cu. foot; and tensile strength of 3,500 lbs. /sq. inch.
  - 2. Medium-Density Fiberboard: ANSI A208.2, Grade MD, made with binder containing no urea formaldehyde.
  - 4. High Performance Particle Board Core:
    - a. Particleboard to be 47 lb. density of balanced 3 ply construction with moisture content not to exceed 8 percent. Particleboard shall conform to ANTI A208.1 1993, Type M 3.
    - b. Particleboard cabinet components for plastic laminate cabinets to be of the following minimum core thicknesses prior to lamination:
      - 1) 3/8 inch cabinet backs.
      - 2) 1/2 inch dividers, as detailed.
      - 3) 3/4 inch base and tall cabinet tops and bottoms, cabinet sides, door, cabinet back rear hang strips, dividers, exposed cabinet backs.
      - 4) 1 inch wall cabinet tops and bottoms, door cabinet shelving 30 inch width and over, and off wall shelving of all widths.
  - 5. Softwood Plywood: DOC PS 1, Medium Density Overlay (MDO).
- E. Thermoset Decorative Panels: Particleboard or medium-density fiberboard finished with thermally fused, melamine-impregnated decorative paper complying with LMA SAT-1.
  - 1. Provide ABS edge banding on components with exposed or semiexposed edges.
- F. 3mm and 1mm thick ABS Edge Banding. Solid, high impact, purified, color thru, acid resistant, pre-lamination primed edging, machine applied with hot melt adhesives, automatically trimmed, inside/outside length radiused for uniform appearance, buffed and corner radiused for consistent design. Colors shall be selected from manufacturer's full range. Minimum of one different color for each laminate color.
  - 1. Basis of Design Product: Wilsonart ABS Edgeband or Architect approved equal.
    - a. Colors: TBD. Allow for a minimum of one color for each laminate selection.
  - 2. Edging locations: Provide above specified edging at the following locations:
    - a. Cabinet Door/Drawer front edge: 3mm.
    - b. Cabinet body edge, including door/drawer front spacer rail: 3mm.



- c. Interior body component edging, interior dividers, top of drawer body, all four sides of all shelving: 1mm.
  - d. Countertop edges, front, and exposed ends: 3mm.
- G. Edging for wood cabinets:
  - 1. Red oak, 3/8 inch thick or as noted below. 3mm thickness or any other dimensions less than specified will not be accepted.
- H. High-Pressure Decorative Laminate (**HPL-1 and HPL-2**): NEMA LD 3, grades as indicated or, if not indicated, as required by woodwork quality standard.
  - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering high-pressure decorative laminates that may be incorporated into the Work include, but are not limited to, the following:
    - a. Nevamar Company, LLC; Decorative Products Div.
    - b. Wilsonart International; Div. of Premark International, Inc. **Basis of Design**
    - c. Formica Corporation.
    - d. Arborite; Division of ITW Canada, Inc.
  - 2. High pressure plastic laminate, .030 inch thickness, for vertical exposed cabinet surfaces shall meet NEMA LD3 1991 GP28 standards including thickness.
    - a. Colors: As indicated in Finish Legend in Drawings.
  - 3. Plastic Laminate Balancing Sheet: White high pressure cabinet liner, .020 inch thickness shall meet NEMA LD3 1991 CL 20 standards. Use for balancing exterior surface laminates.
- I. Solid-Surfacing Material: Homogeneous solid sheets of cast filled acrylic, not coated, laminated or of composite construction, meeting ANSE Z124-1980, Type Six.
  - 1. Superficial damage to a depth of 0.10 of an inch shall be repairable by sanding or polishing.
  - 2. Manufacturers: Subject to compliance with requirements, provide products by the following:
    - a. E. I. du Pont de Nemours and Company (Corian) – **Basis of Design for SSR1, SSR2, and SSR-3.**
  - 3. Colors: As indicated on Finish Legend on Drawings.
  - 4. Type: Standard.
    - a. Countertops: 1/2 inch material.
  - 5. Accessory Products:
    - a. Joint adhesive: Manufacturer's standard two part adhesive kit to create inconspicuous, non-porous joints.
    - b. Panel Adhesive: Manufacturer's standard neoprene-based panel adhesive meeting ANSI A136.1-1967 and UL listed.
    - c. Sealant: Manufacturer's standard mildew resistant FDA/UL recognized silicone sealant in colors matching components.
- J. Fasteners: Provide screws, bolts, and other fastening devices made from same material as items being fastened, except provide hot- dip galvanized, stainless steel, or aluminum fasteners for exterior applications. Provide types, sizes, and lengths to suit installation conditions. Use security fasteners where exposed to view.
- K. Upholstered Foam Cushions
  - 1. Industrial Grade Foam
    - a. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the work include, but are not limited to the following:
      - 1) **Basis-of-Design**: Chestnut Ridge Foam, Inc.
      - 2) Product: CR Safeguard XX Firm
      - 3) Thickness: 3 inches
      - 4) Flame Spread Rating: Class A according to ASTM E-84.

2. Vinyl Upholstery
  - a. Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the work include, but are not limited to the following:
    - 1) **Basis-of-Design: Architex,**
    - 2) Product: Tonic, Cool Comfort
    - 3) Double Rubs (Wyzenbeek method): 100,000 minimum
    - 4) Width: 54 inches.
    - 5) Compliance with CAL TB-117-2013 and NFPA 260
    - 6) Color: TBD, as selected by Architect from manufacturer's full range.
  - b. Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the work include, but are not limited to the following:
    - 1) **Basis-of-Design: ArcCom**
    - 2) Product: Durango
    - 3) Double Rubs (Wyzenbeek method): 100,000 minimum
    - 4) Width: 54 inches.
    - 5) Compliance with CAL TB-117-2013 and NFPA 260
    - 6) Color: TBD, as selected by Architect from manufacturer's full range.
  - c. Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the work include, but are not limited to the following:
    - 1) **Basis-of-Design: CF Stinson**
    - 2) Product: Atlas
    - 3) Double Rubs (Wyzenbeek method): 100,000 minimum
    - 4) Width: 54 inches.
    - 5) Compliance with CAL TB-117-2013 and NFPA 260
    - 6) Color: TBD, as selected by Architect from manufacturer's full range.

## 2.02 FIRE-RETARDANT-TREATED MATERIALS

- A. General: Where fire-retardant-treated materials are indicated, use materials complying with requirements in this Article, that are acceptable to authorities having jurisdiction, and with fire-test-response characteristics specified.
  1. Do not use treated materials that do not comply with requirements of referenced woodworking standard or that are warped, discolored, or otherwise defective.
  2. Use fire-retardant-treatment formulations that do not bleed through or otherwise adversely affect finishes. Do not use colorants to distinguish treated materials from untreated materials.
  3. Identify fire-retardant-treated materials with appropriate classification marking of UL, U.S. Testing, Timber Products Inspection, or another testing and inspecting agency acceptable to authorities having jurisdiction.
- B. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Comply with performance requirements of AWPA C20 (lumber) and AWPA C27 (plywood). Use the following treatment type:
  1. Exterior Type: Organic-resin-based formulation thermally set in wood by kiln drying.
  2. Interior Type A: Low-hygroscopic formulation.
  3. Mill lumber after treatment within limits set for wood removal that do not affect listed fire-test-response characteristics, using a woodworking plant certified by testing and inspecting agency.
  4. Mill lumber before treatment and implement special procedures during treatment and drying processes that prevent lumber from warping and developing discolorations from drying sticks or other causes, marring, and other defects affecting appearance of treated woodwork.
  5. Kiln-dry materials before and after treatment to levels required for untreated materials.
- C. Fire-Retardant Particleboard: Panels complying with the following requirements, made from softwood particles and fire-retardant chemicals mixed together at time of panel manufacture to

achieve flame-spread index of 25 or less and smoke-developed index of 25 or less per ASTM E 84.

1. For panels 3/4 inch (19 mm) thick and less, comply with ANSI A208.1 for Grade M-2 except for the following minimum properties: modulus of rupture, 1600 psi (11 MPa); modulus of elasticity, 300,000 psi (2070 MPa); internal bond, 80 psi (550 kPa); and screw-holding capacity on face and edge, 250 and 225 lbf (1100 and 1000 N), respectively.
  2. For panels 13/16 to 1-1/4 inches (20 to 32 mm) thick, comply with ANSI A208.1 for Grade M-1 except for the following minimum properties: modulus of rupture, 1300 psi (9 MPa); modulus of elasticity, 250,000 psi (1720 MPa); linear expansion, 0.50 percent; and screw-holding capacity on face and edge, 250 and 175 lbf (1100 and 780 N), respectively.
  3. Product: Subject to compliance with requirements, provide "Duraflake FR" by Weyerhaeuser.
- D. Fire-Retardant Fiberboard: Medium-density fiberboard panels complying with ANSI A208.2, made from softwood fibers, synthetic resins, and fire-retardant chemicals mixed together at time of panel manufacture to achieve flame-spread index of 25 or less and smoke-developed index of 200 or less per ASTM E 84.
1. Product: Subject to compliance with requirements, provide "Medite FR" by SierraPine Ltd.; Medite Div.

## 2.03 CABINETS

- A. Quality Standard: Custom Grade, in accordance with AWI/AWMAC/WI (AWS), unless noted otherwise.
- B. Wood Veneer Faced Cabinet:
1. Exposed Surfaces: HPVA HP-1 Grade A, Ash, plain sliced, random-matched.
  2. Semi-Exposed Surfaces: HPVA HP-1 Grade B, Ash, plain sliced, random-matched.
  3. **Campbell-Rhea, Basis of Design; District standard**
- C. Cabinets at Library Circulation Desk, refer to drawings:
1. Finish - Exposed Exterior Surfaces: Wood.
  2. Finish - Exposed Interior Surfaces: Decorative laminate.
  3. Finish - Semi-Exposed Surfaces: Decorative laminate
  4. Interface Style for Cabinet and Door: Style 2 - Finish Inset; reveal overlay.
  5. Grained Face Layout for Cabinet and Door Fronts: Flush panel.
    - a. Custom Grade: Doors, drawer fronts and false fronts wood grain to run and match vertically within each cabinet unit.
  6. Cabinet Design Series: As indicated on drawings.
  7. Adjustable Shelf Loading: 40 psf.
    - a. Deflection: L/144.
  8. Cabinet Style: Flush overlay.
  9. Cabinet Doors and Drawer Fronts: Flush style.
  10. Drawer Side Construction: Multiple-dovetailed.
  11. Drawer Construction Technique: Dovetail joints.

## 2.04 PANEL CORE MATERIALS

- A. Particleboard: Composite panel composed of cellulosic particles, additives, and bonding system; comply with ANSI A208.1.
1. Grade: M-3; moisture resistance: MR10.
  2. Particleboard cabinet components for plastic laminate cabinets to be of the following minimum core thicknesses prior to lamination:
    - a. 3/8 inch cabinet backs.
    - b. 1/2 inch dividers, as detailed.
    - c. 3/4 inch base and tall cabinet tops and bottoms, cabinet sides, door, cabinet back rear hang strips, dividers, exposed cabinet backs.
    - d. 1 inch wall cabinet tops and bottoms, door cabinet shelving 30 inch width and over, and off wall shelving of all widths.

## 2.05 HARDWOOD PLYWOOD PANELS

- A. Hardwood Plywood: Plywood manufactured for nonstructural decorative applications; consisting of faces and backs applied to a variety of core types; comply with HPVA HP-1.
  - 1. Woodwork Quality Standard: Panels complying with specified woodwork quality standard.
  - 2. Face: White oak; quarter-cut; grade AA.
    - a. Finish: Natural, unfinished.

## 2.06 CABINET HARDWARE AND ACCESSORIES

- A. General:
  - 1. Provide cabinet hardware and accessory materials associated with architectural cabinets.
  - 2. Hardware Finish: Brushed Chrome, unless otherwise noted.
- B. Hinges: Provide 2 hinges for doors up to 36 inches high. Provide 3 hinges for doors up to 60 inches high. Provide 4 hinges for doors up to 84 inches high.
  - 1. Typical Hinges: Concealed European hinges.
    - a. Basis of Design Product: **Salice Series M**, 270 degree, 3 knuckle, grade 1 institutional hinge with integrated stay close device, constructed of die cast zinc with bright nickel finish and complying with BHMA A156.9.
- C. Pulls/ Handles:
  - 1. Typical Wall and Base Cabinets: Heavy- duty aluminum wire institutional type with 1 pull on drawings less than 27 inches wide and 2 pulls on drawers 27 inches wide and larger. Pulls anchored at 4 inches on center.
  - 2. Specialty Pull for wall and base cabinets in all locations specified to receive wood veneer casework:
    - a. Basis of Design Product: **Richelieu Contemporary Metal Pull #5632** 5 1/32 inch pulls, Brushed Oil-Rubbed Bronze finish
    - b. 1 pull on drawings less than 27 inches wide and 2 pulls on drawers 27 inches wide and larger.
  - 3. Tall Cabinets: 3-point locking systems consisting of dummy handle on left hand door and 3- point locking handle on right door, providing positive latching engagement at top, bottom and middle of door. Rod ends for 3- point system extend into cabinet body and have a steel plate guide to protect the anchoring hole from wear. Exterior handle finishes in either satin chrome or black as directed by Architect.
- D. Catches: Magnetic Catches.
  - 1. Basis of Design Product: **KV 918 ALUM Heavy- Duty Aluminum Magnetic Catch**, 2- 1/16 inches by 1 inch, pull strength of approximately 7 pounds, aluminum finish. Screw-mounted catch and strike plate have slotted holes for adjustability.
  - 2. Doors up to 36 inches high: one catch each.
  - 3. Doors 36 inches high and over: two catches, located top and bottom.
- E. Adjustable Shelf Standards and Supports: Heavy- duty steel
  - 1. Basis of Design Product: **KV Series 82 Heavy- Duty Standards and 182 Series Heavy- Duty Brackets**
    - a. BHMA Grade 2
    - b. Powder- coat finish
    - c. 16 gauge steel brackets, 14 gauge steel standards
    - d. Adjustable on 1 inch centers.
    - e. Height: As indicated in Drawings
- F. Shelf Clips: Clear Polycarbonate, laboratory standard grade, double ¼ inch diameter pins, 32mm on center, equipped with shelf lock hold down tabs for ¾ inch or 1 inch thick shelves. Clips should accommodate interchanging of shelves and thicknesses if desired by Owner.
- G. Drawer Slides: BHMA A156.9, B05091
  - 1. Heavy Duty (Grade 1HD-100 and Grade 1HD-200): Side mounted; full-extension type; zinc-plated steel ball-bearing slides.

- a. Basis of Design Product: **Accuride model #3832**
    - b. 100 pound load capacity
  2. File Drawer Slides: Side mounted; full-extension type; zinc-plated steel ball-bearing slides.
    - a. Basis of Design Product: **Accuride model #4034**
    - b. 150 pound load capacity
    - c. Slides shall have positive stops to prevent drawer's accidental removal, but allow for quick removal without tools.
- H. File Folder Drawer Inserts: Frames for fastening to drawer interior for hanging file folders
  1. File Drawer Inserts:
    - a. Basis of Design Product: **Hafele File Frame Kit 422.74.310**
    - b. Applicable for letter size folders
    - c. Provide at all file drawer and lateral file drawers.
- I. Locks: Cylinder type, die- cast, five disc tumbler mechanism with removable core.
  1. Basis of Design Product: CompX National or equal
  2. Provide locks at all locations, unless noted otherwise.
  3. **Keys and master key as directed by the Owner and Architect.**
  4. Provide 3 core keys so that facility may switch out locks as required.
  5. Provide two keys for each lock.
- J. Closet Rods:
  1. Basis of Design Product: KV model 880 Extra- Duty Oval Closet Rod and 881 Flange
  - 2.
  3. Basis of Design Product: Subject to compliance with requirements, provide **Brava series BRV2 by Doug Mockett & Company, Inc.**
    - a. Finish: Satin Chrome
    - b. Brush Opening
    - c. 3-15/32 inches
    - d. Locations: Provide at all worksurface locations not more than 4' – 0" on center.
- K. Surface- Mount Counter Support Brackets:
  1. Basis of Design Product: **EH Series by Rakks.**
    - a. Provide EH-1824 for 30 inch deep counters
    - b. Provide EH-1818 for 24 inch deep counters
    - c. Provide EH-1212 for 18 inch deep counters
    - d. Colors: As selected by Architect from manufacturer's full range.
    - e. Weight Capacity: 450 pounds
    - f. Spacing: 32 inches on center maximum.
- L. Flush- Mount Counter Support Brackets:
  1. Basis of Design Product: **EH- Inside Wall Mount Brackets by Rakks.**
    - a. Colors: As selected by Architect from manufacturer's full range.
    - b. Locations: As indicated in elevations and millwork details.
- M. Exposed Hardware Finishes: For exposed hardware, provide finish that complies with BHMA A156.18 for BHMA finish number indicated.
  1. Satin Chromium Plated: BHMA 626 for brass or bronze base; BHMA 652 for steel base.
  2. Bright Chromium Plated: BHMA 625 for brass or bronze base; BHMA 651 for steel base.
  3. Satin Stainless Steel: BHMA 630.
- N. For concealed hardware, provide manufacturer's standard finish that complies with product class requirements in BHMA A156.9.
- O. Wall Hooks (WH1):
  1. Basis of Design Product: **Doug Mockett & Company Inc. CH53 Square Plate Coat Hook**, or equal.
    - a. Dimensions: 3-3/4" high x 2-3/4" wide with no more than 2-1/2" projection.

- b. Finish: Satin Chrome.
- c. Weight Capacity: 35 lbs minimum.
- d. Locations: As indicated on drawings.

## **2.07 MISCELLANEOUS MATERIALS**

- A. Furring, Blocking, Shims, and Hanging Strips: Softwood or hardwood lumber, kiln dried to less than 15 percent moisture content.
- B. Furring, Blocking, Shims, and Hanging Strips: Fire-retardant-treated softwood lumber, kiln dried to less than 15 percent moisture content.
- C. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide nonferrous-metal or hot-dip galvanized anchors and inserts on inside face of exterior walls and elsewhere as required for corrosion resistance. Provide toothed-steel or lead expansion sleeves for drilled-in-place anchors.
- D. Adhesives, General: Do not use adhesives that contain urea formaldehyde.
- E. VOC Limits for Installation Adhesives and Glues: Use installation adhesives that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
  - 1. Wood Glues: 30 g/L.
  - 2. Contact Adhesive: 250 g/L.

## **2.08 FABRICATION, GENERAL**

- A. Interior Woodwork Grade: Unless otherwise indicated, provide Custom-grade interior woodwork complying with referenced quality standard.
- B. Wood Moisture Content: Comply with requirements of referenced quality standard for wood moisture content in relation to ambient relative humidity during fabrication and in installation areas.
- C. Sand fire-retardant-treated wood lightly to remove raised grain on exposed surfaces before fabrication.
- D. Complete fabrication, including assembly, finishing, and hardware application, to maximum extent possible before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.
  - 1. Notify Architect seven days in advance of the dates and times woodwork fabrication will be complete.
  - 2. Trial fit assemblies at fabrication shop that cannot be shipped completely assembled. Install dowels, screws, bolted connectors, and other fastening devices that can be removed after trial fitting. Verify that various parts fit as intended and check measurements of assemblies against field measurements indicated on Shop Drawings before disassembling for shipment.
- E. Shop-cut openings to maximum extent possible to receive hardware, appliances, plumbing fixtures, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.
  - 1. Seal edges of openings in countertops with a coat of varnish.

## **2.09 INTERIOR STANDING AND RUNNING TRIM FOR TRANSPARENT FINISH**

- A. Grade: Custom.
- B. Wood Species and Cut: Red Oak, plain sliced.
  - 1. Provide split species on trim that faces areas with different wood species, matching each face of woodwork to species and cut of finish wood surfaces in areas finished.
- C. For trim items wider than available lumber, use veneered construction. Do not glue for width.

- D. For rails wider or thicker than available lumber, use veneered construction. Do not glue for width or thickness.
- E. Backout or groove backs of flat trim members and kerf backs of other wide, flat members, except for members with ends exposed in finished work.
- F. Assemble casings in plant except where limitations of access to place of installation require field assembly.
- G. Assemble moldings in plant to maximum extent possible. Miter corners in plant and prepare for field assembly with bolted fittings designed to pull connections together.
- H. For trim items wider than available lumber, use veneered construction. Do not glue for width.

## **2.10 PLASTIC-LAMINATE CABINETS**

- A. Grade: Custom.
- B. AWI Type of Cabinet Construction: Flush overlay.
  - 1. Reveal Dimension: 3/8 inch reveals between doors and drawers that are adjacent.
- C. Laminate Cladding for Exposed Surfaces: High-pressure decorative laminate complying with the following requirements:
  - 1. Horizontal Surfaces Other Than Tops: Grade HGS.
  - 2. Postformed Surfaces: Grade HGP.
  - 3. Vertical Surfaces: Grade VGP.
  - 4. Edges: ABS edgebanding.
- D. Grain Direction for Wood Grain Plastic Laminate:
  - 1. Vertical on doors, horizontal on drawer fronts.
  - 2. Lengthwise on face frame members.
  - 3. Vertical on end panels.
  - 4. Side to side on bottoms and tops of units.
  - 5. Vertical on knee-space panels.
  - 6. Horizontal on aprons.
- E. Construction: Provide laminate faced Casework of the following minimum construction:
  - 1. Base Cabinets: 24 inches deep, unless otherwise noted.
  - 2. Overhead Wall Mounted Cabinets: 12 inches deep, unless otherwise noted.
  - 3. Bottoms of base cabinets and tall cabinets: 3/4 inch thick hardwood plywood.
  - 4. Bottoms of wall and upper case: 1 inch thick.
  - 5. Tops and Bottoms of Wall Cabinets and Tops of Tall Cabinets: 1 inch thick.
    - a. Bottoms: Exposed pocket shoulder screws are not acceptable.
  - 6. Ends of Cabinets: 3/4 inch thick.
  - 7. Shelves: 1 inch thick.
  - 8. Full Base Cabinet Top Frames:
    - a. Horizontal front top rail: 1 x 3 inches. Attach to cabinet ends with glued 8mm dowel joinery and screws.
    - b. Vertical back top rail: 3/4 x 3-3/4 inch. Attach to cabinet ends with glued 8mm dowel joinery and screws.
    - c. Top side rails: 3/4 x 1-1/2 inch between front horizontal and back vertical rails, glued and screwed in place.
  - 9. Wall, upper and tall case tops: 1 inch thick.
  - 10. Base cabinet front horizontal intermediate rail: 3/4 x 1-1/2 inch rail to be provided between doors and drawers. Secure to cabinet end panels with glued 8mm dowel joinery.
  - 11. Backs: Backs that extend through the bottom panels are not acceptable.
  - 12. Exposed backs: 1/4 inch thick, recessed 7/8 inch and set into top, bottom and ends, sealed with hot melt glue process around entire perimeter of cabinet.
  - 13. Semi-exposed backs: 1/4 inch thick, recessed 7/8 inch and set into top, bottom and ends, sealed with hot melt glue process around entire perimeter.

14. Concealed backs:
    - a. Cupboard units: One piece 3/16 inch thick hardboard, rabbeted into rear top rail for easy removal from inside of cabinet.
    - b. Drawer units: Removable 3/16 inch thick hardboard split back panels, rabbeted into top rail.
    - c. Sink units: Half height, one piece 3/16 inch thick hardboard, rabbeted into rear rail for easy removal from inside cabinet.
  15. Vertical dividers in combination cabinets: 1-1/2 inch thick panel glued and screwed in place, top and bottom.
  16. Toe space rail: 3-3/4 x 3/4 inch, mounted between end panels with glued 8mm dowel joinery and metal fasteners, forming a 4 high x 2-1/2 inch deep toe space, closed to cupboard bottom.
  17. Drawer Fronts: 3/4 inch thick.
  18. Drawer Sides and Backs: Four- sided drawer box with back, front and sides, 1/2 thick with chemical resistant finish and finished top edges. Sides shall be joined by multiple dovetail all four corners.
  19. Drawer Bottoms: 1/4 inch thick white coated MDF board, inset into all four sides of drawer box and sealed with hot melt glue process around entire drawer bottom perimeter.
  20. Doors: 3/4 inch thick.
  21. Upper cabinet apron/ valance: for concealment of undercabinet lighting
    - a. 2 inches in height, thickness to match that of cabinet frame.
    - b. In locations where valances/ undercabinet lighting is noted in drawings, cabinet door height shall include the height of the cabinet body in addition to the height of the valance.
- F. Filler and Closure Panels: Provide where indicated and as needed to close spaces between cabinets and walls, ceilings, and indicated appliances. Fabricate from same material and with same finish as adjacent exposed cabinet surfaces unless otherwise indicated.
1. Provide utility space closure panels at spaces between base cabinets where utility space would otherwise be exposed, including spaces below countertops.
  2. Provide closure panels at ends of utility spaces where utility space would otherwise be exposed.
  3. Provide knee space panels (modesty panels) at spaces between base cabinets, where cabinets are not installed against wall or where space is not otherwise closed. Fabricate from same material and with same finish as exposed cabinet backs

## **2.11 SOLID-SURFACING-MATERIAL COUNTERTOPS (SSR)**

- A. Grade: Custom.
- B. Solid-Surfacing-Material Thickness: 1/2 inch (13 mm).
- C. Colors, Patterns, and Finishes: Provide materials and products that result in colors of solid-surfacing material complying with the following requirements:
  1. As selected by Architect from manufacturer's full range.
- D. Fabricate tops in one piece, unless otherwise indicated. Comply with solid-surfacing-material manufacturer's written recommendations for adhesives, sealers, fabrication, and finishing.
  1. Fabricate tops with shop-applied edges of materials and configuration indicated.
  2. Fabricate tops with loose backsplashes for field application.
- E. Install integral sink bowls in countertops in shop.
- F. Drill holes in countertops for plumbing fittings and soap dispensers in shop.

## **2.12 UPHOLSTERED CUSHION CONSTRUCTION**

- A. 1/4" welt, zipper at back edge, nylon thread for strength
- B. Commercial-grade polyurethane fabric upholstery
- C. Location: As shown on drawings.



## 2.13 SHOP FINISHING

- A. Grade: Provide finishes of same grades as items to be finished.
- B. General: Finish architectural woodwork at fabrication shop as specified in this Section. Defer only final touchup, cleaning, and polishing until after installation.
- C. General: Shop finish transparent-finished interior architectural woodwork at fabrication shop as specified in this Section. Refer to Division 09 painting Sections for finishing opaque-finished architectural woodwork.
- D. General: Drawings indicate items that are required to be shop finished. Finish such items at fabrication shop as specified in this Section. Refer to Division 09 painting Sections for finishing architectural woodwork not indicated to be shop finished.
- E. Shop Priming: Shop apply the prime coat including backpriming, if any, for transparent-finished items specified to be field finished. Refer to Division 09 painting Sections for material and application requirements.
- F. Preparation for Finishing: Comply with referenced quality standard for sanding, filling countersunk fasteners, sealing concealed surfaces, and similar preparations for finishing architectural woodwork, as applicable to each unit of work.
  - 1. Backpriming: Apply one coat of sealer or primer, compatible with finish coats, to concealed surfaces of woodwork. Apply two coats to back of paneling and to end-grain surfaces. Concealed surfaces of plastic-laminate-clad woodwork do not require backpriming when surfaced with plastic laminate, backing paper, or thermoset decorative panels.
- G. Transparent Finish:
  - 1. Grade: Custom.
  - 2. AWI Finish System: Conversion varnish.
    - a. Basis of Design Product: **M.L. Campbell KlearVar Conversion Varnish** or equal.
  - 3. Wash Coat for Stained Finish: Apply wash-coat sealer to woodwork made from closed-grain wood before staining and finishing.
  - 4. Sheen:
    - a. Wood Cabinets: Satin, 31-45 gloss units measured on 60-degree gloss meter per ASTM D 523.
    - b. Standing and Running Trim: Semigloss, 46-60 gloss units measured on 60-degree gloss meter per ASTM D 523.
- H. Transparent Finish:
  - 1. Grade: Custom.
  - 2. AWI Finish System: Acrylic Polyurethane.
  - 3. Basis of Design Product: **M.L. Campbell Polarion 2K Acrylic Polyurethane** or equal.
  - 4. Wash Coat for Stained Finish: Apply wash-coat sealer to woodwork made from closed-grain wood before staining and finishing.
  - 5. Sheen:
    - a. Wood Veneer Panels: Satin, 31-45 gloss units measured on 60-degree gloss meter per ASTM D 523.

## PART 3 EXECUTION

### 3.01 EXAMINATION

- A. Verify adequacy of backing and support framing.
- B. Verify location and sizes of utility rough-in associated with work of this section.

### 3.02 INSTALLATION

- A. Install work in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS) requirements for grade indicated.
- B. Set and secure custom cabinets in place, assuring that they are rigid, plumb, and level.

- C. Use fixture attachments in concealed locations for wall mounted components.
- D. Use concealed joint fasteners to align and secure adjoining cabinet units.
- E. Carefully scribe casework abutting other components, with maximum gaps of 1/32 inch. Do not use additional overlay trim for this purpose.
- F. Secure cabinets to floor using appropriate angles and anchorages.
- G. Countersink anchorage devices at exposed locations. Conceal with solid wood plugs of species to match surrounding wood; finish flush with surrounding surfaces.
- H. Fire-Retardant-Treated Wood: Handle, store, and install fire-retardant-treated wood to comply with chemical treatment manufacturer's written instructions, including those for adhesives used to install woodwork.
- I. Anchor woodwork to anchors or blocking built in or directly attached to substrates. Secure with countersunk, concealed fasteners and blind nailing as required for complete installation. Use fine finishing nails or finishing screws for exposed fastening, countersunk and filled flush with woodwork and matching final finish if transparent finish is indicated.
- J. Standing and Running Trim: Install with minimum number of joints possible, using full-length pieces (from maximum length of lumber available) to greatest extent possible. Do not use pieces less than 96 inches (2400 mm) long, except where shorter single-length pieces are necessary. Scarf running joints and stagger in adjacent and related members.
  - 1. Fill gaps, if any, between top of base and wall with plastic wood filler, sand smooth, and finish same as wood base if finished.
  - 2. Install wall railings on indicated metal brackets securely fastened to wall framing.
  - 3. Install standing and running trim with no more variation from a straight line than 1/8 inch in 96 inches (3 mm in 2400 mm).
- K. Cabinets: Install without distortion so doors and drawers fit openings properly and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete installation of hardware and accessory items as indicated.
  - 1. Do not exceed the following tolerances:
    - a. Variation of Tops of Base Cabinets from Level: 1/16 inch in 10 feet.
    - b. Variation of Bottoms of Upper Cabinets from Level: 1/8 inch in 10 feet.
    - c. Variation of Faces of Cabinets from True Plane: 1/8 inch in 10 feet.
    - d. Variation of Adjacent Surfaces from True Plane (Lippage): 1/32 inch.
    - e. Variation in Alignment of Adjacent Door and Drawer Edges: 1/16 inch.
  - 2. Fasten wall cabinets through back, near top and bottom, at ends and not more than 16 inches (400 mm) o.c. with No. 10 wafer-head screws sized for 1-inch (25-mm) penetration into wood framing, blocking, or hanging strips and No. 10 wafer-head sheet metal screws through metal backing or metal framing behind wall finish.
  - 3. Base Cabinets: Fasten cabinets to partition framing, wood blocking, or reinforcements in partitions with fasteners spaced not more than 16 inches o.c. Bolt adjacent cabinets together with joints flush, tight, and uniform.
    - a. Where base cabinets are installed away from walls, fasten to floor at toe space at not more than 16 inches o.c. and at sides of cabinets with not less than 2 fasteners per side.
- L. Countertops: Anchor securely by screwing through corner blocks of base cabinets or other supports into underside of countertop.
  - 1. Align adjacent solid-surfacing-material countertops and form seams to comply with manufacturer's written recommendations using adhesive in color to match countertop. Carefully dress joints smooth, remove surface scratches, and clean entire surface.
  - 2. Install countertops with no more than 1/8 inch in 96-inch (3 mm in 2400-mm) sag, bow, or other variation from a straight line.
  - 3. Secure backsplashes to tops with concealed metal brackets at 16 inches (400 mm) o.c. and to walls with adhesive.

4. Calk space between backsplash and wall with sealant specified in Division 07 Section "Joint Sealants."
  5. Field Jointing: Where possible, make in same manner as shop made joints using dowels, splines, fasteners, adhesives, and sealants recommended by manufacturer. Prepare edges in shop for field made joints.
  6. Use concealed clamping devices for field made joints in plastic laminate countertops. Locate clamping devices within 6 inches of front and back edges and at intervals not exceeding 24 inches. Tighten according to manufacturer's written instructions to exert uniform heavy pressure at joints.
  7. Fastening: Secure countertops to cabinets with "Z" Type fasteners or equivalent, using two or more fasteners at each cabinet front, end, and back.
  8. Provide required holes and cutouts for service fittings.
  9. Provide scribe moldings for closures at junctures of countertop, curb, and splash with walls as recommended by manufacturer for materials involved. Match materials and finish to adjacent Institutional Casework. Use chemical resistant, permanently elastic sealing compound where recommended by manufacturer.
  10. Carefully dress joints smooth, remove surface scratches, and clean entire surface.
- M. Touch up finishing work specified in this Section after installation of woodwork. Fill nail holes with matching filler where exposed.

### **3.03 ADJUSTING**

- A. Test installed work for rigidity and ability to support loads.
- B. Adjust moving or operating parts to function smoothly and correctly.
- C. Repair damaged and defective woodwork, where possible, to eliminate functional and visual defects; where not possible to repair, replace woodwork. Adjust joinery for uniform appearance.
- D. Clean, lubricate, and adjust hardware.

### **3.04 CLEANING**

- A. Clean casework, counters, shelves, hardware, fittings, and fixtures.
- B. Protect countertop surfaces during construction with 6 mil plastic or other suitable water resistant covering. Tape to underside of countertop at minimum of 48 inches o.c.
- C. Touch up shop-applied finishes to restore damaged or soiled areas.

### **END OF SECTION**



## SECTION 071900 – WATER REPELLENTS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Special Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.01 SUMMARY

- A. This specification describes the grouting of cracks/sealing of concrete by topical treatment with a 100% solids epoxy resin.

#### 1.02 QUALITY ASSURANCE

- A. Manufacturing qualifications: The manufacturer of the specified product shall be ISO 9001 certified and have in existence a recognized ongoing quality assurance program independently audited on a regular basis.
- B. Contractor qualifications: Contractor shall be qualified in the field of concrete repair and protection with a successful track record of 5 years or more. Contractor shall maintain qualified personnel who have received product training by a manufacturer's representative.
- C. Install materials in accordance with all safety and weather conditions required by manufacturer, or as modified by applicable rules and regulations of local, state and federal authorities having jurisdiction. Consult Material Safety Data Sheets for complete handling recommendations.

#### 1.03 DELIVERY, STORAGE, AND HANDLING

- A. All materials must be delivered in original, unopened containers with the manufacturer's name, labels, product identification, and batch numbers. Damaged material must be removed from the site immediately.
- B. Store all materials off the ground and protect from rain, freezing or excessive heat until ready for use.
- C. Condition the specified product as recommended by the manufacturer.

#### 1.04 JOB CONDITIONS

- A. Environmental Conditions: Do not apply material if it is raining or snowing or if such conditions appear to be imminent. Minimum application temperature 40°F (5°C) and rising.
- B. Protection: Precautions should be taken to avoid damage to any surface near the work zone due to mixing and handling of the specified product.

#### 1.05 SUBMITTALS

- A. Submit two copies of manufacturer's literature, to include: Product Data Sheets, and appropriate Material Safety Data Sheets (MSDS).

#### 1.06 WARRANTY

- A. Provide a written warranty from the manufacturer against defects of materials for a period of one (1) year, beginning with date of substantial completion of the project.

### Part 2 - PRODUCTS

#### 2.01 MANUFACTURERS

- A. **Sikadur 55 SLV**, as manufactured by Sika Corporation, 1682 Marion Williamsport Road, Marion, Ohio 43302 is considered to conform to the requirements of this specification.

#### 2.02 MATERIALS

- A. Epoxy resin adhesive shall be **Sikadur 55 SLV**:
  - 1. Component “A” shall be a modified epoxy resin of the epichlorohydrin bisphenol A type containing suitable viscosity control agents. It shall not contain butyl glycidyl ether.
  - 2. Component “B” shall be an aliphatic diamine containing suitable viscosity control agents and accelerators.
  - 3. The ratio of component “A”: Component “B” shall be 2 : 1 by Volume.

#### 2.03 PERFORMANCE CRITERIA

- A. Properties of the mixed epoxy resin adhesive:
  - 1. Pot Life: min. 25 minutes (60 gram mass) @ 73° F
  - 2. Tack-Free Time: 20 mils  
40F(4C)      60F(15C)      73F(23C)      90F(32C)  
> 11 hrs.      11 hrs.      6 hrs.      2.5 hrs.
  - 3. Color: Clear, Amber
  - 4. Viscosity: 105 cps.
- B. Properties of the cured epoxy resin adhesive:
  - 1. Compressive Strength (ASTM D-695) .min.
    - a. 1 day: 1,100 psi (7.6 MPa)
    - b. 7 day: 10,900 psi (75.1 MPa)
    - c. 28 day: 12,000 psi (82.7 MPa)Compressive Modulus, PSI : .min.
    - a. 7 day 300,000 psi (2,068 MPa)
  - 2. Shear Strength (ASTM D-732)

- a. 7 days: 5,800 psi (40 MPa)
3. Flexural Strength (ASTM D-790) min.
  - a. 7 days: 8,500 psi (58.6 MPa)Tangent Modulus of Elasticity in Bending .min.
  - b. 7 days: 320,000 psi
4. Bond Strength ASTM C-882
  - 14 days (moist cure) .min.
  - a. Hardened Concrete to Hardened Concrete 2,500 psi (17.2 Mpa)
  - b. Hardened Concrete to Steel 1,600 psi (11 Mpa)
5. Water Absorption (ASTM D-570) .max.
  - a. 24 hour immersion 0.60%
6. Tensile properties (ASTM D-638) .min.
  - a. 7 day Tensile Strength 7,100psi (48.9 Mpa)
  - Elongation at Break 10%

Note: Tests above were performed with material and curing conditions at 73°F and 45-55% relative humidity.

### Part 3 - EXECUTION

#### 3.01 MIXING AND APPLICATION

- A. Mixing the epoxy adhesive dbinder: Proportion 1 (one) part Component 'B' to 2 (two) parts Component 'A' by volume into a clean pail. Mix thoroughly for 3 minutes with a low-speed drill (400-600 rpm) drill with Jiffy mixer until uniformly blended. Mix only that quantity which can be used within its pot life.
- B. Placement procedure:
  1. Large cracks can be prefilled with oven dry sand and must be filled prior to the application. Pour mixed epoxy resin over all visible cracks for 5 – 10 minutes. Repeat the ponding procedure until the cracks are sealed. Care must be taken not to allow the epoxy resin to stiffen in these ponded areas. Spread material out over the substrate before it sets. Fill the cracks when widest ( during the coolest part of the day) to maximize flow and material fill. If needed, seal cracks from underside, when accessible, to prevent leakage.
  2. After the visible cracks have been sealed, if needed commence sealing the entire prepared surface. Pour the mixed epoxy resin onto the substrate. Spread material using

rubber squeegee and rollers. Allow material to penetrate the pores of the substrates. Continue to apply until the substrate is sealed. The finished appearance of the substrate should be wet looking with no visible surface film. After 30 minutes and within 2 hours cover treated area with a light broadcast of a #20 or similar oven dry sand. Distribute evenly over surface at a rate of 15 to 20 lbs./ per 100 sq. ft.. Allow material to cure before removal of any loose sand and then open to traffic.

- B. Adhere to all limitations and cautions for the epoxy resin adhesive in the manufacturers current printed literature

### 3.02 CLEANING

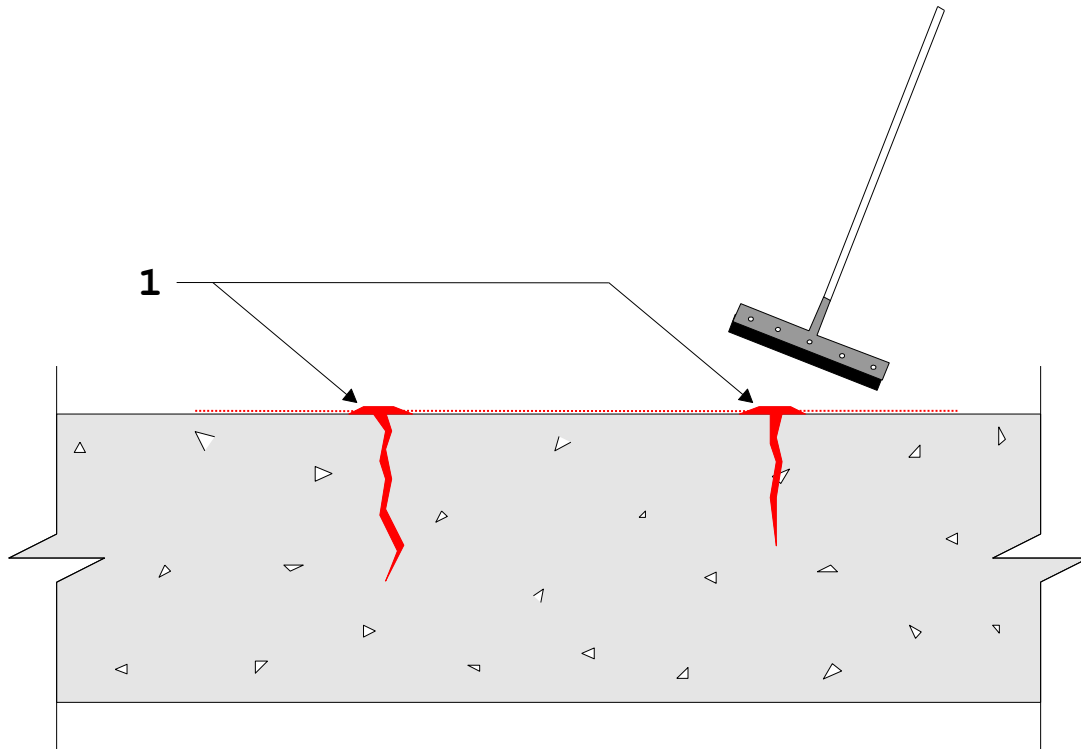
- A. The uncured epoxy resin adhesive can be cleaned from tools with approved solvent. The cured epoxy resin adhesive can only be removed mechanically.
- B. Leave finished work and work area in a neat, clean condition without evidence of spillovers onto adjacent areas.

END OF SECTION 071900



# **SC-006 Sikadur 55 SLV**

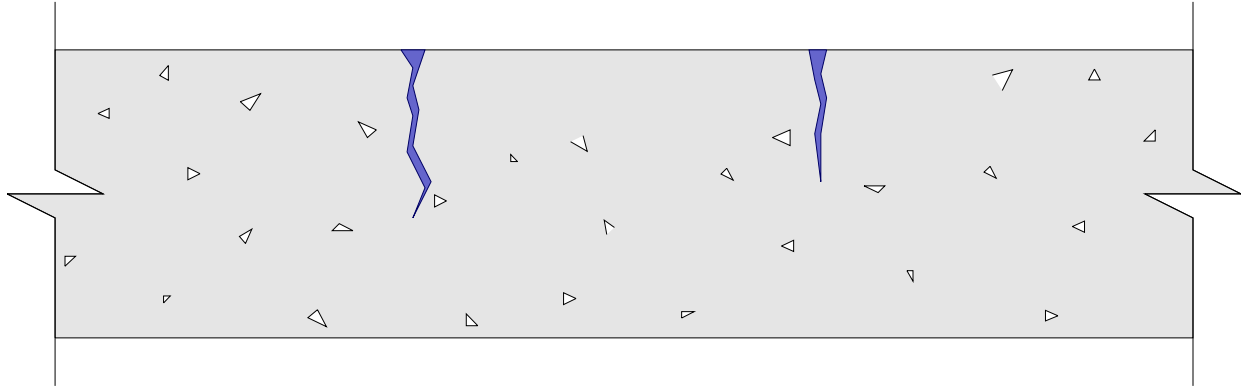
## **Crack Healer/Surface Sealer**



1. Spread neat Sikadur 55 SLV with flat squeegee or roller allowing to pond over cracked areas.
2. Let material penetrate into cracks and surrounding substrate.
3. Remove excess leaving no visible surface film.

**Note:** For cracks greater than  $\frac{1}{8}$ " wide, fill crack with oven-dried sand before applying Sikadur 55 SLV. Prior to filling seal underside of slab, when accessible, to prevent leakage.

# **SC-006 Sikadur® 55 SLV Crack Filler**



1. Pour neat Sikadur 55 SLV epoxy resin adhesive into vee notched crack.
2. Continue placement until cracks are completely filled.

Note: Prior to filling, seal underside of slab if cracks reflect through.

## SECTION 072100 - INSULATION

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:

- 1. Rigid insulation.
  - 2. Batt insulation.
  - 3. Sound attenuation batt insulation.

- B. Related Sections:

- 1. Section 075323 "Ethylene-Propylene-Diene-Monomer (EPDM) Roofing" for insulation specified as part of roofing system.
  - 2. Section 075552 "Modified Bituminous Protected Membrane Roofing" for insulation specified as part of roofing system.

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.

#### 1.4 QUALITY ASSURANCE

- A. Surface-Burning Characteristics: As determined by testing identical products according to ASTM E 84 by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Protect insulation materials from physical damage and from deterioration due to moisture, soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's written instructions for handling, storing, and protecting during installation.
- B. Protect foam-plastic board insulation as follows:
  - 1. Do not expose to sunlight except to necessary extent for period of installation and concealment.
  - 2. Protect against ignition at all times. Do not deliver foam-plastic board materials to Project site before installation time.

3. Quickly complete installation and concealment of foam-plastic board insulation in each area of construction.

## PART 2 - PRODUCTS

### 2.1 RIGID INSULATION

- A. Extruded-Polystyrene Board Insulation: ASTM C 578, of type and minimum compressive strength indicated below, with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, per ASTM E 84.
  1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. DiversiFoam Products.
    - b. Dow Chemical Company (The).
    - c. Owens Corning.
    - d. Pactiv Building Products.
  2. Type VI, 40 psi.
- B. Adhesive for Bonding Insulation: Product with demonstrated capability to bond insulation securely to substrates without damaging insulation and substrates.

### 2.2 BATT INSULATION

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  1. CertainTeed Corporation.
  2. Guardian Building Products, Inc.
  3. Johns Manville.
  4. Knauf Insulation.
  5. Owens Corning.
- B. Unfaced, Glass-Fiber Blanket Insulation: ASTM C 665, Type I; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively, per ASTM E 84; passing ASTM E 136 for combustion characteristics.
- C. Polypropylene-Scrim-Kraft-Faced, Glass-Fiber Blanket Insulation: ASTM C 665, Type II (non-reflective faced), Class A (faced surface with a flame-spread index of 25 or less); Category 1 (membrane is a vapor barrier).
- D. Kraft-Faced, Glass-Fiber Blanket Insulation: ASTM C 665, Type II (non-reflective faced), Class C (faced surface not rated for flame propagation); Category 1 (membrane is a vapor barrier).

- E. Reinforced-Foil-Faced, Glass-Fiber Blanket Insulation: ASTM C 665, Type III (reflective faced), Class A (faced surface with a flame-spread index of 25 or less); Category 1 (membrane is a vapor barrier), faced with foil scrim, foil-scrim kraft, or foil-scrim polyethylene.
- F. Foil-Faced, Glass-Fiber Blanket Insulation: ASTM C 665, Type III (reflective faced), Class B (faced surface with a flame-propagation resistance of 0.12 W/sq. cm); Category 1 (membrane is a vapor barrier), faced with foil scrim, foil-scrim kraft, or foil-scrim polyethylene.

## 2.3 SOUND ATTENUATION BATT INSULATION

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - 1. CertainTeed Corporation.
  - 2. Guardian Building Products, Inc.
  - 3. Johns Manville.
  - 4. Knauf Insulation.
  - 5. Owens Corning.
- B. Unfaced, Glass-Fiber Blanket Insulation: ASTM C 665, Type I; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively, per ASTM E 84; passing ASTM E 136 for combustion characteristics.

## 2.4 INSULATION FASTENERS

- A. Adhesively Attached, Spindle-Type Anchors: Plate welded to projecting spindle; capable of holding insulation of specified thickness securely in position indicated with self-locking washer in place.
  - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. AGM Industries, Inc.; Series T TACTOO Insul-Hangers.
    - b. Gemco; Spindle Type.
  - 2. Plate: Perforated, galvanized carbon-steel sheet, 0.030 inch thick by 2 inches square.
  - 3. Spindle: Copper-coated, low-carbon steel; fully annealed; 0.105 inch in diameter; length to suit depth of insulation indicated.
- B. Anchor Adhesive: Product with demonstrated capability to bond insulation anchors securely to substrates indicated without damaging insulation, fasteners, and substrates.
  - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. AGM Industries, Inc.; TACTOO Adhesive.
    - b. Gemco; Tuff Bond Hanger Adhesive.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Clean substrates of substances that are harmful to insulation or that interfere with insulation attachment.

### 3.2 INSTALLATION, GENERAL

- A. Comply with insulation manufacturer's written instructions applicable to products and applications indicated.
- B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed to ice, rain, or snow at any time.
- C. Extend insulation to envelop entire area to be insulated. Cut and fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.
- D. Provide sizes to fit applications indicated and selected from manufacturer's standard thicknesses, widths, and lengths. Apply single layer of insulation units to produce thickness indicated unless multiple layers are otherwise shown or required to make up total thickness.

### 3.3 INSTALLATION OF BELOW-GRADE INSULATION

- A. On vertical surfaces, set insulation units using manufacturer's recommended adhesive or loosely laid according to manufacturer's written instructions.
  - 1. If not otherwise indicated, extend insulation a minimum of 36 inches below exterior grade line.
- B. On horizontal surfaces, loosely lay insulation units according to manufacturer's written instructions. Stagger end joints and tightly abut insulation units.
  - 1. If not otherwise indicated, extend insulation a minimum of 36 inches in from exterior walls.

### 3.4 INSTALLATION OF INSULATION FOR FRAMED CONSTRUCTION

- A. Apply insulation units to substrates by method indicated, complying with manufacturer's written instructions. If no specific method is indicated, bond units to substrate with adhesive or use mechanical anchorage to provide permanent placement and support of units.
- B. Foam-Plastic Board Insulation: Seal joints between units by applying adhesive, mastic, or sealant to edges of each unit to form a tight seal as units are shoved into place. Fill voids in completed installation with adhesive, mastic, or sealant as recommended by insulation manufacturer.

- C. Glass-Fiber or Mineral-Wool Blanket Insulation: Install in cavities formed by framing members according to the following requirements:
1. Use insulation widths and lengths that fill the cavities formed by framing members. If more than one length is required to fill the cavities, provide lengths that will produce a snug fit between ends.
  2. Place insulation in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.
  3. Maintain 3-inch clearance of insulation around recessed lighting fixtures not rated for or protected from contact with insulation.
  4. Install eave ventilation troughs between roof framing members in insulated attic spaces at vented eaves.
  5. For metal-framed wall cavities where cavity heights exceed 96 inches, support unfaced blankets mechanically and support faced blankets by taping flanges of insulation to flanges of metal studs.
  6. For wood-framed construction, install blankets according to ASTM C 1320 and as follows:
    - a. With faced blankets having stapling flanges, secure insulation by inset, stapling flanges to sides of framing members.
    - b. With faced blankets having stapling flanges, lap blanket flange over flange of adjacent blanket to maintain continuity of vapor retarder once finish material is installed over it.
- D. Miscellaneous Voids: Install insulation in miscellaneous voids and cavity spaces where required to prevent gaps in insulation using the following materials:
1. Loose-Fill Insulation: Compact to approximately 40 percent of normal maximum volume equaling a density of approximately 2.5 lb/cu. ft..
  2. Spray Polyurethane Insulation: Apply according to manufacturer's written instructions.

### 3.5 INSTALLATION OF INSULATION FOR SOUND ATTENUATION

- A. Where glass-fiber blankets are indicated for sound attenuation, install blanket insulation over entire area in thicknesses indicated.

### 3.6 INSTALLATION OF INSULATION FOR CONCRETE SUBSTRATES

- A. Install board insulation on concrete substrates by adhesively attached, spindle-type insulation anchors as follows:
1. Fasten insulation anchors to concrete substrates with insulation anchor adhesive according to anchor manufacturer's written instructions. Space anchors according to insulation manufacturer's written instructions for insulation type, thickness, and application indicated.
  2. Apply insulation standoffs to each spindle to create cavity width indicated between concrete substrate and insulation.

3. After adhesive has dried, install board insulation by pressing insulation into position over spindles and securing it tightly in place with insulation-retaining washers, taking care not to compress insulation below indicated thickness.
4. Where insulation will not be covered by other building materials, apply capped washers to tips of spindles.

### 3.7 PROTECTION

- A. Protect installed insulation from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

END OF SECTION 072100



## SECTION 072613 – MOISTURE MITIGATION SYSTEM

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS:

- A. Drawings, general provisions of the Contract, and other related construction documents such as specifications that apply to this Section:
  - 1. Division 01
  - 2. Division 03
  - 3. Division 09

#### 1.2 SUMMARY

- A. This Section includes a single-coat, fast-curing, 100% solids epoxy moisture mitigation system formulated to suppress excessive moisture vapor emissions in new or existing concrete (or cement-based substrates)
- B. Related Sections include the following:
  - 1. Section 03 30 00, Cast-In-Place Concrete
  - 2. Section 03 54 13, Gypsum Cement Underlayment
  - 3. Section 03 54 16, Hydraulic Cement Underlayment for Existing Concrete Floors
  - 4. Division 09, Flooring Sections

#### 1.3 REFERENCES

- A. ASTM International (ASTM)
  - 1. ASTM E96 - Standard Test Methods for Water Vapor Transmission of Materials.
  - 2. ASTM F1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.
  - 3. ASTM F2170 - Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes
  - 4. ASTM F3010 - Standard Practice for Two-Component Resin Based Membrane-Forming Moisture Mitigation Systems for Use Under Resilient Floor Coverings.
- B. South Coast Air Quality Management District (SCAQMD)
  - 1. SCAQMD Rule 1113 Architectural Coatings
- C. US Green Building Council (USGBC)
  - 1. LEED NC Version 4.0 LEED (Leadership in Energy and Environmental Design): Green Building Rating System Reference Package for New Construction and Major Renovations.

#### 1.4 SUBMITTALS

- A. Product Data: Manufacturer's standard product data and installation instructions, specifications and descriptive literature for each material and product used. Include manufacturer's Safety Data Sheets.
  - 1. Performance criteria (Certificates).
  - 2. Technical Data (Including Testing Criteria).
  - 3. Safety Data Sheets (SDS).

- B. Manufacturer's written instructions, including:
  - 1. Delivery, storage and handling recommendations.
  - 2. Preparation and installation recommendations.
- C. Applicator's Experience: Submit verification of evidence of work like work of this section.
- D. Warranty: Fully executed, issued in Owner's / Manufacturer's name, and registered with manufacturer, including:
  - 1. Manufacturer's 10-year warranty, from date of substantial completion, covering defects in materials.
- E. Sustainable Design (LEED) Submittals:
  - 1. LEED Submittals: In accordance with Section [01 35 21 – LEED Requirements].
  - 2. Submit verification for items when appropriate as follows:
    - a. EQc2 - 1 to 3 points  
Low-Emitting Materials

## 1.5 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in accordance with manufacturer's written instructions:
  - 1. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact, and product name and manufacturer clearly visible and in sizes to suit project.
- B. Store materials protected from exposure to harmful environmental conditions, clean, dry, frost-free and at manufacturer's recommended temperature and humidity levels.
  - 1. Ensure materials are stored at temperatures greater than 41 degrees F.

## 1.6 EXISTING CONDITIONS

- A. Apply moisture mitigation system only when substrate temperature is greater than 50 degrees F.

## 1.7 WARRANTY

- A. Manufacturer's Warranty: Manufacturer's standard comprehensive warranty document executed by authorized company official.
- B. Project Warranty: Submit for Owner's acceptance, is in addition to and not intended to limit other rights Owner may have under Contract Conditions of manufacturer's standard comprehensive warranty document.

## PART 2 PRODUCTS

### 2.1 DESCRIPTION

- A. Liquid applied epoxy moisture mitigation system for cement-based substrates.

### 2.2 PERFORMANCE REQUIREMENTS

- A. Epoxy Moisture Mitigation System: Solvent free two component liquid epoxy to ASTM F3010.
  - 1. Permeance to ASTM E96:  $\leq 0.1$  perm.
  - 2. VOC content: 0.

## 2.3 MOISTURE VAPOR EMISSION CONTROL

- A. One-Coat Moisture Control System for Concrete
  - 1. Basis of design; Ardex MC Rapid One-Coat Moisture Control System, or approved equal.

## 2.4 ACCESSORIES

- A. Primer: Provide leveler primer in accordance with manufacturer's written recommendations.
  - 1. Basis of design: Ardex P-82 Ultra Prime, waterborne two-component primer, or approved equal.
- B. Leveler: Provide self-smoothing and leveling compound in accordance with manufacturer's written recommendations. Minimum 1/8" thickness. Thickness and feathering as required to provide flush transitions to adjacent materials.
  - 1. Basis of design: Ardex K-10 Reactivable, High Flow, Self-Leveling Underlayment Concrete or approved equal.

## PART 3 EXECUTION

### 3.1 APPLICATOR

- A. Use only applicators who have training and experience of work like the work of this Section.

### 3.2 EXAMINATION

- A. Verification of Conditions: Verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for underlayment application in accordance with manufacturer's written recommendations.
  - 1. Ensure substrate is porous, smooth, sound, clean, dry and free of contaminants which may hinder adhesion.
  - 2. Ensure substrate has been profiled to achieve Concrete Surface Profile (CSP) 2 – 3.
  - 2. Visually inspect substrate in presence of Architect.
  - 3. Ensure substrate moisture vapor emission rate meets ASTM F1869 or relative humidity of concrete substrate meets ASTM F2170.
    - a. Report results to Architect before proceeding with work.
  - 4. Inform Architect of unacceptable conditions immediately upon discovery.
  - 5. Proceed with application only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Architect.
  - 6. Starting application of above-grade vapor retarder implies substrate conditions are acceptable for Work of this Section.

### 3.3 PREPARATION

- A. Mechanically prepare substrate and repair areas to smooth finish using repair compound and methods in accordance with manufacturer's written recommendations

### 3.4 MIXING

- A. Mix components in accordance with manufacturer's written recommendations and mixing ratio.

### 3.5 APPLICATION

- A. Epoxy Moisture Mitigation System: Apply in accordance with manufacturer's written recommendations.
  - 1. Ensure epoxy moisture mitigation components are thoroughly mixed in accordance with manufacturer's written recommendations before use.
  - 2. Immediately after spreading with the squeegee, saturate 3/8" inch nap roller and back roll to evenly distribute epoxy film over surface.
    - a. Avoid puddles.
  - 3. Do not walk on finished acrylic moisture mitigation system surface for four (4) hours minimum (no transfer to touch) at 65 degrees F.
  - 4. Prime surface in accordance with manufacturer's written recommendations before applying underlayment.

### 3.6 CLEANING

- A. Perform daily progress cleaning.
  - 1. Leave work area clean at end of each day.
- B. Upon completion, remove surplus materials, rubbish, tools and equipment.
  - 1. Note: Mixed material left in the mixing container will generate intense heat. If so, do not touch container! Close lid loosely and transport the container by the handle outdoors until it sets to a disposable cool solid.
- C. Collect recyclable waste and dispose of at appropriate recycling facilities.

### 3.7 PROTECTION

- A. Protect applied above-grade vapor retarder from damage during construction.
  - 1. Place temporary wood planking over finished above-grade vapor retarder work as directed by Architect or General Contractor.
- B. Repair or replace adjacent materials damaged by application of above-grade vapor retarder.

END OF SECTION 076213

## SECTION 075323 - ETHYLENE-PROPYLENE-DIENE-MONOMER (EPDM) ROOFING SYSTEM

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes:

1. Base Bid: New fully adhered EPDM roofing system on enumerated roof areas as described as Base Bid work. Roofing system to include:

- a. In ballasted areas, completely remove existing roofing system including ballast, membrane, fascias, flashings, etc. down to existing insulation. In fully adhered areas, cut 2” strips out of membrane 4’ o.c. Remove wet areas in both roof systems and 8’x8’ area around sumps. Properly dispose of all removed materials.
- b. Infill removed areas to match existing height and new 8’x8’ pre-fabricated hinged tapered sumps and base layer of insulation where required. Mechanically attach 3” polyisocyanurate insulation, both flat and tapered in field of roof. Mechanically attach insulation at a rate of 1 fastener per 2 sq. ft.
- c. Attach polyisocyanurate insulation with adhesive, both flat and tapered. Note: New combined roof insulation to be R-30 continuous minimum.
- d. Attach gypsum cover board with adhesive 4’ o.c.
- e. Fully adhered 75 mil thick, reinforced EPDM roofing membrane (90 MPH wind rating).
- f. Roof system Manufacturer’ approved perimeter aluminum including cap copings and fascia system with extensions are to be included as a part of the 30 year “Total Roof System” Warranty.
- g. Provide all sheet metal flashings and trim required for a complete roof system.
- h. Provide roof system terminations and other accessories required for a complete roof system.
- i. Provide new wood blocking as necessary and detailed.
- j. Replace existing skylights indicated on drawings with new skylights.
- k. Provide a 30 Year, non-prorated, total roofing systems guarantee.

**B. RELATED SECTIONS**

1. Division 01 Section “Alternates” for Alternates related to the roofing system work.
2. Division 02 Section “Selective Building Demolition” for demolition of existing roofing systems.
3. Division 06 Section “Rough Carpentry” for wood blocking and accessories.
4. Division 07 Section “Joint Sealants”.

**1.3 QUALITY ASSURANCE**

- A. The EPDM membrane roofing system must achieve a Factory Mutual IA-90 and an UL Class A Rating. Roof system to have a 90 mph wind rating for entire roof system, including perimeter, corners and field.”
- B. The Manufacturer must have a minimum of 20 years experience in the manufacturing of vulcanized thermal set sheeting and be the primary roof membrane manufacturer.
- C. Unless otherwise noted in this Specification, the Roofing Contractor must strictly comply with the manufacturer’s current specifications and details.
- D. The roofing system must be installed by an applicator authorized and trained by the Manufacturer in compliance with shop drawings approved by the manufacturer. The roofing applicator shall be thoroughly experienced and upon request be able to provide evidence of having at least ten years successful experience installing single-ply EPDM roofing systems and having installed at least five roofing applications of similar or equal scope.
- E. Provide adequate number of experienced workmen engaged in this type of work who are skilled in the application techniques of the materials specified. Provide at least one thoroughly trained and experienced superintendent on the job at all times roofing work is in progress.
- F. There shall be no deviations made from this specification or the approved shop drawings without the prior written approval of the Architect. Any deviation from the Manufacturer’s installation procedures must be supported by a written certification on the Manufacturer’s letterhead and presented for the Architect’s consideration.
- G. Upon completion of the installation, the Roofing Contractor shall arrange for an inspection to be made by a non-sales technical representative of the membrane manufacturer in order to determine whether or not corrective work will be required before the warranty will be issued. Notify the building owner seventy-two (72) hours prior to the manufacturer’s final inspection.
- H. Perimeter of roofing shall meet or exceed ANSI SP1-ES-1 performance test for metal edge securement.
- I. The Sure Flex membrane must achieve a UL Class Rating.

- J. The roofing systems must have been successfully tested by a qualified testing agency to resist the design uplift pressures calculated according to American Society of Civil Engineers (ASCE 7)
- |           |     |
|-----------|-----|
| Field     | -32 |
| Perimeter | -41 |
| Corner    | -50 |
- K. EPDM Roofing Systems: The Roofing Contractor must comply with the manufacturer's current specification and details."

#### 1.4 ACTION SUBMITTALS

- A. Shop drawings showing layout, details of construction and identification of materials.
- B. Sample of the manufacturer's Membrane System Warranty.
- C. A letter of certification from the Manufacturer which certifies the Roofing Contractor is authorized to install the Manufacturer's roofing system and which lists foremen who have received training from the Manufacturer along with the dates training was received.
- D. A letter from the membrane Manufacturer stating that the Roofing System Manufacturer is the primary manufacturer of the membrane and the membrane adhesive.
- E. Upon completion of the installed work, submit copies of the Manufacturer's final inspection to the Architect prior to the issuance of the manufacturer's warranty.

#### 1.5 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver materials to the job site in the manufacturer's original, unopened containers or wrappings with the manufacturer's name, brand name and installation instructions intact and legible. Deliver in sufficient quantity to permit work to continue without interruption.
- B. Comply with the Manufacturer's written instructions for proper material storage:
1. Store materials, except membrane, between 60° F and 80° F in dry areas protected from water and direct sunlight. If exposed to lower temperature, restore to 60° F minimum temperature.
  2. Store materials, containing solvents in dry, well-ventilated spaces with proper fire and safety measures. Keep lids tight. Use before expiration of their shelf life.
  3. Store Sure-Flex membrane on provided pallets in the original undisturbed plastic wrap and cover with light colored breathable waterproof tarpaulins in a cool, shaded area. Sure-Flex membrane that has been exposed to the elements must be prepared with Carlisle PVC cleaner prior to hot air welding.
- C. Insulation must be on pallets, off ground and tightly covered with waterproof materials.
- D. New metal fascias and flashings shall be delivered in protected wrapping and properly stored until ready for installation.
- E. Any materials which are found to be damaged shall be removed and replaced.

1.6 JOB CONDITIONS

- A. Material Safety Data Sheets (MSDS) must be on location at all times during the transportation, storage and application of materials.
- B. When positioning membrane sheets, exercise care to locate all field splices away from low spots and out of drain sumps. All field splices should be shingled to prevent bucking of water.
- C. When loading materials onto the roof, comply with the requirements of the Construction Manager to prevent overloading and possible disturbance to the building structure.
- D. Proceed with roofing work only when weather conditions are in compliance with the Manufacturer's recommended limitations, and when conditions will permit the work to proceed in accordance with the manufacturer's requirements and recommendations.
- E. Proceed with work so new roofing materials are not subject to construction traffic. When necessary, new roof sections shall be protected with 3/4" plywood and inspected upon completion for possible damage. Plywood must be smooth and free of fasteners and splinters.
- F. The surface on which the insulation or roofing membrane is to be applied shall be clean, smooth, dry and free of projections or contaminants that would prevent proper application of or be incompatible with the new installation, such as fins, sharp edges, foreign materials, oil and grease.
- G. All roofing areas shall be complete and weather-tight at the end of the workday.
- H. Contaminants such as grease, fats and oils shall not be allowed to come in direct contact with the roofing membrane.
- I. Schedule and execute Work to prevent leaks. Care should be taken to provide protection of the interior of the building and to ensure that water does not flow beneath any completed sections of the roofing system.

1.7 WARRANTY

- A. EPDM Roofing System: Provide Manufacturer's 30 Year Total System Warranty covering both labor and material with no dollar limitation. The maximum wind speed coverage shall be peak gusts of 90 mph measured at 10 meters above ground level. Certification is required with bid submittal indicating the manufacturer has reviewed and agreed to such wind coverage.
- C. Pro-rated System Warranties shall not be accepted.

1.8 EXISTING CONDITIONS

- A. If discrepancies are discovered between the existing conditions and those noted on the drawings, immediately notify the Construction Manager and Architect prior to commencing with the work.



1.9 TEMPORARY FACILITIES AND CONTROLS

- A. Protect the building and site against damages. The contractor shall be responsible for the correction of any damage incurred as a result of the performance of the roofing work including but not limited to restoration of pavements, walks and lawns to pre-construction condition.
- B. Remove all roofing related debris from the job site in a timely and legally acceptable manner.

1.10 JOB SITE PROTECTION

- A. Do not overload any portion of the building, either by use of or placement of equipment, storage of debris, existing equipment to remain or storage of new materials.
- B. Protect against fire and flame spread. Maintain proper and adequate fire extinguishers.
- C. Prevent drains from clogging during the roofing application. Remove debris at the completion of each day's work and clean drains, if required.

1.11 SAFETY

- A. Provide required barriers, warning signage, logs and notifications.
- B. Review work schedule with other Contractors and Construction Manager on a daily basis prior to proceeding with work for that day to ensure occupants are not below operations and/or safe distances are maintained during roofing operations where so required.

1.12 WORKMANSHIP

- A. Applicators installing the new roofing system, fascias, flashings and related work shall be factory trained and approved by the roof membrane manufacturer.
- B. All work shall be of highest quality and in strict accordance with the manufacturer's published specifications and to the building owner's authorized representatives and project architect's satisfaction.
- C. There shall be a roofing contractor job supervisor on the job site at all times while work is in progress and during contractor's corrective and/or finishing of incomplete work.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Provide roofing materials recognized to be of generic type indicated and tested to show compliance with indicated performances, or provide other similar materials certified in writing by manufacturer to be equal or better than specified in every significant respect and acceptable to Architect.

- B. Provide products which are recommended by manufacturers to be fully compatible with indicated substrates, or provide separation materials as required so as to eliminate contact between incompatible materials.

## 2.2 ROOFING SYSTEM

- A. All products, including membranes, flashings, walkway treads, membrane protection materials at gas pipe supports and roof stairs, substrate boards, insulation, fasteners, fastening plates, fascias, edgings and counter flashings, must be manufactured and/or supplied by the roofing system Manufacturer and covered by the roofing system warranty.

## 2.3 MEMBRANE

- A. Provide 75-mil thick polyester reinforced EPDM based elastomeric homogeneous roof covering, conforming to the minimum physical properties of ASTM D4637. When a 10-foot wide membrane is to be used, the membrane shall be manufactured in a single panel with no factory splices to reduce splice intersections. Membrane to be black.
- B. Vapor retarder is a minimum 40 mil composite sheet consisting of a self adhering rubberized asphalt membrane. The underlayment board shall be primed with Low VOC CCW-702 Primer or CCW Cav-Grip in accordance with manufacturer's specifications. Vapor retarder must have a perm rating of 0.05 or less as per ASTM E90. Vapor retarder must be rated by the manufacturer as a temporary roof with an allowable exposure to the elements for 90 days. Vapor barrier must be approved for a FM rated assembly. The substrate for the vapor barrier must be primed to ensure a clean prepared surface.

## 2.4 SUBSTRATE AND COVER BOARDS

- A. Gypsum-fiber roof board of thicknesses as indicated on the Drawings. Basis-of-Design: Securerock as manufactured by United States Gypsum Company or comparable product. Cover board should be 1/2".
- B. Cover board shall be fully adhered to top layer of rigid roof insulation with roof system manufacturer's recommended low-rise foam 4" o.c.

## 2.5 INSULATION

- A. Insulation shall be rigid polyisocyanurate insulation panels of 3" thickness per ASTM C1289-06, Type II, Class 1, Grade 2 and tapers indicated on the drawings. Provide new 8'x8' pre-made hinged target sumps around drains.

2.6     ADHESIVES AND CLEANERS FOR EPDM:

- A.     Products shall be furnished by Roof Systems Manufacturer and specifically formulated for the intended purpose. All primers and adhesives must comply with NYS VOC OTC regulations.
1.     Bonding Adhesive: Sure-Seal Low VOC
  2.     Splice Tape and Primer: Sure-Seal 6 inch SecurTape and Low VOC Primer.
  3.     Cleaning Solvent: Sure-Seal Splice Cleaner
  4.     External seam sealant: sure-Seal Lap Sealant
  5.     Sealer: Sure-Seal Pourable Sealer.
  6.     Insulation adhesive: Sue-Seal FAST 100-LV Adhesive (Insulation adhesive must be V.O.C. free). Insulation adhesive must have a nominal free-rise core density of 2.2 pounds per cubic foot and be a 2 part low rise foam adhesive with 100 % adhesion.

2.7     ADHESIVES AND CLEANERS FOR PVC

All products shall be furnished by the membrane manufacturer and specifically formulated for the intended purpose. **All primers and adhesives must comply with NYS VOC OTC regulations.**

- A.     **Bonding Adhesive:** Sure-Seal X-23 Low VOC **(Membrane Bonding Adhesive must be manufactured by the Primary membrane manufacturer to ensure compatibility)**
- B.     **Splice Tape and Primer:** Sure-Seal 6 inch SecurTAPE and Low VOC EPDM Primer
- C.     **Cleaning Solvent:** Sure-Seal Weathered Membrane Cleaner
- D.     **External seam sealant:** Sure-Seal Lap Sealant **(To be used on all field and flashing splices.)**
- E.     **Sealer:** Sure-Seal Pourable Sealer
- F.     **Water Cut Off Mastic:** Used as a mastic to prevent moisture migration drain and compression terminations.
- G.     **Cav-Grip Primer:** A low VOC contact adhesive used to primesurfaces for the application for 715 Vap-Air Seal vapor retarder.
- H.     **Insulation & Overlayment Board adhesive:** Flexible Fast Adhesive, a 2-part low rise foam adhesive with 100% adhesion. **(Ribbon method adhesives are acceptable. Bead spacing shall be 4 inches on center in the field, perimeters and corners.)**

## 2.8 FASTENERS AND PLATES

- A. Fasteners and Plates: To be used for mechanical attachment of insulation to the existing gypsum roof deck, existing metal roof deck and/or metal roof decks and to provide additional membrane securement:
1. Pre-Assembled Insulation Fasteners: A 3" diameter metal plate with a pre-assembled threaded #12 fastener with #3 Phillips head used for insulation attachment into steel or wood decks -- approved and/or as recommended by roof membrane manufacturer.
  2. Insulation Fastening Plates: a 3-inch diameter FM approved metal plate used for insulation attachment in conjunction with lightweight deck fasteners, HP Fasteners or Concrete Spikes, approved and/or as recommended by roof membrane manufacturer.
  3. Lightweight Deck Fasteners: a non-penetrating, plastic fastener and corresponding plate used with lightweight deck substrates such as cementitious wood fiber, gypsum and lightweight insulating concrete-- approved and/or as recommended by roof membrane manufacturer.
  4. Hammer Screw: an expansive anchor with stainless steel drive pin for fastening the roof system termination bar or seam fastening plates to concrete, brick or concrete block walls.
  5. Seam Fastening Plates: a 2 inch diameter steel NTB, FM approved plate used in conjunction with RUSS or EPDM membrane for the membrane securement.
  6. RUSS (Reinforced Universal Securement Strip): a 6 or 9 inch wide, 100 foot long strip of reinforced EPDM membrane.
    - a. The 6 inch wide RUSS shall be utilized horizontally or vertically (in conjunction with Seam Fastening Plates) below the EPDM membrane for additional membrane securement.
    - b. The 9 inch wide RUSS shall be utilized in conjunction with metal edgings, fascias, etc. to allow continuation of the EPDM deck membrane as flashing at all corner areas (20 foot in each direction) in accordance with details.
  7. HP- Fasteners: A threaded, #14 fastener with a #3 phillips drive used with steel and wood roof decks.
  8. HP Term Bar Nail-Ins: A 1-1/4" long expansion anchor with a zinc plated steel drive pin used for fastening the Carlisle Termination Bar or Seam Fastening Plates to concrete, brick, or block walls.
  9. Insulation Fastening Plates: a nominal 3 inch diameter plastic or metal plate used for insulation attachment.
- A. Roofing Contractor shall arrange for fastener pull tests as required by manufacturer for each type of decking and obtain approval from roof system manufacturer prior to submission of shop drawings.

## 2.9 METAL EDGING AND MEMBRANE TERMINATIONS

- A. Fascia: A snap-on edge system consisting of a 26 gauge galvanized metal water dam and .050 aluminum fascia, height as indicated on the Drawings or as required to provide Manufacturers minimal lap of wall surface whichever is greater. Factory fabricated corners and accessories, ANSI/SPRI ES-1 certified and UL listed, FM approved – 1-225. Metal fascia color be clear anodized or as selected by the Architect from Manufacturers full line of Kynar available colors. Basis of design is Carlisle SecurEdge 300 Fascia System; 20 year finish, Edge metal shall be included in manufacturer's warranty. The required metal edge detail for this project shall be Carlisle Detail EPDM U-1F with 6 inch seam tape.

- B. Fascia Extenders: Matching fascias.
- C. Mechanical equipment curb counter flashings: A formed galvanized steel min 18 ga. Sheet as required to overlap equipment curb interior and roof membrane as detailed and/or with roof system manufacturer's minimum requirement whichever is greater.
- D. Two-piece reglet and surface mounted .040" inch thick aluminum counter flashing with 45 top edge to receive caulk. Provide with min. 1/2" drip edge x 5" min. exposed height unless otherwise noted and/or detailed. Provide in 10 foot continuous lengths and 8" min. width concealed joint splice on lower piece. Provide 1/8" thick neoprene compressible backer and appropriate concealed fasteners at 12" o.c. to secure upper piece surface mounted to existing masonry walls. Stagger joints.
- E. SecurEdge 300 Fascia / Gravel Stop: a snap-on edge system consisting of a 26 gauge galvanized metal water dam and .050 inch thick aluminum fascia. Metal fascia color be clear anodized or as selected by the Architect from Manufacturers full line of Kynar available colors. The required metal edge detail for this project shall be Carlisle Detail U-1F with 6" seam tape. (See Execution section 3.07 C.)
- F. Termination Bar: A 1 inch wide and .098 inch thick extruded aluminum bar pre-punched 6 inches on center; incorporates a sealant ledge to support Lab Sealant and provide increased stability for membrane terminations.
- G. Walkways: Sur- Seal Walkway pads, 30" x 30" molded black rubber with factory rounded corners, adhered to membrane with splice tape.

## PART 3 - EXECUTION

### 3.1 GENERAL

- A. Comply with the Manufacturer's published instructions for the installation of the membrane roofing system including proper substrate preparation, jobsite considerations and weather restrictions.
- B. Position sheets to accommodate contours of the roof deck and shingle splices to avoid bucking water.

### 3.2 INSULATION AND OVERLAYMENT BOARD ATTACHMENT

- A. Mechanically fasten layer of 3" insulation to metal deck at a rate of 1 fastener per 2 sq. ft.
- B. Provide additional mechanical attachment as detailed and as may be required by roof system manufacturer to meet FM-1-90 requirements.
- C. Attach the substrate board to the insulation with 4" beads of low rise adhesive, providing 100% adhesion. Stagger all joints between layers 6" minimum and/or as required by roof system manufacturer. Note: system to meet FM I-90 requirements.

### 3.3 VAPOR BARRIER / TEMP. ROOF

- A. Surfaces to receive air and vapor barrier must be clean and dry. Prime all surfaces to receive the vapor retarder with a NYS VOC OTC compliant primer, Low VOC CCW-702 Primer or Cav-Grip. Apply the primer with a long nap roller at the applicable coverage rate noted above. At 75 degrees F allow primer to dry 1 hour minimum. If the Cav-Grip is being used; spray apply in a thin even coat of 1,500 square feet per cylinder. Apply Cav-Grip in a thin, even coat to substrate. Avoid high thickness buildup. Keep spray gun perpendicular to surface during spray. Set time for the Cav-Grip should be approximately 5 minutes. Primers have a satisfactory cure when it will not transfer when touched. Prime only areas to be waterproofed the same day. Reprime if area becomes dirty. The substrate for the vapor barrier must be primed to ensure a clean prepared surface. Apply the Carlisle Air and Vapor Barrier from low to high point, in a shingle fashion, so that laps will shed water. Overlap all edges at least 2-1/2 inches. End laps shall be staggered. Place membrane carefully so as to avoid wrinkles and fish mouths. Immediately after installation, roll with a 100-150 pound weighted steel roller.

### 3.4 MEMBRANE PLACEMENT AND BONDING

- A. Unroll and position membrane without stretching. Allow the membrane to relax for approximately 1/2 hour before bonding. Fold the sheet back onto itself so half the underside of the membrane is exposed.
- B. Apply the Bonding Adhesive in accordance with the manufacturer's published instructions, to both the underside of the membrane and the substrate. Allow the adhesive to dry until it is tacky but will not string or stick to a dry finger touch.
  - 1. Roll the coated membrane into the coated substrate while avoiding wrinkles. Brush down the bonded half of the membrane sheet with a soft bristle brush broom to achieve maximum contact.
  - 2. Fold back the unbonded half of the membrane sheet and repeat the bonding procedure.
- C. Install adjoining membrane sheets in the same manner, overlapping edges approximately 7 inches. Do not apply bonding adhesive to the splice area.
- D. Position Sure-Flex membrane over the acceptable substrate. Fold membrane sheet back onto itself so half the underside of the membrane is exposed.

### 3.5 MEMBRANE SPLICING: (Pre-applied 6 inch Seam Tape is required for this project) All details and procedures as per a 20 Year Warranty Specification unless otherwise permitted.

- A. Overlap adjacent sheets and mark a line 1/2 inch out from the top sheet.
- B. Fold the top sheet back and clean the dry splice area (minimum 6 inches wide) of both membrane sheets with Sure-Seal Primer as required by the membrane manufacturer.
- C. Apply Primer to the EPDM sheet. Press membrane and Splice Tape to bottom sheet with the edge of the release film along the marked line. Press tape onto the sheet using hand pressure. Overlap tape roll ends a minimum of 1 inch.

- D. Remove the release film and press the top sheet onto the tape using hand pressure.
- E. Roll the seam toward the splice edge with a 2 inch wide steel roller.
- F. Install a 6-inch wide section of Pressure-Sensitive Flashing or Elastoform Flashing over all field splice intersections with a layer of 6" x 6" uncured and a layer of 12" x 12" semi-cured pressure sensitive flashing and seal edges of flashing with Lap Sealant.
- G. The use of Lap Sealant with tape splices is required at all seam "T" joint covers, at tape overlaps and edges.
- H. All non-factory field and flashing seams and splices are to be sealed with Lap Sealant.
- I. Provide fasteners to match existing deck with protective sleeves at Gym area, color to match deck.

### 3.6 FLASHING

- A. Wall and curb flashing shall be cured EPDM membrane. Continue the deck membrane as wall flashing where practicable. All details shall be in compliance with 30 year details.
- B. Follow manufacturer's typical flashing procedures for all wall, curb, and penetration flashing including metal edging/coping and roof drain applications.
- C. Basis-of-Design: Use Manufacturer's details provided by Carlisle or details by comparable Manufacturer.
  - 1. The fascia edge detail must be installed in accordance with the required Carlisle metal edge detail EPDM U-1F with 6 inch seam tape.
  - 2. Any fascia drip edge details must be installed in accordance with detail U-A-1.
  - 3. Any coping edge details must be installed in accordance with detail U-9F.
  - 4. All wall terminations shall be as per U-9F.
  - 5. All curb flashings shall be as per U-5-B option 2 or as otherwise noted.
  - 6. All outside corner flashings are to be U-15H.
- D. Metal counter flashing shall be installed in longest lengths as possible and/or 10 foot sections. Provide concealed splice plates at all joints and concealed fasteners whenever possible at 12"o.c. Provide continuous bead of sealant on top edge of all surface mounted flashings. Follow roof system manufacturer's details and/or requirements to maintain roof system warranty.
- E. Perimeter Edge Fascias – secure galvanized metal water dam to building structure with approved fasteners as required by roof system manufacturer details. Provide splice plates and stagger joints between snap-on aluminum fascia and metal water dam substrate. Provide pre-manufactured inside and outside corners. Fascia shall be installed in longest lengths possible and/or 10 foot sections. Provide concealed splice plates at all joints. Provide matching extensions and cleats returning to face of wall similar to existing and as detailed. Caulk joint between fascia and wall. Typical.

- F. Cap Copings – provide additional wear layer of EPDM flashing on top of wall prior to installing cop coping. Secure coping cleats with appropriate fasteners into perimeter cap blocking as recommended by roofing system manufacturer maximum spacing 24”o.c. Provide splice plates at all coping joints. Provide pre-manufactured inside and outside corners 24” min. length. Cap coping shall be installed in longest lengths possible and/or 10 foot sections. Caulk joint between cap coping and wall. Provide compressible backer rods where necessary.
- G. Provide roof system Manufacturer’s recommended flashing details for all types of roof equipment curbs, roof penetrations, flues, vents, piping electrical power to units, etc... so as to maintain manufacturer roof system warranty.

### 3.7 MISCELLANEOUS ROOF MOUNTED EQUIPMENT

- A. Provide and prep miscellaneous steel posts and columns as required for proper installation and flashing of equipment guide wires, aerials, antennas and/or satellite dishes as may be present. Flash in accordance with roof system manufacturer’s requirements so as to maintain roof system warranty.
- B. Use Sure-Seal Pourable Sealer or other acceptable membrane seal in accordance with the manufacturer’s requirements.
- C. Cut to size plus an additional four inches gas piping and/or refrigerant piping support underlayment pads (peel and stick) as recommended by roof system manufacturer so as to maintain 20 year roof system warranty. Roofing contractor shall coordinate locations with other prime contractors.
- D. Provide walkway pads at and around raised condensing units.

### 3.8 MEMBRANE HOT AIR WELDING PROCEDURES

- A. Heat weld the Sure-Flex membrane using an Automatic Heat Welding Machine or Hot Air Hand Welder in accordance with the manufacturer's specifications. At all splice intersections, roll the seam with a silicone roller immediately after the welder causes the membrane step off to ensure a continuous hot air welded seam. All splice intersections shall be overlaid with Sure-Flex T Joint Covers.
- B. Probe all seams once the hot air welds have thoroughly cooled (approximately 30 minutes).
- C. Repair all seam deficiencies the same day they are discovered.
- D. Apply Cut Edge Sealant on all cut edges of reinforced membrane (where the scrim reinforcement is exposed) after seam probing is complete. Cut Edge Sealant is not required on vertical splices.

### 3.9 FLASHING

- A. Flashing of parapets, curbs, expansion joints and other parts of the roof must be performed using Sure-Flex reinforced membrane. Sure-Flex non-reinforced membrane can be used for flashing pipe penetrations, Sealant Pockets, and scuppers, as well as inside and outside corners, when the use of pre-molded accessories is not feasible.



### 3.10 DAILY SEAL

- A. On phased roofing, when the completion of flashings and terminations is not achieved by the end of the work day, a daily seal must be performed to temporarily close the membrane to prevent water infiltration.

### 3.11 CLEAN UP

- A. Perform daily clean-up to collect all wrappings, empty containers, paper and other debris from the project site. Upon completion, all debris must be disposed of in a legally acceptable manner.
- B. Filled dumpsters shall be removed from the site in a reasonable amount of time but not longer than five calendar days.
- C. Prior to the manufacturer's inspection for warranty, the applicator must perform a pre-inspection to review all work and to verify all flashing has been completed as well as the application of all caulking.
- D. Contractor shall notify Architect in writing when roofing system work is complete and ready for inspection. Architect and/or Construction Manager shall be present when the roof system manufacturer's representative is scheduled to make their inspection. Notify Construction Manager a minimum of 48 hours before inspection is scheduled.

END OF SECTION 075323



## SECTION 076200 - SHEET METAL FLASHING AND TRIM

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Roof Edge Specialties.
  - 2. Manufactured reglets and counterflashing.
  - 3. Formed roof drainage sheet metal fabrications.
  - 4. Formed low-slope roof sheet metal fabrications.
  - 5. Formed wall sheet metal fabrications.
- B. Related Requirements:
  - 1. Section 061000 "Miscellaneous Rough Carpentry" for wood nailers, curbs, and blocking.
  - 2. Section 076200 "Sheet Metal Flashing and Trim" for custom- and site-fabricated sheet metal flashing and trim.
  - 3. Section 077200 "Roof Accessories" for set-on-type curbs, equipment supports, roof hatches, vents, and other manufactured roof accessory units.
  - 4. Section 079200 "Joint Sealants" for field-applied sealants between roof specialties and adjacent materials.
  - 5. Section 079500 "Expansion Control" for manufactured sheet metal expansion-joint covers.

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Show installation layouts of sheet metal flashing and trim, including plans, elevations, expansion-joint locations, and keyed details. Distinguish between shop- and field-assembled work.
  - 1. Include details for forming, joining, supporting, and securing sheet metal flashing and trim, including pattern of seams, termination points, fixed points, expansion joints, expansion-joint covers, edge conditions, special conditions, and connections to adjoining work.
- C. Samples: For each exposed product and for each finish specified.

1.4 INFORMATIONAL SUBMITTALS

- A. Warranty: Sample of special warranty.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance data.

1.6 QUALITY ASSURANCE

- A. Sheet Metal Flashing and Trim Standard: Comply with SMACNA's "Architectural Sheet Metal Manual" unless more stringent requirements are specified or shown on Drawings.
- B. Manufacturer Qualifications: A qualified manufacturer offering products meeting requirements that are FM Approvals listed for specified class and SPRI ES-1 tested to specified design pressure.
- C. Source Limitations: Obtain roof specialties approved by manufacturer providing roofing-system warranty.

1.7 WARRANTY

- A. Special Warranty on Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace sheet metal flashing and trim that shows evidence of deterioration of factory-applied finishes within 10 years from date of Substantial Completion.

1.8 FIELD CONDITIONS

- A. Field Measurements: Verify profiles and tolerances of roof-specialty substrates by field measurements before fabrication, and indicate measurements on Shop Drawings.
- B. Coordination: Coordinate roof conditions with flashing, trim, and construction of parapets, roof deck, roof and wall panels, and other adjoining work to provide a leak proof, secure, and noncorrosive installation.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Do not store roof metals in contact with other materials that might cause staining, denting, or other surface damage. Store roof metals away from uncured concrete and masonry.
- B. Protect strippable protective covering on roof metals from exposure to sunlight and high humidity, except to extent necessary for the period of roof-metals installation.

## PART 2 - PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

- A. General Performance: Roof specialties shall withstand exposure to weather and resist thermally induced movement without failure, rattling, leaking, or fastener disengagement due to defective manufacture, fabrication, installation, or other defects in construction.
- B. FM Approvals' Listing: Manufacture and install roof-edge specialties that are listed in FM Approvals' "RoofNav" and approved for windstorm classification Class 1-90. Identify materials with FM Approvals' markings.
- C. SPRI Wind Design Standard: Manufacture and install roof-edge specialties tested according to SPRI ES-1 and capable of resisting the following design pressures:
  - 1. Design Pressure: As indicated on Drawings.
- D. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes to prevent buckling, opening of joints, hole elongation, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Provide clips that resist rotation and avoid shear stress as a result of thermal movements. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
  - 1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.

### 2.2 SHEET METALS

- A. General: Protect mechanical and other finishes on exposed surfaces from damage by applying a strippable, temporary protective film before shipping.
- A. Aluminum Sheet: ASTM B 209, 3003-H14 alloy as standard with manufacturer for finish required, with temper to suit forming operations and performance required.
  - 1. Surface: Smooth, flat finish.
  - 2. Exposed Coil-Coated Finishes: Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
    - a. Three-Coat Fluoropolymer: AAMA 620. System consisting of primer, fluoropolymer color coat, and clear fluoropolymer topcoat, with both color coat and clear topcoat containing not less than 70 percent PVDF resin by weight.
    - b. Concealed Surface: Pretreat with manufacturer's standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with a minimum total dry film thickness of 0.5 mil.
  - 3. Color: Match Architect's samples.
- B. Stainless-Steel Sheet: ASTM A 240/A 240M or ASTM A 666, Type 304, dead soft, fully annealed; 2B (bright, cold rolled) finish.

- C. Metallic-Coated Steel Sheet: Restricted flatness steel sheet, metallic coated by the hot-dip process and prepainted by the coil-coating process to comply with ASTM A 755/A 755M.
1. Zinc-Coated (Galvanized) Steel Sheet: ASTM A 653/A 653M, G90 coating designation; structural quality.
  2. Aluminum-Zinc Alloy-Coated Steel Sheet: ASTM A 792/A 792M, Class AZ50 coating designation, Grade 40; structural quality.
  3. Surface: Manufacturer's standard clear acrylic coating on both sides.
  4. Exposed Coil-Coated Finish:
    - a. Two-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat.
    - b. Three-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in both color coat and clear topcoat.
    - c. Siliconized Polyester: Epoxy primer and silicone-modified, polyester-enamel topcoat.
  5. Color: Match Architect's samples.

## 2.3 ROOF-EDGE SPECIALTIES

- A. Canted Roof-Edge Fascia and Gravel Stop: Manufactured, two-piece, roof-edge fascia consisting of snap-on metal fascia cover in section lengths not exceeding 12 feet and a continuous formed galvanized-steel sheet cant, 0.028 inch thick, minimum, with extended vertical leg terminating in a drip-edge cleat. Provide matching corner units.
1. Formed Aluminum Sheet Fascia Covers: Aluminum sheet, 0.050 inch thick.
    - a. Surface: Smooth, flat finish.
    - b. Finish: Mill.
  2. Corners: Factory mitered and mechanically clinched and sealed watertight.
  3. Splice Plates: Concealed, of same material, finish, and shape as fascia cover.
  4. Fascia Accessories: Fascia extenders with continuous hold-down cleats, Overflow scuppers.
- B. Roof-Edge Fascia: Manufactured, two-piece, roof-edge fascia consisting of snap-on metal fascia cover in section lengths not exceeding 12 feet and a continuous metal receiver with integral drip-edge cleat to engage fascia cover and secure single-ply roof membrane. Provide matching corner units.
1. Formed Aluminum Sheet Fascia Covers: Aluminum sheet, 0.050 inch thick.
    - a. Surface: Smooth, flat finish.
    - b. Finish: Mill.
  2. Corners: Factory mitered mechanically clinched and sealed watertight.
  3. Splice Plates: Exposed, of same material, finish, and shape as fascia cover.
  4. Receiver: Manufacturer's standard material and thickness.
  5. Fascia Accessories: Fascia extenders with continuous hold-down cleats .

- C. Parapet Scuppers: Manufactured with closure flange trim to exterior, 4-inch- wide wall flanges to interior, and base extending 4 inches beyond cant or tapered strip into field of roof.
  - 1. Formed Aluminum: 0.032 inch thick.
- D. Splash Pans: Fabricate from the following exposed metal:
  - 1. Formed Aluminum: 0.040 inch thick.
- E. Aluminum Finish: Mill.

## 2.4 REGLETS AND COUNTERFLASHINGS

- A. Reglets: Manufactured units formed to provide secure interlocking of separate reglet and counterflashing pieces, from the following exposed metal:
  - 1. Formed Aluminum: 0.024 inch thick.
  - 2. Corners: Factory mitered and mechanically clinched and sealed watertight.
  - 3. Surface-Mounted Type: Provide reglets with slotted holes for fastening to substrate, with neoprene or other suitable weatherproofing washers, and with channel for sealant at top edge.
  - 4. Masonry Type, Embedded: Provide reglets with offset top flange for embedment in masonry mortar joint.
  - 5. Multiuse Type, Embedded: For multiuse embedment in masonry mortar joints.
- B. Counterflashings: Manufactured units of heights to overlap top edges of base flashings by 4 inches and in lengths not exceeding 12 feet designed to snap into reglets or through-wall-flashing receiver and compress against base flashings with joints lapped, from the following exposed metal:
  - 1. Formed Aluminum: 0.032 inch thick.
- C. Accessories:
  - 1. Flexible-Flashing Retainer: Provide resilient plastic or rubber accessory to secure flexible flashing in reglet where clearance does not permit use of standard metal counterflashing or where reglet is provided separate from metal counterflashing.
  - 2. Counterflashing Wind-Restraint Clips: Provide clips to be installed before counterflashing to prevent wind uplift of counterflashing lower edge.
- D. Aluminum Finish: Mill.

## 2.5 MATERIALS

- A. Aluminum Sheet: ASTM B 209, alloy as standard with manufacturer for finish required, with temper to suit forming operations and performance required.
- B. Aluminum Extrusions: ASTM B 221, alloy and temper recommended by manufacturer for type of use and finish indicated, finished as follows:

## 2.6 UNDERLAYMENT MATERIALS

- A. Polyethylene Sheet: 6-mil- thick polyethylene sheet complying with ASTM D 4397.
- B. Felt: ASTM D 226, Type II (No. 30), asphalt-saturated organic felt, nonperforated.
- C. Self-Adhering, High-Temperature Sheet: Minimum 30 to 40 mils thick, consisting of slip-resisting polyethylene-film top surface laminated to layer of butyl or SBS-modified asphalt adhesive, with release-paper backing; cold applied. Provide primer when recommended by underlayment manufacturer.
  - 1. Thermal Stability: ASTM D 1970; stable after testing at 240 deg F.
  - 2. Low-Temperature Flexibility: ASTM D 1970; passes after testing at minus 20 deg F.
- D. Slip Sheet: Building paper, 3-lb/100 sq. ft. minimum, rosin sized.

## 2.7 MISCELLANEOUS MATERIALS

- A. General: Provide materials and types of fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and recommended by manufacturer of primary sheet metal or manufactured item unless otherwise indicated.
- B. Fasteners: Wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads and recommended by manufacturer of primary sheet metal or manufactured item.
  - 1. General: Blind fasteners or self-drilling screws, gasketed, with hex-washer head.
    - a. Exposed Fasteners: Heads matching color of sheet metal using plastic caps or factory-applied coating.
    - b. Blind Fasteners: High-strength aluminum or stainless-steel rivets suitable for metal being fastened.
    - c. Spikes and Ferrules: Same material as gutter; with spike with ferrule matching internal gutter width.
  - 2. Fasteners for Copper Sheet: Copper, hardware bronze or Series 300 stainless steel.
  - 3. Fasteners for Aluminum Sheet: Aluminum or Series 300 stainless steel.
  - 4. Fasteners for Stainless-Steel Sheet: Series 300 stainless steel.
  - 5. Fasteners for Zinc-Coated (Galvanized) and Aluminum-Zinc Alloy-Coated Steel Sheet: Hot-dip galvanized steel according to ASTM A 153/A 153M or ASTM F 2329 or Series 300 stainless steel.
- C. Solder:
  - 1. For Stainless Steel: ASTM B 32, Grade Sn60, with an acid flux of type recommended by stainless-steel sheet manufacturer.
  - 2. For Zinc-Coated (Galvanized) Steel: ASTM B 32, Grade Sn50, 50 percent tin and 50 percent lead or Grade Sn60, 60 percent tin and 40 percent lead.



- D. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch wide and 1/8 inch thick.
- E. Elastomeric Sealant: ASTM C 920, elastomeric polymer sealant; low modulus; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.
- F. Butyl Sealant: ASTM C 1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy bodied for hooked-type expansion joints with limited movement.
- G. Epoxy Seam Sealer: Two-part, noncorrosive, aluminum seam-cementing compound, recommended by aluminum manufacturer for exterior nonmoving joints, including riveted joints.
- H. Bituminous Coating: Cold-applied asphalt emulsion complying with ASTM D 1187.

## 2.8 FINISHES

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Noticeable variations in same piece are unacceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- D. Aluminum Sheet Finishes:
  - 1. Clear Anodic Finish: AAMA 611, AA-M12C22A41, Class I, 0.018 mm- or thicker.

## 2.9 FABRICATION, GENERAL

- A. General: Custom fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, geometry, metal thickness, and other characteristics of item indicated. Fabricate items at the shop to greatest extent possible.
  - 1. Obtain field measurements for accurate fit before shop fabrication.
  - 2. Form sheet metal flashing and trim without excessive oil canning, buckling, and tool marks and true to line and levels indicated, with exposed edges folded back to form hems.
  - 3. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces exposed to view.

- B. Sealed Joints: Form non expansion but movable joints in metal to accommodate elastomeric sealant.
- C. Expansion Provisions: Where lapped expansion provisions cannot be used, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with butyl sealant concealed within joints.
- D. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal.
- E. Seams: Fabricate nonmoving seams with flat-lock seams. Tin edges to be seamed, form seams, and solder.
- F. Seams: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with elastomeric sealant unless otherwise recommended by sealant manufacturer for intended use. Rivet joints where necessary for strength.
- G. Seams for Aluminum: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints where necessary for strength.

#### 2.10 ROOF DRAINAGE SHEET METAL FABRICATIONS

- A. Overflow Scuppers: Fabricate scuppers of dimensions required with closure flange trim to exterior, 4-inch- wide wall flanges to interior, and base extending 4 inches beyond cant or tapered strip into field of roof. Fabricate from the Aluminum: 0.032 inch thick.

#### 2.11 LOW-SLOPE ROOF SHEET METAL FABRICATIONS

- A. Roof-Edge Fascia (Gravel Stop): Manufactured, two-piece, roof-edge fascia consisting of snap-on metal fascia cover in section lengths not exceeding 12 feet and a continuous formed- or extruded-aluminum anchor bar with integral drip-edge cleat to engage fascia cover. Provide matching corner units.
  - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Hickman Company, W. P.
    - b. Johns Manville.
    - c. Metal-Era, Inc.
    - d. Metal-Fab Manufacturing, LLC.
    - e. National Sheet Metal Systems, Inc.
    - f. Perimeter Systems; a division of Southern Aluminum Finishing Company, Inc.
  - 2. Fascia Cover Material: Formed aluminum, 0.063 inch thick
    - a. Finish: Three-coat fluoropolymer.
    - b. Color: Match Architect's sample.

3. Corners: Factory mitered and soldered.
  4. Splice Plates: Concealed, of same material, finish, and shape as fascia cover.
- B. Copings: Fabricate in minimum 96-inch- long, but not exceeding 12-foot- long, sections. Fabricate joint plates of same thickness as copings. Furnish with continuous cleats to support edge of external leg and[ drill elongated holes for fasteners on] interior leg. Miter corners, fasten and seal watertight. Shop fabricate interior and exterior corners.
1. Coping Profile: Fig 3-4A according to SMACNA's "Architectural Sheet Metal Manual."
  2. Joint Style: Butted with expansion space and 6-inch- wide, concealed backup plate.
  3. Fabricate from the Aluminum: 0.050 inch] thick.
- C. Counterflashing and Flashing Receivers: Fabricate Stainless Steel: 0.019 inch thick.
- D. Roof-Penetration Flashing: Fabricate from Stainless Steel: 0.019 inch thick.
- E. Roof-Drain Flashing: Fabricate from Stainless Steel: 0.016 inch thick.

## 2.12 STEEP-SLOPE ROOF SHEET METAL FABRICATIONS

- A. Apron, Step, Cricket, and Backer Flashing: Fabricate from the following materials:
1. Aluminum: 0.032 inch thick.
  2. Stainless Steel: 0.016 inch thick.
- B. Valley Flashing: Fabricate from the following materials:
1. Stainless Steel: 0.019 inch thick.
- C. Drip Edges: Fabricate from the following materials:
1. Aluminum: 0.032 inch thick.
- D. Eave, Rake Flashing: Fabricate from the following materials:
1. Aluminum: 0.032 inch thick.
  2. Stainless Steel: [0.016 inch thick.
- E. Counterflashing: Shop fabricate interior and exterior corners. Fabricate from the following materials:
1. Aluminum: 0.032 inch thick.
  2. Stainless Steel: 0.019 inch thick.
- F. Flashing Receivers: Fabricate from the following materials:
1. Aluminum: 0.032 inch thick.
  2. Stainless Steel: 0.016 inch thick.
- G. Roof-Penetration Flashing: Fabricate from the following materials:
1. Stainless Steel: 0.019 inch thick.
- H. Vented Soffit: Fabricate from the following materials:
1. Aluminum: 0.019 inch thick.

- I. Eave and Rake Fascia: Manufactured, two-piece, roof-edge fascia consisting of snap-on metal fascia cover in section lengths not exceeding 12 feet and a continuous formed- or extruded-aluminum anchor bar with integral drip-edge cleat to engage fascia cover. Provide matching corner units. Fabricate from the following materials

1. Fascia Cover Material: Formed aluminum, 0.063 inch thick

## 2.13 WALL SHEET METAL FABRICATIONS

- A. Opening Flashings in Frame Construction: Fabricate head, sill, and similar flashings to extend 4 inches] beyond wall openings. Form head and sill flashing with 2-inch- high, end dams. Fabricate from one of the following materials:
  1. Aluminum: 0.032 inch thick.
  2. Stainless Steel: 0.016 inch thick.
  3. Aluminum-Zinc Alloy-Coated Steel: 0.022 inch thick.

## PART 3 - EXECUTION

### 3.1 INSTALLATION, GENERAL

- A. General: Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement so that completed sheet metal flashing and trim shall not rattle, leak, or loosen, and shall remain watertight. Use fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.
  1. Install sheet metal flashing and trim true to line and levels indicated. Provide uniform, neat seams with minimum exposure of solder, welds, and sealant.
  2. Install sheet metal flashing and trim to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
  3. Space cleats not more than 12 inches apart. Anchor each cleat with two fasteners. Bend tabs over fasteners.
  4. Install exposed sheet metal flashing and trim without excessive oil canning, buckling, and tool marks.
  5. Install sealant tape where indicated.
  6. Torch cutting of sheet metal flashing and trim is not permitted.
- B. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating or by other permanent separation as recommended by SMACNA.
  1. Coat back side of uncoated aluminum and stainless-steel sheet metal flashing and trim with bituminous coating where flashing and trim will contact wood, ferrous metal, or cementitious construction.
  2. Underlayment: Where installing metal flashing directly on cementitious or wood substrates, install a course of felt underlayment and cover with a slip sheet or install a course of polyethylene sheet.

- C. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet with no joints allowed within 24 inches of corner or intersection. Where lapped expansion provisions cannot be used or would not be sufficiently watertight, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with sealant concealed within joints.
- D. Fastener Sizes: Use fasteners of sizes that will penetrate wood sheathing not less than 1-1/4 inches for nails and not less than 3/4 inch for wood screws, metal decking not less than recommended by fastener manufacturer to achieve maximum pull-out resistance
- E. Seal joints as required for weathertight construction. Place sealant to be completely concealed in joint. Do not install sealants at temperatures below 40 deg F.
- F. Seal concealed joints with butyl sealant as required by roofing-specialty manufacturer.
- G. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter. Pre-tin edges of sheets to be soldered to a width of 1-1/2 inches, except reduce pre-tinning where pre-tinned surface would show in completed Work.
  - 1. Do not solder aluminum sheet.
  - 2. Do not use torches for soldering. Heat surfaces to receive solder and flow solder into joint. Fill joint completely. Completely remove flux and spatter from exposed surfaces.
  - 3. Stainless-Steel Soldering: Tin edges of uncoated sheets using solder recommended for stainless steel and acid flux. Promptly remove acid flux residue from metal after tinning and soldering. Comply with solder manufacturer's recommended methods for cleaning and neutralization.
  - 4. Copper Soldering: Tin edges of uncoated copper sheets using solder for copper.
- H. Rivets: Rivet joints in uncoated aluminum where indicated and where necessary for strength.
- I. Examine substrates, areas, and conditions, with Installer present, to verify actual locations, dimensions, and other conditions affecting performance of the Work.
- J. Examine walls, roof edges, and parapets for suitable conditions for roof specialties.
- K. Verify that substrate is sound, dry, smooth, clean, sloped for drainage where applicable, and securely anchored.
- L. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 ROOF DRAINAGE SYSTEM INSTALLATION

- A. General: Install sheet metal roof drainage items to produce complete roof drainage system according to SMACNA recommendations and as indicated. Coordinate installation of roof perimeter flashing with installation of roof drainage system.
- B. Scuppers: Install scuppers where indicated at roof edge flashing. Continuously support scupper, set to correct elevation, and seal flanges to interior wall face, over cants or tapered edge strips, and under roofing membrane.

### 3.3 ROOF FLASHING INSTALLATION

- A. General: Install sheet metal flashing and trim to comply with performance requirements, sheet metal manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, set units true to line, and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.
- B. Roof Edge Flashing: Anchor to resist uplift and outward forces according to recommendations in SMACNA's "Architectural Sheet Metal Manual" and as indicated. Interlock bottom edge of roof edge flashing with continuous cleat anchored to substrate at staggered 3-inch centers.
- C. Copings: Anchor to resist uplift and outward forces according to recommendations in SMACNA's "Architectural Sheet Metal Manual" and as indicated.
  - 1. Interlock exterior bottom edge of coping with continuous cleat anchored to substrate at 16-inch centers.
  - 2. Anchor interior leg of coping with washers and screw fasteners through slotted holes at 24-inch centers.
- D. Pipe or Post Counterflashing: Install counterflashing umbrella with close-fitting collar with top edge flared for elastomeric sealant, extending a minimum of 4 inches over base flashing. Install stainless-steel draw band and tighten.
- E. Counterflashing: Coordinate installation of counterflashing with installation of base flashing. Insert counterflashing in reglets or receivers and fit tightly to base flashing. Extend counterflashing 4 inches over base flashing. Lap counterflashing joints a minimum of 4 inches and bed with sealant.
- F. Roof-Penetration Flashing: Coordinate installation of roof-penetration flashing with installation of roofing and other items penetrating roof. Seal with butyl sealant and clamp flashing to pipes that penetrate roof.

### 3.4 WALL FLASHING INSTALLATION

- A. General: Install sheet metal wall flashing to intercept and exclude penetrating moisture according to SMACNA recommendations and as indicated. Coordinate installation of wall flashing with installation of wall-opening components such as windows, doors, and louvers.
- B. Through-Wall Flashing: Installation of through-wall flashing is specified in Division 04 Section "Unit Masonry Assemblies."
- C. Opening Flashings in Frame Construction: Install continuous head, sill and similar flashings to extend 4 inches beyond wall openings.

### 3.5 UNDERLAYMENT INSTALLATION

- A. Self-Adhering Sheet Underlayment: Apply primer if required by manufacturer. Comply with temperature restrictions of underlayment manufacturer for installation. Apply wrinkle free, in shingle fashion to shed water, and with end laps of not less than 6 inches staggered 24 inches between courses. Overlap side edges not less than 3-1/2 inches. Roll laps with roller. Cover underlayment within 14 days.
  - 1. Apply continuously under roof-edge specialties and reglets and counterflashings].
  - 2. Coordinate application of self-adhering sheet underlayment under roof specialties with requirements for continuity with adjacent air barrier materials.
- B. Felt Underlayment: Install with adhesive for temporary anchorage to minimize use of mechanical fasteners under roof specialties. Apply in shingle fashion to shed water, with lapped joints of not less than 2 inches.
- C. Slip Sheet: Install with tape or adhesive for temporary anchorage to minimize use of mechanical fasteners under roof specialties. Apply in shingle fashion to shed water, with lapped joints of not less than 2 inches.

### 3.6 ROOF-EDGE SPECIALITIES INSTALLATION

- A. Install cleats, cants, and other anchoring and attachment accessories and devices with concealed fasteners.
- B. Anchor roof edgings with manufacturer's required devices, fasteners, and fastener spacing to meet performance requirements.

### 3.7 ROOF-EDGE DRAINAGE-SYSTEM INSTALLATION

- A. General: Install components to produce a complete roof-edge drainage system according to manufacturer's written instructions. Coordinate installation of roof perimeter flashing with installation of roof-edge drainage system.
- B. Splash Pans: Install where downspouts discharge on low-slope roofs. Set in asphalt roofing cement or elastomeric sealant.
- C. Parapet Scuppers: Install scuppers through parapet where indicated. Continuously support scupper, set to correct elevation, and seal flanges to interior wall face, over cants or tapered edge strips, and under roofing membrane.
  - 1. Anchor scupper closure trim flange to exterior wall and seal or solder to scupper.
  - 2. Loosely lock front edge of scupper with conductor head.
  - 3. Seal or solder exterior wall scupper flanges into back of conductor head.

3.8 REGLET AND COUNTERFLASHING INSTALLATION

- A. General: Coordinate installation of reglets and counterflashings with installation of base flashings.
- B. Counterflashings: Insert counterflashings into reglets or other indicated receivers; ensure that counterflashings overlap 4 inches over top edge of base flashings. Lap counterflashing joints a minimum of 4 inches and bed with butyl sealant. Fit counterflashings tightly to base flashings.

3.9 CLEANING AND PROTECTION

- A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.
- B. Clean and neutralize flux materials. Clean off excess solder and sealants.
- C. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed unless otherwise indicated in manufacturer's written installation instructions.
- D. Replace roof specialties that have been damaged or that cannot be successfully repaired by finish touchup or similar minor repair procedures.

END OF SECTION 076200



## SECTION 077200 - ROOF ACCESSORIES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:

1. Roof curbs
2. Equipment supports
3. Roof hatches
4. Pipe and duct supports.
5. Pipe portals
6. Preformed flashing sleeves
7. Metal Ladders

- B. Related Sections:

1. Section 076200 "Sheet Metal Flashing and Trim" for shop- and field-formed metal flashing, roof-drainage systems, roof expansion-joint covers, and miscellaneous sheet metal trim and accessories.
2. Section 077100 "Roof Specialties" for manufactured fasciae, copings, gravel stops, and counterflashing.
3. Section 079500 "Expansion Control" for manufactured roof expansion-joint covers.

#### 1.3 COORDINATION

- A. Coordinate layout and installation of roof accessories with roofing membrane and base flashing and interfacing and adjoining construction to provide a leakproof, weathertight, secure, and noncorrosive installation.
- B. Coordinate dimensions with rough-in information or Shop Drawings of equipment to be supported.

#### 1.4 ACTION SUBMITTALS

- A. Product Data: For each type of roof accessory.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.

B. Shop Drawings: For roof accessories.

1. Include plans, elevations, keyed details, and attachments to other work. Indicate dimensions, loadings, and special conditions. Distinguish between plant- and field-assembled work.

C. Samples: For each exposed product and for each color and texture specified, prepared on Samples of size to adequately show color.

D. Delegated-Design Submittal: For roof curbs equipment supports and walkways indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1. Detail mounting, securing, and flashing of roof-mounted items to roof structure. Indicate coordinating requirements with roof membrane system.
2. Wind-Restraint Details: Detail fabrication and attachment of wind restraints. Show anchorage details and indicate quantity, diameter, and depth of penetration of anchors.

E. Sample Warranties: For manufacturer's special warranties.

1.5 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For roof accessories to include in operation and maintenance manuals.

1.6 WARRANTY

A. Special Warranty on Painted Finishes: Manufacturer's standard form in which manufacturer agrees to repair finishes or replace roof accessories that show evidence of deterioration of factory-applied finishes within specified warranty period.

1. Fluoropolymer Finish: Deterioration includes, but is not limited to, the following:
  - a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
  - b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
  - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
2. Finish Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. General Performance: Roof accessories shall withstand exposure to weather and resist thermally induced movement without failure, rattling, leaking, or fastener disengagement due to defective manufacture, fabrication, installation, or other defects in construction.

## 2.2 ROOF CURBS

- A. Roof Curbs: Internally reinforced roof-curb units capable of supporting superimposed live and dead loads, including equipment loads and other construction indicated on Drawings, bearing continuously on roof structure, and capable of meeting performance requirements; with welded or mechanically fastened and sealed corner joints, and integrally formed deck-mounting flange at perimeter bottom.
- B. Size: Coordinate dimensions with roughing-in information or Shop Drawings of equipment to be supported.
- C. Material: Zinc-coated (galvanized) steel sheet, 0.064 inch thick.
  - 1. Finish: Baked enamel or powder coat.
  - 2. Color: As selected by Architect from manufacturer's full range.
- D. Construction:
  - 1. Curb Profile: Profile as indicated on Drawings compatible with roofing system.
  - 2. Fabricate curbs to minimum height of 12 inches above roofing surface unless otherwise indicated.
  - 3. Top Surface: Level top of curb, with roof slope accommodated by sloping deck-mounting flange or by use of leveler frame.
  - 4. Sloping Roofs: Where roof slope exceeds 1:48, fabricate curb with perimeter curb height tapered to accommodate roof slope so that top surface of perimeter curb is level. Equip unit with water diverter or cricket on side that obstructs water flow.
  - 5. Insulation: Factory insulated with 1-1/2-inch- thick glass-fiber board insulation.
  - 6. Liner: Same material as curb, of manufacturer's standard thickness and finish.
  - 7. Nailer: Factory-installed wood nailer, continuous around curb perimeter.
  - 8. Wind Restraint Straps and Base Flange Attachment: Provide wind restraint straps, welded strap connectors, and base flange attachment to roof structure at perimeter of curb, of size and spacing required to meet wind uplift requirements.
  - 9. Platform Cap: Where portion of roof curb is not covered by equipment, provide weathertight platform cap formed from 3/4-inch thick plywood covered with metal sheet of same type, thickness, and finish as required for curb.
  - 10. Metal Counterflashing: Manufacturer's standard, removable, fabricated of same metal and finish as curb.

## 2.3 EQUIPMENT SUPPORTS

- A. Equipment Supports: Rail-type metal equipment supports capable of supporting superimposed live and dead loads between structural supports, including equipment loads and other construction indicated on Drawings, spanning between structural supports; capable of meeting performance requirements; with welded or mechanically fastened and sealed corner joints, and integrally formed structure-mounting flange at bottom.
- B. Size: Coordinate dimensions with roughing-in information or Shop Drawings of equipment to be supported.

- C. Material: Zinc-coated (galvanized) steel sheet, 0.064 inch thick.
  - 1. Finish: Baked enamel or powder coat.
  - 2. Color: As selected by Architect from manufacturer's full range.
- D. Construction:
  - 1. Curb Profile: As indicated on the Drawings, compatible with roofing system.
  - 2. Insulation: Factory insulated with 1-1/2-inch- thick glass-fiber board insulation.
  - 3. Liner: Same material as equipment support, of manufacturer's standard thickness and finish.
  - 4. Nailer: Factory-installed continuous wood nailers 3-1/2 inches wide on top flange of equipment supports, continuous around support perimeter.
  - 5. Wind Restraint Straps and Base Flange Attachment: Provide wind restraint straps, welded strap connectors, and base flange attachment to roof structure at perimeter of curb of size and spacing required to meet wind uplift requirements.
  - 6. Platform Cap: Where portion of equipment support is not covered by equipment, provide weathertight platform cap formed from 3/4-inch thick plywood covered with metal sheet of same type, thickness, and finish as required for curb.
  - 7. Metal Counterflashing: Manufacturer's standard, removable, fabricated of same metal and finish as equipment support.
  - 8. On ribbed or fluted metal roofs, form deck-mounting flange at perimeter bottom to conform to roof profile.
  - 9. Fabricate equipment supports to minimum height of 12 inches above roofing surface unless otherwise indicated.
  - 10. Sloping Roofs: Where roof slope exceeds 1:48, fabricate each support with height to accommodate roof slope so that tops of supports are level with each other. Equip supports with water diverters or crickets on sides that obstruct water flow.
  - 11. Security Grille: Provide where indicated on Drawings.

## 2.4 ROOF HATCH

- A. Roof Hatches: Metal roof-hatch units with lids and insulated double-walled curbs, welded or mechanically fastened and sealed corner joints, continuous lid-to-curb counterflashing and weathertight perimeter gasketing, and integrally formed deck-mounting flange at perimeter bottom.
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Type E roof hatch as manufactured by The Bilco Company or comparable product by one of the following:
    - a. Babcock-Davis.
    - b. Custom Solution Roof and Metal Products.
    - c. Dur-Red Products.
    - d. Hi Pro International, Inc.
    - e. J. L. Industries, Inc.
    - f. Precision Ladders, LLC.
- B. Type and Size: Single-leaf lid, 36 by 36 inches. Roof hatch shall be pre-assembled from the Manufacturer.
- C. Loads: Minimum 40-lbf/sq. ft. external live load and 20-lbf/sq. ft. internal uplift load.

- D. Hatch Material: Zinc-coated (galvanized) steel sheet, 0.079 inch thick.
  - 1. Finish: Factory prime coating.
- E. Construction:
  - 1. Insulation: Glass-fiber board.
  - 2. Hatch Lid: Opaque, insulated, and double walled, with manufacturer's standard metal liner of same material and finish as outer metal lid.
  - 3. Curb Liner: Manufacturer's standard, of same material and finish as metal curb.
  - 4. On ribbed or fluted metal roofs, form flange at perimeter bottom to conform to roof profile.
  - 5. Fabricate curbs to minimum height of 12 inches unless otherwise indicated.
- F. Hardware: Galvanized-steel spring latch with turn handles, butt- or pintle-type hinge system, and padlock hasps inside and outside.

## 2.5 PIPE AND DUCT SUPPORTS

- A. Fixed-Height Cradle-Type Pipe Supports: Polycarbonate pipe stand accommodating up to 1-1/2-inch- diameter pipe or conduit; with provision for pipe retainer and with manufacturer's support pad or deck plate as recommended for penetration-free installation over roof membrane type; as required for quantity of pipe runs and sizes.
- B. Fixed-Height Roller-Bearing Pipe Supports: Polycarbonate pipe stand with polycarbonate roller carrying assembly accommodating up to 7-inch- diameter pipe or conduit; with provision for pipe retainer and with manufacturer's support pad or deck plate as recommended for penetration-free installation over roof membrane type; as required for quantity of pipe runs and sizes.
- C. Adjustable-Height Roller-Bearing Pipe Supports: Polycarbonate pipe stand base, pipe support, and roller housing, with stainless-steel threaded rod designed for adjusting support height, accommodating up to 18 inch diameter pipe or conduit; with provision for pipe retainer and with manufacturer's support pad or deck plate as recommended for penetration-free installation over roof membrane type; as required for quantity of pipe runs and sizes.
- D. Adjustable-Height Structure-Mounted Pipe Supports: Extruded-aluminum tube, filled with urethane insulation; 2 inches in diameter; accommodating up to 7-inch- diameter pipe or conduit, with provision for pipe retainer; with aluminum baseplate, EPDM base seal, manufacturer's recommended hardware for mounting to structure or structural roof deck as indicated, stainless-steel roller and retainer, and extruded-aluminum carrier assemblies; as required for quantity of pipe runs and sizes.
- E. Curb-Mounted Pipe Supports: Galvanized steel support with welded or mechanically fastened and sealed corner joints, and integrally formed deck-mounting flange at perimeter bottom; with adjustable-height roller-bearing pipe support accommodating up to 20-inch- diameter pipe or conduit and with provision for pipe retainer; as required for quantity of pipe runs and sizes.

- F. Duct Supports: Extruded-aluminum, urethane-insulated supports, 2 inches in diameter; with manufacturer's recommended hardware for mounting to structure or structural roof deck.
  - 1. Finish: Manufacturer's standard.

## 2.6 PIPE PORTALS

- A. Curb-Mounted Pipe Portal: Insulated roof-curb units with welded or mechanically fastened and sealed corner joints and integrally formed deck-mounting flange at perimeter bottom; with weathertight curb cover with single or multiple collared openings and pressure-sealed conically shaped EPDM protective rubber caps sized for piping indicated, with stainless-steel snaplock swivel clamps.
- B. Flashing Pipe Portal: Formed aluminum membrane-mounting flashing flange and sleeve with collared opening and pressure-sealed conically shaped EPDM protective rubber cap sized for piping indicated, with stainless-steel snaplock swivel clamps.

## 2.7 PREFORMED FLASHING SLEEVES

- A. Exhaust Vent Flashing: Double-walled metal flashing sleeve or boot, insulation filled, with integral deck flange, 12 inches high, with removable metal hood and slotted metal collar.
  - 1. Metal: Aluminum sheet, 0.063 inch thick.
  - 2. Diameter: As indicated on Drawings.
  - 3. Finish: Manufacturer's standard.
- B. Vent Stack Flashing: Metal flashing sleeve, uninsulated, with integral deck flange.
  - 1. Metal: Aluminum sheet, 0.063 inch thick.
  - 2. Height: 7 inches.
  - 3. Diameter: As indicated on Drawings.
  - 4. Finish: Manufacturer's standard.

## 2.8 METAL MATERIALS

- A. Zinc-Coated (Galvanized) Steel Sheet: ASTM A 653/A 653M, G90 coating designation.
  - 1. Mill-Phosphatized Finish: Manufacturer's standard for field painting.
  - 2. Factory Prime Coating: Where field painting is indicated, apply pretreatment and white or light-colored, factory-applied, baked-on epoxy primer coat, with a minimum dry film thickness of 0.2 mil.
  - 3. Exposed Coil-Coated Finish: Prepainted by the coil-coating process to comply with ASTM A 755/A 755M. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

- a. Two-Coat Fluoropolymer Finish: AAMA 621. System consisting of primer and fluoropolymer color topcoat containing not less than 70 percent PVDF resin by weight.
  4. Baked-Enamel or Powder-Coat Finish: After cleaning and pretreating, apply manufacturer's standard two-coat, baked-on finish consisting of prime coat and thermosetting topcoat to a minimum dry film thickness of 2 mils.
  5. Concealed Finish: Pretreat with manufacturer's standard white or light-colored acrylic or polyester-backer finish consisting of prime coat and wash coat, with a minimum total dry film thickness of 0.5 mil.
- B. Aluminum-Zinc Alloy-Coated Steel Sheet: ASTM A 792/A 792M, AZ50 coated.
1. Factory Prime Coating: Where field painting is indicated, apply pretreatment and white or light-colored, factory-applied, baked-on epoxy primer coat, with a minimum dry film thickness of 0.2 mil.
  2. Exposed Coil-Coated Finish: Prepainted by the coil-coating process to comply with ASTM A 755/A 755M. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
    - a. Two-Coat Fluoropolymer Finish: AAMA 621. System consisting of primer and fluoropolymer color topcoat containing not less than 70 percent PVDF resin by weight.
  3. Baked-Enamel or Powder-Coat Finish: After cleaning and pretreating, apply manufacturer's standard two-coat, baked-on finish consisting of prime coat and thermosetting topcoat to a minimum dry film thickness of 2 mils.
  4. Concealed Finish: Pretreat with manufacturer's standard white or light-colored acrylic or polyester-backer finish consisting of prime coat and wash coat, with a minimum total dry film thickness of 0.5 mil.
- C. Aluminum Sheet: ASTM B 209, manufacturer's standard alloy for finish required, with temper to suit forming operations and performance required.
1. Mill Finish: As manufactured.
  2. Factory Prime Coating: Where field painting is indicated, apply pretreatment and white or light-colored, factory-applied, baked-on epoxy primer coat, with a minimum dry film thickness of 0.2 mil.
  3. Exposed Coil-Coated Finish: Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
    - a. Two-Coat Fluoropolymer Finish: AAMA 2605. System consisting of primer and fluoropolymer color topcoat containing not less than 70 percent PVDF resin by weight.
  4. Baked-Enamel or Powder-Coat Finish: AAMA 2603 except with a minimum dry film thickness of 1.5 mils. Comply with coating manufacturer's written instructions for cleaning, conversion coating, and applying and baking finish.
  5. Concealed Finish: Pretreat with manufacturer's standard white or light-colored acrylic or polyester-backer finish consisting of prime coat and wash coat, with a minimum total dry film thickness of 0.5 mil.

- D. Aluminum Extrusions and Tubes: ASTM B 221, manufacturer's standard alloy and temper for type of use, finished to match assembly where used; otherwise mill finished.
- E. Steel Shapes: ASTM A 36/A 36M, hot-dip galvanized according to ASTM A 123/A 123M unless otherwise indicated.
- F. Steel Tube: ASTM A 500/A 500M, round tube.
- G. Galvanized-Steel Tube: ASTM A 500/A 500M, round tube, hot-dip galvanized according to ASTM A 123/A 123M.
- H. Steel Pipe: ASTM A 53/A 53M, galvanized.

## 2.9 MISCELLANEOUS MATERIALS

- A. General: Provide materials and types of fasteners, protective coatings, sealants, and other miscellaneous items required by manufacturer for a complete installation.
- B. Cellulosic-Fiber Board Insulation: ASTM C 208, Type II, Grade 1, thickness as indicated.
- C. Glass-Fiber Board Insulation: ASTM C 726, nominal density of 3 lb/cu. ft., thermal resistivity of 4.3 deg F x h x sq. ft./Btu x in. at 75 deg F, thickness as indicated.
- D. Polyisocyanurate Board Insulation: ASTM C 1289, thickness and thermal resistivity as indicated.
- E. Wood Nailers: Softwood lumber, pressure treated with waterborne preservatives for aboveground use, acceptable to authorities having jurisdiction, containing no arsenic or chromium, and complying with AWPA C2; not less than 1-1/2 inches thick.
- F. Bituminous Coating: Cold-applied asphalt emulsion complying with ASTM D 1187/D 1187M.
- G. Underlayment:
  - 1. Felt: ASTM D 226/D 226M, Type II (No. 30), asphalt-saturated organic felt, nonperforated.
  - 2. Polyethylene Sheet: 6-mil- thick polyethylene sheet complying with ASTM D 4397.
  - 3. Slip Sheet: Building paper, 3 lb/100 sq. ft. minimum, rosin sized.
  - 4. Self-Adhering, High-Temperature Sheet: Minimum 30 to 40 mils thick, consisting of slip-resisting polyethylene-film top surface laminated to layer of butyl or SBS-modified asphalt adhesive, with release-paper backing; cold applied. Provide primer when recommended by underlayment manufacturer.
  - 5. Fasteners: Roof accessory manufacturer's recommended fasteners suitable for application and metals being fastened. Match finish of exposed fasteners with finish of material being fastened. Provide nonremovable fastener heads to exterior exposed fasteners. Furnish the following unless otherwise indicated:
  - 6. Fasteners for Zinc-Coated or Aluminum-Zinc Alloy-Coated Steel: Series 300 stainless steel or hot-dip zinc-coated steel according to ASTM A 153/A 153M or ASTM F 2329.
  - 7. Fasteners for Aluminum Sheet: Aluminum or Series 300 stainless steel.
  - 8. Fasteners for Stainless-Steel Sheet: Series 300 stainless steel.



- H. Gaskets: Manufacturer's standard tubular or fingered design of neoprene, EPDM, PVC, or silicone or a flat design of foam rubber, sponge neoprene, or cork.
- I. Elastomeric Sealant: ASTM C 920, elastomeric silicone polymer sealant as recommended by roof accessory manufacturer for installation indicated; low modulus; of type, grade, class, and use classifications required to seal joints and remain watertight.
- J. Butyl Sealant: ASTM C 1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy bodied for expansion joints with limited movement.
- K. Asphalt Roofing Cement: ASTM D 4586/D 4586M, asbestos free, of consistency required for application.

## 2.10 METAL LADDERS

### A. General:

- 1. Comply with ANSI A14.3.
- 2. Comply with OSHA 1910.27 Fixed Ladders
- 3. Fixed access ladder for exterior roofs: Provide standard duty channel rail roof access ladder. Basis of design Model 502 as manufactured by O’Keeffe’s, Inc.; 325 Newhall St. San Francisco, CA 94124. ASD

### B. Steel Ladders:

- 1. Space siderails 18 inches apart unless otherwise indicated.
- 2. Siderails: Continuous, 1/2-by-2-1/2-inch steel flat bars, with eased edges.
- 3. Rungs: 1-1/4 inch square serrated rungs.
- 4. Fit rungs in centerline of siderails; plug-weld and grind smooth on outer rail faces.
- 5. Provide nonslip surfaces on top of each rung, either by coating rung with aluminum-oxide granules set in epoxy-resin adhesive or by using a type of manufactured rung filled with aluminum-oxide grout.
- 6. Provide nonslip surfaces on top of each rung by coating with abrasive material metallicly bonded to rung.
- 7. Provide platforms as indicated fabricated from welded or pressure-locked steel bar grating, supported by steel angles. Limit openings in gratings to no more than 3/4 inch in least dimension.
- 8. Support each ladder at top and bottom and not more than 60 inches (1500 mm) o.c. with welded or bolted steel brackets.
- 9. Galvanize and prime exterior ladders, including brackets.
- 10. Prime exterior ladders, including brackets and fasteners, with zinc-rich primer.
- 11. Walk thru rail and roof rail extension: Not less than 3 feet 6 inches above the landing and shall be fitted with deeply serrated, square, tubular grab rails.

## 2.11 GENERAL FINISH REQUIREMENTS

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, to verify actual locations, dimensions, and other conditions affecting performance of the Work.
- B. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
- C. Verify dimensions of roof openings for roof accessories.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION

- A. General: Install roof accessories according to manufacturer's written instructions.
  - 1. Install roof accessories level; plumb; true to line and elevation; and without warping, jogs in alignment, buckling, or tool marks.
  - 2. Anchor roof accessories securely in place so they are capable of resisting indicated loads.
  - 3. Use fasteners, separators, sealants, and other miscellaneous items as required to complete installation of roof accessories and fit them to substrates.
  - 4. Install roof accessories to resist exposure to weather without failing, rattling, leaking, or loosening of fasteners and seals.
- B. Metal Protection: Protect metals against galvanic action by separating dissimilar metals from contact with each other or with corrosive substrates by painting contact surfaces with bituminous coating or by other permanent separation as recommended by manufacturer.
  - 1. Coat concealed side of uncoated aluminum or stainless-steel roof accessories with bituminous coating where in contact with wood, ferrous metal, or cementitious construction.
  - 2. Underlayment: Where installing roof accessories directly on cementitious or wood substrates, install a course of underlayment and cover with manufacturer's recommended slip sheet.
  - 3. Bed flanges in thick coat of asphalt roofing cement where required by manufacturers of roof accessories for waterproof performance.
- C. Roof Curb Installation: Install each roof curb so top surface is level.

- D. Equipment Support Installation: Install equipment supports so top surfaces are level with each other.
- E. Roof-Hatch Installation:
  - 1. Verify that roof hatch operates properly. Clean, lubricate, and adjust operating mechanism and hardware.
  - 2. Attach safety railing system to roof-hatch curb.
  - 3. Attach ladder-assist post according to manufacturer's written instructions.
- F. Pipe Support Installation: Comply with MSS SP-58 and MSS SP-89. Install supports and attachments as required to properly support piping. Arrange for grouping of parallel runs of horizontal piping, and support together.
  - 1. Pipes of Various Sizes: Space supports for smallest pipe size or install intermediate supports for smaller diameter pipes as specified for individual pipe hangers.
- G. Preformed Flashing-Sleeve and Flashing Pipe Portal Installation: Secure flashing sleeve to roof membrane according to flashing-sleeve manufacturer's written instructions; flash sleeve flange to surrounding roof membrane according to roof membrane manufacturer's instructions.
- H. Roof Walkway Installation:
  - 1. Verify that locations of access and servicing points for roof-mounted equipment are served by locations of roof walkways.
  - 2. Install roof walkway support pads prior to placement of roof walkway support stands onto low-slope roofing.
- I. Seal joints with elastomeric or butyl sealant as required by roof accessory manufacturer.

### 3.3 REPAIR AND CLEANING

- A. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing according to ASTM A 780/A 780M.
- B. Touch up factory-primed surfaces with compatible primer ready for field painting according to Section 099113 "Exterior Painting."
- C. Clean exposed surfaces according to manufacturer's written instructions.
- D. Clean off excess sealants.
- E. Replace roof accessories that have been damaged or that cannot be successfully repaired by finish touchup or similar minor repair procedures.

END OF SECTION 077200



## SECTION 078413 – PENETRATION FIRESTOPPING

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes fire-stopping for penetrations required by work and as indicated, and for the following applications: Each Contractor is responsible for providing fire-stopping for his own work.
1. Penetrations through fire-rated floor slabs, both employ holes and holes accommodating items such as cables, pipes, ducts, conduit, etc.
  2. Penetrations through fire-rated walls and partitions.
  3. Openings between curtain walls and floor slabs.
  4. Openings between top of walls and floor or roof slabs.
  5. At each floor level in vertical service shafts.
  6. Expansion joints in walls, floors, and wall and floor slab assemblies.
  7. Openings and/or penetrations through smoke barriers, or special compartmented areas.

#### 1.3 REFERENCES

- A. American Society for Testing and Materials Standards (ASTM):

1. ASTM E84: Standard Test Method for Surface Burning Characteristics of Building Materials
2. ASTM E814: Standard Test Methods for Fire Tests of Through-Penetration Firestops
3. ASTM E119: Standard Test Methods for Fire Tests of Building Construction Materials
4. ASTM E1399: Standard Test Methods for Cyclic Movement and Measuring of Joint Systems
5. ASTM E1725: Standard Test Methods for Fire Tests of Fire-Resistive Barrier Systems of Electrical Systems Components
6. ASTM E1966: Standard Test Methods for Fire Tests of Joints

- B. Underwriters Laboratories, Inc. (UL):

1. UL 723 Surface Burning Characteristics of Building Materials
2. UL 1479 Fire Tests of Through-Penetration Firestops, including optional air leak test.
3. UL 2079 Fire Test of Building Joint Firestop Systems
4. UL Fire Resistance Directory (Component Listing Test Criterion)

- C. ICBO Uniform Building Code (UBC):
  - 1. UBC 7-2 (1997) Standard Fire Test of Rated Door Assemblies (specified for positive and negative furnace test pressure)
  - 2. UBCC 7-14 (1997) Standard Fire Test of Rated Window Assemblies (specified for positive and negative furnace test pressure)
- D. National Fire Protection Agency (NFPA)
  - 1. NFPA 80 Standard Fire Door and Window Assembly Tolerances
  - 2. NFPA 252 Standard Fire Test for Fire Rated Doors (not specified for positive or negative furnace test pressure)
  - 3. NFPA 257 Standard Fire Test for Fire Rated Windows (not specified for positive or negative furnace test pressure)
  - 4. NFPA 101 Life Safety Code
  - 5. NEC 70 National Electrical Code

#### 1.4 SUBMITTALS

- A. Submit in accordance with Section 013300, unless otherwise indicated.
- B. Product Data: Manufacturer's product literature for each type of firestop material as follows:
  - 1. Product characteristics, typical uses, installation procedures, performance and limitation criteria.
  - 2. Material Safety Data Sheets (MSDS)
- C. Product Test Reports: From a qualified testing agency indicating that firestop system complies with requirements, based on comprehensive testing of current products.

#### 1.5 PERFORMANCE REQUIREMENTS

- A. General: Provide firestop systems that are produced and installed to resist the spread of fire according to requirements indicated, resist passage of smoke and other gases and maintain original fire-resistance rating of construction assembly.
- B. F-Rated systems: Provide firestop systems with F-rating as determined per ASTM E814 but not less than that equaling or exceeding fire-resistance ratings of the construction assembly.
- C. T-Rated Systems: Provide firestop systems with T-ratings as determined per ASTM E814 and ASTM E119 where systems protect penetrating items exposed to potential contact with adjacent materials in occupiable floor areas.
- D. L-Rated Systems: Provide firestop systems with L-ratings as determined per ASTM E814, where systems maintain a barrier to cold smoke at all: penetrations, connections with other surfaces, separations required to permit building movement, sound or vibration absorption, and other construction gaps.
- E. For firestop systems exposed to view, traffic, moisture, and physical damage, provide products that after curing do not deteriorate when exposed to these conditions both during and after construction.

- F. For firestop systems exposed to view, provide products with flame-spread ratings of less than 25 and smoke-developed ratings of less than 450, as determined per ASTM E84.
- G. Construction joint/gap firestop systems shall be tested for cyclic movement according to ASTM E1399 standard test methods, to meet or exceed 500 cycles at 10 cycles per minute

#### 1.6 QUALITY ASSURANCE

- A. Fire Protection Installer shall be an experienced installer, (including individual trades people such as electrical, mechanical, insulators, etc.) who is qualified by having the necessary experience, staff, and training to install manufacturer's products per specified requirements, plus the following:
  - 1. Acceptable to or licensed by manufacturer, state or local authority.
  - 2. Established a record of successful in-service experience with firestop systems or completion of manufacturer's certified product installation training.

#### 1.7 DELIVERY, STORAGE AND HANDLING

- A. Deliver firestop system products to project site in original unopened containers or packages with intact and legible manufacturers' labels identifying product and manufacturer, date of manufacture, lot number, shelf life, qualified testing and inspection agency's classification marking, curing time and mixing instructions.
- B. Store and handle materials for firestop systems to prevent their deterioration or damage due to moisture, temperature changes, contaminants, or other causes. Follow manufacturer's instructions.

#### 1.8 PROJECT CONDITIONS

- A. Existing Conditions: Verify the condition of the substrates and correct unsatisfactory conditions before installing firestop system products; follow manufacturer's instructions.
- B. Environmental Limitations: Comply with manufacturer's recommendations for temperature and humidity conditions before, during and after installation of firestop systems.
- C. Ventilation: Ventilate firestop systems during installation per manufacturer's written instructions by natural means or where this is inadequate, forced-air circulation.
- D. Protection: Provide masking and drop clothes to prevent contamination of surfaces by firestop system materials.

#### 1.9 COORDINATION

- A. Coordinate construction and sizing of sleeves, openings, core-drilled holes, cut openings and penetrating items to ensure that firestop systems are installed according to specified requirements.
- B. Do not cover-up or conceal firestop system installations behind other construction until Architect and Owner have examined each installation.

## PART 2 - PRODUCTS

### 2.1 ACCEPTABLE MANUFACTURERS

- A. Manufacturer: Products meeting Specifications as manufactured by the following:
1. W.R. Grace & Co.
  2. Johns Manville Fire Protection Systems
  3. 3M Fire Protection Products
  4. United States Gypsum Co.

### 2.2 MATERIALS:

- A. Firestop systems and materials shall meet the requirements specified herein
- B. Compatibility: Provide firestop systems that are compatible with one another, with the substrates forming openings, and with the items, if any, penetrating through the firestop system under conditions of service and application as demonstrated by the firestop system manufacturer based on testing and field experience.
- C. Accessories: Provide components for each firestop system that is needed to install fill materials and to comply with "Performance Requirements" Article 1.05. Use only components specified by firestop systems manufacturer and approved by the qualified testing and inspecting agency for firestop systems indicated. Accessories include, but are not limited to, the following items:
1. Permanent forming/damming/backing materials, including the following:
    - a. Slag/rock-wool-fiber insulation
    - b. Sealants used in combination with other forming/damming/backing materials to prevent leakage of fill materials in liquid state.
    - c. Fire-rated form board
    - d. Fillers for sealants
  2. Temporary forming materials.
  3. Substrate primers
  4. Collars and steel sleeves

### 2.3 THROUGH-PENETRATION FIRESTOP SYSTEMS FOR FIRE-RATED ASSEMBLIES

- A. Systems or devices listed in the UL Fire Resistance Directory under categories XHCR (firestop devices) and XHEZ (firestop systems) may be used, providing that they conform to the construction type, penetrate type, annular space requirements and fire rating involved in each separate instance, and that the system is symmetrical for wall applications. Systems or devices must be asbestos-free.
- B. Additional requirements: Withstand the passage of cold smoke either as an inherent property of the system, or by the use of a separate product included as a part of the UL system or device, and designed to perform this function.



- C. All through-penetration firestop system products must be from a single manufacturer. All trades will use products from the same manufacturer.

#### 2.4 CONSTRUCTION JOINT/GAP FIRESTOP SYSTEMS FOR FIRE RATED ASSEMBLIES

- A. Fill, void or cavity materials listed in the UL Fire Resistance Directory under category XHHW may be used, providing it conforms to the construction type and fire rating involved in each separate instance.
- B. Forming materials listed in the UL Fire Resistance Directory under category XHKU may be used, providing it conforms to the construction type and fire rating involved in each separate instance and meets UL 2079 and ASTM E1966.
- C. Additional requirements: Withstand the passage of cold smoke either as an inherent property of the system, or by the use of a separate product included as a part of the UL system or devise, and designed to perform this function.
- D. All construction joint/gap firestop system products must be from a single manufacturer. All trades will use products from the same manufacturer.

#### 2.5 DUCT-WRAP FIRESTOP SYSTEMS FOR DUCTS PASSING THROUGH FIRE-RESISTANCE-RATED AREAS

- A. 2-hour fire-resistive rated grease or air duct enclosure materials listed in the UL Fire Resistance Directory under File R8418, Category CAJ7009; File R1 4229, Categories CAJ7013, CAJ7015, CAJ7015, CAJ7020, CAJ7022, YYET, and Grease Duct Enclosures.
- B. Additional requirements: Withstand the passage of cold smoke either as an inherent property of the system or by the use of a separate product included as a part of the UL system or devise, and designed to perform this function.
- C. All duct wrap firestop system products must be from a single manufacturer. All trades will use products from the same manufacturer.

#### 2.6 COMPOSITION EDGE BANDING AND CORE MATERIAL FIRESTOP SYSTEMS FOR FIRE-RESISTANCE -RATED DOORS/WINDOWS

- A. Fire-resistant rated door and window fire seal material listed and tested in compliance with UBC7-2 (positive pressure), and UL 10C standards.
- B. Additional requirements: Withstand the passage of cold smoke either as an inherent property of the system or by the use of a separate product included as a part of the UL system or devise, and designed to perform this function.
- C. All duct wrap firestop system products must be from a single manufacturer. All trades will use products from the same manufacturer.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine areas and conditions under which firestop system is to be installed and notify the Architect of conditions detrimental to proper or timely completion of the work.
- B. Examine substrates to determine they are satisfactory to receive firestop system materials.
  - 1. Conduct tests according to firestop systems manufacturer's written recommendations to verify that substrates are free of oil, grease, rolling compounds, incompatible primers, loose mill scale, dirt or other foreign substances capable of impairing bond of fire-resistive materials.
  - 2. Verify objects penetrating firestop materials, including clips, hangers, support sleeves, and similar items are securely attached to substrates.
  - 3. Verify substrates are not obstructed by ducts, piping, equipment, and other suspended construction that will interfere with applying fire-resistive materials.
- C. Verify that environmental conditions are safe and suitable for installation of fire stop materials.
- D. Do not proceed with installation of firestop system until unsatisfactory conditions have been corrected by the contractor in a manner acceptable to the Architect.

### 3.2 PREPARATION

- A. Clean and repair substrates that could impair the adhesion or proper fitting of firestop materials, including oil, grease, rolling compounds, incompatible primers, and loose mill scale.
- B. Secure all pipe, conduit, cable and other items, which penetrate firestop materials.
- C. Provide masking and temporary covering as required to prevent contamination of adjacent surfaces by firestop materials.

### 3.3 INSTALLATION - GENERAL

- A. Installation of firestop systems shall be performed in strict accordance with manufacturer's detailed installation instructions and procedures.
- B. Extend firestop material in full thickness over entire area of each substrate or opening to be protected.
- C. Protect firestop material from damage on surfaces subject to traffic.

### 3.4 INSTALLATION OF FIRESTOP SYSTEMS

#### A. General

1. Install through-penetration firestop systems to comply with "Performance Requirements: Article 1.05 and firestop systems manufacturer's written installation instructions and published drawings for products and applications indicated.
2. Install forming/damming/backing materials and other accessories of types required to support fill material during their application and in the position needed to produce cross-sectional shapes and depths required to achieve fire ratings indicated.
  - a. After installing fill materials, remove combustible forming materials and other accessories not indicated as permanent components of firestop system.
3. Install fill materials for firestop systems by proven techniques to produce the following results:
  - a. Fill voids and cavities formed by openings, forming materials, accessories and penetrating items as required to achieve fire-resistance ratings indicated.
  - b. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.
  - c. For fill materials that will remain exposed after completing work, finish to produce smooth, uniform surfaces that are flush with adjoining surfaces.

#### B. Field Quality Control

1. Proceed with enclosing through-penetration firestop systems with other construction only after inspection and approval by Architect.
2. Where deficiencies are found, repair or replace through-penetration firestop systems so they comply with requirements.
3. Inspection Agency: If required, owner will engage a qualified independent inspecting agency to inspect through-penetration firestop systems and to prepare test reports indicating whether through-penetration firestop systems comply with or deviate from requirements.

#### C. Identification

1. Identify through-penetration firestop systems with pressure-sensitive, self-adhesive, preprinted vinyl labels. Attach labels permanently to surfaces of penetrated construction on both sides of each firestop system installation where labels will be visible to anyone seeking to remove penetrating items or firestop systems. Include the following information on labels:
  - a. The words: "Warning-Through-Penetration Firestop System-Do Not Disturb. Notify Building Management of Any Damage".
  - b. Contractor's name and address, and phone number.
  - c. Through-penetration firestop systems designation of applicable testing and inspection agency.
  - d. Date of installation
  - e. Through-penetration firestop system manufacturer's name.
  - f. Installer's name.

D. Cleaning and Protection

1. Clean off excess fill materials adjacent to openings as work progresses by methods and with cleaning materials that are approved in writing by through-penetration firestop systems manufacturer and that do not damage materials in which openings occur.
2. Provide final protection and maintain conditions during and after installation that ensures through-penetration firestop systems are without damage or deterioration at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated through-penetration firestop systems immediately and install new materials to produce through-penetration firestop systems comply with specified requirements.

END OF SECTION 078413

## SECTION 079200 - JOINT SEALANTS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Special Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

##### A. Section Includes:

1. Silicone joint sealants.
2. Urethane joint sealants.
3. Latex joint sealants.
4. Acoustical joint sealants.

##### B. Related Sections:

1. Division 04 Section "Unit Masonry" for masonry control and expansion joint fillers and gaskets.

##### C. Preconstruction Field-Adhesion Testing: Before installing sealants, field test their adhesion to Project joint substrates as follows:

1. Locate test joints where indicated on Project or, if not indicated, as directed by Architect.
2. Conduct field tests for each application indicated below:
  - a. Each kind of sealant and joint substrate indicated.
3. Notify Architect seven days in advance of dates and times when test joints will be erected.
4. Arrange for tests to take place with joint-sealant manufacturer's technical representative present.
  - a. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C 1193 or Method A, Tail Procedure, in ASTM C 1521.
    - 1) For joints with dissimilar substrates, verify adhesion to each substrate separately; extend cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.
5. Report whether sealant failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each kind of product and joint substrate. For sealants that fail adhesively, retest until satisfactory adhesion is obtained.

6. Evaluation of Preconstruction Field-Adhesion-Test Results: Sealants not evidencing adhesive failure from testing, in absence of other indications of noncompliance with requirements, will be considered satisfactory. Do not use sealants that fail to adhere to joint substrates during testing.

### 1.3 SUBMITTALS

- A. Product Data: For each joint-sealant product indicated.
- B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.
- C. Joint-Sealant Schedule: Include the following information:
  1. Joint-sealant application, joint location, and designation.
  2. Joint-sealant manufacturer and product name.
  3. Joint-sealant formulation.
  4. Joint-sealant color.
- D. Qualification Data: For qualified Installer.
- E. Product Certificates: For each kind of joint sealant and accessory, from manufacturer.
- F. Sealant, Waterproofing, and Restoration Institute (SWRI) Validation Certificate: For each sealant specified to be validated by SWRI's Sealant Validation Program.
- G. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, indicating that sealants comply with requirements.
- H. Warranties: Sample of special warranties.

### 1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.
- B. Source Limitations: Obtain each kind of joint sealant from single source from single manufacturer.
- C. Product Testing: Test joint sealants using a qualified testing agency.
  1. Testing Agency Qualifications: An independent testing agency qualified according to ASTM C 1021 to conduct the testing indicated.
  2. Test according to SWRI's Sealant Validation Program for compliance with requirements specified by reference to ASTM C 920 for adhesion and cohesion under cyclic movement, adhesion-in-peel, and indentation hardness.

## 1.5 PROJECT CONDITIONS

### A. Do not proceed with installation of joint sealants under the following conditions:

1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F.
2. When joint substrates are wet.
3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

## 1.6 WARRANTY

### A. Special Installer's Warranty: Manufacturer's standard form in which Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Two years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 MATERIALS, GENERAL

#### A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.

#### B. Liquid-Applied Joint Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied joint sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.

1. Suitability for Immersion in Liquids. Where sealants are indicated for Use I for joints that will be continuously immersed in liquids, provide products that have undergone testing according to ASTM C 1247. Liquid used for testing sealants is deionized water, unless otherwise indicated.

#### C. Stain-Test-Response Characteristics: Where sealants are specified to be nonstaining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.

#### D. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

### 2.2 SILICONE JOINT SEALANTS

#### A. Single-Component, Nonsag, Neutral-Curing Silicone Joint Sealant: ASTM C 920, Type S, Grade NS, Class 100/50, for Use NT.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
  - a. Dow Corning Corporation; 790.
  - b. Pecora Corporation; 890.
  - c. Tremco Incorporated; Spectrem 1.
- B. Mildew-Resistant, Single-Component, Nonsag, Neutral-Curing Silicone Joint Sealant: ASTM C 920, Type S, Grade NS, Class 25, for Use NT.
  1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Pecora Corporation; 898.
    - b. Or equal.

## 2.3 URETHANE JOINT SEALANTS

- A. Single-Component, Nonsag, Urethane Joint Sealant: ASTM C 920, Type S, Grade NS, Class 25, for Use NT.
  1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Pecora Corporation; Dynatrol I-XL.
    - b. Tremco Incorporated; Dymonic.

## 2.4 LATEX JOINT SEALANTS

- A. Latex Joint Sealant: Acrylic latex or siliconized acrylic latex, ASTM C 834, Type OP, Grade NF.
  1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. BASF Building Systems; Sonolac.
    - b. Bostik, Inc.; Chem-Calk 600.
    - c. Pecora Corporation; AC-20+.
    - d. Tremco Incorporated; Tremflex 834.

## 2.5 ACOUSTICAL JOINT SEALANTS

- A. Acoustical Joint Sealant: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834. Product effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.
  1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:



- a. Pecora Corporation; AIS-919.
- b. USG Corporation; SHEETROCK Acoustical Sealant.

## 2.6 JOINT SEALANT BACKING

- A. General: Provide sealant backings of material that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
- C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint. Provide self-adhesive tape where applicable.

## 2.7 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical acceptable to manufacturers of sealants and sealant backing materials, free of oily cleaners residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.
- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

# PART 3 - EXECUTION

## 3.1 EXAMINATION

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

## 3.2 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
- B. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air.
- C. Preparation
  1. Remove laitance and form-release agents from concrete.
  2. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:
    - a. Metal.
    - b. Glass.
    - c. Glazed surfaces of ceramic tile.
- D. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- E. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

### 3.3 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
- B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
  1. Do not leave gaps between ends of sealant backings.
  2. Do not stretch, twist, puncture, or tear sealant backings.
  3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.
- D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

- E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
  - 2. Place sealants so they directly contact and fully wet joint substrates.
  - 3. Completely fill recesses in each joint configuration.
  - 4. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
  - 1. Remove excess sealant from surfaces adjacent to joints.
  - 2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
  - 3. Provide concave joint profile per Figure 8A in ASTM C 1193, unless otherwise indicated.
  - 4. Provide recessed joint configuration of recess depth and at locations indicated per Figure 8C in ASTM C 1193.
    - b. Use masking tape to protect surfaces adjacent to recessed tooled joints.
- G. Installation of Preformed Silicone-Sealant System: Comply with the following requirements:
  - 1. Apply masking tape to each side of joint, outside of area to be covered by sealant system.
  - 2. Apply silicone sealant to each side of joint to produce a bead of size complying with preformed silicone-sealant system manufacturer's written instructions and covering a bonding area of not less than 3/8 inch. Hold edge of sealant bead 1/4 inch inside masking tape.
  - 3. Within 10 minutes of sealant application, press silicone extrusion into sealant to wet extrusion and substrate. Use a roller to apply consistent pressure and ensure uniform contact between sealant and both extrusion and substrate.
  - 4. Complete installation of sealant system in horizontal joints before installing in vertical joints. Lap vertical joints over horizontal joints. At ends of joints, cut silicone extrusion with a razor knife.
- H. Installation of Preformed Foam Sealants: Install each length of sealant immediately after removing protective wrapping. Do not pull or stretch material. Produce seal continuity at ends, turns, and intersections of joints. For applications at low ambient temperatures, apply heat to sealant in compliance with sealant manufacturer's written instructions.
  - 1. Acoustical Sealant Installation: At sound-rated assemblies and elsewhere as indicated, seal construction at perimeters, behind control joints, and at openings and penetrations with a continuous bead of acoustical sealant. Install acoustical sealant at both faces of partitions at perimeters and through penetrations. Comply with ASTM C 919 and with manufacturer's written recommendations.

### 3.4 INSTALLATION OF ACOUSTICAL SEALANT

- A. Install acoustical sealant on both sides of base track and around all electrical outlets.

### 3.5 FIELD QUALITY CONTROL

- A. Field-Adhesion Testing: Field test joint-sealant adhesion to joint substrates as follows:

1. Extent of Testing: Test completed and cured sealant joints as follows:
  - a. Perform 10 tests for the first 1000 feet of joint length for each kind of sealant and joint substrate.
  - b. Perform 1 test for each 1000 feet of joint length thereafter or 1 test per each floor per elevation.
2. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C 1193 or Method A, Tail Procedure, in ASTM C 1521.
  - a. For joints with dissimilar substrates, verify adhesion to each substrate separately; extend cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.
3. Inspect tested joints and report on the following:
  - a. Whether sealants filled joint cavities and are free of voids.
  - b. Whether sealant dimensions and configurations comply with specified requirements.
  - c. Whether sealants in joints connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each kind of product and joint substrate. Compare these results to determine if adhesion passes sealant manufacturer's field-adhesion hand-pull test criteria.
4. Record test results in a field-adhesion-test log. Include dates when sealants were installed, names of persons who installed sealants, test dates, test locations, whether joints were primed, adhesion results and percent elongations, sealant fill, sealant configuration, and sealant dimensions.
5. Repair sealants pulled from test area by applying new sealants following same procedures used originally to seal joints. Ensure that original sealant surfaces are clean and that new sealant contacts original sealant.

- B. Evaluation of Field-Adhesion Test Results: Sealants not evidencing adhesive failure from testing or noncompliance with other indicated requirements will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements.

### 3.6 CLEANING

- A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

### 3.7 PROTECTION

- A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

### 3.8 JOINT-SEALANT SCHEDULE

- A. Joint-Sealant Application: Exterior joints between building slab and concrete sidewalks.
  - 1. Joint Locations:
    - a. Joints between concrete slabs and building perimeter.
  - 2. Urethane Joint Sealant: Single component, nonsag, traffic grade.
  - 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.
- B. Joint-Sealant Application: Exterior joints in vertical surfaces and horizontal nontraffic surfaces.
  - 1. Joint Locations:
    - a. Construction joints in cast-in-place concrete.
    - b. Control and expansion joints in unit masonry.
    - c. Joints in dimension stone cladding.
    - d. Joints in exterior insulation and finish systems.
    - e. Perimeter joints between materials listed above and frames of doors, windows and louvers.
    - f. Control and expansion joints in ceilings and other overhead surfaces.
    - g. Other joints as indicated.
  - 2. Silicone Joint Sealant: Single component, nonsag, neutral curing, Class 100/50.
  - 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.
- C. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal nontraffic surfaces.
  - 1. Joint Locations:
    - a. Control and expansion joints on exposed interior surfaces of exterior walls.
    - b. Perimeter joints of exterior openings where indicated.
    - c. Tile control and expansion joints.
    - d. Perimeter joints between interior wall surfaces and frames of interior doors windows and elevator entrances.
    - e. Other joints as indicated.
  - 2. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

D. Joint-Sealant Application: Mildew-resistant interior joints in vertical surfaces and horizontal nontraffic.

1. Joint Sealant Location:
  - a. Joints between plumbing fixtures and adjoining walls, floors, and counters.
  - b. Tile control and expansion joints where indicated.
  - c. Other joints as indicated.
2. Joint Sealant: Mildew resistant, single component, nonsag, neutral curing, Silicone.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

E. Joint-Sealant Application: Interior acoustical joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Location:
  - a. Acoustical joints where indicated.
  - b. Other joints as indicated.
2. Joint Sealant: Acoustical.
3. Joint-Sealant Color: white.

END OF SECTION 079200

## SECTION 081113 - HOLLOW METAL DOORS AND FRAMES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes hollow-metal work.
- B. Related Requirements:
  - 1. Section 08 "Flush Wood Doors for wood doors installed in metal frames.
  - 2. Section 087100 "Door Hardware" for door hardware for hollow-metal doors.
  - 3. Section 09 "Interior Painting" for painting of hollow metal doors and frames.

#### 1.3 DEFINITIONS

- A. Minimum Thickness: Minimum thickness of base metal without coatings according to NAAMM-HMMA 803 or SDI A250.8.

#### 1.4 COORDINATION

- A. Coordinate anchorage installation for hollow-metal frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors. Deliver such items to Project site in time for installation.

#### 1.5 SUBMITTALS

- A. Product Data: For each type of product.
  - 1. Include construction details, material descriptions, core descriptions, fire-resistance ratings, and finishes.
- B. Shop Drawings: Include the following:
  - 1. Elevations of each door type.
  - 2. Details of doors, including vertical- and horizontal-edge details and metal thicknesses.
  - 3. Frame details for each frame type, including dimensioned profiles and metal thicknesses.
  - 4. Locations of reinforcement and preparations for hardware.
  - 5. Details of each different wall opening condition.
  - 6. Details of anchorages, joints, field splices, and connections.
  - 7. Details of accessories.

8. Details of moldings, removable stops, and glazing.
9. Details of conduit and preparations for power, signal, and control systems.

C. Samples for Initial Selection: For units with factory-applied color finishes.

D. Samples for Verification:

1. For each type of exposed finish required. Schedule: Provide a schedule of hollow-metal work prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings. Coordinate with final Door Hardware Schedule.

E. Door Schedule: Prepared by the supplier using the same reference numbers for details and openings as used on the Drawings.

## 1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver hollow-metal work palletized, packaged, or crated to provide protection during transit and Project-site storage. Do not use nonvented plastic.

1. Provide additional protection to prevent damage to factory-finished units.

B. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.

C. Store hollow-metal work vertically under cover at Project site with head up. Place on minimum 4-inch- high wood blocking. Provide minimum 1/4-inch space between each stacked door to permit air circulation.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

A. Source Limitations: Obtain hollow-metal work from single source from single manufacturer.

### 2.2 REGULATORY REQUIREMENTS

A. Fire-Rated Assemblies: Complying with NFPA 80 and listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252 or UL 10C.

B. Fire-Rated, Borrowed-Light Assemblies: Complying with NFPA 80 and listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction for fire-protection ratings indicated, based on testing according to NFPA 257 or UL 9.



## 2.3 INTERIOR DOORS AND FRAMES

- A. Construct interior doors and frames to comply with the standards indicated for materials, fabrication, hardware locations, hardware reinforcement, tolerances, and clearances, and as specified.
- B. Heavy-Duty Doors and Frames: SDI A250.8, Level 2..
  - 1. Physical Performance: Level B according to SDI A250.4.
  - 2. Doors:
    - a. Type: As indicated in the Door and Frame Schedule.
    - b. Thickness: 1-3/4 inches.
    - c. Face: Metallic-coated, cold-rolled steel sheet, minimum thickness of 0.042 inch.
    - d. Edge Construction: Model 2, Seamless.
    - e. Core: Manufacturer's standard kraft-paper honeycomb, polystyrene, polyurethane, polyisocyanurate, mineral-board, or vertical steel-stiffener core at manufacturer's discretion.
  - 3. Frames:
    - a. Materials: Metallic-coated steel sheet, minimum thickness of 0.053 inch.
    - b. Construction: Full profile welded.
  - 4. Exposed Finish: Prime.

## 2.4 MATERIALS

- A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.
- B. Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.
- C. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B.
- D. Frame Anchors: ASTM A 879/A 879M, Commercial Steel (CS), 04Z coating designation; mill phosphatized.
  - 1. For anchors built into exterior walls, steel sheet complying with ASTM A 1008/A 1008M or ASTM A 1011/A 1011M, hot-dip galvanized according to ASTM A 153/A 153M, Class B.
- E. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.
- F. Power-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hollow-metal frames of type indicated.

- G. Grout: ASTM C 476, except with a maximum slump of 4 inches, as measured according to ASTM C 143/C 143M.
- H. Mineral-Fiber Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers manufactured from slag or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively; passing ASTM E 136 for combustion characteristics.
- I. Glazing: Comply with requirements in Section 088000 "Glazing."
- J. Bituminous Coating: Cold-applied asphalt mastic, compounded for 15-mil dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

## 2.5 FABRICATION

- A. Fabricate hollow-metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for metal thickness. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.
- B. Hollow-Metal Doors:
  - 1. Steel-Stiffened Door Cores: Provide minimum thickness 0.026 inch, steel vertical stiffeners of same material as face sheets extending full-door height, with vertical webs spaced not more than 6 inches apart. Spot weld to face sheets no more than 5 inches o.c. Fill spaces between stiffeners with glass- or mineral-fiber insulation.
  - 2. Fire Door Cores: As required to provide fire-protection ratings indicated.
  - 3. Vertical Edges for Single-Acting Doors: Bevel edges 1/8 inch in 2 inches.
  - 4. Top Edge Closures: Close top edges of doors with inverted closures of same material as face sheets.
  - 5. Bottom Edge Closures: Close bottom edges of doors where required for attachment of weather stripping with end closures or channels of same material as face sheets.
  - 6. Exterior Doors: Provide weep-hole openings in bottoms of exterior doors to permit moisture to escape. Seal joints in top edges of doors against water penetration.
  - 7. Astragals: Provide overlapping astragal on one leaf of pairs of doors where required by NFPA 80 for fire-performance rating or where indicated. Extend minimum 3/4 inch beyond edge of door on which astragal is mounted or as required to comply with published listing of qualified testing agency.
- C. Hollow-Metal Frames: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.
  - 1. Sidelight and Transom Bar Frames: Provide closed tubular members with no visible face seams or joints, fabricated from same material as door frame. Fasten members at crossings and to jambs by butt welding.
  - 2. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.

3. Grout Guards: Weld guards to frame at back of hardware mortises in frames to be grouted.
4. Floor Anchors: Weld anchors to bottoms of jambs with at least four spot welds per anchor; however, for slip-on drywall frames, provide anchor clips or countersunk holes at bottoms of jambs.
5. Jamb Anchors: Provide number and spacing of anchors as follows:
  - a. Masonry Type: Locate anchors not more than 16 inches from top and bottom of frame. Space anchors not more than 32 inches o.c., to match coursing, and as follows:
    - 1) Two anchors per jamb up to 60 inches high.
    - 2) Three anchors per jamb from 60 to 90 inches high.
    - 3) Four anchors per jamb from 90 to 120 inches high.
    - 4) Four anchors per jamb plus one additional anchor per jamb for each 24 inches or fraction thereof above 120 inches high.
  - b. Stud-Wall Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c. and as follows:
    - 1) Three anchors per jamb up to 60 inches high.
    - 2) Four anchors per jamb from 60 to 90 inches high.
    - 3) Five anchors per jamb from 90 to 96 inches high.
    - 4) Five anchors per jamb plus one additional anchor per jamb for each 24 inches or fraction thereof above 96 inches high.
  - c. Compression Type: Not less than two anchors in each frame.
  - d. Postinstalled Expansion Type: Locate anchors not more than 6 inches from top and bottom of frame. Space anchors not more than 26 inches o.c.
6. Head Anchors: Two anchors per head for frames more than 42 inches wide and mounted in metal-stud partitions.
7. Door Silencers: Except on weather-stripped frames, drill stops to receive door silencers as follows. Keep holes clear during construction.
  - a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
  - b. Double-Door Frames: Drill stop in head jamb to receive two door silencers.
- D. Fabricate concealed stiffeners and edge channels from either cold- or hot-rolled steel sheet.
- E. Hardware Preparation: Factory prepare hollow-metal work to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to SDI A250.6, the Door Hardware Schedule, and templates.
  1. Reinforce doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.
  2. Comply with applicable requirements in SDI A250.6 and BHMA A156.115 for preparation of hollow-metal work for hardware.
- F. Stops and Moldings: Provide stops and moldings around glazed lites and louvers where indicated. Form corners of stops and moldings with butted or mitered hairline joints.

1. Single Glazed Lites: Provide fixed stops and moldings welded on secure side of hollow-metal work.
2. Multiple Glazed Lites: Provide fixed and removable stops and moldings so that each glazed lite is capable of being removed independently.
3. Provide fixed frame moldings on outside of exterior and on secure side of interior doors and frames.
4. Provide loose stops and moldings on inside of hollow-metal work.
5. Coordinate rabbet width between fixed and removable stops with glazing and installation types indicated.

## 2.6 STEEL FINISHES

- A. Prime Finish: Clean, pretreat, and apply manufacturer's standard primer.
  1. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with SDI A250.10; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.

## 2.7 ACCESSORIES

- A. Louvers: Provide louvers for interior doors, where indicated, which comply with SDI 111C, with blades or baffles formed of 0.020-inch- thick, cold-rolled steel sheet set into 0.032-inch-thick steel frame.
  1. Sightproof Louver: Stationary louvers constructed with inverted-V or inverted-Y blades.
- B. Mullions and Transom Bars: Join to adjacent members by welding or rigid mechanical anchors.
- C. Grout Guards: Formed from same material as frames, not less than 0.016 inch thick.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Examine roughing-in for embedded and built-in anchors to verify actual locations before frame installation.
- C. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Remove welded-in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces.
- B. Drill and tap doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.

### 3.3 INSTALLATION

- A. General: Install hollow-metal work plumb, rigid, properly aligned, and securely fastened in place. Comply with Drawings and manufacturer's written instructions.
- B. Hollow-Metal Frames: Install hollow-metal frames of size and profile indicated. Comply with SDI A250.11 or NAAMM-HMMA 840 as required by standards specified.
  - 1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.
    - a. At fire-rated openings, install frames according to NFPA 80.
    - b. Where frames are fabricated in sections because of shipping or handling limitations, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces.
    - c. Install frames with removable stops located on secure side of opening.
    - d. Install door silencers in frames before grouting.
    - e. Remove temporary braces necessary for installation only after frames have been properly set and secured.
    - f. Check plumb, square, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
    - g. Field apply bituminous coating to backs of frames that will be filled with grout containing antifreezing agents.
  - 2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with postinstalled expansion anchors.
    - a. Floor anchors may be set with power-actuated fasteners instead of postinstalled expansion anchors if so indicated and approved on Shop Drawings.
  - 3. Metal-Stud Partitions: Solidly pack mineral-fiber insulation inside frames.
  - 4. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with grout.
  - 5. Concrete Walls: Solidly fill space between frames and concrete with mineral-fiber insulation.
  - 6. In-Place Concrete or Masonry Construction: Secure frames in place with postinstalled expansion anchors. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
  - 7. In-Place Metal or Wood-Stud Partitions: Secure slip-on drywall frames in place according to manufacturer's written instructions.

8. Installation Tolerances: Adjust hollow-metal door frames for squareness, alignment, twist, and plumb to the following tolerances:
  - a. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
  - b. Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.
  - c. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
  - d. Plumbness: Plus or minus 1/16 inch, measured at jambs at floor.
- C. Hollow-Metal Doors: Fit hollow-metal doors accurately in frames, within clearances specified below. Shim as necessary.
  1. Non-Fire-Rated Steel Doors:
    - a. Between Door and Frame Jambs and Head: 1/8 inch plus or minus 1/32 inch.
    - b. Between Edges of Pairs of Doors: 1/8 inch to 1/4 inch plus or minus 1/32 inch.
    - c. At Bottom of Door: 5/8 inch plus or minus 1/32 inch.
    - d. Between Door Face and Stop: 1/16 inch to 1/8 inch plus or minus 1/32 inch.
  2. Fire-Rated Doors: Install doors with clearances according to NFPA 80.
  3. Smoke-Control Doors: Install doors and gaskets according to NFPA 105.
- D. Glazing: Comply with installation requirements in Section 088000 "Glazing" and with hollow-metal manufacturer's written instructions.
  1. Secure stops with countersunk flat- or oval-head machine screws spaced uniformly not more than 9 inches o.c. and not more than 2 inches o.c. from each corner.

### 3.4 ADJUSTING AND CLEANING

- A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow-metal work that is warped, bowed, or otherwise unacceptable.
- B. Remove grout and other bonding material from hollow-metal work immediately after installation.
- C. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.

END OF SECTION 081113

## SECTION 081416 - FLUSH WOOD DOORS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:

- 1. Solid-core doors with wood-veneer faces.
  - 2. Factory finishing flush wood doors.
  - 3. Factory fitting flush wood doors to frames and factory machining for hardware.

- B. Related Requirements:

- 1. Section 081113 "Hollow Metal Frames" for hollow metal door frames.

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of door. Include details of core and edge construction and trim for openings. Include factory-finishing specifications.

- B. Shop Drawings: Indicate location, size, and hand of each door; elevation of each kind of door; construction details not covered in Product Data; and the following:

- 1. Dimensions and locations of blocking.
  - 2. Dimensions and locations of mortises and holes for hardware.
  - 3. Dimensions and locations of cutouts.
  - 4. Undercuts.
  - 5. Requirements for veneer matching.
  - 6. Doors to be factory finished and finish requirements.
  - 7. Fire-protection ratings for fire-rated doors.

- C. Samples for Initial Selection: For factory-finished doors.

- D. Samples for Verification:

- 1. Factory finishes applied to actual door face materials, approximately 8 by 10 inches, for each material and finish.
  - 2. Corner sections of doors, approximately 8 by 10 inches , with door faces and edges representing actual materials to be used.
    - a. Provide Samples for each species of veneer and solid lumber required.

- b. Provide Samples for each color, texture, and pattern of plastic laminate required.
  - c. Finish veneer-faced door Samples with same materials proposed for factory-finished doors.
- 3. Louver blade and frame sections, 6 inches (150 mm) long, for each material and finish specified.
  - 4. Frames for light openings, 6 inches (150 mm) long, for each material, type, and finish required.

#### 1.4 INFORMATIONAL SUBMITTALS

- A. Sample Warranty: For special warranty.
- B. Quality Standard Compliance Certificates: AWI Quality Certification Program certificates.

#### 1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A qualified manufacturer that is a certified participant in AWT's Quality Certification Program.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Comply with requirements of referenced standard and manufacturer's written instructions.
- B. Package doors individually in plastic bags or cardboard cartons.
- C. Mark each door on bottom rail with opening number used on Shop Drawings.

#### 1.7 FIELD CONDITIONS

- A. Environmental Limitations: Do not deliver or install doors until spaces are enclosed and weathertight, wet work in spaces is complete and dry, and HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during remainder of construction period.

#### 1.8 WARRANTY

- A. A. Special Warranty: Manufacturer agrees to repair or replace doors that fail in materials or workmanship within specified warranty period.
  - 1. Failures include, but are not limited to, the following:
    - a. Warping (bow, cup, or twist) more than 1/4 inch in a 42-by-84-inch section.
    - b. Telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch span.



2. Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors.
3. Warranty Period for Solid-Core Interior Doors: Life of installation.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Algoma Hardwoods, Inc.
  2. Ampco.
  3. Eggers Industries.
  4. Graham Wood Doors; an Assa Abloy Group company.
  5. Marlite.
  6. Marshfield Door Systems, Inc.
  7. Mohawk Doors; a Masonite company.
  8. Oshkosh Door Company.
  9. VT Industries, Inc.
- B. Source Limitations: Obtain flush wood doors from single manufacturer.

### 2.2 FLUSH WOOD DOORS, GENERAL

- A. Quality Standard: In addition to requirements specified, comply with AWI's, AWMAC's, and WI's "Architectural Woodwork Standards."
1. Provide AWI Quality Certification Labels indicating that doors comply with requirements of grades specified.
  2. Contract Documents contain selections chosen from options in quality standard and additional requirements beyond those of quality standard. Comply with those selections and requirements in addition to quality standard.
- B. Low-Emitting Materials: Fabricate doors with adhesives and composite wood products that do not contain urea formaldehyde.
- C. WDMA I.S.1-A Performance Grade: Heavy Duty.
- D. Fire-Rated Wood Doors: Doors complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252 or UL 10C.
1. Temperature-Rise Limit: Where indicated, provide doors that have a maximum transmitted temperature end point of not more than 450 deg F (250 deg C) above ambient after 30 minutes of standard fire-test exposure.
  2. Cores: Provide core specified or mineral core as needed to provide fire-protection rating indicated.

3. Edge Construction: Provide edge construction with intumescent seals concealed by outer stile. Comply with specified requirements for exposed edges.
  4. Pairs: Provide fire-retardant stiles that are listed and labeled for applications indicated without formed-steel edges and astragals. Provide stiles with concealed intumescent seals. Comply with specified requirements for exposed edges.
  5. Pairs: Provide formed-steel edges and astragals with intumescent seals.
    - a. Finish steel edges and astragals with baked enamel.
    - b. Finish steel edges and astragals to match door hardware (locksets or exit devices).
- E. Smoke- and Draft-Control Door Assemblies: Listed and labeled for smoke and draft control, based on testing according to UL 1784.
- F. Particleboard-Core Doors:
1. Particleboard: ANSI A208.1, Grade LD-1 or Grade LD-2, made with binder containing no urea-formaldehyde.
  2. Blocking: Provide wood blocking in particleboard-core doors as needed to eliminate through-bolting hardware.
  3. Provide doors with glued-wood-stave or structural-composite-lumber cores instead of particleboard cores for doors indicated to receive exit devices.
- G. Mineral-Core Doors:
1. Core: Noncombustible mineral product complying with requirements of referenced quality standard and testing and inspecting agency for fire-protection rating indicated.
  2. Blocking: Provide composite blocking with improved screw-holding capability approved for use in doors of fire-protection ratings indicated as needed to eliminate through-bolting hardware.
  3. Edge Construction: At hinge stiles, provide laminated-edge construction with improved screw-holding capability and split resistance. Comply with specified requirements for exposed edges.
    - a. Screw-Holding Capability: 550 lbf per WDMA T.M.-10.
- 2.3 VENEER-FACED DOORS FOR TRANSPARENT FINISH
- A. Interior Solid-Core Doors:
1. Grade: Custom (Grade A faces).
  2. Species: Red oak.
  3. Cut: Quarter sliced.
  4. Match between Veneer Leaves: Book match.
  5. Assembly of Veneer Leaves on Door Faces: Center-balance match.
  6. Pair and Set Match: Provide for doors hung in same opening or separated only by mullions.
  7. Room Match: Match door faces within each separate room or area of building. Corridor-door faces do not need to match where they are separated by 20 feet or more.

8. Room Match: Provide door faces of compatible color and grain within each separate room or area of building.
9. Transom Match: End match.
10. Core: Particleboard.
11. Construction: Five plies. Stiles and rails are bonded to core, then entire unit is abrasive planed before veneering. Faces are bonded to core using a hot press.
12. Construction: Seven plies, either bonded or nonbonded construction.
13. WDMA I.S.1-A Performance Grade: Heavy Duty.

## 2.4 FABRICATION

- A. Factory fit doors to suit frame-opening sizes indicated. Comply with clearance requirements of referenced quality standard for fitting unless otherwise indicated.
  1. Comply with NFPA 80 requirements for fire-rated doors.
- B. Factory machine doors for hardware that is not surface applied. Locate hardware to comply with DHI-WDHS-3. Comply with final hardware schedules, door frame Shop Drawings, BHMA-156.115-W, and hardware templates.
  1. Coordinate with hardware mortises in metal frames to verify dimensions and alignment before factory machining.
  2. Metal Astragals: Factory machine astragals and formed-steel edges for hardware for pairs of fire-rated doors.

## 2.5 FACTORY FINISHING

- A. General: Comply with referenced quality standard for factory finishing. Complete fabrication, including fitting doors for openings and machining for hardware that is not surface applied, before finishing.
  1. Finish faces, all four edges, edges of cutouts, and mortises. Stains and fillers may be omitted on top and bottom edges, edges of cutouts, and mortises.
- B. Factory finish doors.
- C. Use only paints and coatings that comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
- D. Transparent Finish:
  1. Grade: Premium.
  2. Finish: WDMA TR-4 conversion varnish.
  3. Staining: As selected by Architect from manufacturer's full range.
  4. Effect: Open-grain finish.
  5. Sheen: Satin.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine doors and installed door frames, with Installer present, before hanging doors.
  - 1. Verify that installed frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with level heads and plumb jambs.
  - 2. Reject doors with defects.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION

- A. Hardware: For installation, see Section 087100 "Door Hardware."
- B. Installation Instructions: Install doors to comply with manufacturer's written instructions and referenced quality standard, and as indicated.
  - 1. Install fire-rated doors according to NFPA 80.
  - 2. Install smoke- and draft-control doors according to NFPA 105.
- C. Job-Fitted Doors: Align and fit doors in frames with uniform clearances and bevels as indicated below; do not trim stiles and rails in excess of limits set by manufacturer or permitted for fire-rated doors. Machine doors for hardware. Seal edges of doors, edges of cutouts, and mortises after fitting and machining.
  - 1. Clearances: Provide 1/8 inch at heads, jambs, and between pairs of doors. Provide 1/8 inch from bottom of door to top of decorative floor finish or covering unless otherwise indicated. Where threshold is shown or scheduled, provide 1/4 inch from bottom of door to top of threshold unless otherwise indicated.
    - a. Comply with NFPA 80 for fire-rated doors.
    - b. 2. Bevel non-fire-rated doors 1/8 inch in 2 inches at lock and hinge edges.
  - 2. Bevel fire-rated doors 1/8 inch in 2 inches at lock edge; trim stiles and rails only to extent permitted by labeling agency.
- D. Factory-Finished Doors: Restore finish before installation if fitting or machining is required at Project site.

### 3.3 ADJUSTING

- A. Operation: Rehang or replace doors that do not swing or operate freely.

END OF SECTION 081416

## SECTION 081743 - FRP/ALUMINUM HYBRID DOORS AND FRP FRAMES

### PART 1 –GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Special Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:

- 1. FRP (Fiberglass Reinforced Polyester) / Aluminum hybrid doors.
  - 2. FRP frames
  - 3. Frame capping systems
  - 4. Hardware

- B. Related sections include the following:

- 1. Division 08 Section "Door Hardware".
  - 2. Division 08 Section "Glazing".
  - 3. Division 07 "Joint Sealants".

#### 1.3 REFERENCES

- A. AAMA 1503-98 - Thermal Transmittance and Condensation Resistance of Windows, Doors and Glazed Wall Sections.
- B. ASTM B 209 - Aluminum and Aluminum-Alloy Sheet and Plate.
- C. ASTM B 221 - Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
- D. ASTM-C518 – Standard test Method for Steady-State Thermal Transmission Properties by Means of Heat Flow Meter Apparatus.
- E. ASTM D 256 - Determining the Pendulum Impact Resistance of Notched Specimens of Plastics.
- F. ASTM D 570 - Water Absorption of Plastics.
- G. ASTM D 638 - Tensile Properties of Plastics.
- H. ASTM D695 - Standard Test Method for Compressive Properties of Rigid Plastics
- I. ASTM D 790 - Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
- J. ASTM D792 - Standard Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement
- L. ASTM D 1621 - Compressive Properties of Rigid Cellular Plastics.
- M. ASTM-D1622 – Standard Test Method for Apparent Density of Rigid Cellular Plastics.
- N. ASTM D 1623 - Tensile and Tensile Adhesion Properties of Rigid Cellular Plastics.
- O. ASTM D 2126 - Response of Rigid Cellular Plastics to Thermal and Humid Aging.

- P. ASTM D2344 - Standard Test Method for Short-Beam Strength of Polymer Matrix Composite Materials
- Q. ASTM D 2583 - Indentation Hardness of Rigid Plastics by Means of a Barcol Impressor.
- R. ASTM D2794 - Standard Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact)
- S. ASTM D 5420 – Impact Resistance of Flat Rigid Plastic Specimens by Means of a Falling Weight.
- T. ASTM E 84 - Surface Burning Characteristics of Building Materials.
- U. NFRC 100 – Procedure for Determining Fenestration Products U-Factors.
- V. NFRC 400 – Procedure for Determining Fenestration Products Air Leakage..
- W. IBC 2603.4.1.7 - Non-rated swinging doors with plastic foam cores.

#### 1.4 PERFORMANCE REQUIREMENTS

- A. General: Provide door assemblies that have been designed and fabricated to comply with specified performance requirements, as demonstrated by testing manufacturer's corresponding standard systems.
- B. Air Infiltration at a test pressure of 1.57 psf, per NFRC 400 Table C402.5.2 of the 2015 IECC as adopted by New York State:
  - 1) Opaque Entrance Doors with Frames, at a test pressure of 1.57 psf must have an air leakage rate of less than or equal to 0.20 cfm/ft<sup>2</sup>.
  - 2) Commercial Glazed Swinging Entrance Doors with Frames must have an air leakage rate of less than or equal to 1.00 cfm/ft<sup>2</sup>.
- C. Thermal Transmission per NFRC 100 Table C402.1.4 of the 2015 IECC as adopted by New York State, for:
  - 1. Opaque Exterior Doors with Frame, U Value: Maximum of 0.37 Btu/hr·ft<sup>2</sup>·°F.
  - 2. Commercial Glazed Doors with Frame, U Value: Maximum of 0.77 Btu/hr·ft<sup>2</sup>·°F.
- D. Face Sheets:
  - 1. Exterior Class C 0.120" thick, pebble texture, through color with integral surfaseal film FRP sheet.
    - a. Flexural Strength, ASTM-D790: 21 x 10<sup>3</sup> psi.
    - b. Flexural Modulus, ASTM-D790: 0.7 x 10<sup>6</sup> psi.
    - c. Tensile Strength, ASTM-D638: 13 x 10<sup>3</sup> psi.
    - d. Tensile Modulus, ASTM-D638: 1.2 x 10<sup>6</sup> psi.
    - e. Barcol Hardness, ASTM-D2583: 55.
    - f. Izod Impact, ASTM-D256: 14.0 ft-lb/in.
    - g. Gardner Impact Strength, ASTM-D5420: 120 in-lb.
    - h. Water Absorption, ASTM-D570: 0.20%/24hrs at 77°F.
    - i. Surface Burning, ASTM-E84: Flame Spread ≤ 200, Smoke Developed ≤ 450.
    - j. Taber Abrasion Resistance, Taber Test: 0.007% Max Wt. Loss, cs-17 wheels, 1000g. Wt., 25 cycles.

- k. Chemical Resistance.
    - 1. Excellent Rating.
      - a. Acetic Acid, Concentrated.
      - b. Acetic Acid, 5%.
      - c. Bleach Solution.
      - d. Detergent Solution.
      - e. Distilled Water.
      - f. Ethyl Acetate.
      - g. Formaldehyde.
      - h. Heptane.
      - i. Hydrochloric Acid, 10%.
      - j. Hydrogen Peroxide, 3%.
      - k. Isooctane.
      - l. Lactic Acid, 10%.
    - l. USDA/FSIS Requirements.
      - 1. FRP face sheet with surfaseal is a finished outer surface material that is rigid; durable; non-toxic; non-corrosive; moisture resistant; a light, solid color such as white; easily inspected; smooth or an easily cleaned texture.
      - 2. FRP face sheet with surfaseal does not contain any known carcinogen, mutagen, or teratogen classified as hazardous substances; heavy metals or toxic substances; antimicrobials; pesticides or substances with pesticidal characteristics.
      - 3. Note: See 1.3-W and 2.2-A.11 for 2603.9 conformance.
  - 2. Interior Face Only Class A 0.120" thick, pebble texture, FRP sheet.
    - a. Flexural Strength, ASTM-D790:  $13 \times 10^3$  psi.
    - b. Flexural Modulus, ASTM-D790:  $0.57 \times 10^6$  psi.
    - c. Tensile Strength, ASTM-D638:  $6.8 \times 10^3$  psi.
    - d. Tensile Modulus, ASTM-D638:  $0.90 \times 10^6$  psi.
    - e. Barcol Hardness, ASTM-D2583: 40.
    - f. Izod Impact, ASTM-D256: 12.0 ft-lb/in notched.
    - g. Gardner Impact Strength, ASTM-D3029: 45 in-lb.
    - h. Water Absorption, ASTM-D570: 0.32%/24hrs at 77°F.
    - i. Surface Burning, ASTM-E84: Flame Spread  $\leq 25$ , Smoke Developed  $\leq 450$ .
    - j. Taber Abrasion Resistance, Taber Test: 0.02% Max Wt. Loss, cs-17 wheels, 1000g. Wt., 25 cycles.
- E. Door Core.
- 1. Density, ASTM-D1622:  $\leq 5.0$  pcf.
  - 2. Compressive Properties, ASTM-D1621: Compressive Strength  $\geq 60$  psi, Compressive Modulus  $\geq 1948$  psi.
  - 3. Tensile and Tensile Adhesion Properties, ASTM-D1623: Tensile Adhesion, 3" x 3" FRP Facers  $\geq 53$  psi, Tensile Adhesion, 1" x 1" Foam  $\geq 104$  psi.
  - 4. Thermal and Humid Aging, ASTM-D2126: Volume Change at 158 °F, 100% humidity, 14 days  $\leq 13\%$ .
  - 5. Thermal Conductivity, ASTM-C518, Thermal Resistance  $\geq 0.10$  m<sup>2</sup>K/W.
- F. Door Panel.
- 1. Thermal Transmittance, AAMA 1503-98: U-Factor = 0.29 Btu/hr-ft<sup>2</sup>·°F, CRFp = 55.
  - 2. Indoor Air Quality, ASTM-D5116, ASTM-D6607: GreenGuard, GreenGuard Gold.

- G. AF-150 Framing.
1. Tensile Strength, ASTM-D638: 15,900 psi.
  2. Tensile Modulus of Elasticity, ASTM-D638:  $1.58 \times 10^6$  psi.
  3. Maximum Compressive Strength, ASTM-D695: 15,500 psi.
  4. Compressive Modulus of Elasticity, ASTM-D695:  $6.7 \times 10^5$  psi.
  5. Flexural Strength, ASTM-D790:  $39.3 \times 10^3$  psi.
  6. Flexural Modulus, ASTM-D790:  $1.23 \times 10^6$  psi.
  7. Izod Impact, ASTM-D256: 8.1 ft-lb/in.
  8. Barcol Hardness, ASTM-D2583: 57.
  9. Specific Gravity, ASTM-D792: 1.45 @ 23 °C.
  10. Density, ASTM-D792: 1445.6 kg.m<sup>3</sup> @ 23 °C.
  11. Coefficient of Linear Expansion, ASTM-D696:  $1.26 \times 10^{-5}$  in/in/°F.
  12. Short Beam Strength, ASTM-D2344: 3,980 psi.
  13. Fastener Withdrawal, ASTM-D1761: 924 lbs.
  14. Percent Fiberglass: 60%.
  15. ASTM E 84 Class A rated.

## 1.5 SUBMITTALS

- A. Product Data: Submit manufacturer's product data, specifications and instructions for each type of door and frame required in accordance with Submittal Section and the following:
1. Include details of core, stile and rail construction, trim for lites and all other components.
  2. Include details of finish hardware mounting.
  3. Include samples of each aluminum alloy to be used on this project. Where normal finish color and texture variations are expected, include two or more samples to show the range of such variations.
  4. Include one sample of typical fabricated section, showing joints, fastenings, quality of workmanship, hardware and accessory items before fabrication of the work proceeds.
  5. Include color samples of FRP face sheet.
- B. Submit shop drawings for the fabrication and installation of the doors and frames, and associated components. Details to be shown full scale. Include glazing details and finish hardware schedule. Indicate system dimensions, framed opening requirements and tolerances in full scale, affected related work and expansion and contraction joint location and details.
- C. Product Data: Submit component dimensions, describe components within assembly, anchorage and fasteners, glazing details and finish hardware schedule. Samples: Submit two samples 12 x 12 inches in size illustrating finished aluminum surface, door construction and face sheet finish. Color as selected by Architect.
- D. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

## 1.6 QUALITY ASSURANCE

- A. Standards: Comply with the requirements and recommendations in applicable specification and standards by AAMA, except to the extent more stringent requirements are indicated.



- B. Manufacturer Qualifications: Shall have produced specific fiberglass reinforced polyester doors being submitted for at least twenty-five years. Shall have completed projects of similar building type and size as this project and shall provide comprehensive list of similar jobs using submitted product with submittal package.
- C. Installer Qualifications: Acceptable to manufacturer and capable of preparation of data for aluminum-framed systems including Shop Drawings based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project.
- D. Doors shall have been manufactured for a minimum of 25 years. List of minimum (100) jobs shall be submitted for architect's review, upon his request.
- E. Performance: A minimum ten-year record of production of frames, doors and panels and completion of similar projects in type and size.
- F. Instruction: The manufacturer or his representative will be available for consultation to all parties engaged in the project including instruction to installation personnel.
- G. Field Measurement: Field verify all information prior to fabrication and furnishing of materials. Furnish and install materials omitted due to lack of verification at no additional cost to owner.
- H. Accessible Entrances: Comply with the U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA), Accessibility Guidelines for Buildings and Facilities (ADAAG)."
- I. Furnish and install materials omitted due to lack of verification at no additional cost to Owner.
- J. Regulation and Codes: Comply with the current edition in force at the project location of all local, state and federal codes and regulations, including the Americans with Disabilities Act of 1992.
- K. Greenguard Certification: Doors and frames shall be certified by GREENGUARD Environmental Institute (GEI) for Indoor Air Quality Standard and Children & Schools Standard. This requirement does not apply to Fire-rated FRP doors.
- L. Single Source Responsibility: Unless indicated obtain doors and storefront frames from a single firm specializing in the type of construction required, so that there will be undivided responsibility for the specified performance of all component parts, including glazing for doors and factory installation of door hardware to door (except closers).

#### 1.7 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver materials to jobsite in their original, unopened packages with labels intact. Inspect materials for damage and advise manufacturer immediately of any unsatisfactory materials.
- B. Package door assemblies in individual corrugated cartons so no portion of the door has contact with the outer shell of the container. Package and ship frames preassembled to the greatest possible extent.
- C. Protect finished aluminum surfaces with wrapping. Do not use adhesive papers or sprayed coatings which bond when exposed to sunlight or weather.

#### 1.8 ENVIRONMENTAL REQUIREMENTS

- A. Do not install sealants nor glazing materials when ambient temperature is less than 40 degrees F during and 48 hours after installation.

1.9 COORDINATION

- A. Coordinate the Work with installation of air barrier, vapor retarder, and exterior wall components or materials.

1.10 PROJECT WARRANTY

- A. Warrant doors, frames, and factory installed hardware against failure in materials and workmanship, including excessive deflection, faulty operation, defects in hardware installation, and deterioration of finish or construction in excess of normal weathering.
1. Warranty Period: Ten years from date of Substantial Completion.
- B. Limited Lifetime Warranty: For door assemblies in original installation and specified application, for the following:
- 1) Failure of corner joinery.
  - 2) Core deterioration.
  - 3) Delamination or bubbling of door skin.
  - 4) Corrosion of all-fiberglass products.
- C. Factory Installed Hardware: Special-Lite to warrant for a period of not less than 10 years from date of shipment that:
- 1) Hardware is installed to door in accordance with the hardware manufacturer's specifications and instructions.
  - 2) Hardware is securely mounted and, in normal usage, will not separate from the door.
- D. Warranty Period for Painted Face Sheet Finish: Five (5) years
- E. Warranty Period for Painted all-fiberglass Finish: Three (3) years
- F. Warranty Period for KYNAR Finish: Per KYNAR Manufacturer warranty (10) years.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide SL-17 with Spec-Lite 3E as manufactured by Special-Lite, Inc. or an equivalent product.

2.2 PRODUCT DESCRIPTION

- A. Fiberglass Reinforced Polyester (FRP)/ Aluminum Hybrid Flush Doors: Materials and Construction (Special-Lite SL-17, basis of design)
1. Construct 1 3/4" thickness doors of 6063-T5 aluminum alloy rails and stiles minimum 2-5/16" depth.
  2. Construct with mitered corners and provide joinery with 3/8" diameter full-width steel tie rods through extruded splines top and bottom as standard.
  3. Internal frame to be tubular shaped stiles and rails minimum .062" wall thickness both faces, minimum .125" wall thickness both perimeter edges reinforced to accept specified hardware. Provide 3/16" angle blocks with hex type aircraft nuts for joinery without welds, glues or other methods for securing internal door extrusions.
  4. Furnish mitered integral reglets (part of the internal frame) on all four sides to accept and secure the face sheet and permit a flush appearance.
  5. Screw applied removable rail caps or other face sheet capture methods are not acceptable. No exposed fasteners unless required for hardware installation.

6. Extrude top rail leg for interlocking continuous rail rigidity weather bar.
7. Adjustable Astragal: For pairs of doors manufacturer shall provide and install full height adjustable dual brush astragal on active leaf allowing for seasonal adjustment.  
Note: Cannot be used with mortised hardware. Meeting stiles , on pairs of doors with with mortise locks and flush bolts are to have 70-91 beveled meeting stile extrusion with nylon pile weather stripping astragal or approved equal.
8. Adjustable Door Bottom: Door Manufacturer to provide and install SL-301 concealed adjustable dual brush door bottom with up to 0.6250-inch of adjustment.  
Note: Cannot be used with vertical rods. Must coordinate with hardware specification and hardware schedule.
9. Face Sheet: SpecLite3 pebble texture FRP skin, 0.120" thickness, finish color throughout.
  - a. Supply Class C exterior grade face-sheets in accordance with ASTM 84 E.
  - b. Where required supply Class A interior face-sheets in accordance with ASTM E 84.
  - c. FRP face-sheet Color: Selected by architect from manufacturers standard colors.
10. Core of Door Assembly: Minimum five (5) pounds per cubic foot density poured-in-place polyurethane. Minimum "R" value of 9. Use of glue to bond face sheets to foam core is not permitted.
11. In accordance with IBC 2603.4.1.7 provide thermal barrier of either 0.032 aluminum on interior of door between foam core and FRP face sheet or independent test report showing compliance with requirement.
12. Manufacture doors with cutouts for vision lites, louvers or panels as scheduled. Factory furnish and install all glass and panels prior to shipment.
13. Pre-machine doors in accordance with templates from the specified hardware manufacturer's and approved hardware schedule. Factory install hardware.
14. Door manufacturer to supply geared continuous aluminum hinge – Model SL-11HD or approved equal.

## 2.3 GLAZING: DESIGN SYSTEM FOR REPLACEMENT OF GLAZING.

- A. Manufacturer's standard flush glazing system of recessed channels and captive glazing gaskets or applied stops.
- B. Allow for thermal expansion on exterior units.
- C. Glass as shown and factory glazed into doors and frames.
- D. Refer to section 088000 for glass specifications.

## 2.4 COMPONENTS

- A. Extruded Aluminum: Alloy and temper as recommended by manufacturer for strength, corrosion resistance and application of required finish and control of color; ASTM B 221 for extrusions, ASTM B 209 for Sheet and Plate.
- B. Furnish door and frame components from the same manufacturer.
- C. Fasteners: Aluminum, non-magnetic stainless steel or other non-corrosive metal fasteners, guaranteed by the manufacturer to be compatible with the doors, frames, stops, panels, hardware, anchors and other items being fastened. For exposed fasteners (if required) provide Phillips head screws with finish matching the item to be fastened.

- D. Glazing gaskets: For glazing factory-installed glass, and for gaskets, which are factory - . installed in "captive" assembly of glazing stops, manufacturer's standard stripping of molded neoprene, complying with ASTM D2000 (designation 2BC415 to 3BC620), or molded PVC complying with ASTM C 509 Grade 4.
- E. Hardware: Furnished under section 08710 as scheduled unless indicated otherwise.
- F. Sizes and Profiles: The required sizes for door and frame units, and profile requirements are shown on the drawings.
- G. Coordination of Fabrication: Field measure before fabrication, and show recorded measurements on final shop drawings.
- H. Complete the cutting, fitting, forming, drilling and grinding of all metal work prior to assembly. Remove burrs from cut edges, and ease edges and corners to a radius of approximately 1/64".
- I. No welding of aluminum components of doors or frames is acceptable.
- J. Maintain continuity of line and accurate relation of planes and angles. Secure attachments and support at mechanical joints, with hairline fit at contacting members.
- K. Prefabrication: All hardware (with the exception of door closer, threshold, & weather-stripping), including access control equipment where scheduled, to be shipped to door manufacturer. Door manufacturer shall install hardware on doors and warranty attachment for (10) years. Complete fabrication, assembly, finishing and other work before shipment to project site. Disassemble components only as necessary for shipment and installation.

## 2.5 ARCHITECTURAL PANELS

- A. FRP panels: Thickness as indicated, 1".
  - 1. FRP face sheet: SpecLite3 pebble texture FRP skin (0.120- inch thick), selected from manufacturer's standard colors. Interior FRP skins (Class A) in accordance with ASTM E 84.
  - 2. Texture: As indicated above.
  - 3. Core: Foamed polyurethane core of minimum 5 lbs/cubic ft. density.
  - 4. U-Value: Minimum of 0.18 for 1-inch panel.

## 2.6 ALUMINUM COMPONENTS FINISHING

- A. Anodized Finish (**Clear Anodized**): Class I finish, 0.7 mils thick.
- B. Apply bituminous paint to concealed aluminum and steel surfaces in contact with cementitious or dissimilar metals.

## 2.6B FRP FRAMING SYSTEMS

- A. Framing:
  - 1. Size and Type: AF-150 Series. As indicated on the Drawings.
  - 2. Materials: ¼" thick solid pultruded FRP profiles having no corrosive components or reinforcement.
  - 3. Width: 2" face standard. 4" face header as detailed.

4. Depth: As indicated on drawings.
5. Assembly: Knock down (KD) for field assembly as required per manufacturer.
6. Door Stop: 5/8" x 2 1/4".
7. Corner Construction: Mitered with 4" x 4" x 3/8" pultruded FRP angle reinforcement with interlocking pultruded FRP brackets.
8. Reinforcing:
  - a. Aluminum for parallel arm and regular arm closer and top of continuous hinge attachment.
  - b. 1/4" pultruded FRP chemically welded at all hinge and strike locations
9. Mullions: [Removable Pultruded 2" x 2 3/4" Rim Mullion].
10. Transom and Sidelites: Shall be same material as perimeter frame with removable stop for: 1" glass by others.
11. Anchors: Furnished with type as specified on drawings.
12. Fasteners for reinforcing: 18-8 Stainless Steel or other noncorrosive metal
13. Finish for Frames: Primer with a finished color coat.
  - a. Painted Finish: Two-part aliphatic polyurethane, low VOC, Industrial Coating.
  - b. Thickness: 5 mils
  - c. Sheen: Gloss
  - d. Impact Resistance per ASTM D 2794: 140 in lbs.
  - e. Color as selected by architect.

## 2.7 HARDWARE

- A. Pre-machine Doors in accordance with templates from specified hardware manufacturers and hardware schedule.
- B. Factory to install hardware to door, except for door closing device.
- C. Apply hardware using only machine fasteners of non-corrosive metals. Thread-forming or self-tapping fasteners are not acceptable.
- D. Factory to supply integral Adjustable Astragal on meeting stile at pairs of doors.
- E. Factory to supply integral Concealed Adjustable Dual brush door bottom. NO Surface sweeps to be supplied.
- F. Finish: As indicated on door and hardware schedule.
- G. Threshold: Aluminum by hardware supplier.
- H. Door Manufacturer to supply geared continuous aluminum hinge – Model SL-11HD or approved equal.
- I. Weather-Seal Door Frame Stop: NGP (National Guard Products) 5050 gasketing or approved equal supplied by door manufacturer.
- J. Additional Hardware components are specified in Division 08 Section DOOR HARDWARE.

## 2.8 FABRICATION

- A. Sizes and Profiles: Required sizes for Door and Frame units, and profile requirements shall be as indicated.
- B. Coordination of Fabrication: Field measure before fabrication and show recorded measurements on shop drawings.
- C. Assembly:
  - 1. Complete cutting, fitting, forming, drilling, and grinding of metal before assembly
    - a. Complete cutting, fitting, forming, drilling, and chemically welding of All Fiberglass frame before assembly
  - 2. Remove burrs from cut edges.
- D. Welding: Welding of Doors is not acceptable.
- E. Fit:
  - 1. Maintain continuity of line and accurate relation of planes and angles.
  - 2. Secure attachments and support at mechanical joints with hairline fit at contacting members.
- F. Maintain continuity of line and accurate relation of planes and angles. Secure attachments and support at mechanical joints, with hairline fit at contacting members.
- G. Prefabrication: All hardware, with the exception of door closer, threshold, weatherstripping, to be shipped to door manufacturer, by the aluminum door distributor. Door manufacturer shall install hardware on doors. Complete fabrication, assembly, finishing and other work before shipment to project site. Disassemble components only as necessary for shipment and installation.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Verify dimensions, tolerances, and method of attachment with other Work.
- B. Verify wall openings and adjoining air and vapor seal materials are ready to receive Work of this Section.

### 3.2 INSTALLATION

- A. Install wall system in accordance with AAMA MCWM-1 - Metal Curtain Wall, Window, Store Front and Entrance - Guide Specifications Manual.
- B. Attach to structure to permit sufficient adjustment to accommodate construction tolerances and other irregularities.
- C. Provide alignment attachments and shims to permanently fasten system to building structure.

- D. Align assembly plumb and level, free of warp or twist. Maintain assembly dimensional tolerances, aligning with adjacent Work.
- E. Provide thermal isolation where components penetrate or disrupt building insulation.
- F. Coordinate attachment and seal of perimeter air and vapor retarder materials.
- G. Pack fibrous insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.
- H. Set thresholds in bed of mastic and secure.
- I. Install hardware using templates provided. Refer to Section 08710 for installation requirements.
- J. Coordinate installation of glass with Section 08800; separate glass from metal surfaces.
- K. Coordinate installation of perimeter sealants with Section 07920.
- L. Provide Owner with all adjustment tools and instruction sheets. Arrange an in-service session to Owner at Owner's convenience. Provide a minimum one-year written warranty on all labor related to this section. Any workmanship which is defective or deficient shall be corrected to the Owner's satisfaction and at no additional cost to the Owner.

### 3.3 FIELD QUALITY CONTROL

- A. Inspection required to monitor quality of installation and glazing, including Field inspecting, testing, adjusting, and balancing.

### 3.4 ADJUSTING

- A. Adjust operating hardware and sash for smooth operation.

### 3.5 CLEANING

- A. Remove protective material from pre-finished aluminum surfaces.
- B. Wash down surfaces with solution of mild detergent in warm water, applied with soft, clean wiping cloths. Take care to remove dirt from corners. Wipe surfaces clean.
- C. Remove excess sealant by method acceptable to sealant manufacturer.

### 3.6 PROTECTION OF INSTALLED CONSTRUCTION

- A. Protect finished Work from damage.

## PART 4 - EXECUTION

### 4.1 INSTALLATION

- A. Comply with manufacturer's recommendations and specifications for the installation of the doors and frames. Factory install hardware, glass and louvers in doors. Factory to assemble sidelites and transoms to the greatest extent possible.
- B. Set units plumb, level and true to line, without warp or rack of doors or frames. Anchor securely in place. Separate aluminum and other metal surfaces with bituminous coatings or other means as approved by architect.
- C. Install framing components plumb and true in alignment with established lines and grades without warp or rack of framing members.
- D. Install FRP doors, frames and accessories in accordance with final shop drawings, NFPA 80 standards at fire-rated openings, and as herein specified. Installation to be similar to that of hollow metal doors and frames, and in accordance with FRP manufacturer's written instructions.
  - 1. Provide clearance for doors of 1/8-inch at jambs and heads; 1/4-inch clearance above threshold.
- E. Set thresholds in a bed of mastic and back seal.
- F. Clean surfaces promptly after installation of doors and frames, exercising care to avoid damage to the protective coatings.
- G. Ensure that the doors and frames will be without damage or deterioration (other than normal weathering) at the time of acceptance.

### 4.2 TOLERANCES

- A. Maximum Diagonal Distortion: 1/8" measured with a straight edge, corner to corner. Maximum measurable plane is 4'-0" x 7'-0".

### 4.3 ADJUSTING AND CLEANING

- A. Adjust doors and hardware to provide tight fit at contact points and weather stripping, smooth operation, and weathertight closure.
- B. Provide Owner with all adjustment tools and instruction sheets. Arrange an in-service session to Owner at Owner's convenience.
- C. Remove dirt and excess sealant from exposed surfaces. Follow the manufacturer's recommended cleaning techniques and procedures for cleaning all surfaces. Use only cleaning products that will not scratch or damage the surfaces, and are recommended by the manufacturer.
  - 1. Remove excess sealant and glazing compounds, and dirt from surfaces.
  - 2. Remove debris from project site.

### 4.4 PROTECTION

- A. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer that ensure entrance and storefront systems are without damage or deterioration at the time of Substantial Completion.



END OF SECTION 081743



## SECTION 084113 - ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:

- 1. Architectural aluminum storefront framing systems including perimeter trims, stools, accessories, shims and anchors and perimeter sealing of storefront units.

- B. Related Requirements:

- 1. Division 07 Section “Joint Sealants” for joint sealants installed as part of aluminum entrances and storefront systems.
  - 2. Division 08 Section “FRP Doors and Aluminum Frames” for FRP doors installed in storefront system
  - 3. Division 08 Section “Aluminum Windows” for windows matching storefront system.
  - 4. Section 088000 “Glazing” for glazing to be included in the storefront system.

#### 1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

#### 1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.

- 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.

- B. Shop Drawings: For aluminum-framed entrances and storefronts. Include plans, elevations, sections, full-size details, and attachments to other work.

- 1. Include details of provisions for assembly expansion and contraction and for draining moisture occurring within the assembly to the exterior.
  - 2. Include full-size isometric details of each vertical-to-horizontal intersection of aluminum-framed entrances and storefronts, showing the following:
    - a. Joinery, including concealed welds.
    - b. Anchorage.
    - c. Expansion provisions.

- d. Glazing.
  - e. Flashing and drainage.
- 3. Show connection to and continuity with adjacent thermal, weather, air, and vapor barriers.
- C. Samples for Initial Selection: For units with factory-applied color finishes.
- D. Samples for Verification: For each type of exposed finish required, in manufacturer's standard sizes.
- E. Fabrication Sample: Of each vertical-to-horizontal intersection of assemblies, made from 12-inch lengths of full-size components and showing details of the following:
  - 1. Joinery, including concealed welds.
  - 2. Anchorage.
  - 3. Expansion provisions.
  - 4. Glazing.
  - 5. Flashing and drainage.
- F. Entrance Door Hardware Schedule: Prepared by or under supervision of supplier, detailing fabrication and assembly of entrance door hardware, as well as procedures and diagrams. Coordinate final entrance door hardware schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of entrance door hardware.
- G. Delegated-Design Submittal: For aluminum-framed entrances and storefronts indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

## 1.5 INFORMATIONAL SUBMITTALS

- A. Preconstruction Laboratory Mockup Testing Submittals:
  - 1. Testing Program: Developed specifically for Project.
  - 2. Test Reports: Prepared by a qualified preconstruction testing agency for each mockup test.
  - 3. Record Drawings: As-built drawings of preconstruction laboratory mockups showing changes made during preconstruction laboratory mockup testing.
- B. Qualification Data: For Installer.
- C. Energy Performance Certificates: For aluminum-framed entrances and storefronts, accessories, and components, from manufacturer.
  - 1. Basis for Certification: NFRC-certified energy performance values for each aluminum-framed entrance and storefront.
- D. Product Test Reports: For aluminum-framed entrances and storefronts, for tests performed by manufacturer and witnessed by a qualified testing agency.

- E. Quality-Control Program: Developed specifically for Project, including fabrication and installation, according to recommendations in ASTM C 1401. Include periodic quality-control reports.
- F. Source quality-control reports.
- G. Field quality-control reports.
- H. Sample Warranties: For special warranties.

#### 1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For aluminum-framed entrances and storefronts to include in maintenance manuals.
- B. Maintenance Data for Structural Sealant: For structural-sealant-glazed storefront to include in maintenance manuals. Include ASTM C 1401 recommendations for post-installation-phase quality-control program.

#### 1.7 QUALITY ASSURANCE

- A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.
- B. Testing Agency Qualifications: Qualified according to ASTM E 699 for testing indicated and accredited by IAS or ILAC Mutual Recognition Arrangement as complying with ISO/IEC 17025.
- C. Product Options: Information on Drawings and in Specifications establishes requirements for aesthetic effects and performance characteristics of assemblies. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction.
  - 1. Do not change intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If changes are proposed, submit comprehensive explanatory data to Architect for review.
- D. Structural-Sealant Glazing: Comply with ASTM C 1401 for design and installation of storefront systems.

#### 1.8 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of aluminum-framed entrances and storefronts that do not comply with requirements or that fail in materials or workmanship within specified warranty period.
  - 1. Failures include, but are not limited to, the following:
    - a. Structural failures including, but not limited to, excessive deflection.

- b. Noise or vibration created by wind and thermal and structural movements.
    - c. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
    - d. Water penetration through fixed glazing and framing areas.
    - e. Failure of operating components.
  - 2. Warranty Period: Five years from date of Substantial Completion.
- B. Special Finish Warranty: Standard form in which manufacturer agrees to repair finishes or replace aluminum that shows evidence of deterioration of factory-applied finishes within specified warranty period.
- 1. Deterioration includes, but is not limited to, the following:
    - a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
    - b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
    - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
  - 2. Warranty Period: 10 years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer to design aluminum-framed entrances and storefronts.
- B. General Performance: Comply with performance requirements specified, as determined by testing of aluminum-framed entrances and storefronts representing those indicated for this Project without failure due to defective manufacture, fabrication, installation, or other defects in construction.
  - 1. Aluminum-framed entrances and storefronts shall withstand movements of supporting structure including, but not limited to, story drift, twist, column shortening, long-term creep, and deflection from uniformly distributed and concentrated live loads.
  - 2. Failure also includes the following:
    - a. Thermal stresses transferring to building structure.
    - b. Glass breakage.
    - c. Noise or vibration created by wind and thermal and structural movements.
    - d. Loosening or weakening of fasteners, attachments, and other components.
    - e. Failure of operating units.
- C. Structural Loads:
  - 1. Wind Loads: As indicated on Drawings.
  - 2. Other Design Loads: As indicated on Drawings.
- D. Deflection of Framing Members: At design wind pressure, as follows:

1. Deflection Normal to Wall Plane: Limited to edge of glass in a direction perpendicular to glass plane not exceeding 1/175 of the glass edge length for each individual glazing lite or an amount that restricts edge deflection of individual glazing lites to 3/4 inch, whichever is less.
  2. Deflection Parallel to Glazing Plane: Limited to amount not exceeding that which reduces glazing bite to less than 75 percent of design dimension and that which reduces edge clearance between framing members and glazing or other fixed components to less than 1/8 inch.
    - a. Operable Units: Provide a minimum 1/16-inch clearance between framing members and operable units.
  3. Cantilever Deflection: Where framing members overhang an anchor point, as follows:
    - a. Perpendicular to Plane of Wall: No greater than 1/240 of clear span plus 1/4 inch for spans greater than 11 feet 8-1/4 inches or 1/175 times span, for spans less than 11 feet 8-1/4 inches.
- E. Structural: Test according to ASTM E 330 as follows:
1. When tested at positive and negative wind-load design pressures, assemblies do not evidence deflection exceeding specified limits.
  2. When tested at 150 percent of positive and negative wind-load design pressures, assemblies, including anchorage, do not evidence material failures, structural distress, or permanent deformation of main framing members exceeding 0.2 percent of span.
  3. Test Durations: As required by design wind velocity, but not less than 10 seconds.
- F. Air Infiltration: Test according to ASTM E 283 for infiltration as follows:
1. Fixed Framing and Glass Area:
    - a. Maximum air leakage of 0.06 cfm/sq. ft. at a static-air-pressure differential of 6.24 lbf/sq. ft..
- G. Water Penetration under Static Pressure: Test according to ASTM E 331 as follows:
1. No evidence of water penetration through fixed glazing and framing areas when tested according to a minimum static-air-pressure differential of 20 percent of positive wind-load design pressure, but not less than 10 lbf/sq. ft..
- H. Energy Performance: Certify and label energy performance according to NFRC as follows:
1. Thermal Transmittance (U-factor): Fixed glazing and framing areas shall have U-factor of not more than 0.37 Btu/sq. ft. x h x deg F as determined according to NFRC 100.
  2. Solar Heat Gain Coefficient: Fixed glazing and framing areas shall have a solar heat gain coefficient of no greater than 0.40 as determined according to NFRC 200.
  3. Condensation Resistance: Fixed glazing and framing areas shall have an NFRC-certified condensation resistance rating of no less than 60 as determined according to NFRC 500.
- I. Noise Reduction: Test according to ASTM E 90, with ratings determined by ASTM E 1332, as follows.

1. Outdoor-Indoor Transmission Class: Minimum 26.
- J. Windborne-Debris Impact Resistance: Pass missile-impact and cyclic-pressure tests when tested according to ASTM E 1886 and testing information in ASTM E 1996 for Wind Zone 1.
  1. Large-Missile Test: For glazed openings located within 30 feet of grade.
- K. Thermal Movements: Allow for thermal movements resulting from ambient and surface temperature changes:
  1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.
  2. Thermal Cycling: No buckling; stress on glass; sealant failure; excess stress on framing, anchors, and fasteners; or reduction of performance when tested according to AAMA 501.5.
    - a. High Exterior Ambient-Air Temperature: That which produces an exterior metal-surface temperature of 180 deg F.
    - b. Low Exterior Ambient-Air Temperature: 0 deg F.
    - c. Interior Ambient-Air Temperature: 75 deg F.
- L. Structural-Sealant Joints:
  1. Designed to carry gravity loads of glazing.
  2. Designed to produce tensile or shear stress of less than 20 psi.
- M. Structural Sealant: Capable of withstanding tensile and shear stresses imposed by structural-sealant-glazed storefront system without failing adhesively or cohesively. When tested for preconstruction adhesion and compatibility, cohesive failure of sealant shall occur before adhesive failure.
  1. Adhesive failure occurs when sealant pulls away from substrate cleanly, leaving no sealant material behind.
  2. Cohesive failure occurs when sealant breaks or tears within itself but does not separate from each substrate because sealant-to-substrate bond strength exceeds sealant's internal strength.

## 2.2 MANUFACTURERS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide the following systems as manufactured by Kawneer Company, Inc. or comparable product.
  1. Trifab 451 UT – 2” x 4-1/2” nominal dimension, Thermal, Center plane, screw spline fabrication.
  2. Trifab 601 UT – 2” x 6” nominal dimension, Thermal, Center plane, screw spline fabrication.
- B. Source Limitations: Obtain all components of aluminum-framed storefront systems, including framing and accessories and aluminum windows from single manufacturer.



## 2.3 FRAMING

- A. Framing Members: Manufacturer's extruded- or formed-aluminum framing members of thickness required and reinforced as required to support imposed loads.
  - 1. Construction: Thermally broken.
  - 2. Glazing System: Retained mechanically with gaskets on four sides.
  - 3. Glazing Plane: Center.
  - 4. Finish: Clear anodic finish.
  - 5. Fabrication Method: Field-fabricated stick system.
- B. Backer Plates: Manufacturer's standard, continuous backer plates for framing members, if not integral, where framing abuts adjacent construction.
- C. Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with nonstaining, nonferrous shims for aligning system components.
- D. Materials:
  - 1. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.
    - a. Sheet and Plate: ASTM B 209.
    - b. Extruded Bars, Rods, Profiles, and Tubes: ASTM B 221.
    - c. Extruded Structural Pipe and Tubes: ASTM B 429/B 429M.
    - d. Structural Profiles: ASTM B 308/B 308M.
  - 2. Steel Reinforcement: Manufacturer's standard zinc-rich, corrosion-resistant primer complying with SSPC-PS Guide No. 12.00; applied immediately after surface preparation and pretreatment. Select surface preparation methods according to recommendations in SSPC-SP COM, and prepare surfaces according to applicable SSPC standard.
    - a. Structural Shapes, Plates, and Bars: ASTM A 36/A 36M.
    - b. Cold-Rolled Sheet and Strip: ASTM A 1008/A 1008M.
    - c. Hot-Rolled Sheet and Strip: ASTM A 1011/A 1011M.

## 2.4 VENTING WINDOWS

- A. Aluminum Windows: As specified in Section 085113 "Aluminum Windows."

## 2.5 LAMINATED PANELS

- A. Basis-of-Design Product: Subject to compliance with requirements, Provide "Mapes-R Panel" as manufactured by Mapes Panels, L.L.C. or comparable product.
- B. Finish
  - 1. Porcelain on aluminum.
  - 2. Color as selected by the Architect from Manufacturer's full range of colors.

C. Panel Fabrication

1. Substrate:
  - a. Exterior: High density tempered hardboard.
  - b. Interior: High density tempered hardboard.
  - c. Core: 2 lb. density polystyrene.
  - d. Tolerances:
    - 1) .8% of panel dimension length and width.
    - 2) +/- 1/16 inch thickness.
  - e. Panel thickness: 1 inch.
  - f. R-Value: 4.7450.
  - g. U-Value: 0.2107.

2.6 GLAZING

- A. Glazing: Comply with Section 088000 "Glazing."

2.7 ACCESSORIES

- A. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials.
1. Use self-locking devices where fasteners are subject to loosening or turning out from thermal and structural movements, wind loads, or vibration.
  2. Reinforce members as required to receive fastener threads.
  3. Use exposed fasteners with countersunk Phillips screw heads, finished to match framing system.
- B. Anchors: Three-way adjustable anchors with minimum adjustment of 1 inch that accommodate fabrication and installation tolerances in material and finish compatible with adjoining materials and recommended by manufacturer.
1. Concrete and Masonry Inserts: Hot-dip galvanized cast-iron, malleable-iron, or steel inserts complying with ASTM A 123/A 123M or ASTM A 153/A 153M requirements.
- C. Concealed Flashing: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding flashing compatible with adjacent materials.
- D. Bituminous Paint: Cold-applied asphalt-mastic paint complying with SSPC-Paint 12 requirements except containing no asbestos, formulated for 30-mil thickness per coat.

2.8 FABRICATION

- A. Form or extrude aluminum shapes before finishing.
- B. Weld in concealed locations to greatest extent possible to minimize distortion or discoloration of finish. Remove weld spatter and welding oxides from exposed surfaces by descaling or grinding.

- C. Fabricate components that, when assembled, have the following characteristics:
  - 1. Profiles that are sharp, straight, and free of defects or deformations.
  - 2. Accurately fitted joints with ends coped or mitered.
  - 3. Physical and thermal isolation of glazing from framing members.
  - 4. Accommodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge clearances.
  - 5. Provisions for field replacement of glazing from interior for vision glass and exterior for spandrel glazing or metal panels.
  - 6. Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.
- D. Mechanically Glazed Framing Members: Fabricate for flush glazing without projecting stops.
- E. Structural-Sealant-Glazed Framing Members: Include accommodations for using temporary support device to retain glazing in place while structural sealant cures.
- F. Storefront Framing: Fabricate components for assembly using shear-block system.
- G. After fabrication, clearly mark components to identify their locations in Project according to Shop Drawings.

## 2.9 ALUMINUM FINISHES

- A. Organic
  - 1. Finish all exposed areas of aluminum windows and components with High performanse70% PVDF fluoropolymer finish. Provide custom colors including metallic colors as selected by Architect.

## 2.10 SOURCE QUALITY CONTROL

- A. Structural Sealant: Perform quality-control procedures complying with ASTM C 1401 recommendations including, but not limited to, assembly material qualification procedures, sealant testing, and assembly fabrication reviews and checks.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine areas, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Prepare surfaces that are in contact with structural sealant according to sealant manufacturer's written instructions to ensure compatibility and adhesion. Preparation includes, but is not limited to, cleaning and priming surfaces.

### 3.3 INSTALLATION

#### A. General:

1. Comply with manufacturer's written instructions.
2. Do not install damaged components.
3. Fit joints to produce hairline joints free of burrs and distortion.
4. Rigidly secure nonmovement joints.
5. Install anchors with separators and isolators to prevent metal corrosion and electrolytic deterioration and to prevent impeding movement of moving joints.
6. Seal perimeter and other joints watertight unless otherwise indicated.

#### B. Metal Protection:

1. Where aluminum is in contact with dissimilar metals, protect against galvanic action by painting contact surfaces with materials recommended by manufacturer for this purpose or by installing nonconductive spacers.
2. Where aluminum is in contact with concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.

#### C. Set continuous sill members and flashing in full sealant bed as specified in Section 079200 "Joint Sealants" to produce weathertight installation.

#### D. Install components plumb and true in alignment with established lines and grades.

#### E. Install operable units level and plumb, securely anchored, and without distortion. Adjust weather-stripping contact and hardware movement to produce proper operation.

#### F. Install glazing as specified in Section 088000 "Glazing."

#### G. Install weatherseal sealant according to Section 079200 "Joint Sealants" and according to sealant manufacturer's written instructions to produce weatherproof joints. Install joint filler behind sealant as recommended by sealant manufacturer.

### 3.4 ERECTION TOLERANCES

#### A. Erection Tolerances: Install aluminum-framed entrances and storefronts to comply with the following maximum tolerances:

1. Plumb: 1/8 inch in 10 feet; 1/4 inch in 40 feet.
2. Level: 1/8 inch in 20 feet; 1/4 inch in 40 feet.
3. Alignment:

- a. Where surfaces abut in line or are separated by reveal or protruding element up to 1/2 inch wide, limit offset from true alignment to 1/16 inch.
  - b. Where surfaces are separated by reveal or protruding element from 1/2 to 1 inch wide, limit offset from true alignment to 1/8 inch.
  - c. Where surfaces are separated by reveal or protruding element of 1 inch wide or more, limit offset from true alignment to 1/4 inch.
4. Location: Limit variation from plane to 1/8 inch in 12 feet; 1/2 inch over total length.

### 3.5 FIELD QUALITY CONTROL

- A. Field Quality-Control Testing: Perform the following test on a representative area of aluminum-framed entrances and storefronts.
1. Water-Spray Test: Before installation of interior finishes has begun, areas designated by Architect shall be tested according to AAMA 501.2 and shall not evidence water penetration.
    - a. Perform test in area as directed by Architect.
- B. Structural-Sealant Adhesion: Test structural sealant according to recommendations in ASTM C 1401, Destructive Test Method A, "Hand Pull Tab (Destructive)," Appendix X2.
1. Test a minimum of two areas on each building facade.
  2. Repair installation areas damaged by testing.
- C. Aluminum-framed entrances and storefronts will be considered defective if they do not pass tests and inspections.
- D. Prepare test and inspection reports.

END OF SECTION 084113



## SECTION 085100 - STEEL WINDOWS

### PART 1- GENERAL

#### 1.1 SECTION INCLUDES

- B. Fire Rated Steel Windows (Fixed Lite) – 60-Minute UL Labeled

#### 1.2 RELATED SECTIONS

- A. Section 088000 – Glass, Glazing, and Glazing Materials

#### 1.3 REFERENCES

- A. ASTM A 569-(1991a; R 1993) Steel, Carbon (0.15 Maximum, Percent), Hot-Rolled Sheet and Strip Commercial Quality
- B. ASTM A 653-(1994) Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
- C. ASTM B 633-(1985; R 1994) Electrodeposited Coatings of Zinc on Iron and Steel
- D. ASTM B 766-(1986; R 1993) Electrodeposited Coatings of Cadmium
- E. ASTM E 163-Fire Tests of Window Assemblies
- F. ASTM E 283-(1991) Determining the Rate of Air Leakage through Exterior Windows, Curtain Walls, and Doors Under Specific Pressure Differences Across the Specimen
- G. ASTM E 330-(1990) Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference
- H. ASTM E 547-(1993) Water Penetration of Exterior Windows, Curtain Walls, and Doors by Cyclic Static Air Pressure Differential
- I. ASME B18.6.3-(1972; R 1991) Machine Screws and Machine Screw Nuts
- J. ASME B18.6.4-(1981; R 1991) Thread Forming and Thread Cutting Tapping Screws and Metallic Drive Screws (Inch Series)
- K. NFPA 80-(2007) Fire Doors and Windows
- L. NFPA 101-(2006) Safety to Life from Fire in Buildings and Structures
- M. UL9-Fire Tests of Window Assemblies
- N. File No. R13157-D.V. Fyre-Tec Classification

#### 1.4 PERFORMANCE REQUIREMENTS

### STEEL WINDOWS

085100-1

- A. Steel windows shall conform to the voluntary specifications in AAMA/NWWDA 101/I.S.2-97 and be designed to meet the following performance requirements. Fire-rated windows shall bear the Underwriters Laboratories, Inc. label including the manufacturer's file number for the indicated rating.
  - 1. Air Infiltration: Air infiltration shall not exceed .3 SCFM per square foot of window area at a static air pressure difference of 1.57 PSF as established by AAMA/NWWDA 101/I.S.2-97 when tested in accordance with ASTM E 283.
  - 2. Water Resistance: When tested in accordance with ASTM E 547, there shall be no water leakage at a static air pressure difference of 9 PSF.
- B. Fire Resistance: Fire resistance shall meet requirements established by ASTM E 163 and as tested and classified by Underwriters Laboratories Inc, in accordance with UL-9. Products shall meet the requirements of Underwriters Laboratories Inc. The Listing Mark of UL on the product will be accepted as evidence of compliance.
- C. Life Safety Criteria: Windows shall conform to NFPA 101 Life Safety Code when rescue and/or second means of escape are indicated.

#### 1.5 SUBMITALS

- A. Manufacturer's descriptive data and catalog cut sheets.
- B. Drawings indicating elevations of windows, rough-opening dimensions for each type and size of windows, section details, fastenings, methods of installation and anchorage, connections with other work, type of wall construction, method of glazing, types and locations of operating hardware, mullion details, weather-stripping details, screen details, and window schedules showing locations of each window type and indicating compliance with fire safety code, where required.
- C. Manufacturer's preprinted installation instructions and cleaning instructions.
- D. Manufacturer's standard color samples of painted finishes.

#### 1.6 QUALITY ASSURANCE

- A. Installer Qualifications: Experienced in performing work of this section who has specialized in installation of work similar to that required for this project.
- B. Manufacturer's Qualifications: A firm with not less than 10 years experience in manufacture of similar type steel windows.

#### 1.7 DELIVERY, STORAGE AND HANDLING

- A. Delivery:
  - 1. Manufacturer's original, unopened, undamaged containers, identification labels intact. Inspect for damage upon delivery.



2. Handle and store products according to manufacturer's recommendations.

B. Storage and Protection:

1. Store materials protected from exposure to harmful weather conditions and at temperature and humidity conditions recommended by manufacturer
2. Store windows to prevent damage or marring of finish. Store in shipping containers under cover on building site.

1.8 PROJECT CONDITIONS

- A. Verify actual openings by field measurements before fabrication, show recorded measurements on shop drawings.
- B. Coordinate field measurements and fabrication schedule with construction progress to avoid construction delays.

1.9 WARRANTY

- A. Manufacturer's standard warranty to be 3 years from the date of substantial completion.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Basis-of-Design: Subject to compliance with requirements, provide Series 950 Fixed Lite Windows as manufactured by D.V. Fyre-Tec, Inc. or comparable product.

2.2 STEEL WINDOW TYPES

- A. Windows shall be designed for inside field glazing, and for glass types specified. Units shall be complete with glass and glazing provisions to meet requirements of Section 1.04 requirements. Glazing material shall be compatible with steel, and shall not require painting.
- B. Fire-rated windows shall conform to UL-9 and shall be labeled with a 1- hour fire-test rating as specified in the window schedule. Units shall be designed and fabricated to meet glass sizes, window sizes, and opening dimensions established by NFPA 80.

2.3 MATERIALS

A. Steel Frames and Inserts

1. Steel frames shall be fabricated from roll-formed galvanized lock-forming quality steel per ASTM A 653.
2. Frame corners shall mitered and welded. Integral muntins where required shall be galvanized roll-formed material fitted and welded.

B. Installation Kits

STEEL WINDOWS

1. Provide attachable fin installation kits for all windows.

2. Provide subframe installation kits for all windows.

C. Formed Component Parts

1. Formed component parts shall be hot-rolled sheet steel conforming to ASTM A 569, commercial quality with a minimum of 0.15 percent carbon.

2. Sheet steel shall be zinc coated (galvanized) by the hot-dip process in accordance with ASTM A 653 or ASTM A 924.

D. Screws and Bolts

1. Screws and bolts shall conform to ASTM B 766, ASME B18.6.3 and ASME B18.6.4.

E. Fasteners

1. Fastening devices shall be window manufacturer's design made from non-magnetic stainless steel, cadmium-plated steel, zinc-plated steel, nickel/chrome-plated steel or magnetic stainless steel.

F. Window Anchors

1. Anchors for installing windows shall be stainless steel or hot-dip zinc coated steel conforming to ASTM A 123.

G. Glass and Glazing

1. Safety laminated premium clear ceramic glass CPSC16CFR1201 Cat I & II (1- hour rated)

2.4 FABRICATION

A. Fabricate windows in accordance with approved shop drawings.

B. Frame sections shall be one piece sections with corners mitered, welded and dressed smooth.

C. Required muntins shall be securely welded to the frame members and at all intersections.

D. All windows shall be designed for inside glazing.

E. All windows shall be factory glazed with UL labeled glass meeting or exceeding the hourly rating required for the frame label. Individual lites shall display a UL label permanently affixed and in accordance with the requirements of the International Building Code and NFPA 80.

2.5 FINISHES

A. Prime Coat

1. Steel windows, fins, mullions, cover plates and associated parts shall be cleaned, pre-treated with iron phosphate and factory painted manufacturer's standard primer coat in a dry film thickness of not less than 0.025 mm (1.0 mil).

B. Finish Coat

1. Steel windows, fins, mullions, cover plates and associated parts shall be cleaned, pre-treated with iron phosphate and factory powder coated and cured with a manufacturer's standard color in a dry film thickness of not less than 0.050 mm (2.0 mil).
2. Custom Colors to be selected by the Architect.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Window openings shall conform to details and dimensions shown on the approved shop drawings.
- B. Notify the Architect immediately of conditions that may adversely affect the window installation. Correct conditions prior to installing windows

3.2 INSTALLATION

- A. Steel windows shall be installed in accordance with approved shop drawings and manufacturer's approved recommendations.
- B. Fire-rated windows shall be installed in compliance with NFPA 80 and NFPA 101.
- C. Steel surfaces in close proximity with masonry, concrete, wood, and dissimilar metals other than stainless steel, zinc, cadmium, or small areas of white bronze shall be protected from direct contact.
- D. Verify that weep features at the bottom of the sills are opened at least 1/8" x 1". Failure to do so may lead to premature finish failures.
- E. The completed window installation shall be watertight.

3.3 ADJUSTING AND CLEANING

- A. Steel window finish and glass shall be cleaned on interior and exterior sides in accordance with window manufacturer's recommendation. Alkaline, abrasive or brick wash agents shall not be used.
- B. Operable sash shall be adjusted per manufacturer's instruction to provide minimal operating force.

3.4 PROTECTION

- A. Protect installed products and finished surfaces from damage during construction.
- B. Touch-up any abraded surface of the window finish with air dry paint furnished by the window manufacturer.

END OF SECTION 085100

## SECTION 085113 - ALUMINUM WINDOWS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes the following:
  - 1. Removal of existing window units.
  - 2. Preparation of existing window openings for new windows and installation of new units.
- B. Related Sections:
  - 1. Division 02 Section “Selective Structure Demolition” for requirements for removing existing windows.

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: Include plans, elevations, sections, hardware, accessories, insect screens, operational clearances, and details of installation, including anchor, flashing, and sealant installation.
- C. Samples: For each exposed product and for each color specified, 2 by 4 inches in size.
- D. Product Schedule: For aluminum windows. Use same designations indicated on Drawings.

#### 1.4 QUALITY ASSURANCE

- A. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

#### 1.5 WARRANTY

- A. Manufacturer's Warranty: Manufacturer agrees to repair or replace aluminum windows that fail in materials or workmanship within specified warranty period.
  - 1. Warranty Period:
    - a. Window: 1 year from date of Substantial Completion.
    - b. Glazing Units: Five years from date of Substantial Completion.

- c. Aluminum Finish: Fifteen years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide 8224TL Isolock casement, fixed and projected thermally broken aluminum windows as manufactured by Kawneer Company Inc. or comparable product by one of the following:
1. TRACO.
  2. YKK AP America Inc.
- B. 2-1/4 inch frame depth.

### 2.2 WINDOW PERFORMANCE REQUIREMENTS

- A. Product Standard: AAMA/WDMA/CSA 101/I.S.2/A440.
- B. Thermal Transmittance: NFRC 100 maximum whole-window U-factor of 0.37 Btu/sq. ft. x h x deg F.
- C. Solar Heat-Gain Coefficient (SHGC): NFRC 200 maximum whole-window SHGC of 0.40.
- D. Condensation-Resistance Factor (CRF): Provide aluminum windows tested for thermal performance according to AAMA 1503, showing a CRF of 45.

### 2.3 ALUMINUM WINDOWS

- A. Operating Types: As indicated on Drawings.
1. Rescue window openings must have a clear opening of six (6) square feet with a minimum dimension of 24 inches in width or height.
- B. Frames and Sashes: Thermally broken aluminum extrusions complying with AAMA/WDMA/CSA 101/I.S.2/A440.
- C. Insulating-Glass Units: ASTM E 2190.
1. Glass: ASTM C 1036, Type 1, Class 1, q3.
    - a. Tint: clear.
    - b. Kind: Fully tempered or laminated.
    - c. Thickness: 3/16"
  2. Filling: Fill space between glass lites with argon.
  3. Low-E Coating: Sputtered on second or third surface.
  4. Frosted glass in Toilet Room windows.
- D. Glazing System: Manufacturer's standard factory-glazing system that produces weathertight seal.

- E. Hardware, General: Manufacturer's standard corrosion-resistant hardware sized to accommodate sash weight and dimensions.
  - 1. Exposed Hardware Color and Finish: As selected by Architect from manufacturer's full range.
  - 2. Maximum height of locking hardware and levers for operable windows in 54 inches A.F.F.
- F. Projected Window Hardware:
  - 1. Gear-Type Rotary Operators: Complying with AAMA 901 when tested according to ASTM E 405, Method A. Provide operators that function without requiring the removal of interior screens or using screen wickets.
    - a. Type and Style: As selected by Architect from manufacturer's full range of types and styles.
  - 2. Hinges: Concealed stainless steel conforming to AAMA 904-01 to rotate vent outward on vertical axis.
  - 3. Lock: Lever handle and cam-action lock with keeper.
- G. Weather Stripping: Provide full-perimeter weather stripping for each operable sash unless otherwise indicated.
- H. Fasteners: Noncorrosive and compatible with window members, trim, hardware, anchors, and other components.
  - 1. Exposed Fasteners: Do not use exposed fasteners to the greatest extent possible. For application of hardware, use fasteners that match finish hardware being fastened.

## 2.4 ACCESSORIES

- A. Subsills: Thermally broken, extruded-aluminum subsills in configurations indicated on Drawings.
- B. Column Covers: Extruded-aluminum profiles in sizes and configurations indicated on Drawings.
- C. Interior Trim: Extruded-aluminum profiles in sizes and configurations indicated on Drawings.
- D. Panning Trim: Extruded-aluminum profiles in sizes and configurations indicated on Drawings.
- E. Receptor System: Two-piece, snap-together, thermally broken, extruded-aluminum receptor system that anchors windows in place.

## 2.5 INSECT SCREENS

- A. General: Fabricate insect screens to integrate with window frame. Provide screen for each operable exterior sash. Screen wickets are not permitted.

1. Type and Location: Full, inside for project-out sashes.
- B. Aluminum Frames: Complying with SMA 1004 or SMA 1201.
- C. Glass-Fiber Mesh Fabric: 18-by-14 or 18-by-16 mesh complying with ASTM D 3656.
1. Mesh Color: Manufacturer's standard.

## 2.6 FABRICATION

- A. Fabricate aluminum windows in sizes indicated. Include a complete system for assembling components and anchoring windows.
- B. Glaze aluminum windows in the factory.
- C. Weather strip each operable sash to provide weathertight installation.
- D. Provide weep holes and internal passages to conduct infiltrating water to exterior.
- E. Provide water-shed members above side-hinged sashes and similar lines of natural water penetration.
- F. Provide mullions and cover plates, matching window units, complete with anchors for support to structure and installation of window units. Allow for erection tolerances and provide for movement of window units due to thermal expansion and building deflections, as indicated. Provide mullions and cover plates capable of withstanding design wind loads of window units.
- G. Complete fabrication, assembly, finishing, hardware application, and other work in the factory to greatest extent possible. Disassemble components only as necessary for shipment and installation.

## 2.7 ALUMINUM FINISHES

- A. Organic
  1. Finish all exposed areas of aluminum windows and components with High performanse70% PVDF fluoropolymer finish. Provide custom colors including metallic colors as selected by Architect.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Comply with manufacturer's written instructions for installing windows, hardware, accessories, and other components. For installation procedures and requirements not addressed in manufacturer's written instructions, comply with installation requirements in ASTM E 2112.



- B. Install windows level, plumb, square, true to line, without distortion or impeding thermal movement, anchored securely in place to structural support, and in proper relation to wall flashing and other adjacent construction to produce weathertight construction.
- C. Install windows and components to drain condensation, water penetrating joints, and moisture migrating within windows to the exterior.
- D. Separate aluminum and other corrodible surfaces from sources of corrosion or electrolytic action at points of contact with other materials.
- E. Adjust operating sashes and hardware for a tight fit at contact points and weather stripping for smooth operation and weathertight closure.
- F. Clean exposed surfaces immediately after installing windows. Avoid damaging protective coatings and finishes. Remove excess sealants, glazing materials, dirt, and other substances.
- G. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.

END OF SECTION 085113



## SECTION 087100 – DOOR HARDWARE

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

#### 1.2 DESCRIPTION OF WORK

- A. Definition: "Finish Hardware" includes items known commercially as finish hardware which are required for swing, sliding and folding doors, except special types of unique and non-matching hardware specified in the same section as the door and door frame.
- B. Extent of finish hardware required is indicated on drawings and in schedules.
- C. Types of finish hardware required include, but are not limited to, the following:
  - Continuous Hinges
  - Lock cylinders and keys
  - Exit devices
  - Closers
  - Weather stripping for exterior doors
  - Thresholds
- D. District Board Resolution for upgrading and standardizing the door hardware lock systems, exit devices, and closer systems in all HCSD school buildings.
  - A. Door Lock Systems as Manufactured by Best Lock Company
  - B. Exit Devices as Manufactured by Von Duprin
  - C. Door Closers as Manufactured by LCN

#### 1.3 RELATED WORK

- A. Division 08 Section "Hollow Metal Doors and Frames".
- B. Division 08 Section "FRP Doors and Aluminum Frames".

#### 1.4 QUALITY ASSURANCE

- A. Manufacturer: Obtain each type of hardware (latch and lock sets, etc.) from a single manufacturer.
- B. Supplier: A recognized architectural finish hardware supplier, with warehousing facilities, who has been furnishing hardware in the project's vicinity for a period of not less than 2 years, and who is, or who employs an experienced architectural hardware consultant who is available, at reasonable times during the course of the work, for consultation about project's hardware requirements, to Owner, Architect and Contractor.

- C. Pre-installation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Meetings." The hardware manufacturers are to supply the pre-installation conference as well as a post-installation walk-thru. This is to insure proper installation and provide for any adjustments or replacements of hardware as required. Review methods and procedures related to electrified door hardware including, but not limited to, the following:
  - 1. Inspect and discuss electrical roughing-in and other preparatory work performed by other trades.
  - 2. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
  - 3. Review required testing, inspecting, and certifying procedures.
  - 4. Review sequence of operation or each type of electrified door hardware.
- D. Fire-Rated Openings: Provide hardware for fire-rated openings in compliance with NFPA Standard No. 80 and local building code requirements. Provide only hardware which has been tested and listed by UL or an approved testing agency for types and sizes of doors required and complies with requirements of door and door frame labels.
- C. Where emergency exit devices are required on fire-rated doors (with supplementary marking on doors with labels indicating "Fire Door to be Equipped with Fire Exit Hardware") provide labels on exit devices indicating "Fire Exit Hardware".
- D. Through-bolt all door closers and exit devices on wood doors.
- E. In accordance with NYS Education Department requirements, all places of pupil occupancy shall have "classroom function" hardware which allows the door to be opened freely from the inside at all times.
- F. Field check all existing openings for proper application of sizes and strikes for all openings. Contractor shall be responsible to filed verify all existing openings to insure compatibility of scheduled hardware including hardware type, quantity, finish, function, etc.
- J. Review the specified hardware and report any discrepancy or omission of components parts needed to complete the intent and or function of all openings. Any necessary corrections or changes shall be brought to the attention of the architect before ordering of any material. Should any discrepancy arise after submission of shop drawings the supplier shall be responsible for supplying the correct products to complete the project at no additional cost to the owner.

#### 1.5 REGULATORY REQUIREMENTS

- A. Comply with accessibility requirements, comply with Americans with Disabilities Act (ADA), "Accessibilities Guidelines for Buildings and Facilities (ADAAG)," ANSI A117.1, FED-STD-795, "Uniform Federal Accessibility Standards."
- B. Thru bolt all door closers and exit devices installed on wood doors.

## 1.6 SUBMITTALS

- A. **Product Data:** Submit Manufacturer's technical product data for each item of hardware. Include whatever information may be necessary to show compliance with requirements, and include instructions for installation and for maintenance of operating parts and finish.
- B. **Hardware Schedule:** Submit final hardware schedule in a vertical format as recognized by the Door and Hardware Institute (DHI). Horizontal schedule format will not be accepted. Coordinate hardware with doors, frames and related work to ensure proper size, thickness, hand, function and finish of hardware.
  - 1. **Final Hardware Schedule Content:** Based on finish hardware indicated, organize hardware schedule into "hardware sets" indicating complete designations of every item required for each door or opening. Include the following information:
    - a. Type, style, function, size and finish of each hardware item.
    - b. Name and manufacturer of each item.
    - c. Fastenings and other pertinent information.
    - d. Index to include location of hardware set cross-referenced to indications on drawings both on floor plans and in door and frame schedule.
    - e. Explanation of all abbreviations, symbols, codes, etc., contained in schedule.
    - f. Mounting locations for hardware.
    - g. Door and frame sizes and materials.
    - h. Keying information.
- C. **Submittal Sequence:** Submit schedule at earliest possible date particularly where acceptance of hardware schedule must precede fabrication of other work (e.g., hollow metal frames) which is critical in the project construction schedule. Include with schedule the product data, samples, shop drawings of other work affected by finish hardware, and other information essential to the coordinated review of hardware schedule.
- D. **Keying Schedule:** Submit separate detailed schedule indicating clearly how the Owner's final instructions on keying of locks has been fulfilled.
- E. **Samples if Requested:** Prior to submittal of the final hardware schedule and prior to final ordering of finish hardware, submit one sample of each type of exposed hardware unit, finished as required, and tagged with full description for coordination with schedule.
- F. **Templates:** Furnish hardware templates to each fabricator of doors, frames and other work to be factory-prepared for the installation of hardware. Upon request, check shop drawings of such other work, to confirm that adequate provisions are made for proper location, coordination and installation of hardware.
- G. **Project Closeout Documents:** At completion of the project, furnish owner with the following:
  - 1. **Maintenance Tools and Manuals –** Furnish owner with three sets of specialized tools and maintenance manuals as required for continued adjustment, maintenance and removal / replacement of door hardware.
  - 2. **Warranty –** Furnish owner with three sets of manufacturers written warranties as detailed in 1.8 of this section.

## 1.7 PRODUCT HANDLING

- A. Tag each item or package separately, with identification related to final hardware schedule, and include basic installation instructions with each item or package.
- B. Inventory hardware jointly with representatives of hardware supplier and hardware installer until each is satisfied that count is correct.
- C. Deliver individually packaged hardware items at the proper times to the proper locations (shop or project site) for installation.
- D. Provide secure lock-up for hardware delivered to the project, but not yet installed. Control handling and installation of hardware items which are not immediately replaceable, so that completion of the work will not be delayed by hardware losses, both before and after installation.

## 1.8 WARRANTY

- A. All hardware shall carry a manufacturer's product warranty against defects in materials, workmanship and operation for a minimum period as follows:
  - 1. Locksets –10 years (mechanical)
  - 2. Door Closers – 10 years (mechanical), 2 years (electric)
  - 3. Exit Devices – 3 years (mechanical), 1 year (electric)
  - 4. Balance of Misc. Hardware - 1 year

## PART 2 - PRODUCTS

### 2.1 SCHEDULED HARDWARE

- A. General:
  - 1. Provide door hardware for each door to comply with requirements in this Section. Hardware Sets indicated in the Hardware Schedule in Part 3.
  - 2. Hardware used on doors from spaces of pupil occupancy, from places of assembly and exit doors shall be of a type that allows for free egress at all times.
    - a. All interior and exterior exit doors shall have panic hardware, except those serving only one or two classrooms or service area (such as boiler room, kitchen or storage rooms).
    - b. Panic hardware is not required for push pull interior doors from places of assembly and exit ways that are non-latching.
  - 3. ALL CLASSROOM LOCKS SHALL BE OF TYPE THAT THE INTERIOR/KNOB LEVER WILL ALWAYS ALLOW FREE AND UNRESTRICTED EXIT FROM THAT SPACE.
  - 4. PLACES OF ASSEMBLY AND BUILDING EXITS SHALL BE EQUIPPED WITH EXIT DEVICES U.L. LABELED FOR EXIT AND FIRE HAZARD.

- B. Requirements for design, grade, function, finish, size and other distinctive qualities of each type of finish hardware is indicated in the Finish Hardware Data Sheet and Hardware Schedule at the end of this section.
- C. Basis-of Design: Products are identified by using hardware designation numbers of the following:
- |                          |  |
|--------------------------|--|
| Continuous Hinges:       | Ives                                       |
| Locksets:                | Schlage (Supported by Board Resolution)    |
| Cylinders/Cores:         | Schlage (Supported by Board Resolution)    |
| Closers:                 | LCN (Supported by Board Resolution)        |
| Pulls:                   | Von Duprin, Ives                           |
| Panic Devices:           | Von Duprin (Supported by Board Resolution) |
| Flush Bolts:             | Ives                                       |
| Wall Stops:              | Ives                                       |
| Overhead stops:          | Glynn-Johnson                              |
| Wall Magnets:            | LCN (Supported by Board Resolution)        |
| Weatherstrip, Gasketing: | Zero                                       |
| Thresholds:              | Zero                                       |

## 2.2 MATERIALS AND FABRICATION

- A. General:
1. Hand of door: Drawings show direction of slide, swing or hand of each door leaf. Furnish each item of hardware for proper installation and operation of door movement as shown.
  2. Manufacturer's Name Plate: Do not use manufacturer's products which have manufacturer's name or trade name displayed in a visible location (omit removable nameplates), except in conjunction with required UL labels and as otherwise acceptable to Architect.
  3. Manufacturer's identification will be permitted on rim of lock cylinders only.
  4. Finish: All hardware finish shall match US26D unless otherwise indicated. Closer bodies, covers and arms shall be powder coated finish.
  5. Lockset Design: Lever handle design shall be similar to Dane as manufactured by Schlage Lock Co.
  6. Fasteners: Provide hardware manufactured to conform to published templates, generally prepared for machine screw installation. Do not provide hardware that has been prepared for self-tapping sheet metal screws, except as specifically indicated.
  7. Furnish screws for installation, with each hardware item. Provide Phillips flat-head screws except as otherwise indicated. Finish exposed (exposed under any condition) screws to match hardware finish or, if exposed in surfaces of other work, to match finish of such other work as closely as possible, including "prepared for paint" in surfaces to receive painted finish.

8. Provide concealed fasteners for hardware units which are exposed when door is closed, except to extent no standard units of type specified are available with concealed fasteners. Do not use thru-bolts for installation where bolt head or nut on opposite face is exposed in other work, except where it is not feasible to adequately reinforce the work, or otherwise specified. In such cases, provide sleeves for each thru-bolt or use sex screw fasteners.
9. Tools and Maintenance Instructions for Maintenance: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of finish hardware.

## 2.3 HINGES AND BUTTS

- A. Templates: Except for hinges and pivots to be installed entirely (both leaves) into wood doors and frames, provide only template-produced units.
- B. Screws: Furnish Phillips flat-head or machine screws for installation of units, except furnish Phillips flat-head or wood screws for installation of units into wood. Finish screw heads to match surface of hinges or pivots.
- C. Hinge Pins: Except as otherwise indicated, provide hinge pins as follows:
  1. Steel Hinges: Steel pins.
  2. Non-ferrous Hinges: Stainless steel pins.
  3. Exterior Doors: Non-removable pins.
  4. Out-swing Corridor Doors: Non-removable pins.
  5. Interior Doors: Non-rising pins.
  6. Tips: Flat button and matching plug, finished to match leaves.
  7. Number of hinges: Provide number of hinges indicated but not less than 3 hinges for door leaf for doors 90" or less in height and one additional hinge for each 30" of additional height.
- D. Acceptable Manufacturers:
  1. Ives
  2. McKinney
  3. Hager

## 2.4 CONTINUOUS HINGES

- A. Hinge shall be a pinless assembly of three interlocking extrusions applied to the full height of the door and frame without mortising. The door leaf and jamb leaf shall be geared together for the entire length of the hinge and joined by a channel. Hinge knuckle shall be monolithic in appearance. Continuous hinge with visible knuckle separations are not acceptable. Vertical door loads shall be carried on minimum 3/4" acetyl bearings through a full 180 degrees. Screw hole locations on door leaf and jamb leaf to be templated. All heavy-duty hinges (HD) shall have a minimum of 32 bearings over a 7-foot length.



- B. Acceptable Manufacturers:
  - 1. Ives
  - 2. Select Products Ltd.
  - 3. Roton

## 2.5 LOCK CYLINDERS AND KEYING

- A. Review the keying system with the Owner and provide the type required (master, grandmaster or great-grandmaster).
- B. Furnish all exterior locks with Schlage Everest 29 Primus XP SL full size interchangeable core cylinders/cores. Furnish all interior locks with Everest 29 Schlage small format interchangeable core (SFIC) cylinders/cores. Substitutions will not be accepted.
- C. Furnish temporary **keyed** cores for the construction period, and remove these when directed. The construction cores remain property of the supplier and shall be returned to the supplier when they are removed. Contractor shall install the permanent cores in the presence of the owner's representative.
- D. Metals: Construct lock cylinder parts from brass/bronze, stainless steel or nickel silver.
- E. Comply with Owner's instructions for masterkeying and, except as otherwise indicated, provide individual change key for each lock which is not designated to be keyed alike with a group of related locks.
- F. Permanently inscribe each key with visual key control (VKC) and cylinder with concealed key control (CKC) that identifies cylinder manufacturer key symbol, and inscribe key with the notation "DO NOT DUPLICATE".
- G. Key Material: Provide keys of nickel silver only.
- H. Key Quantity:
  - 1. Furnish 3 change keys for each lock.
  - 2. 5 master keys for each master system.
  - 3. 5 grandmaster keys for each grandmaster system.
  - 4. One extra blank for each lock.
  - 5. 3 Control Keys.
  - 6. 6 Construction master keys.
- I. Deliver keys as directed by the owner.

## 2.6 MORTISE LOCKS

### A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
  - a. Schlage L9000 series
2. Acceptable Manufacturers and Products:
  - a. No Substitute – Owner’s Standard

### B. Requirements:

1. Provide mortise locks conforming to ANSI/BHMA A156.13 Series 1000, Grade 1, and UL Listed for 3-hour fire doors.
2. Indicators: Where specified, provide indicator window measuring a minimum 2-inch x 1/2 inch with 180-degree visibility. Provide messages color-coded with full text and/or symbols, as scheduled, for easy visibility.
3. Provide locks manufactured from heavy gauge steel, containing components of steel with a zinc dichromate plating for corrosion resistance.
4. Provide lock case that is multi-function and field reversible for handing without opening case. Cylinders: Refer to “KEYING” article, herein.
5. Provide locks with standard 2-3/4 inches (70 mm) backset with full 3/4 inch (19 mm) throw stainless steel mechanical anti-friction latchbolt. Provide deadbolt with full 1-inch (25 mm) throw, constructed of stainless steel.
6. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim.
7. Provide electrified options as scheduled in the hardware sets. Where scheduled, provide switches and sensors integrated into the locks and latches.
8. Provide motor based electrified locksets with electrified options as scheduled in the hardware sets and comply with the following requirements:
  - a. Universal input voltage – single chassis accepts 12 or 24VDC to allow for changes in the field without changing lock chassis.
  - b. Fail Safe/Fail Secure – changing mode between electrically locked (fail safe) and electrically unlocked (fail secure) is field selectable without opening the lock case
  - c. Low maximum current draw – maximum 0.4 amps to allow for multiple locks on a single power supply.
  - d. Low holding current – maximum 0.01 amps to produce minimal heat, eliminate “hot levers” in electrically locked applications, and to provide reliable operation in wood doors that provide minimal ventilation and air flow.
  - e. Connections – provide quick-connect Molex system standard.
9. Lever Trim: Solid brass, bronze, or stainless steel, cast or forged in design specified, with wrought roses and external lever spring cages. Provide thru-bolted levers with 2-piece spindles.
  - a. Provide levers with vandal resistant technology for use at heavy traffic or abusive applications.

b. Lever Design: 06A.

## 2.10 CLOSERS AND DOOR CONTROL DEVICES

- A. Size of Units: Except as otherwise specifically indicated, comply with the manufacturer's recommendations for size of door control unit, depending upon size of door, exposure to weather and anticipated frequency of use.
- B. Closers: All door closers shall be of one manufacturer to provide for proper installation and servicing after installation. All closers shall be inspected after installation by a factory representative to insure proper adjustment and operation. A report shall be filed with the architect after said visit has been made. Closer shall carry a manufacturer's TEN YEAR WARRANTY for hydraulic units and 2 year warranty for electrical and/or handicap power assist door closers against manufacturing defects and workmanship.
- C. Cylinder: Shall be of high strength cast iron construction. All door closers shall be tested to ANSI/BHMA A156.4 test requirements by a BHMA certified independent testing laboratory.
- D. All exterior door closers shall be fully hydraulic and have full rack and pinion action with a shaft diameter of a minimum of 5/8" and piston diameter of 1- 7/16".
- E. Parallel Arm Closers: Shall incorporate one piece solid forged steel arms with bronze bushings. All other closers to have forged steel main arms for strength and durability.
- F. Built-In Stops: Where closers with built-in positive stops are used, the stops shall be of one piece cast malleable iron material. Where field reversible arms are provided, one-piece screw applied stops are permitted. Where required, the hold-open assembly handle for these stops shall rotate on ball bearings.
- G. All door closers shall pass UL10C positive pressure fire test.
- H. Non-sized: All exterior closers shall be non-sized to provide a full range of Size 1 to 5 closing power.
- I. Hydraulic Fluid: All closers, with the exception of interior electronic closers, shall utilize temperature stable fluid capable of withstanding temperature ranges of 120 degrees F to -30 degrees F without requiring seasonal adjustment of closer speed to properly close the door.
- J. All closers shall have a powder coat finish on closer body, arm, cover and adapter plate. If powder coat finish is not available, pre-treat closer body, arm, cover and adapter plate with special rust inhibiting coating before painted finish is applied.

- K. All closers shall have metal covers
- L. Provide all drop plates, shoe supports, templates, etc. to properly mount closers according to manufacturers' recommendations.
- M. Closers that incorporate Pressure Relief Valve technology (PRV) will not be accepted.

N. Acceptable Manufacturers and Types:

LCN	Sargent
4011	281xO (Less PRV)
4011T	281xOT (Less PRV)
4111 EDA	281xP10 (Less PRV)
4111 CUSH	281xPS (Less PRV)
4111 S CUSH	281xCPS (Less PRV)
4111CUSH	281xCPSH (Less PRV)

2.11 EXIT DEVICES

- A. General: All devices shall be of one manufacturer to provide for proper installation and servicing. Devices shall be furnished non-handed and capable of direct field conversion for all available trim functions. All devices shall carry a three year warranty against manufacturing defects and workmanship.
- B. Furnish all US26D finish devices with stainless steel touch bars. Plastic parts are not acceptable.
- C. Furnish all exit devices with deadlocking latchbolts or guarded latch (GL) feature.
- D. Furnish all exit devices with metal end caps.
- E. Furnish stabilizers similar to Von Duprin 154 with all removable mullions.
- F. Outside Trim
  - 1. Pull Trim: Shall be 10 GA. wrought heavy-duty type and fastened by means of concealed welded lugs and thru-bolts from the inside. Plate with pull shall be brass with minimum average thickness of .090 and have forged pulls.
  - 2. Lever Trim: Plate for lever trim shall be cast brass with a minimum average thickness on the escutcheon of .130 and have forged levers. Trim shall incorporate two heavy-duty compression lever return springs. Furnish cylinders with all lockable exit devices and mullions.

- G. Concealed vertical exit devices shall be a cable actuated, concealed vertical latch system available in two-point and less bottom latch (LBL) configurations. Concealed vertical rods are not acceptable.
- H. Furnish required filler plates and shim kits for flush mounting of exit devices on all doors.
- I. Furnish roller strikes with all exit devices.
- J. Exit Device Manufacturers: Subject to compliance with requirements, provide products of the following approved manufacturers:
  - 1. Von Duprin – 99 Series
  - 2. Owner’s Standard – No Substitution

## 2.12 ELECTRO-MECHANICAL AUTOMATIC OPERATORS

### A. Manufacturers and Products:

- 1. Scheduled Manufacturer and Product:
  - a. Horton 4000LE
- 2. Acceptable Manufacturers and Products:
  - a. No Substitute – Match Existing

### B. Requirements:

- 1. Provide low energy automatic operator units that are electro-mechanical design complying with ANSI/BHMA A156.19.
  - a. Opening: Powered by DC motor working through reduction gears.
  - b. Closing: Spring force.
  - c. Manual, hydraulic, or chain drive closers: Not permitted.
  - d. Operation: Motor is off when door is in closing mode. Door can be manually operated with power on or off without damage to operator. Provide variable adjustments, including opening and closing speed adjustment.
  - e. Cover: Aluminum.
- 2. Provide units with manual off/auto/hold-open switch, push and go function to activate power operator, vestibule interface delay, electric lock delay, hold-open delay adjustable from 1 to 32 seconds, and logic terminal to interface with accessories, mats, and sensors.
- 3. Provide drop plates, brackets, and adapters for arms as required to suit details.
- 4. Provide hard-wired motion sensors and/or actuator switches, and receivers for operation as specified. Provide weather-resistant actuators at exterior applications.

5. Provide key switches, with LED's, recommended and approved by manufacturer of automatic operator as required for function as described in operation description of hardware sets. Cylinders: Refer to "KEYING" article, herein.
6. Provide complete assemblies of controls, switches, power supplies, relays, and parts/material recommended and approved by manufacturer of automatic operator for each individual leaf. Actuators control both doors simultaneously at pairs. Sequence operation of exterior and vestibule doors with automatic operators to allow ingress or egress through both sets of openings as directed by Architect. Locate actuators, key switches, and other controls as directed by Architect.

#### 2.13 DOOR TRIM UNITS

- A. Fasteners: Provide manufacturer's standard exposed fasteners for door trim units (kick plates, edge trim, viewers, knockers, mail drops and similar units), either machine screws or self-tapping screws.
- B. Fabricate edge trim of stainless steel, not more than 1/2" nor less than 1/16" smaller in length than door dimension.
- C. Fabricate protection plates (armor, kick or mop) not more than 1-1/2" less than door width on stop side and not more than 1/2" less than door width on pull side, x the height indicated.
- D. Metal Plates: Stainless steel, .050" (U.S. 18 ga.).

#### 2.14 WEATHER STRIP

- A. General: Except as otherwise indicated, provide continuous weatherstripping at each edge of every exterior door leaf. Provide type, sizes and profiles shown or scheduled. Provide non-corrosive fasteners as recommended by manufacturer for application indicated.
- B. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strip is easily replaceable and readily available from stocks maintained by manufacturer.
- C. Acceptable Manufacturers:
  1. Zero
  2. Reese
  3. National Guard

#### 2.15 THRESHOLDS

- A. General: Except as otherwise indicated provide standard aluminum threshold unit of type, size and profile as shown or scheduled.
- B. Provide thresholds with vinyl foot seals.

- C. Provide thresholds that are 1" wider than depth of frame, unless otherwise noted.
- D. Acceptable Manufacturers:
  - 1. Zero
  - 2. Reese
  - 3. National Guard

## 2.16 DOOR SILENCERS

- A. All hollow metal frames shall have gray resilient type silencers. Quantity (3) on single doors and quantity (2) on pair of doors.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Mount hardware units at heights indicated in "Recommended Locations for Builders Hardware for Standard Steel Doors and Frames" by the Door and Hardware Institute, except as specifically indicated or required to comply with governing regulations, and except as may be otherwise directed by Architect.
- B. Install each hardware item in compliance with the manufacturer's instructions and recommendations. Wherever cutting and fitting is required to install hardware onto or into surfaces which are later to be painted or finished in another way, coordinate removal, storage and reinstallation or application of surface protections with finishing work specified in the Division-9 sections. Do not install surface-mounted items until finishes have been completed on the substrate.
- C. Set units level, plumb and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.
- D. Drill and countersink units which are not factory-prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.
- E. Set thresholds for exterior doors in full bed of butyl-rubber or polyisobutylene mastic sealant.

### 3.2 ADJUSTING AND CLEANING

- A. Check and adjust each operating item of hardware and each door to insure proper operation or function of every unit. Replace units that cannot be adjusted to operate freely and smoothly as intended for the application made.
- B. Clean adjacent surfaces soiled by hardware installation.
- C. Final Adjustment: Wherever hardware installation is made more than one month

prior to acceptance or occupancy of a space or area, return during the week prior to acceptance or occupancy and make final check and adjustment of all hardware items in such space or area. Clean operating items as necessary to restore proper function and finish of hardware and doors. Adjust door control devices to compensate for final operation of heating and ventilating equipment.

- D. Instruct Owner's Personnel in proper adjustment and maintenance of hardware and hardware finishes, during the final adjustment of hardware.
  
- E. Continued Maintenance Service: Approximately six months after the acceptance of hardware in each area, the Installer, accompanied by the representative of the latch and lock manufacturer, shall return to the project and re-adjust every item of hardware to restore proper function of doors and hardware. Consult with and instruct Owner's personnel in recommended additions to the maintenance procedures. Replace hardware items that have deteriorated or failed due to faulty design, materials or installation of hardware units. Prepare a written report of current and predictable problems (of substantial nature) in the performance of the hardware.



### 3.3 DOOR HARDWARE SCHEDULE

#### Hardware Group No. 01

3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	CLASSROOM SECURITY	L9071HD 06A	626	SCH
2	EA	PERMANENT CORE	PERMANENT IC CORE AS REQUIRED	626	SCH
1	EA	SURFACE CLOSER	4050A RW/PA	689	LCN
1	EA	KICK PLATE	8400 10" X 1 1/2" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	EA	GASKETING	488SBK PSA	BK	ZER

#### Hardware Group No. 02

3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	CLASSROOM SECURITY	L9071HD 06A	626	SCH
2	EA	PERMANENT CORE	PERMANENT IC CORE AS REQUIRED	626	SCH
1	EA	OH STOP	90S	652	GLY
1	EA	SURFACE CLOSER	4050A RW/PA	689	LCN
1	EA	KICK PLATE	8400 10" X 1 1/2" LDW B-CS	630	IVE
1	EA	GASKETING	488SBK PSA	BK	ZER

#### Hardware Group No. 03

3	EA	HINGE	5BB1 4.5 X 4.5 NRP	652	IVE
1	EA	CLASSROOM SECURITY	L9071HD 06A	626	SCH
2	EA	PERMANENT CORE	PERMANENT IC CORE AS REQUIRED	626	SCH
1	EA	SURFACE CLOSER	4050A EDA	689	LCN
1	EA	KICK PLATE	8400 10" X 1 1/2" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	EA	GASKETING	488SBK PSA	BK	ZER

Hardware Group No. 04

1	EA	CONT. HINGE	224HD	628	IVE
1	EA	FIRE EXIT HARDWARE	99-EO-F	626	VON
1	EA	ELEC EXIT DEVICE TRIM	AD-400-993R-70-MT-RHO- B-4AA BATTERY		
1	EA	PERMANENT CORE	PERMANENT IC CORE AS REQUIRED	626	SCH
1	EA	SURFACE CLOSER	4050A EDA	689	LCN
1	EA	KICK PLATE	8400 10" X 1 1/2" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	EA	GASKETING	488SBK PSA	BK	ZER
DOOR TO BE PREPPED FOR AD TRIM. AD TRIM TO BE SUPPLIED AND INSTALLED BY DIVISION 28.					

Hardware Group No. 05

3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	OFFICE/ENTRY LOCK	L9050HD 06A 09-544	626	SCH
1	EA	PERMANENT CORE	PERMANENT IC CORE AS REQUIRED	626	SCH
1	EA	SURFACE CLOSER	4050A RW/PA	689	LCN
1	EA	KICK PLATE	8400 10" X 1 1/2" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	EA	GASKETING	488SBK PSA	BK	ZER

Hardware Group No. 06

3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	STOREROOM LOCK	L9080HD 06A	626	SCH
1	EA	PERMANENT CORE	PERMANENT IC CORE AS REQUIRED	626	SCH
1	EA	SURFACE CLOSER	4050A RW/PA	689	LCN
1	EA	KICK PLATE	8400 10" X 1 1/2" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	EA	GASKETING	488SBK PSA	BK	ZER

Hardware Group No. 07

3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	STOREROOM LOCK	L9080HD 06A	626	SCH
1	EA	PERMANENT CORE	PERMANENT IC CORE AS REQUIRED	626	SCH
1	EA	OH STOP	90S	652	GLY
1	EA	SURFACE CLOSER	4050A RW/PA	689	LCN
1	EA	KICK PLATE	8400 10" X 1 1/2" LDW B-CS	630	IVE
1	EA	GASKETING	488SBK PSA	BK	ZER

Hardware Group No. 08

3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	PRIVACY LOCK W/ OUTSIDE INDICATOR	ND40S RHO OS-OCC	626	SCH
1	EA	KICK PLATE	8400 10" X 1 1/2" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	EA	GASKETING	488SBK PSA	BK	ZER

Hardware Group No. 09

1	EA	CONT. HINGE	224HD	628	IVE
1	EA	FIRE EXIT HARDWARE	99-L-NL-F-06	626	VON
1	EA	SFIC RIM CYLINDER	80-159	626	SCH
1	EA	PERMANENT CORE	PERMANENT IC CORE AS REQUIRED	626	SCH
1	EA	SURFACE CLOSER	4050A SCUSH	689	LCN
1	EA	KICK PLATE	8400 10" X 1 1/2" LDW B-CS	630	IVE
1	EA	GASKETING	488SBK PSA	BK	ZER

Hardware Group No. 10

6	EA	HINGE	5BB1 4.5 X 4.5 NRP	652	IVE
1	EA	CONST LATCHING BOLT	FB52	630	IVE
1	EA	STOREROOM LOCK	L9080HD 06A	626	SCH
1	EA	PERMANENT CORE	PERMANENT IC CORE AS REQUIRED	626	SCH
1	EA	COORDINATOR	COR X FL	628	IVE
2	EA	MOUNTING BRACKET	MB	689	IVE
2	EA	SURFACE CLOSER	4050A SCUSH	689	LCN
2	EA	KICK PLATE	8400 10" X 1" LDW B-CS	630	IVE
1	EA	GASKETING	488SBK PSA	BK	ZER
1	EA	MEETING STILE	8193AA	AA	ZER

Hardware Group No. 11

6	EA	HINGE	5BB1 4.5 X 4.5 NRP	652	IVE
1	EA	MANUAL FLUSH BOLT	FB458	626	IVE
1	EA	CLASSROOM LOCK	L9070HD 06A	626	SCH
1	EA	PERMANENT CORE	PERMANENT IC CORE AS REQUIRED	626	SCH
2	EA	OH STOP	90S	652	GLY
2	EA	KICK PLATE	8400 10" X 1" LDW B-CS	630	IVE
2	EA	SILENCER	SR64	GRY	IVE

Hardware Group No. 12

6	EA	HINGE	5BB1 4.5 X 4.5 NRP	652	IVE
1	EA	MANUAL FLUSH BOLT	FB458	626	IVE
1	EA	CLASSROOM SECURITY	L9071HD 06A	626	SCH
2	EA	PERMANENT CORE	PERMANENT IC CORE AS REQUIRED	626	SCH
2	EA	OH STOP	100S	652	GLY
1	EA	GASKETING	488SBK PSA	BK	ZER

Hardware Group No. 13

3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	PRIVACY LOCK W/ OUTSIDE INDICATOR	ND40S RHO OS-OCC	626	SCH
1	EA	SURFACE CLOSER	4050A RW/PA	689	LCN
1	EA	KICK PLATE	8400 10" X 1 1/2" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	EA	GASKETING	488SBK PSA	BK	ZER

Hardware Group No. 14

3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	FACULTY RESTROOM/HOTEL W/ OUTSIDE INDICATOR	L9485L 06A 09-544 OS-OCC	626	SCH
1	EA	SFIC MORTISE CYL.	80-131 X L583-255 36-083 36-082-025	626	SCH
1	EA	PERMANENT CORE	PERMANENT IC CORE AS REQUIRED	626	SCH
1	EA	SURFACE CLOSER	4050A RW/PA	689	LCN
1	EA	KICK PLATE	8400 10" X 1 1/2" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	EA	GASKETING	488SBK PSA	BK	ZER

Hardware Group No. 15

2	EA	CONT. HINGE	224HD	628	IVE
2	EA	FIRE EXIT HARDWARE	9927-L-BE-F-LBRAFL-06-499F	626	VON
2	EA	SFIC RIM CYLINDER	80-159	626	SCH
2	EA	PERMANENT CORE	PERMANENT IC CORE AS REQUIRED	626	SCH
2	EA	SURFACE CLOSER	4050A SCUSH	689	LCN
2	EA	KICK PLATE	8400 10" X 1" LDW B-CS	630	IVE
1	EA	GASKETING	488SBK PSA	BK	ZER
1	EA	MEETING STILE	8193AA	AA	ZER

Hardware Group No. 16

3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	STOREROOM LOCK	L9080HD 06A	626	SCH
1	EA	PERMANENT CORE	PERMANENT IC CORE AS REQUIRED	626	SCH
1	EA	SURFACE CLOSER	4050A RW/PA	689	LCN
1	EA	KICK PLATE	8400 10" X 1 1/2" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	EA	GASKETING	488SBK PSA	BK	ZER

END OF SECTION



Door Numbers	HwSet#
2B	15
211A	09
211AB	09
211B	10
216A	06
219A	01
220A	02
221A	01
221AA	13
222A	06
223A	07
224A	14
224B	11
225A	01
226A	01
226AA	08
227A	01
228A	02
229A	03
229AB	11
230A	02
230AA	08
231A	01
231AA	08
233A	03
233AA	08
234A	01
235A	01
236A	01
237A	06
237C	05
238A	04
238AA	12
239A	01





## SECTION 088000 – GLAZING

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes glazing for the following products and applications:
1. Interior doors and view lites.
  2. Aluminum framed entrances and storefronts.
  3. Marking of safety glazing door and wall glass panels per 12NYCRR47 regulations.
- B. Related Sections:
1. Division 08 Section “Aluminum Windows” for exterior windows, factory glazed.
  2. Division 08 Section ”FRP Doors and Aluminum Frames” for doors to be factory glazed.
  3. Division 08 Section “Aluminum-framed Entrances and Storefronts” for aluminum entrances and storefronts to be glazed.
  4. Division 08 Section “Flush Wood Doors” for wood doors to be glazed.
  5. Division 08 Section “Hollow Metal Doors and Frames” for view windows to be glazed.

#### 1.3 REFERENCES

- A. American National Standards Institute (ANSI)
- B. American Society for Testing and Materials.
1. ASTM C 716 Standard Specification for Installing Lock-Strip Gaskets and Infill Glazing Materials.
  2. ASTM C 719 Standard Test Method for Adhesion and Cohesion of Elastomeric Joint Sealants Under Cyclic Movement.
  3. ASTM C 920 Standard Specification for Elastomeric Joint Sealants.
  4. ASTM C1036 Standard Specification for Flat Glass.
  5. ASTM C1048 Standard Specification for Heat-Treated Flat Glass – Kind HS, Kind FT, Coated and Uncoated Glass.
- C. Flat Glass Marketing Association (FGMA).
1. "Glazing Manual."
  2. "Sealant Manual."

#### 1.4 DEFINITIONS

- A. Manufacturers of Glass Products: Firms that produce primary glass, fabricated glass, or both, as defined in referenced glazing publications.
- B. Glass Thicknesses: Indicated by thickness designations in millimeters according to ASTM C 1036.
- C. Deterioration of Coated Glass: Defects developed from normal use that are attributed to the manufacturing process and not to causes other than glass breakage and practices for maintaining and cleaning coated glass contrary to manufacturer's written instructions. Defects include peeling, cracking, and other indications of deterioration in metallic coating.
- D. Deterioration of Laminated Glass: Defects developed from normal use that are attributed to the manufacturing process and not to causes other than glass breakage and practices for maintaining and cleaning laminated glass contrary to manufacturer's written instructions. Defects include edge separation, de-lamination materially obstructing vision through glass, and blemishes exceeding those allowed by referenced laminated-glass standard.

#### 1.5 PERFORMANCE REQUIREMENTS

- A. General: Provide glazing systems capable of withstanding normal thermal movement and wind and impact loads (where applicable) without failure, including loss or glass breakage attributable to the following: defective manufacture, fabrication, and installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.
- B. Glass Design: Glass thickness designations indicated are minimums and are for detailing only. Confirm glass thicknesses by analyzing Project loads and in-service conditions. Provide glass lites in the thickness designations indicated for various size openings, but not less than thicknesses and in strengths (annealed or heat treated) required to meet or exceed the following criteria:
  - 1. Glass Thicknesses: Select minimum glass thicknesses to comply with ASTM E 1300, according to the following requirements:
  - 2. Loads
    - a. Specified Design Wind Loads: Not less than wind loads applicable to Project as required by ASCE 7 "Minimum Design Loads for Buildings and Other Structures": Section 6.0 "Wind Loads."
      - 1) Basic Wind Speed: 90 mph
      - 2) Importance Factor: II.
      - 3) Exposure Category: C.
    - b. Probability of Breakage for Vertical Glazing: 8 lites per 1000 for lites set vertically or not more than 15 degrees off vertical and under wind action.
      - 1) Load Duration: 3 seconds.
    - c. Maximum Lateral Deflection: For the following types of glass supported on all 4 edges, provide thickness required that limits center deflection at design wind pressure to 1/50 times the short side length or 1 inch (25 mm), whichever is less.

- 1) For monolithic-glass lites heat treated to resist wind loads.
  - 2) For insulating glass.
  - 3) For laminated-glass lites.
- C. Thermal Movements: Provide glazing that allows for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures acting on glass framing members and glazing components. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.
- D. Thermal and Optical Performance Properties: Provide glass with performance properties specified based on manufacturer's published test data, as determined according to procedures indicated below:
1. For monolithic-glass lites, properties are based on units with lites 6.0 mm thick.
  2. For insulating-glass units, properties are based on units with lites 6.0 mm thick and a nominal 1/2-inch- (12.7-mm-) wide interspace.
  3. Center-of-Glass Values: Based on using LBL-44789 WINDOW 5.0 computer program for the following methodologies:
    - a. U-Factors: NFRC 100 expressed as Btu/ sq. ft. x h x deg F (W/sq. m x K).
    - b. Solar Heat Gain Coefficient: NFRC 200.
    - c. Solar Optical Properties: NFRC 300.
- 1.6 SUBMITTALS
- A. Product Data: For each glass product and glazing material indicated.
- B. Samples: For the following products, in the form of 12-inch- (300-mm-) square Samples for glass.
1. Each color and type of glass.
- C. Glazing Schedule: Use same designations indicated on Drawings for glazed openings in preparing a schedule listing glass types and thicknesses for each size opening and location.
- D. Product Certificates: Signed by manufacturers of glass and glazing products certifying that products furnished comply with requirements.
1. For solar-control low-e-coated glass, provide documentation demonstrating that manufacturer of coated glass is certified by coating manufacturer.
- E. Qualification Data: For installers.
- F. Preconstruction Adhesion and Compatibility Test Report: From glazing sealant manufacturer indicating glazing sealants were tested for adhesion to glass and glazing channel substrates and for compatibility with glass and other glazing materials.

G. Product Test Reports: For each of the following types of glazing products:

1. Monolithic glass products.
2. Glazing sealants.
3. Glazing gaskets.

H. Warranties: Special warranties specified in this Section.

## 1.7 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has completed glazing similar in material, design, and extent to that indicated for this Project; whose work has resulted in glass installations with a record of successful in-service performance; and who employs glass installers for this Project who are certified under the National Glass Association's Certified Glass Installer Program.
- B. Source Limitations for Glass: Obtain all glass products through one source from a single manufacturer.
- C. Source Limitations for Glazing Accessories: Obtain glazing accessories through one source from a single manufacturer for each product and installation method indicated.
- D. Glass Product Testing: Obtain glass test results for product test reports in "Submittals" Article from a qualified testing agency based on testing glass products.
1. Glass Testing Agency Qualifications: An independent testing agency with the experience and capability to conduct the testing indicated, as documented according to ASTM E 548.
- E. Elastomeric Glazing Sealant Product Testing: Obtain sealant test results for product test reports in "Submittals" Article from a qualified testing agency based on testing current sealant formulations within a 36-month period.
1. Sealant Testing Agency Qualifications: An independent testing agency qualified according to ASTM C 1021 to conduct the testing indicated, as documented according to ASTM E 548.
  2. Test elastomeric glazing sealants for compliance with requirements specified by reference to ASTM C 920, and where applicable, to other standard test methods.
- F. Preconstruction Adhesion and Compatibility Testing: Submit to elastomeric glazing sealant manufacturers, for testing indicated below, samples of each glazing material type, tape sealant, gasket, glazing accessory, and glass-framing member that will contact or affect elastomeric glazing sealants:
1. Use ASTM C 1087 to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of glazing sealants to glass, tape sealants, gaskets, and glazing channel substrates.
  2. Submit not fewer than eight pieces of each type of material, including joint substrates, shims, joint-sealant backings, secondary seals, and miscellaneous materials.
  3. Schedule sufficient time for testing and analyzing results to prevent delaying the Work.
  4. For materials failing tests, obtain sealant manufacturer's written instructions for corrective measures, including the use of specially formulated primers.

5. Testing will not be required if elastomeric glazing sealant manufacturers submit data based on previous testing of current sealant products for adhesion to, and compatibility with, glazing materials matching those submitted.
- G. Glazing for Fire-Rated Door Assemblies: Glazing for assemblies that comply with NFPA 80 and that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated, based on testing according to NFPA 252.
- H. Glazing for Fire-Rated Window Assemblies: Glazing for assemblies that comply with NFPA 80 and that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to NFPA 257.
- I. Safety Glazing Products: Comply with testing requirements in 16 CFR 1201.
  1. Subject to compliance with requirements, obtain safety glazing products permanently marked with certification label of the Safety Glazing Certification Council or another certification agency or manufacturer acceptable to authorities having jurisdiction.
  2. Where glazing units, including Kind FT glass and laminated glass, are specified in Part 2 articles for glazing lites more than 9 sq. ft. (0.84 sq. m) in exposed surface area of one side, provide glazing products that comply with Category II materials, for lites 9 sq. ft. (0.84 sq. m) or less in exposed surface area of one side, provide glazing products that comply with Category I or II materials, except for hazardous locations where Category II materials are required by 16 CFR 1201 and regulations of authorities having jurisdiction.
- J. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below, unless more stringent requirements are indicated. Refer to these publications for glazing terms not otherwise defined in this Section or in referenced standards.
  1. GANA Publications: GANA's "Glazing Manual."
  2. AAMA Publications: AAMA GDSG-1, "Glass Design for Sloped Glazing," and AAMA TIR-A7, "Sloped Glazing Guidelines."
  3. IGMA Publication for Sloped Glazing: IGMA TB-3001, "Sloped Glazing Guidelines."
  4. IGMA Publication for Insulating Glass: SIGMA TM-3000, "Glazing Guidelines for Sealed Insulating Glass Units."
- K. Insulating-Glass Certification Program: Permanently marked either on spacers or on at least one component lite of units with appropriate certification label of the following testing and inspecting agency:
  1. Insulating Glass Certification Council.
  2. Associated Laboratories, Inc.
- L. Manufacturer must certify compliance with CPSC 16 CFR 1201.
- M. All interior glazing sizes and types shall comply with NFPA 80 and/or ASTM E119.

#### 1.8 DELIVERY, STORAGE, AND HANDLING

- A. Protect glazing materials according to manufacturer's written instructions and as needed to prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.

- B. For insulating-glass units that will be exposed to substantial altitude changes, comply with insulating-glass manufacturer's written recommendations for venting and sealing to avoid hermetic seal ruptures.

#### 1.9 PROJECT CONDITIONS

- A. Environmental Limitations: Do not proceed with glazing when ambient and substrate temperature conditions are outside limits permitted by glazing material manufacturers and when glazing channel substrates are wet from rain, frost, condensation, or other causes. Install liquid sealants at ambient and substrate temperatures above 40 deg. F (4.4 deg. C).

#### 1.10 WARRANTY

- A. Manufacturer's Standard warranties for each type of Glass: Manufacturer's standard form, made out to Owner and signed by glass manufacturer agreeing to glass units that deteriorate as defined in "Definitions" Article, f.o.b. the nearest shipping point to Project site, within specified warranty period indicated below.
  - 1. Warranty Period: Standard or Minimum of 5 years from date of Substantial Completion.
- B. Manufacturer's Special Warranty on Insulating Glass: Manufacturer's standard form, made out to Owner and signed by insulating-glass manufacturer agreeing to replace insulating-glass units that deteriorate as defined in "Definitions" Article, f.o.b. the nearest shipping point to Project site, within specified warranty period indicated below.
  - 1. Warranty Period: 10 years from date of Substantial Completion.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Manufacturers: Provide specified products of one of the following:
  - 1. AFG Industries, Inc.
  - 2. Ford Glass Division.
  - 3. Guardian Industries Corp.
  - 4. LOF Glass, Inc.
  - 5. PPG Industries, Inc.
  - 6. SABIC Innovative Plastics, Inc.
- B. Refer to Glazing Schedule in the Drawings.

#### 2.2 GLASS PRODUCTS, GENERAL:

- A. Primary Glass Standard: ASTM C 1036 requirements, including those indicated by reference to type, class, quality, and, if applicable, form, finish, mesh and pattern.

- B. Heat-Treated Glass Standard: ASTM C 1048 requirements, including those indicated by reference to kind, condition, type, quality, class, and, if applicable, form, finish, and pattern.

## 2.3 PRIMARY GLASS PRODUCTS:

- A. Clear Float Glass: Type I (transparent glass, flat), Class 1 (clear), Quality q3 (glazing select).

## 2.4 HEAT-TREATED GLASS PRODUCTS:

- A. Manufacturing Process: Vertical (tong-held) or horizontal (roller hearth) process.
- B. Uncoated Clear Heat-Treated Float Glass: Condition A (uncoated surfaces), Type I (transparent glass, flat), Class 1, Quality q3 (glazing select), with performance characteristics for 1/4" thick glass matching those indicated for non-heat-treated tinted float glass; Kind FT (fully tempered).
- C. Glazing shall meet the safety standard for Architectural Safety Glazing CPSC-16-CFR 1201, category 2 – over 9 square feet.

## 2.5 LAMINATED GLASS TYPES

- A. Glass Type A: Clear Laminated Glass with two plies of fully tempered float glass.
1. Thickness of each glass ply: 3.0mm.
  2. Interlayer Thickness: 0.030 inch.
  3. Provide safety glazing labeling.
- B. Glass Type E: 1/4" Security Glass
1. Basis of Design: **Armoured One**
  2. Overall Thickness: 1/4"
- C. Glass Type F: 5/16" Fire Rated Security Glass
1. Basis of Design: **Armoured One**
  2. Overall Thickness: 5/16"
- D. General: Provide Kind HS (heat-strengthened) coated float glass where needed to resist thermal stresses induced by differential shading of individual glass lites and to comply with glass design requirements specified in "Performance Requirements" Article. Provide Kind FT (fully tempered) where safety glass is indicated.
- E. Provide Kind HS (heat-strengthened) coated float glass, except provide Kind FT (fully tempered) products where coated safety glass is indicated.

## 2.6 INSULATING GLASS

- A. Glass Type C: Clear tempered low-e insulating glass.
1. Overall Unit Thickness: 1 inch.
  2. Thickness of each glass lite: 6.0mm.
  3. Outdoor Lite: Clear low-e coated fully tempered float glass.
  4. Interspace Content: Air.
  5. Indoor Lite: Clear fully tempered float glass.

6. Low-E Coating: Sputtered on second surface
  7. Winter Nighttime U-factor: 0.29 maximum.
  8. Summer Daytime U-Factor: 0.29 maximum.
  9. Provide safety glazing labeling.
- B. Glass Type **D**: 1” Security Glass
1. Basis of Design: **Armoured One**
  2. Overall Thickness: 1”
- C. Insulating-Glass Units: Preassembled units consisting of sealed lites of glass separated by a dehydrated interspace, and complying with ASTM E 774 for Class CBA units.
- B. Provide Kind HS (heat-strengthened) float glass where needed to resist thermal stresses induced by differential shading of individual glass lites and to comply with glass design requirements specified in "Performance Requirements" Article. Provide Kind FT (fully tempered) where safety glass is indicated.
1. Coordinate to provide same matching glazing color as windows: Outer; 3/16” laminated safety gray tinted solar-reflective glass lite and Interior 1/4" laminated or fully tempered – clear. Largest airspace allowed – 1” nominal total thickness.
- C. Sealing System: Dual seal, with primary and secondary sealants as follows:
- D. Manufacturer's standard sealants.
- E. Spacer Specifications: Manufacturer's standard spacer material and construction.

## 2.7 FIRE-RATED GLAZING MATERIALS

- A. Glass Type **B** Fire-rated fire glass, and Type **F** Fire-rated security fire glass. Glass rating determined by the door and window schedule in the drawings.
- C. Manufacturer: Basis of Design: FireLite®Plus as manufactured by Nippon Electric Glass Company, Ltd., and distributed by Technical Glass Products, Kirkland, Washington, voice 1-800-426-0279, fax 1-800-451-9857 or approved equal.
- B. Properties:
1. Thickness: 5/16 inch [8 mm] overall.
  2. Weight: 4 lbs./sq. ft.
  3. Approximate Visible Transmission: 85 percent.
  4. Approximate Visible Reflection: 9 percent.
  5. Fire-rating: 20 minutes to 3 hours for doors; 20 minutes to 90 minutes for other applications.
  6. Impact Safety Resistance: ANSI Z97.1 and CPSC 16CFR1201 (Cat. I and II).
  7. STC Rating: Approximately 35 dB.
  8. Surface Finish: Premium (polished).
  9. Positive Pressure Test: UL 10C, UBC 7-2 and 7-4; passes.



- C. Maximum sheet sizes based on surface finish:
  - 1. Premium: 48 inches by 96 inches.
- D. Labeling: Permanently label each piece of fire rated glass with manufacturer's; UL logo and fire rating in sizes up to 3,325 sq. in
- E. Fire Rating: Fire rating listed and labeled by UL for fire rating scheduled at opening locations on drawings, when tested in accordance with [ASTM E2074-00 and ASTM E2010-01] [ULC Standards CAN4 S-104 and CAN4 S-106] [NPFA 252 and NFPA 257] [UL 9, UL 10B and UL 10C].
- F. Fire Rating – 60 Minutes and Greater: Fire rating listed and labeled by UL for fire rating scheduled at opening locations at fire walls and fire barrier walls, when tested in accordance with ASTM E119 and UL 263. Glazing shall be heat treated fire rated E119 glass.

## 2.8 GLAZING COMPOUND FOR FIRE-RATED GLAZING MATERIALS

- A. Glazing Tape: Closed cell polyvinyl chloride (PVC) foam, coiled on release paper over adhesive on two sides, maximum water absorption by volume of 2 percent. Glass panels that exceed 1,393 sq. inches for 90-minute ratings must be glazed with fire-rated glazing tape supplied by manufacturer.
- B. Glazing Compound: DAP 33 putty.
- C. Silicone Sealant: One-part neutral curing silicone, medium modulus sealant, Type S; Grade NS; Class 25 with additional movement capability of 50 percent in both extension and compression (total 100 percent); Use (Exposure) NT; Uses (Substrates) G, A, and O as applicable. Available Products:
  - 1. Dow Corning 795 - Dow Corning Corp.
  - 2. Silglaze-II 2800 - General Electric Co.
  - 3. Spectrem 2 - Tremco Inc.]
- D. Setting Blocks: Neoprene, EPDM, or silicone; tested for compatibility with glazing compound; of 70 to 90 Shore A hardness.
- E. Cleaners, Primers, and Sealers: Type recommended by manufacturer of glass and gaskets.

## 2.9 FIRE-RATED GLAZING SCHEDULE

Rating	Assembly	Max. Exposed Area (Sq. In.)	Max. Width Of Exposed Glazing (In.)	<b>O R</b>	Max. Height Of Exposed Glazing (In.)	Stop Height
20 min.	Doors					
	HMS or Wood*	3,204	36		89	5/8"
	Fireframes D.S.	3,204	36		89	3/4"
	Other than doors					
	HMS or Wood	3,325	95		95	5/8"
	Fireframes D.S.	3,325	95		95	3/4"
45 min.	Doors					
	HMS or Wood	3,204	36		89	5/8"
	Fireframes D.S.	3,204	36		89	3/4"
	Other than doors					
	HMS or Wood	3,325	95		95	5/8"
	Fireframes D.S.	3,325	95		95	3/4"
60 min.	Doors (non-temp rise)	3,204	36		89	5/8"
	HMS or Wood	3,204	36		89	3/4"
	Fireframes D.S.	100	12		33	5/8"
	Doors (temp rise)					
	Other than doors	3,325	95		95	5/8"
	HMS or Wood	3,325	95		95	3/4"
	Fireframes D.S.					
90 min.	Doors (non-temp rise)	2,034	36		56 1/2"	3/4"
		100	12		33	1/2"
	Doors (temp rise)					
	Other than doors	2,627	56 1/2"		56 1/2"	5/8"
	HMS	2,627	56 1/2"		56 1/2"	3/4"
	Fireframes D.S.					
3 hours	Doors	100	12		33	1/2"

\* HMS indicates hollow metal steel framing. Fireframes D.S. indicates Designer Series narrow profile framing by Forster. For wood frames, check with manufacturer for maximum tested glass sizes.

## 2.10 LAMINATED-POLYCARBONITE UNITS

### A. Glass Type G: 1/2" Lexon Glass

1. Basis of Design: **Lexgard MPC 500**
2. Overall Thickness: 1/2"

### B. Laminated-Polycarbonite Units (Glass Type G): Three polycarbonate lites of type indicated, bonded to each other with a polyurethane interlayer.

1. Availably Products:
  - a. "Lexgard" MPC500 by SABIC Innovative Plastics, Inc.
  - b. "Makrolon Hygard" CG500 by Sheffield Plastics, Inc.

2. Overall Unit Thickness: 1/2 inch, Nominal.
3. Outer and Inner Lites: Type II (coated, mar resistant, UV-stabilized) polycarbonate of the following thickness: 0.118 inch.
4. Core Lites: Type I (standard, UV-stabilized) polycarbonate of the following thickness: 0.236 inch
5. Interlayer Thickness: 0.025 inch
6. Attack Resistance: Security Grade 2, ASTM F-1915
7. Provide MR Guard - scratch resistance layer to reduce scratches.

2.11 ELASTOMERIC GLAZING SEALANTS AND PREFORMED GLAZING TAPES:

- A. General: Provide products of type indicated and complying with the following requirements:
- B. Compatibility: Select glazing sealants and tapes of proven compatibility with other materials with which they will come into contact, including glass products and glazing channel substrates, under conditions of installation and service, as demonstrated by testing and field experience.
- C. Suitability: Comply with recommendations of sealant and glass manufacturers for selection of glazing sealants and tapes which have performance characteristics suitable for applications indicated and conditions at time of installation.
- D. Elastomeric Sealant Standard: Provide manufacturer's standard chemically curing, elastomeric sealant of base polymer indicated which complies with ASTM C 920 requirements, including those for Type, Grade, Class and Uses.
  1. Colors: Provide color of exposed sealants indicated or, if not otherwise indicated, as selected by Architect from manufacturer's standard colors.
- E. One-Part Non-Acid-Curing Silicone Glazing Sealant: Type S; Grade NS, Class 25; Uses NT, G, A, and, as applicable to uses indicated, O; and complying with the following requirements for modulus and additional joint movement capability.
  1. Low Modulus: Tensile strength of 45 psi or less at 100 percent elongation when tested per ASTM D 412 after 14 days at 77 deg. F (20 deg. C) and 50 percent relative humidity.
  2. Medium Modulus: Tensile strength of not less than 45 nor more than 75 psi at 100 percent elongation when tested per ASTM D 412 after 14 days at 77 deg. F (20 deg. C) and 50 percent relative humidity.
  3. Additional capability, when tested per ASTM C 719 for adhesion and cohesion under maximum cyclic movement, to withstand the following percentage increase and decrease of joint width, as measured at time of application, and remain in compliance with other requirements of ASTM C 920.
    - a. 50 percent.
- F. One-Part Non-Acid Curing Low-Modulus Silicone Glazing Sealant:
  - a. "Chem-Calk 1000"; Bostik Construction Products Div.
  - b. "Dow Corning 790"; Dow Corning Corp.
  - c. "864"; Pecora Corp.

- d. "Omniseal"; Sonneborn Building Products Div., Rexnord Chemical Products Inc.
- e. "Spectrum 1"; Tremco, Inc.

## 2.12 MISCELLANEOUS GLAZING MATERIALS

- A. Compatibility: Provide materials with proven record of compatibility with surfaces contacted in installation.
- B. Cleaners, Primers and Sealers: Type recommended by sealant or gasket manufacturer.
- C. Setting Blocks: Neoprene, EPDM or silicone blocks as required for compatibility with glazing sealants, 80 to 90 Shore A durometer hardness.
- D. Spacers: Neoprene, EPDM or silicone blocks, or continuous extrusions, as required for compatibility with glazing sealant, of size, shape and hardness recommended by glass and sealant manufacturers for application indicated.
- E. Edge Blocks: Neoprene, EPDM or silicone blocks as required for compatibility with glazing sealant, of size and hardness required to limit lateral movement (side-walking) of glass.
- F. Compressible Filler Rods: Closed-cell or waterproof-jacketed rod stock of synthetic rubber or plastic foam, flexible and resilient, with 5-10 psi compression strength for 25 percent deflection.
- G. Provide visual marking of glass panels at door and window wall panels in accordance with 12NTCRR47 regulations.

## 2.13 FABRICATION OF GLAZING UNITS

- A. Fabricate glazing units in sizes required to glaze openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing publications, to comply with system performance requirements.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine framing glazing, with Installer present, for compliance with the following:
  - 1. Manufacturing and installation tolerances, including those for size, squareness, and offsets at corners.
  - 2. Presence and functioning of weep system.
  - 3. Minimum required face or edge clearances.
  - 4. Effective sealing between joints of glass-framing members.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings not firmly bonded to substrates. Remove lacquer from metal surfaces where elastomeric sealants are indicated for use.

### 3.3 GLAZING, GENERAL

- A. Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.
- B. Glazing channel dimensions, as indicated on Drawings, provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances. Adjust as required by Project conditions during installation.
- C. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass is glass with edge damage or other imperfections that, when installed, could weaken glass and impair performance and appearance.
- D. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction sealant-substrate testing.
- E. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.
- F. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.
- G. Provide spacers for glass lites where length plus width is larger than 50 inches (1270 mm) as follows:
  - 1. Locate spacers directly opposite each other on both inside and outside faces of glass. Install correct size and spacing to preserve required face clearances, unless gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances and to comply with system performance requirements.
  - 2. Provide 1/8-inch (3-mm) minimum bite of spacers on glass and use thickness equal to sealant width. With glazing tape, use thickness slightly less than final compressed thickness of tape.
- H. Provide edge blocking where indicated or needed to prevent glass lites from moving sideways in glazing channel, as recommended in writing by glass manufacturer and according to requirements in referenced glazing publications.
- I. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.
- J. Where wedge-shaped gaskets are driven into one side of channel to pressurize sealant or gasket on opposite side, provide adequate anchorage so gasket cannot walk out when installation is subjected to movement.

- K. Square cut wedge-shaped gaskets at corners and install gaskets in a manner recommended by gasket manufacturer to prevent corners from pulling away; seal corner joints and butt joints with sealant recommended by gasket manufacturer.

### 3.4 TAPE GLAZING

- A. Position tapes on fixed stops so that, when compressed by glass, their exposed edges are flush with or protrude slightly above sightline of stops.
- B. Install tapes continuously, but not necessarily in one continuous length. Do not stretch tapes to make them fit opening.
- C. Cover vertical framing joints by applying tapes to heads and sills first and then to jambs. Cover horizontal framing joints by applying tapes to jambs and then to heads and sills.
- D. Place joints in tapes at corners of opening with adjoining lengths butted together, not lapped. Seal joints in tapes with compatible sealant approved by tape manufacturer.
- E. Do not remove release paper from tape until just before each glazing unit is installed.
- F. Apply heel bead of elastomeric sealant.
- G. Center glass lites in openings on setting blocks and press firmly against tape by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings.
- H. Apply cap bead of elastomeric sealant over exposed edge of tape.

### 3.5 GASKET GLAZING (DRY)

- A. Fabricate compression gaskets in lengths recommended by gasket manufacturer to fit openings exactly, with allowance for stretch during installation.
- B. Insert soft compression gasket between glass and frame or fixed stop so it is securely in place with joints miter cut and bonded together at corners.
- C. Center glass lites in openings on setting blocks and press firmly against soft compression gasket by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.
- D. Install gaskets so they protrude past face of glazing stops.

### 3.6 SEALANT GLAZING (WET)

- A. Install continuous spacers, or spacers combined with cylindrical sealant backing, between glass lites and glazing stops to maintain glass face clearances and to prevent sealant from extruding into glass channel and blocking weep systems until sealants cure. Secure spacers or spacers and backings in

place and in position to control depth of installed sealant relative to edge clearance for optimum sealant performance.

- B. Force sealants into glazing channels to eliminate voids and to ensure complete wetting or bond of sealant to glass and channel surfaces.
- C. Tool exposed surfaces of sealants to provide a substantial wash away from glass.

### 3.7 LOCK-STRIP GASKET GLAZING

- A. Comply with ASTM C 716 and gasket manufacturer's written instructions. Provide supplementary wet seal and weep system, unless otherwise indicated.

### 3.8 CLEANING AND PROTECTION

- A. Protect exterior glass from damage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to glass surface. Remove nonpermanent labels, and clean surfaces.
- B. Protect glass from contact with contaminating substances resulting from construction operations, including weld splatter. If, despite such protection, contaminating substances do come into contact with glass, remove substances immediately as recommended by glass manufacturer.
- C. Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for buildup of dirt, scum, alkaline deposits, or stains; remove as recommended in writing by glass manufacturer.
- D. Remove and replace glass that is broken, chipped, cracked, or abraded or that is damaged from natural causes, accidents, and vandalism, during construction period.
- E. Wash glass on both exposed surfaces in each area of Project not more than four days before date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended in writing by glass manufacturer.
- F. Install visual barrier stickers on glass door and window panels in accordance with 12NYCRR46 regulations.

END OF SECTION 088000





## SECTION 088730 – SAFETY AND SECURITY WINDOW FILM

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SECTION INCLUDES

- A. Safety and security window film.
- B. Anti-graffiti window film.
- C. Film attachment systems.

#### 1.3 REFERENCES

- A. ASTM International (ASTM):
  - 1. ASTM D 412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers – Tension.
  - 2. ASTM D 2240 – Standard Test Method for Rubber Property – Durometer Hardness
  - 3. ASTM D 624 - Standard Test Method of Test for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers.
  - 4. ASTM D 5895 - Standard Test Methods for Evaluating Drying or Curing During Film Formation of Organic Coatings Using Mechanical Recorders.
  - 5. ASTM E 84 - Standard Method of Test for Surface Burning Characteristics of Building Materials.
  - 6. ASTM E 1886 - Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials.
  - 7. ASTM E 1996 - Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors and Impact Protective Systems Impacted by Windborne Debris in Hurricanes.
  - 8. ASTM E 330 – Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure.
  - 9. ASTM F 1642 Standard Test Method for Glazing and Glazing Systems Subject to Airblast Loadings
  - 10. ASTM G 26 - Standard Practice for Performing Accelerated Outdoor Weatherizing for Non-metallic Materials Using Concentrated Natural Sunlight
- B. GSA-TS01-2003 -- Standard Test for Glazing and Glazing Systems Subject to Airblast Loadings.
- C. ISO 16933, International Standard for Glass in Building: Explosion-resistant security glazing - Test and classification for arena air-blast testing.

#### 1.4 PERFORMANCE REQUIREMENTS

- A. Flammability: Surface burning characteristics when tested in accordance ASTM E 84.
  - 1. Flame Spread Index: 25, maximum.
  - 2. Smoke Developed Index: 450, maximum.

#### 1.5 SUBMITTALS

- A. Submit under provisions of Section 013300
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
  - 1. Installation instructions and recommendations.
  - 2. Storage and handling requirements and recommendations.
- C. Performance Submittals: Provide 3rd party test reports or other documentation for relevant safety and security glazing performance testing.

#### 1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: All primary products specified in this section will be supplied by a single manufacturer with a minimum of ten years experience.
- B. Installer Qualifications: All products listed in this section are to be installed by a single installer with a minimum of five years demonstrated experience in installing products of the same type and scope as specified.
  - 1. Provide documentation that the installer is authorized by the Manufacturer to perform Work specified in this section.
  - 2. Provide a commercial building reference list of 5 properties where the installer has applied Impact Protection Attachment systems. This list will include the following information:
    - a. Name of building.
    - b. The name and telephone number of a management contact.
    - c. Type of film attachment system.
    - d. Amount of film attachment system installed (lineal feet).
    - e. Date of completion
- C. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
  - 1. Finish areas designated by Architect.
  - 2. Do not proceed with remaining work until workmanship is approved by Architect.
  - 3. Refinish mock-up area as required to produce acceptable work

#### 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging at room temperature until ready for installation.

- B. Store and dispose of hazardous materials, and materials contaminated by hazardous materials, in accordance with requirements of local authorities having jurisdiction.

## 1.8 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

## 1.9 WARRANTY

- A. At project closeout, provide to Owner or Owners Representative an executed current copy of the manufacturer's standard limited warranty outlining its terms, conditions, and exclusions from coverage.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Acceptable Manufacturer:
  - 1. 3M Window Film Or Approved Equal:
    - a. 3M Scotchshield Safety and Security Window Film – 8 Mil Ultra Prestige Series (For UV and Security)
      - 1) Product used for all South exterior glazing in security package **only** @ Merton Williams Middle School (Refer to Security Drawings for location and windows to receive security film)
      - 2) Product also used for all East exterior glazing in security package **only** @ Northwood Elementary School (Refer to Security Drawings for location and windows to receive security film)
    - b. 3M Scotchshield Safety and Security Window Film – 6 Mil Ultra Series (For Security)
      - 1) Product used for all remaining exterior glazing receiving security film @ all school within security package.
- B. Requests for substitutions will be considered in accordance with provisions of Section 012500.

### 2.2 3M IMPACT PROTECTION ADHESIVE

- A. 3M Impact Protection Adhesive. Structural “wet glaze” film attachment system. Weatherable UV resistant polymer, moisture curable. Low VOC content and low odor.
  - 1. Properties, as supplied
    - a. Color: To Be Selected by Architect from Manufacturer’s color selections.
    - b. Typical Cure Time: 3 – 7 days (25°C, 50% RH)
    - c. Full Adhesion: 7 – 14 days
    - d. Tack-Free Time (ASTM D 5895): 21 minutes (25°C, 50% RH)

- e. Flow, Sag or Slump (ASTM D 2202): 0 inches
- f. Specific Gravity: 1.4
- g. Working Time: 10 – 20 minutes (25°C, 50% RH)
- h. VOC Content: 16 g/L
- 2. Properties, as cured (21 days at 25°C, 50% RH)
  - a. Ultimate Tensile Strength (ASTM D412): 380 psi (2.62 MPa)
  - b. Ultimate Elongation (ASTM D412): 640 psi
  - c. Durometer Hardness, Shore A (ASTM D2240): 38-39 points
  - d. Tear Strength, Die B (ASTM D624): 72 ppi
- 3. Uniformity: Product shall have uniform consistency and appearance, with no clumping.
- 4. Identification: Labeled as to Manufacturer as listed in this Section.
- 5. Windstorm Protection:
  - a. As part of a filmed glass system, film attachment shall demonstrate ability to withstand Medium Large Missile C and Small Missile A impact, with subsequent pressure cycling (per ASTMs E 1996 and E 1886) at +/- 70 psf design pressure.
  - b. As part of a filmed glass system, film attachment shall demonstrate ability withstand structural load requirements of ASTM E330 when tested at +/- 120 psf design pressure.
- 6. Bomb Blast Mitigation: Independent testing with results from high explosive arena blast testing.
  - a. GSA Rating with minimum blast pressure and impulse of 4 psi and 28 psi.msec, respectively: “2” (No Hazard / Very High Protection).
  - b. GSA Rating with minimum blast pressure and impulse of 11 psi and 55 psi.msec, respectively: “2” (No Hazard / Very High Protection).
  - c. GSA Rating with minimum blast pressure and impulse of 10 psi and 89 psi.msec, respectively: “3B” (Low Hazard / High Protection).
  - d. ASTM F 1642 Rating with nominal blast pressure and impulse of 8 psi and 42 psi.msec, respectively: “Low Hazard”.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. If application of window film is (was) the responsibility of another installer, notify Architect in writing of deviations from manufacturer’s recommended installation tolerances and conditions.
  - 1. Filmed glass surfaces receiving new attachment should first be examined to verify that they are free from defects and imperfections, and that the film edges extend sufficiently to the frame edges.
- B. Do not proceed with installation until film and frame surfaces have been properly prepared and deviations from manufacturer’s recommended tolerances are corrected. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result under the project conditions.
- C. At the request of the specifying authority, an adhesion test to the frame surface may be conducted by applying a 4 - 6 inch long bead, approximately 0.5 – 1 inch in width, masking one side of the frame surface underneath the strip with tape. Allow the Impact Protection Adhesive to cure for 7

days and test adhesion by pulling up on the masked end and a 90 degree angle. If cohesive failure is observed (adhesive residue left behind on the frame surface), adhesion is acceptable; if adhesive failure is observed (clean peel from the frame), adhesion is unacceptable and product is not recommended.

- D. Commencement of installation constitutes acceptance of conditions.

### 3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Installer shall take necessary precautions to protect interior furnishings.

### 3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Recommended minimum bead overlap for blast mitigation is 0.5 inch on both film and frame surfaces (excluding the glazing stops or compression gaskets); 0.375 inches on both surface for windstorm protection.
- C. To ensure a straight and consistent bead width is achieved, masking tape may be applied to film and frame surfaces before application of 3M Impact Protection Adhesive.
- D. With prior approval of the building owner, property manager, or specifying authority, existing compression gaskets may be partially removed or trimmed to allow for a thinner bead. If removing the gaskets, trim sections approximately 3 inches in length and insert with appropriate spacing along all sides of the window to help secure the glazing during application and curing of the Impact Protection Adhesive.
- E. Dispense Impact Protection Adhesive with a caulk gun and nozzle having an opening cut to approximate size of desired bead width.
- F. Use a plastic putty knife to trowel and smooth out the adhesive. The trowel shall have a straight edge to create a triangular shaped bead with a smooth, flat surface.
- G. Carefully remove any masking tape within 10 minutes of application before the Impact Protection Adhesive begins to form a hard skin.

### 3.4 CLEANING AND PROTECTION

- A. Product shall be allowed to cure for at least 3 to 7 days. Use necessary means to protect after installation.
- B. Touch-up, repair or replace damaged sections before Substantial Completion.

- C. Remove any uncured excess material on film or frame using a disposable cloth or paper towel wet with isopropyl alcohol.
- D. Common window cleaning solutions may be used 30 days after installation.

END OF SECTION 088000

## SECTION 090561 – COMMON WORK RESULTS FOR FLOORING PREPERATION

### PART 1 - GENERAL

#### 1.1 SECTION INCLUDES

- A. This section applies to floors identified in Contract Documents that are receiving the following types of floor coverings:
  - 1. Resilient tile and sheet
  - 2. Carpet tile
  - 3. Thin-set ceramic tile and stone tile
- B. Removal of existing floor coverings
- C. Preparation of existing concrete floor slabs for installation of floor coverings.
- D. Testing of concrete floor slabs for moisture and alkalinity (pH).
- E. Remediation of concrete floor slabs due to unsatisfactory moisture or alkalinity (pH) conditions.
  - 1. Contractor shall perform all specified remediation of concrete floor slabs. If such remediation is indicated by testing agency's report and is due to a condition not under Contractor's control or could not have been predicted by examination prior to entering into the contract, a contract modification will be issued.
- F. Patching Compound
- G. Remedial floor coatings
- H. Remedial floor treatment
- I. Remedial floor sheet membrane
- J. Preparation of new wood-based floors and subfloors for installation of new floor coverings.

#### 1.2 RELATED REQUIREMENTS

- A. Section 012200 - Unit Prices: Bid pricing for remediation treatments if required.
- B. Section 012300 - Alternates: Bid pricing for remediation treatments if required.
- C. Section 014000 - Quality Requirements: Additional requirements relating to testing agencies and testing.

- D. Section 017419 - Construction Waste Management and Disposal: Handling of existing floor coverings removed.
- E. Section 033000 - Cast-in-Place Concrete: Moisture emission reducing curing and sealing compound for slabs to receive adhered flooring, to prevent moisture content-related flooring failures; to remain in place, not to be removed.
- F. Section 033000 - Cast-in-Place Concrete: Concrete admixture for slabs to receive adhered flooring, to prevent moisture content-related flooring failures.
- G. Section 035400 - Cast Underlayment: Self-leveling underlayment applied as remediation treatment.

### 1.3 PRICE AND PAYMENT PROCEDURES

- A. Alternates: See Section 012300 Alternates

### 1.4 REFERENCE STANDARDS

- A. ASTM C109/C109M - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 50 mm [2 in.] Cube Specimens); 2023.
- B. ASTM C472 - Standard Test Methods for Physical Testing of Gypsum, Gypsum Plasters, and Gypsum Concrete; 2020.
- C. ASTM D4259 - Standard Practice for Preparation of Concrete by Abrasion Prior to Coating Application; 2018.
- D. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring; 2022.
- E. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring; 2022.
- F. ASTM F2170 - Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes; 2019a.
- G. RFCI (RWP) - Recommended Work Practices for Removal of Resilient Floor Coverings; 2018.

### 1.5 ADMINISTRATION REQUIREMENTS

- A. Coordinate scheduling of cleaning and testing, so that preliminary cleaning has been completed for at least 24 hours prior to testing



## 1.6 SUBMITTALS

- A. Visual Observation Report: For existing floor coverings to be removed.
- B. Floor Covering and Adhesive Manufacturers' Product Literature: For each specific combination of substrate, floor covering, and adhesive to be used; showing:
  - 1. Moisture and alkalinity (pH) limits and test methods.
  - 2. Manufacturer's required bond/compatibility test procedure.
- C. Remedial Materials Product Data: Manufacturer's published data on each product to be used for remediation.
  - 1. Manufacturer's qualification statement.
  - 2. Certificate: Manufacturer's certification of compatibility with types of flooring applied over remedial product.
  - 3. Manufacturer's installation instructions.
  - 4. Specimen Warranty: Copy of warranty to be issued by coating manufacturer and certificate of underwriter's coverage of warranty.
- D. Testing Agency's Report:
  - 1. Description of areas tested; include floor plans and photographs if helpful.
  - 2. Summary of conditions encountered.
  - 3. Moisture and alkalinity (pH) test reports.
  - 4. Copies of specified test methods.
  - 5. Recommendations for remediation of unsatisfactory surfaces.
  - 6. Product data for recommended remedial coating.
  - 7. Submit report to Architect.
  - 8. Submit report not more than two business days after conclusion of testing.
- E. Adhesive Bond and Compatibility Test Report.
- F. Floor Moisture Testing Technician Certificate: International Concrete Repair Institute (ICRI) Concrete Slab Moisture Testing Technician- Grade I certificate.
- G. Copy of RFCI (RWP).

## 1.7 QUALITY ASSURANCE

- A. Testing Agency Qualifications: Independent testing agency experienced in the types of testing specified.
  - 1. Submit evidence of experience consisting of at least 3 test reports of the type required, with project Owner's project contact information.
- B. Contractors Responsibility Relating to Independent Agency Testing:
  - 1. Provide access for and cooperate with testing agency.
  - 2. Confirm date of start of testing at least 10 days prior to actual start.
  - 3. Allow at least 4 business days on site for testing agency activities.
  - 4. Achieve and maintain specified ambient conditions.
  - 5. NoNotify Architect when specified ambient conditions have been achieved and when testing will start
- C. Floor Moisture Testing Technician Qualifications: International Concrete Repair Institute (ICRI) Concrete Slab Moisture Testing Technician Certification- Grade I.
- D. Remedial Coating Installer Qualifications: Company specializing in performing work of the type specified in this section, trained by or employed by coating manufacturer, and able to provide at least 3 project references showing at least 3 years' experience installing moisture emission coatings.

## 1.8 DELIVERY, STORAGE AND HANDLING

- A. Deliver store, handle, and protect products in accordance with manufacturer's instructions and recommendations
- B. Deliver materials in manufacturer's packaging; include installation instructions.
- C. Keep materials from freezing.

## 1.9 FIELD CONDITIONS

- A. Maintain ambient temperature in spaces where concrete testing is being performed, and for at least 48 hours prior to testing, at not less than 65 degrees F (18 degrees C) or more than 85 degrees F (30 degrees C)
- B. Maintain relative humidity in spaces where concrete testing is being performed, and for at least 48 hours prior to testing, at not less than 40 percent and not more than 60 percent.

## **PART 2 PRODUCTS**

### **2.1 MATERIALS**

- A. Patching Compound: Floor covering manufacturer's recommended product, suitable for conditions and compatible with adhesive and floor covering. In the absence of any recommendations from flooring manufacturer, provide a product with the following characteristics:
1. Cementitious moisture-, mildew-, and alkali-resistant compound, compatible with floor, floor covering, and floor covering adhesive, and capable of being feathered to nothing at edges.
  2. Compressive Strength: 3000 psi, minimum, after 28 days, when tested in accordance with ASTM C109/C109M or ASTM C472, whichever is appropriate.
3. Products:
- a. ARDEX Engineered Cements; ARDEX Feather Finish:  
[www.ardexamericas.com/#sle](http://www.ardexamericas.com/#sle).
  - b. LATICRETE International, Inc; SKIM LITE: [www.laticrete.com/#sle](http://www.laticrete.com/#sle).
  - c. USG Corporation; Durock Brand Advanced Skim Coat Floor Patch:  
[www.usg.com/#sle](http://www.usg.com/#sle).
  - d. Substitutions: See Section 016000 - Product Requirements.
- B. Remedial Floor Coating Single- or multi-layer coating or coating/overlay combination intended by its manufacturer to resist water vapor transmission to degree sufficient to meet flooring manufacturer's emission limits, resistant to the level of alkalinity (pH) found, and suitable for adhesion of flooring without further treatment.
1. Thickness: As required for application and in accordance with manufacturer's installation instructions.
  2. Use product recommended by testing agency.

## **PART 3 EXECUTION**

### **3.1 CONCRETE SLAB PREPARATION**

- A. Perform following operations in the order indicated:
1. Existing concrete slabs (on-grade and elevated) with existing floor coverings:
    - a. Visual observation of existing floor covering, for adhesion, water damage, alkaline deposits, and other defects.
    - b. Removal of existing floor covering.

2. Existing concrete slabs with coatings or penetrating sealers/hardeners/dustproofers:
  - a. Remove existing coatings and curing agents from surface according to recommendations of remedial coating manufacturer.
  - b. Prepare surface according to recommendations of remedial coating manufacturer and according to ASTM D4259.
3. Preliminary cleaning.
4. Moisture vapor emission tests; 3 tests in the first 1000 square feet (100 square meters) and one test in each additional 1000 square feet (100 square meters), unless otherwise indicated or required by flooring manufacturer.
5. Internal relative humidity tests; in same locations as moisture vapor emission tests, unless otherwise indicated.
6. Alkalinity (pH) tests; in same locations as moisture vapor emission tests, unless otherwise indicated.
7. Specified remediation, if required.
8. Patching, smoothing, and leveling, as required.
9. Other preparation specified.
10. Adhesive bond and compatibility test.
11. Protection.

**B. Remediations:**

1. Active Water Leaks or Continuing Moisture Migration to Surface of Slab: Correct this condition before doing any other remediation; re-test after correction.
2. Excessive Moisture Emission or Relative Humidity: If an adhesive that is resistant to the level of moisture present is available and acceptable to flooring manufacturer, use that adhesive for installation of the flooring; if not, apply remedial floor coating or remedial sheet membrane over entire suspect floor area.
3. Excessive Alkalinity (pH): If remedial floor coating is necessary to address excessive moisture, no additional remediation is required; if not, if an adhesive that is resistant to the level present is available and acceptable to the flooring manufacturer, use that adhesive for installation of the flooring; otherwise, apply a skim coat of specified patching compound over entire suspect floor area.

**3.2 REMOVAL OF EXISTING FLOOR COVERINGS**

- A. Comply with local, State, and federal regulations and recommendations of RFCI (RWP), applicable to floor covering being removed.

- B. Dispose of removed materials in accordance with local, State, and federal regulations and as specified.

### 3.3 PRELIMINARY CLEANING

- A. Clean floors of dust, solvents, paint, wax, oil, grease, asphalt, residual adhesive, adhesive removers, film-forming curing compounds, sealing compounds, alkaline salts, excessive laitance, mold, mildew, and other materials that might prevent adhesive bond.
- B. Do not use solvents or other chemicals for cleaning.

### 3.4 MOISTURE VAPOR EMISSION TESTING

- A. Where the floor covering manufacturer's requirements conflict with either the referenced test method or this specification, comply with the manufacturer's requirements.
- B. Where this specification conflicts with the referenced test method, comply with the requirements of this section.
- C. Test in accordance with ASTM F1869 and as follows.
- D. Plastic sheet test and mat bond test may not be substituted for the specified ASTM test method, as those methods do not quantify the moisture content sufficiently.
- E. In the event that test values exceed floor covering manufacturer's limits, perform remediation as indicated. In the absence of manufacturer limits, perform remediation if test values exceed 3 pounds per 1000 square feet (1.4 kg per 93 square meters) per 24 hours.
- F. Report: Report the information required by the test method.

### 3.5 INTERNAL RELATIVE HUMIDITY TESTING

- A. Where the floor covering manufacturer's requirements conflict with either the referenced test method or this specification, comply with the manufacturer's requirements.
- B. Where this specification conflicts with the referenced test method, comply with the requirements of this section.
- C. Test in accordance with ASTM F2170 Procedure A and as follows.
- D. Testing with electrical impedance or resistance apparatus may not be substituted for the specified ASTM test method, as the values determined are not comparable to the ASTM test values and do not quantify the moisture content sufficiently.
- E. In the event that test values exceed floor covering manufacturer's limits, perform remediation as indicated. In the absence of manufacturer limits, perform remediation if any test value exceeds 75 percent relative humidity.
- F. Report: Report the information required by the test method.

### 3.6 ALKALINITY TESTING

- A. Where the floor covering manufacturer's requirements conflict with either the referenced test method or this specification, comply with the manufacturer's requirements.
- B. In the event that test values exceed floor covering manufacturer's limits, perform remediation as indicated. In the absence of manufacturer limits, perform remediation if alkalinity (pH) test value is over 10.

### 3.7 PREPARATION

- A. See individual floor covering section(s) for additional requirements.
- B. Comply with requirements and recommendations of floor covering manufacturer.
- C. Fill and smooth surface cracks, grooves, depressions, control joints and other non-moving joints, and other irregularities with patching compound.
- D. Do not fill expansion joints, isolation joints, or other moving joints.

### 3.8 ADHESIVE BOND AND COMPATIBILITY TESTING

- A. Comply with requirements and recommendations of floor covering manufacturer.

### 3.9 APPLICATION OF REMEDIAL FLOOR COATING

- A. Comply with requirements and recommendations of floor coating manufacturer.

**END OF SECTION 090561**

## SECTION 092216 - NON-STRUCTURAL METAL FRAMING

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:

- 1. Non-load-bearing steel framing systems for interior gypsum board assemblies.
  - 2. Suspension systems for interior gypsum ceilings, soffits, and grid systems.

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.

### PART 2 - PRODUCTS

#### 2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Test-Response Characteristics: For fire-resistance-rated assemblies that incorporate non-load-bearing steel framing, provide materials and construction identical to those tested in assembly indicated, according to ASTM E 119 by an independent testing agency.
- B. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated, according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.

#### 2.2 FRAMING SYSTEMS

- A. Framing Members, General: Comply with ASTM C 754 for conditions indicated.
  - 1. Steel Sheet Components: Comply with ASTM C 645 requirements for metal unless otherwise indicated.
  - 2. Protective Coating: ASTM A 653/A 653M, G40, hot-dip galvanized unless otherwise indicated.
- B. Studs and Runners: ASTM C 645. Use either steel studs and runners or dimpled steel studs and runners. Provide 18 gauge unless otherwise noted.

1. Steel Studs and Runners:
    - a. Minimum Base-Metal Thickness: As indicated on Drawings.
    - b. Depth: As indicated on Drawings.
  2. Dimpled Steel Studs and Runners:
    - a. Minimum Base-Metal Thickness: As indicated on Drawings.
    - b. Depth: As indicated on Drawings.
- C. Slip-Type Head Joints: Where indicated, provide one of the following:
1. Single Long-Leg Runner System: ASTM C 645 top runner with 2-inch- deep flanges in thickness not less than indicated for studs, installed with studs friction fit into top runner and with continuous bridging located within 12 inches of the top of studs to provide lateral bracing.
  2. Double-Runner System: ASTM C 645 top runners, inside runner with 2-inch- deep flanges in thickness not less than indicated for studs and fastened to studs, and outer runner sized to friction fit inside runner.
  3. Deflection Track: Steel sheet top runner manufactured to prevent cracking of finishes applied to interior partition framing resulting from deflection of structure above; in thickness not less than indicated for studs and in width to accommodate depth of studs.
    - a. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
      - 1) Dietrich Metal Framing; SLP-TRK Slotted Deflection Track.
      - 2) MBA Building Supplies; FlatSteel Deflection Track or Slotted Deflecto Track.
      - 3) Steel Network Inc. (The); VertiClip SLD Series.
      - 4) Superior Metal Trim; Superior Flex Track System (SFT).
      - 5) Telling Industries; Vertical Slip Track.
- D. Firestop Tracks: Top runner manufactured to allow partition heads to expand and contract with movement of the structure while maintaining continuity of fire-resistance-rated assembly indicated; in thickness not less than indicated for studs and in width to accommodate depth of studs.
1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Fire Trak Corp.; Fire Trak System.
    - b. Grace Construction Products; FlameSafe FlowTrak System.
    - c. Metal-Lite, Inc.; The System.
- E. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width indicated.
1. Minimum Base-Metal Thickness: 0.027 inch.
- F. Cold-Rolled Channel Bridging: Steel, 0.053-inch minimum base-metal thickness, with minimum 1/2-inch- wide flanges.



1. Depth: 1-1/2 inches.
  2. Clip Angle: Not less than 1-1/2 by 1-1/2 inches, 0.068-inch- thick, galvanized steel.
- G. Hat-Shaped, Rigid Furring Channels: ASTM C 645.
1. Minimum Base-Metal Thickness: 0.033 inch.
  2. Depth: As indicated on Drawings.
- H. Resilient Furring Channels: 1/2-inch- deep, steel sheet members designed to reduce sound transmission.
1. Configuration: Asymmetrical or hat shaped.
- I. Cold-Rolled Furring Channels: 0.053-inch uncoated-steel thickness, with minimum 1/2-inch-wide flanges.
1. Depth: 3/4 inch.
  2. Furring Brackets: Adjustable, corrugated-edge type of steel sheet with minimum uncoated-steel thickness of 0.033 inch.
  3. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.062-inch- diameter wire, or double strand of 0.048-inch- diameter wire.
- J. Z-Shaped Furring: With slotted or nonslotted web, face flange of 1-1/4 inches, wall attachment flange of 7/8 inch, minimum uncoated-metal thickness of 0.018 inch, and depth required to fit insulation thickness indicated.

## 2.3 SUSPENSION SYSTEMS

- A. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.062-inch- diameter wire, or double strand of 0.048-inch- diameter wire.
- B. Hanger Attachments to Concrete:
1. Anchors: Fabricated from corrosion-resistant materials with holes or loops for attaching wire hangers and capable of sustaining, without failure, a load equal to 5 times that imposed by construction as determined by testing according to ASTM E 488 by an independent testing agency.
    - a. Type: Postinstalled, expansion anchor.
  2. Powder-Actuated Fasteners: Suitable for application indicated, fabricated from corrosion-resistant materials with clips or other devices for attaching hangers of type indicated, and capable of sustaining, without failure, a load equal to 10 times that imposed by construction as determined by testing according to ASTM E 1190 by an independent testing agency.
- C. Wire Hangers: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.16 inch in diameter.
- D. Carrying Channels: Cold-rolled, commercial-steel sheet with a base-metal thickness of 0.053 inch and minimum 1/2-inch- wide flanges.

1. Depth: As indicated on Drawings.
- E. Furring Channels (Furring Members):
  1. Cold-Rolled Channels: 0.053-inch uncoated-steel thickness, with minimum 1/2-inch-wide flanges, 3/4 inch deep.
  2. Steel Studs and Runners: ASTM C 645.
    - a. Minimum Base-Metal Thickness: As indicated on Drawings.
    - b. Depth: As indicated on Drawings.
- F. Grid Suspension System for Gypsum Board Ceilings: ASTM C 645, direct-hung system composed of main beams and cross-furring members that interlock.
  1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Armstrong World Industries, Inc.; Drywall Grid Systems.
    - b. Chicago Metallic Corporation; Drywall Grid System.
    - c. USG Corporation; Drywall Suspension System.

## 2.4 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards.
  1. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.
- B. Isolation Strip at Exterior Walls: Provide one of the following:
  1. Asphalt-Saturated Organic Felt: ASTM D 226, Type I (No. 15 asphalt felt), nonperforated.
  2. Foam Gasket: Adhesive-backed, closed-cell vinyl foam strips that allow fastener penetration without foam displacement, 1/8 inch thick, in width to suit steel stud size.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames, cast-in anchors, and structural framing, for compliance with requirements and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Suspended Assemblies: Coordinate installation of suspension systems with installation of overhead structure to ensure that inserts and other provisions for anchorages to building structure have been installed to receive hangers at spacing required to support the Work and that hangers will develop their full strength.
  - 1. Furnish concrete inserts and other devices indicated to other trades for installation in advance of time needed for coordination and construction.
- B. Coordination with Sprayed Fire-Resistive Materials:
  - 1. Before sprayed fire-resistive materials are applied, attach offset anchor plates or ceiling runners (tracks) to surfaces indicated to receive sprayed fire-resistive materials. Where offset anchor plates are required, provide continuous plates fastened to building structure not more than 24 inches o.c.
  - 2. After sprayed fire-resistive materials are applied, remove them only to extent necessary for installation of non-load-bearing steel framing. Do not reduce thickness of fire-resistive materials below that required for fire-resistance ratings indicated. Protect adjacent fire-resistive materials from damage.

### 3.3 INSTALLATION, GENERAL

- A. Installation Standard: ASTM C 754.
  - 1. Gypsum Plaster Assemblies: Also comply with requirements in ASTM C 841 that apply to framing installation.
  - 2. Portland Cement Plaster Assemblies: Also comply with requirements in ASTM C 1063 that apply to framing installation.
  - 3. Gypsum Veneer Plaster Assemblies: Also comply with requirements in ASTM C 844 that apply to framing installation.
  - 4. Gypsum Board Assemblies: Also comply with requirements in ASTM C 840 that apply to framing installation.
- B. Install supplementary framing, and blocking to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.
- C. Install bracing at terminations in assemblies.
- D. Do not bridge building control and expansion joints with non-load-bearing steel framing members. Frame both sides of joints independently.

### 3.4 INSTALLING FRAMED ASSEMBLIES

- A. Install framing system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.
  - 1. Single-Layer Application: 16 inches o.c. unless otherwise indicated.
  - 2. Multilayer Application: 16 inches o.c. unless otherwise indicated.

3. Tile Backing Panels: 16 inches o.c. unless otherwise indicated.
- B. Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.
- C. Install studs so flanges within framing system point in same direction.
- D. Install tracks (runners) at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings except where partitions are indicated to terminate at suspended ceilings. Continue framing around ducts penetrating partitions above ceiling.
  1. Slip-Type Head Joints: Where framing extends to overhead structural supports, install to produce joints at tops of framing systems that prevent axial loading of finished assemblies.
  2. Door Openings: Screw vertical studs at jambs to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.
    - a. Install two studs at each jamb unless otherwise indicated.
    - b. Install cripple studs at head adjacent to each jamb stud, with a minimum 1/2-inch clearance from jamb stud to allow for installation of control joint in finished assembly.
    - c. Extend jamb studs through suspended ceilings and attach to underside of overhead structure.
  3. Other Framed Openings: Frame openings other than door openings the same as required for door openings unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.
  4. Fire-Resistance-Rated Partitions: Install framing to comply with fire-resistance-rated assembly indicated and support closures and to make partitions continuous from floor to underside of solid structure.
    - a. Firestop Track: Where indicated, install to maintain continuity of fire-resistance-rated assembly indicated.
  5. Sound-Rated Partitions: Install framing to comply with sound-rated assembly indicated.
- E. Direct Furring:
  1. Screw to wood framing.
  2. Attach to concrete or masonry with stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches o.c.
- F. Z-Furring Members:
  1. Erect insulation, specified in Section 072100 "Thermal Insulation," vertically and hold in place with Z-furring members spaced 24 inches o.c.
  2. Except at exterior corners, securely attach narrow flanges of furring members to wall with concrete stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches o.c.

3. At exterior corners, attach wide flange of furring members to wall with short flange extending beyond corner; on adjacent wall surface, screw-attach short flange of furring channel to web of attached channel. At interior corners, space second member no more than 12 inches from corner and cut insulation to fit.
- G. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch from the plane formed by faces of adjacent framing.

### 3.5 INSTALLING SUSPENSION SYSTEMS

- A. Install suspension system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.
  1. Hangers: 48 inches o.c.
  2. Carrying Channels (Main Runners): 48 inches o.c.
  3. Furring Channels (Furring Members): 16 inches o.c.
- B. Isolate suspension systems from building structure where they abut or are penetrated by building structure to prevent transfer of loading imposed by structural movement.
- C. Suspend hangers from building structure as follows:
  1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or suspension system.
    - a. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
  2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with locations of hangers required to support standard suspension system members, install supplemental suspension members and hangers in the form of trapezes or equivalent devices.
  3. Wire Hangers: Secure by looping and wire tying, either directly to structures or to inserts, eye screws, or other devices and fasteners that are secure and appropriate for substrate, and in a manner that will not cause hangers to deteriorate or otherwise fail.
  4. Flat Hangers: Secure to structure, including intermediate framing members, by attaching to inserts, eye screws, or other devices and fasteners that are secure and appropriate for structure and hanger, and in a manner that will not cause hangers to deteriorate or otherwise fail.
  5. Do not attach hangers to steel roof deck.
  6. Do not attach hangers to permanent metal forms. Furnish cast-in-place hanger inserts that extend through forms.
  7. Do not attach hangers to rolled-in hanger tabs of composite steel floor deck.
  8. Do not connect or suspend steel framing from ducts, pipes, or conduit.
- D. Fire-Resistance-Rated Assemblies: Wire tie furring channels to supports.

- E. Grid Suspension Systems: Attach perimeter wall track or angle where grid suspension systems meet vertical surfaces. Mechanically join main beam and cross-furring members to each other and butt-cut to fit into wall track.
- F. Installation Tolerances: Install suspension systems that are level to within 1/8 inch in 12 feet measured lengthwise on each member that will receive finishes and transversely between parallel members that will receive finishes.

END OF SECTION 092216

## SECTION 092900 - GYPSUM BOARD

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Interior gypsum board.
  - 2. Tile backing panels.
- B. Related Requirements:
  - 1. Section 092216 "Non-Structural Metal Framing" for non-structural framing and suspension systems that support gypsum board panels.

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.

#### 1.4 DELIVERY, STORAGE AND HANDLING

- A. Store materials inside under cover and keep them dry and protected against weather, condensation, direct sunlight, construction traffic, and other potential causes of damage. Stack panels flat and supported on risers on a flat platform to prevent sagging.

#### 1.5 FIELD CONDITIONS

- A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written recommendations, whichever are more stringent.
- B. Do not install paper-faced gypsum panels until installation areas are enclosed and conditioned.
- C. Do not install panels that are wet, those that are moisture damaged, and those that are mold damaged.
  - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
  - 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

## PART 2 - PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency.
- B. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.
- C. Low-Emitting Materials: For ceiling and wall assemblies, provide materials and construction identical to those tested in assembly and complying with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

### 2.2 GYPSUM BOARD, GENERAL

- A. Size: Provide maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

### 2.3 INTERIOR GYPSUM BOARD

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - 1. American Gypsum.
  - 2. CertainTeed Corp.
  - 3. Georgia-Pacific Gypsum LLC.
  - 4. Lafarge North America Inc.
  - 5. National Gypsum Company.
  - 6. PABCO Gypsum.
  - 7. Temple-Inland.
  - 8. USG Corporation.
- B. Gypsum Board, Type X: ASTM C 1396/C 1396M.
  - 1. Thickness: 5/8 inch.
  - 2. Long Edges: Tapered.
- C. Gypsum Ceiling Board: ASTM C 1396/C 1396M.
  - 1. Thickness: 5/8 inch.
  - 2. Long Edges: Tapered.
- D. Abuse-Resistant Gypsum Board: ASTM C 1629/C 1629M, Level 1.



1. Core: 5/8 inch, Type X.
2. Long Edges: Tapered.
3. Mold Resistance: ASTM D 3273, score of 10 as rated according to ASTM D 3274.

E. Moisture- and Mold-Resistant Gypsum Board: ASTM C 1396/C 1396M. With moisture- and mold-resistant core and paper surfaces.

1. Core: 5/8 inch, Type X.
2. Long Edges: Tapered.
3. Mold Resistance: ASTM D 3273, score of 10 as rated according to ASTM D 3274.

## 2.4 TILE BACKING PANELS

A. Cementitious Backer Units: ANSI A118.9 and ASTM C 1288 or 1325, with manufacturer's standard edges.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
  - a. C-Cure; C-Cure Board 990.
  - b. CertainTeed Corp.; FiberCement BackerBoard.
  - c. Custom Building Products; Wonderboard.
  - d. James Hardie Building Products, Inc.; Hardiebacker.
  - e. National Gypsum Company, Permabase Cement Board.
  - f. USG Corporation; DUROCK Cement Board.
2. Thickness: 5/8 inch.
3. Mold Resistance: ASTM D 3273, score of 10 as rated according to ASTM D 3274.

## 2.5 TRIM ACCESSORIES

A. Interior Trim: ASTM C 1047.

1. Material: Galvanized or aluminum-coated steel sheet, rolled zinc, plastic, or paper-faced galvanized steel sheet.
2. Shapes:
  - a. Cornerbead.
  - b. Bullnose bead.
  - c. LC-Bead: J-shaped; exposed long flange receives joint compound.
  - d. L-Bead: L-shaped; exposed long flange receives joint compound.
  - e. U-Bead: J-shaped; exposed short flange does not receive joint compound.
  - f. Expansion (control) joint.
  - g. Curved-Edge Cornerbead: With notched or flexible flanges.

B. Aluminum Trim: Extruded accessories of profiles and dimensions indicated.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - a. Fry Reglet Corp.
  - b. Gordon, Inc.
  - c. Pittcon Industries.
2. Aluminum: Alloy and temper with not less than the strength and durability properties of ASTM B 221, Alloy 6063-T5.
3. Finish: Corrosion-resistant primer compatible with joint compound and finish materials specified.

## 2.6 JOINT TREATMENT MATERIALS

- A. General: Comply with ASTM C 475/C 475M.
- B. Joint Tape:
  1. Interior Gypsum Board: Paper.
  2. Exterior Gypsum Soffit Board: Paper.
  3. Glass-Mat Gypsum Sheathing Board: 10-by-10 glass mesh.
  4. Tile Backing Panels: As recommended by panel manufacturer.
- C. Joint Compound for Interior Gypsum Board: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.
  1. Prefilling: At open joints, rounded or beveled panel edges, and damaged surface areas, use setting-type taping compound.
  2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use drying-type, all-purpose compound.
    - a. Use setting-type compound for installing paper-faced metal trim accessories.
  3. Fill Coat: For second coat, use drying-type, all-purpose compound.
  4. Finish Coat: For third coat, use drying-type, all-purpose compound.
  5. Skim Coat: For final coat of Level 5 finish, use drying-type, all-purpose compound.
- D. Joint Compound for Tile Backing Panels:
  1. Glass-Mat, Water-Resistant Backing Panel: As recommended by backing panel manufacturer.
  2. Cementitious Backer Units: As recommended by backer unit manufacturer.
  3. Water-Resistant Gypsum Backing Board: Use setting-type taping compound and setting-type, sandable topping compound.

## 2.7 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.
- B. Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.
  - 1. Laminating adhesive shall have a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
  - 2. Laminating adhesive shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
- C. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.
  - 1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch thick.
  - 2. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.
- D. Sound Attenuation Blankets: ASTM C 665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.
  - 1. Fire-Resistance-Rated Assemblies: Comply with mineral-fiber requirements of assembly.
- E. Acoustical Joint Sealant: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834. Product effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.
  - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Accumetric LLC; BOSS 824 Acoustical Sound Sealant.
    - b. Grabber Construction Products; Acoustical Sealant GSC.
    - c. Pecora Corporation; AC-20 FTR.
    - d. Specified Technologies, Inc.; Smoke N Sound Acoustical Sealant.
    - e. USG Corporation; SHEETROCK Acoustical Sealant.
  - 2. Acoustical joint sealant shall have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine areas and substrates including welded hollow-metal frames and framing, with Installer present, for compliance with requirements and other conditions affecting performance.
- B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 APPLYING AND FINISHING PANELS, GENERAL

- A. Comply with ASTM C 840.
- B. Install ceiling panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.
- C. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.
- D. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.
- E. Form control and expansion joints with space between edges of adjoining gypsum panels.
- F. Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.
  - 1. Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. in area.
  - 2. Fit gypsum panels around ducts, pipes, and conduits.
  - 3. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow 1/4- to 3/8-inch- wide joints to install sealant.
- G. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments, except floors. Provide 1/4- to 1/2-inch- wide spaces at these locations and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.
- H. Attachment to Steel Framing: Attach panels so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.

- I. STC-Rated Assemblies: Seal construction at perimeters, behind control joints, and at openings and penetrations with a continuous bead of acoustical sealant. Install acoustical sealant at both faces of partitions at perimeters and through penetrations. Comply with ASTM C 919 and with manufacturer's written recommendations for locating edge trim and closing off sound-flanking paths around or through assemblies, including sealing partitions above acoustical ceilings.
- J. Install sound attenuation blankets before installing gypsum panels unless blankets are readily installed after panels have been installed on one side.

### 3.3 APPLYING INTERIOR GYPSUM BOARD

- A. Install interior gypsum board in the following locations:
  - 1. Type X: Vertical surfaces unless otherwise indicated.
  - 2. Ceiling Type: As indicated on Drawings.
  - 3. Foil-Moisture- and Mold-Resistant Type: As indicated on Drawings.
- B. Single-Layer Application:
  - 1. On ceilings, apply gypsum panels before wall/partition board application to greatest extent possible and at right angles to framing unless otherwise indicated.
  - 2. On partitions/walls, apply gypsum panels horizontally (perpendicular to framing) unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.
    - a. Stagger abutting end joints not less than one framing member in alternate courses of panels.
    - b. At stairwells and other high walls, install panels horizontally unless otherwise indicated or required by fire-resistance-rated assembly.
  - 3. On Z-furring members, apply gypsum panels vertically (parallel to framing) with no end joints. Locate edge joints over furring members.
  - 4. Fastening Methods: Apply gypsum panels to supports with steel drill screws.
- C. Laminating to Substrate: Where gypsum panels are indicated as directly adhered to a substrate (other than studs, joists, furring members, or base layer of gypsum board), comply with gypsum board manufacturer's written recommendations and temporarily brace or fasten gypsum panels until fastening adhesive has set.

### 3.4 APPLYING TILE BACKING PANELS

- A. Cementitious Backer Units: ANSI A108.11, at locations indicated to receive tile.
- B. Where tile backing panels abut other types of panels in same plane, shim surfaces to produce a uniform plane across panel surfaces.

### 3.5 INSTALLING TRIM ACCESSORIES

- A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.
- B. Control Joints: Install control joints according to ASTM C 840 and in specific locations approved by Architect for visual effect.
- C. Interior Trim: Install in the following locations:
  - 1. Cornerbead: Use at outside corners.
  - 2. LC-Bead: Use at exposed panel edges.

### 3.6 FINISHING GYPSUM BOARD

- A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.
- B. Prefill open joints, rounded or beveled edges, and damaged surface areas.
- C. Apply joint tape over gypsum board joints, except for trim products specifically indicated as not intended to receive tape.
- D. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C 840:
  - 1. Level 1: Ceiling plenum areas, concealed areas, and where indicated.
  - 2. Level 2: Panels that are substrate for tile.
  - 3. Level 4: At panel surfaces that will be exposed to view unless otherwise indicated.
    - a. Primer and its application to surfaces are specified in Section 099123 "Interior Painting."
- E. Cementitious Backer Units: Finish according to manufacturer's written instructions.

### 3.7 PROTECTION

- A. Protect adjacent surfaces from drywall compound and promptly remove from floors and other non-drywall surfaces. Repair surfaces stained, marred, or otherwise damaged during drywall application.
- B. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.
- C. Remove and replace panels that are wet, moisture damaged, and mold damaged.
  - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.

2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 092900





**SECTION 093000  
TILING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Tile for floor applications.
- B. Tile for wall applications.
- C. Cementitious backer board as tile substrate.
- D. Coated glass mat backer board as tile substrate.
- E. Stone thresholds.
- F. Ceramic trim.
- G. Non-ceramic trim.

**1.02 RELATED REQUIREMENTS**

- A. Section 035400 - Cast Underlayment.
- B. Section 079200 - Joint Sealants: Sealing joints between tile work and adjacent construction and fixtures.
- C. Section 090561 - Common Work Results for Flooring Preparation: Concrete slab moisture and alkalinity testing and remediation procedures.
- D. Section 092116 - Gypsum Board Assemblies: Tile backer board.

**1.03 REFERENCE STANDARDS**

- A. ANSI A108/A118/A136 - American National Standard Specifications for the Installation of Ceramic Tile (Compendium); 2019.
- B. ANSI A108.1a - American National Standard Specifications for Installation of Ceramic Tile in the Wet-Set Method, with Portland Cement Mortar; 2017 (Reaffirmed 2022).
- C. ANSI A108.1b - Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set, Modified Dry-Set, or Improved Modified Dry-Set Cement Mortar; 2023.
- D. ANSI A108.1c - Contractor's Option: Installation of Ceramic Tile in the Wet-Set Method with Portland Cement Mortar or Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set, Modified Dry-Set, or Improved Modified Dry-Set Cement Mortar; 2023.
- E. ANSI A108.2 - American National Standard General Requirements: Materials, Environmental and Workmanship; 2019.
- F. ANSI A108.4 - American National Standard Specifications for Installation of Ceramic Tile with Organic Adhesive or Water Cleanable Tile-Setting Epoxy Adhesive; 2023.
- G. ANSI A108.5 - Setting of Ceramic Tile with Dry-Set Cement Mortar, Modified Dry-Set Cement Mortar, EGP (Exterior Glue Plywood) Modified Dry-Set Cement Mortar, or Improved Modified Dry-Set Cement Mortar; 2023.
- H. ANSI A108.6 - American National Standard Specifications for Installation of Ceramic Tile with Chemical Resistant, Water Cleanable Tile-Setting and -Grout Epoxy; 2023.
- I. ANSI A108.8 - American National Standard Specifications for Installation of Ceramic Tile with Chemical Resistant Furan Resin Mortar and Grout; 1999 (Reaffirmed 2019).
- J. ANSI A108.9 - American National Standard Specifications for Installation of Ceramic Tile with Modified Epoxy Emulsion Mortar/Grout; 2023.
- K. ANSI A108.10 - American National Standard Specifications for Installation of Grout in Tilework; 2017 (Reaffirmed 2022).

- L. ANSI A108.11 - American National Standard Specifications for Interior Installation of Cementitious Backer Units; 2018.
- M. ANSI A108.12 - Installation of Ceramic Tile with EGP (Exterior Glue Plywood) Modified Dry-Set Mortar; 2023.
- N. ANSI A108.13 - American National Standard for Installation of Load Bearing, Bonded, Waterproof Membranes for Thin-Set Ceramic Tile and Dimension Stone; 2005 (Reaffirmed 2021).
- O. ANSI A108.19 - American National Standard Specifications for Interior Installation of Gauged Porcelain Tiles and Gauged Porcelain Tile Panels/Slabs by the Thin-Bed Method Bonded with Modified Dry-Set Cement Mortar or Improved Modified Dry-Set Cement Mortar; 2020.
- P. ANSI A108.20 - American National Standard Specifications for Exterior Installation of Gauged Porcelain Tiles and Gauged Porcelain Tile Panels/Slabs; 2020.
- Q. ANSI A118.3 - American National Standard Specifications for Chemical Resistant, Water Cleanable Tile-Setting and -Grouting Epoxy and Water Cleanable Tile-Setting Epoxy Adhesive; 2021.
- R. ANSI A118.4 - American National Standard Specifications for Modified Dry-Set Cement Mortar; 2019.
- S. ANSI A118.7 - American National Standard Specifications for High Performance Cement Grouts for Tile Installation; 2019.
- T. ANSI A118.9 - American National Standard Specifications for Test Methods and Specifications for Cementitious Backer Units; 2019.
- U. ANSI A118.15 - American National Standard Specifications for Improved Modified Dry-Set Cement Mortar; 2019.
- V. ANSI A137.1 - American National Standard Specifications for Ceramic Tile; 2022.
- W. ANSI A137.3 - American National Standard Specifications for Gauged Porcelain Tile and Gauged Porcelain Tile Panels/Slabs; 2021.
- X. ASTM C373 - Standard Test Methods for Determination of Water Absorption and Associated Properties by Vacuum Method for Pressed Ceramic Tiles and Glass Tiles and Boil Method for Extruded Ceramic Tiles and Non-tile Fired Ceramic Whiteware Products; 2018 (Reapproved 2023).
- Y. ASTM C1178/C1178M - Standard Specification for Coated Glass Mat Water-Resistant Gypsum Backing Panel; 2018.
- Z. ASTM F1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride; 2023.
- AA. ASTM F2170 - Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes; 2019a.
- BB. TCNA (HB) - Handbook for Ceramic, Glass, and Stone Tile Installation; 2024.

#### **1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Preinstallation Meeting: Convene a preinstallation meeting one week before starting work of this section; require attendance by affected installers.

#### **1.05 SUBMITTALS**

- A. See Section 013000 - Administrative Requirements for submittal procedures.
- B. Product Data: Provide manufacturers' data sheets on tile, mortar, grout, and accessories. Include instructions for using grouts and adhesives.
- C. Samples: Mount tile and apply grout on two plywood panels, minimum 18 by 18 inches in size illustrating pattern, color variations, and grout joint size variations.
- D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

- E. Installer's Qualification Statement:
  - 1. Submit documentation of National Tile Contractors Association (NTCA) or Tile Contractors' Association of America (TCAA) accreditation.
- F. Maintenance Data: Include recommended cleaning methods, cleaning materials, and stain removal methods.
- G. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
  - 1. See Section 016000 - Product Requirements, for additional provisions.
  - 2. Extra Tile: 5 percent of each size, color, and surface finish combination.

#### **1.06 QUALITY ASSURANCE**

- A. Maintain one copy of ANSI A108/A118/A136 and TCNA (HB) on site.
- B. Manufacturer Qualifications: Company specializing in manufacturing the types of products specified in this section, with minimum five years of documented experience.
- C. Installer Qualifications:
  - 1. Company specializing in performing tile installation, with minimum of five years of documented experience.
    - a. Accredited Five-Star member of the National Tile Contractors Association (NTCA) or Trowel of Excellence member of the Tile Contractors' Association of America (TCAA).

#### **1.07 MOCK-UPS**

- A. See Section 014000 - Quality Requirements for general requirements for mock-up.
- B. Construct tile mock-up where indicated on drawings, incorporating all components specified for the location.
  - 1. Minimum size of mock-up is indicated on drawings.
  - 2. Approved mock-up may remain as part of work.

#### **1.08 DELIVERY, STORAGE, AND HANDLING**

- A. Protect adhesives from freezing or overheating in accordance with manufacturer's instructions.

#### **1.09 FIELD CONDITIONS**

- A. Do not install solvent-based products in an unventilated environment.
- B. Maintain ambient and substrate temperature above 50 degrees F and below 100 degrees F during installation and curing of setting materials.

### **PART 2 PRODUCTS**

#### **2.01 TILE**

- A. Manufacturers: Subject to compliance with the requirements, provide products indicated in Color & Finish Schedule in Drawings or comparable product by one of the following:
  - 1. Crossville Incorporated; [www.crossvilleinc.com/#sle](http://www.crossvilleinc.com/#sle). - **Basis of Design.**
  - 2. American Olean Corporation; \_\_\_\_: [www.americanolean.com/#sle](http://www.americanolean.com/#sle).
  - 3. Dal-Tile Corporation; \_\_\_\_: [www.daltile.com/#sle](http://www.daltile.com/#sle) - **Basis of Design.**
  - 4. Substitutions: See Section 016000 - Product Requirements.
- B. Porcelain Mosaic Tile, Type CT-4, CT-14: ANSI A137.1 standard grade.
  - 1. Moisture Absorption: less than 5 percent as tested in accordance with ASTM C373.
  - 2. Size, Color: As indicated in Color & Finish Schedule in Drawings
  - 3. Shape: As indicated on drawings..
  - 4. Surface Finish: Unglazed.
  - 5. Color(s): As indicated on drawings.
  - 6. Trim Units: (CT-5) Matching cove shapes in sizes coordinated with field tile.
- C. Glazed Wall Tile, Type CT-1, CT-2, CT-3, CT10, CT-11, CT-12, CT-13: Basis of Design: Daltile.
  - 1. Moisture Absorption: less than 20.0 percent as tested in accordance with ASTM C373.
  - 2. Size, Color, Surface Finish: Indicated in Color & Finish Schedule in Drawings.

3. Edges: Refer to I000 Finish Schedule.
  4. Surface Finish: High gloss.
  5. Color(s): As indicated on drawings.
  6. Pattern: As indicated on drawings..
- D. Porcelain Tile, Type CT-6, CT-7, CT-8, & CT-9, CT-14,CT-15: Basis of Design: Crossville .
1. Moisture Absorption: less than 5 percent as tested in accordance with ASTM C373.
  2. Size and Color: As indicated in Color & Finish Schedule in Drawings.
  3. Thickness: Varies, refer to tile manufacturer's product data sheets.
  4. Surface Finish: Unpolished (UPS).
  5. Pattern: As indicated on drawings.
  6. Trim Units: Provide Metal edge strips.
  7. Products: **Basis of Design; Crossville and Daltile, refer to interior finish schedule.**
    - a. Architect approved equal.
    - b. Substitutions: See Section 016000 - Product Requirements.

## 2.02 TRIM AND ACCESSORIES

- A. Non-Ceramic Trim: (TR-1, TR-2, TR-3, TR-4) Satin natural anodized extruded aluminum, style and dimensions to suit application, for setting using tile mortar or adhesive.
1. Manufacturers: Subject to compliance with the requirements, provide products by Schluter Systems or comparable product by Architect- approved equal.
  2. Refer to elevations and Color & Finish Schedule in Drawings for products specified for:
    - a. Open edges of wall tile.
    - b. Open edges of floor tile.
    - c. Outside wall corners and vertical exposed tile edges.
    - d. Expansion and control joints, floor and wall.
    - e. Wainscot caps.
    - f. Floor to wall joints.
  3. Manufacturers:
    - a. Schluter-Systems: [www.schluter.com/#sle](http://www.schluter.com/#sle). **Basis of Design**
    - b. Architect approved equal.
    - c. Substitutions: See Section 016000 - Product Requirements.
- B. Thresholds: Size as required to maintain ADA compliance wide by full width of wall or frame opening; beveled edge on both long edges; without holes, cracks, or open seams.
1. Thickness: 1/2 inch.
  2. Material: Marble, honed finish.
  3. Applications:
    - a. At toilet room doorways where tile terminates.

## 2.03 SETTING MATERIALS

- A. Provide setting and grout materials from same manufacturer.
- B. Manufacturers: Subject to compliance with the requirements provide products by **LATICRETE, International, Inc, Basis of Design**, or comparable product by one of the following:
1. ARDEX Engineered Cements; \_\_\_\_: [www.ardexamericas.com/#sle](http://www.ardexamericas.com/#sle).
  2. Bostik Inc; \_\_\_\_: [www.bostik-us.com/#sle](http://www.bostik-us.com/#sle).
  3. Custom Building Products; \_\_\_\_: [www.custombuildingproducts.com/#sle](http://www.custombuildingproducts.com/#sle).
  4. Substitutions: See Section 016000 - Product Requirements.
- C. Latex-Portland Cement Mortar Bond Coat: ANSI A118.4.
1. Products: Provide Laticrete 253 Gold, or equal.
    - a. Substitutions: See Section 016000 - Product Requirements.
- D. Improved Latex-Portland Cement Mortar Bond Coat: ANSI A118.15.
1. Applications: Use this type of bond coat in locations of tile larger than 12 by 12 inches and at areas of skim coat, over existing structural glazed wall tile.

2. Products: Provide Laticrete 254 Platinum, or equal.
  - a. Substitutions: See Section 016000 - Product Requirements.

#### **2.04 GROUTS**

- A. Provide setting and grout materials from same manufacturer.
- B. Manufacturers: Subject to compliance with the requirements, provide products by Laticrete or comparable product by one of the following:
  1. ARDEX Engineered Cements: [www.ardexamericas.com/#sle](http://www.ardexamericas.com/#sle).
  2. Bostik Inc: [www.bostik-us.com/#sle](http://www.bostik-us.com/#sle).
  3. Custom Building Products: [www.custombuildingproducts.com/#sle](http://www.custombuildingproducts.com/#sle).
  4. Substitutions: See Section 016000 - Product Requirements.
- C. High Performance Polymer Modified Grout: ANSI A118.7 polymer modified cement grout.
  1. Applications: Use this type of grout at all wall tile installations.
  2. Use sanded grout for joints 1/8 inch wide and larger; use unsanded grout for joints less than 1/8 inch wide.
  3. Color(s): As indicated in Color & Finish Schedule in Drawings.
  4. Products: Provide Laticrete Permacolor, or equal.
    - a. Substitutions: See Section 016000 - Product Requirements.
- D. Epoxy Grout: ANSI A118.3 chemical resistant and water-cleanable epoxy grout.
  1. Applications: At all floor tile installations.
  2. Color(s): As indicated in Color & Finish Schedule in Drawings.
  3. Products: Provide Spectralock Pro Premium Grout, or equal.
    - a. Substitutions: See Section 016000 - Product Requirements.

#### **2.05 MAINTENANCE MATERIALS**

- A. Provide materials from same manufacturer as tile setting products and grout.
- B. Manufacturers: Subject to compliance with the requirements, provide Laticrete or comparable product by one of the following:
  1. ARDEX Engineered Cements: [www.ardexamericas.com](http://www.ardexamericas.com).
  2. Bostik Inc: [www.bostik-us.com](http://www.bostik-us.com).
  3. Custom Building Products: [www.custombuildingproducts.com](http://www.custombuildingproducts.com).
- C. Tile Sealant: Gunnable, silicone sealant; moisture and mildew resistant type.
  1. Applications: Between tile and plumbing fixtures.
  2. Color(s): Match grout colors specified.
  3. Products: Provide Laticrete Latasil, or equal.

#### **2.06 ACCESSORY MATERIALS**

- A. Backer Board: Cementitious type complying with ANSI A118.9; high density, glass fiber reinforced, 5/8 inch thick; 2 inch wide coated glass fiber tape for joints and corners.
  1. Products:
    - a. Custom Building Products; WonderBoard Lite Backerboard: [www.custombuildingproducts.com/#sle](http://www.custombuildingproducts.com/#sle).
- B. Backer Board: Coated glass mat type complying with ASTM C1178/C1178M; inorganic fiberglass mat on both surfaces and integral acrylic coating vapor retarder.
  1. Standard Type: Thickness 1/2 inch.
  2. Fire Resistant Type: Type X core, thickness 5/8 inch.
- C. Mesh Tape: 2 inch wide self-adhesive fiberglass mesh tape.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Verify that subfloor surfaces are smooth and flat within the tolerances specified for that type of work and are ready to receive tile.

- B. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive tile.
- C. Verify that subfloor surfaces are dust free and free of substances that could impair bonding of setting materials to subfloor surfaces.
- D. Cementitious Subfloor Surfaces: Verify that substrates are ready for tiling installation by testing for moisture and alkalinity (pH).
  - 1. Test in accordance with Section 090561.
  - 2. Obtain instructions if test results are not within limits recommended by tiling material manufacturer and setting material manufacturer.
  - 3. Follow moisture and alkalinity remediation procedures in Section 090561.
- E. Verify that required floor-mounted utilities are in correct location.

### **3.02 PREPARATION**

- A. Protect surrounding work from damage.
- B. Vacuum clean surfaces and damp clean.
- C. Seal substrate surface cracks with filler. Level existing substrate surfaces to acceptable flatness tolerances.
- D. Install backer board in accordance with ANSI A108.11 and board manufacturer's instructions. Tape joints and corners, cover with skim coat of setting material to a feather edge.
- E. Prepare substrate surfaces for adhesive installation in accordance with adhesive manufacturer's instructions.
- F. Blending: For tile exhibiting color variations, verify that tile has been factory blended and packaged so tile units taken from one package show same range of colors as those taken from other packages and match approved Samples. If not factory blended, either return to manufacturer or blend tiles at Project site before installing.

### **3.03 INSTALLATION - GENERAL**

- A. Install tile and thresholds and grout in accordance with applicable requirements of the ANSI A108 series "Specifications for Installation of Ceramic Tile" that are referenced in TCNA installation methods, specified in tile installation schedules, and apply to types of setting and grouting materials used., manufacturer's instructions, and TCNA (HB) recommendations.
- B. For the following installations, follow procedures in the ANSI A108 series of tile installation standards for providing 95 percent mortar coverage:
  - 1. Tile floors in wet areas.
  - 2. Tile floors consisting of tiles 8 by 8 inches or larger.
- C. Lay tile to pattern indicated. Do not interrupt tile pattern through openings.
- D. Extend tile work into recesses and under or behind equipment and fixtures to form complete covering without interruptions unless otherwise indicated. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.
- E. Where accent tile differs in thickness from field tile, vary setting bed thickness so that tiles are flush.
- F. Cut and fit tile to penetrations through tile, leaving sealant joint space. Form corners and bases neatly. Align wall joints.
- G. Place tile joints uniform in width, subject to variance in tolerance allowed in tile size. Make grout joints without voids, cracks, excess mortar or excess grout, or too little grout. Unless otherwise indicated, install tile with grout joints sized per manufacturer's recommendations.
- H. Form internal angles square and external angles with metal trim indicated in Drawings.
- I. Install non-ceramic trim in accordance with manufacturer's instructions.
- J. Install thresholds where indicated.

- K. Sound tile after setting. Replace hollow sounding units.
- L. Keep control and expansion joints free of mortar, grout, and adhesive.
- M. Prior to grouting, allow installation to completely cure; minimum of 48 hours.
- N. Grout tile joints unless otherwise indicated.
- O. Where indicated use tile sealant instead of grout, with either bond breaker tape or backer rod as appropriate to prevent three-sided bonding. Form joints during installation of setting materials, mortar beds, and tile. Do not saw-cut joints after installing tiles. Provide movement joints per current TCNA EJ171 and in the following locations:
  - 1. Where joints occur in concrete substrates, locate joints in tile surfaces directly above them.
  - 2. Provide Soft Joints every 20' to 25' for interior wall and floor tile installations and 8' to 12' for exterior wall and floor tile installations. For interior areas impacted by thermal stress, use the 8' to 12' installation method.
  - 3. Provide soft joint at changes in plane, including at the juncture of the floor and ceiling, juncture of the floor and wall, inside and outside corners, and juncture of wall and countertop.
  - 4. Prepare joints and apply sealants to comply with requirements in Section 079200 "Joint Sealants".
  - 5. Provide soft joints at tile termination points and inside wall corners, changes in material, and perimeter joints.

#### **3.04 INSTALLATION - FLOORS - THIN-SET METHODS**

- A. Over interior concrete substrates, install in accordance with TCNA (HB) Method F113, dry-set or latex-Portland cement bond coat, with standard grout, unless otherwise indicated.
  - 1. Where epoxy or furan grout is indicated, but not epoxy or furan bond coat, install in accordance with TCNA (HB) Method F115.
- B. Install tile-to-tile floor movement joints in accordance with TCNA (HB) Method EJ171F.

#### **3.05 INSTALLATION - WALL TILE**

- A. Over cementitious backer units on studs, install in accordance with TCNA (HB) Method W244.
- B. Over gypsum wallboard on wood or metal studs install in accordance with TCNA (HB) Method W243, thin-set with dry-set or latex-Portland cement bond coat, unless otherwise indicated.
- C. Over interior concrete and masonry install in accordance with TCNA (HB) Method W202, thin-set with dry-set or latex-Portland cement bond coat.

#### **3.06 CLEANING**

- A. Clean tile and grout surfaces.

#### **3.07 PROTECTION**

- A. Do not permit traffic over finished floor surface for 4 days after installation.

#### **END OF SECTION**





**SECTION 095100  
ACOUSTICAL CEILINGS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Suspended metal grid ceiling system.
- B. Acoustical units.

**1.02 REFERENCE STANDARDS**

- A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2023.
- B. ASTM C423 - Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method; 2023.
- C. ASTM C635/C635M - Standard Specification for Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings; 2022.
- D. ASTM C636/C636M - Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels; 2019.
- E. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2023c.
- F. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials; 2022.
- G. ASTM E580/E580M - Standard Practice for Installation of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Subject to Earthquake Ground Motions; 2022.
- H. ASTM E795 - Standard Practices for Mounting Test Specimens during Sound Absorption Tests; 2023.
- I. ASTM E1264 - Standard Classification for Acoustical Ceiling Products; 2023.
- J. NFPA 286 - Standard Methods of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth; 2024.
- K. UL (FRD) - Fire Resistance Directory; Current Edition.

**1.03 ADMINISTRATIVE REQUIREMENTS**

- A. Sequence work to ensure acoustical ceilings are not installed until building is enclosed, sufficient heat is provided, dust generating activities have terminated, and overhead work is completed, tested, and approved.
- B. Do not install acoustical units until after interior wet work is dry.

**1.04 SUBMITTALS**

- A. See Section 013000 - Administrative Requirements for submittal procedures.
- B. Product Data: Provide data on suspension system components and acoustical units.
- C. Samples: Submit two samples 6 by 6 inch in size illustrating material and finish of acoustical units.
- D. Samples: Submit two samples each, 6 inches long, of suspension system main runner, cross runner, and perimeter molding.
- E. Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention.
- F. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
  - 1. See Section 016000 - Product Requirements, for additional provisions.
  - 2. Extra Acoustical Units: Quantity equal to 5 percent of total installed.

**1.05 QUALITY ASSURANCE**

- A. Suspension System Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum five years documented experience.
- B. Acoustical Unit Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum five years documented experience.

## **1.06 FIELD CONDITIONS**

- A. Maintain uniform temperature of minimum 60 degrees F, and maximum humidity of 40 percent prior to, during, and after acoustical unit installation.

## **PART 2 PRODUCTS**

### **2.01 MANUFACTURERS**

- A. Acoustic Tiles/Panels: Subject to compliance with the requirements, provide Armstrong World Industries, or comparable product by one of the following:
  - 1. Armstrong World Industries, Inc: [www.armstrongceilings.com/#sle](http://www.armstrongceilings.com/#sle). - **Basis of Design.**
  - 2. Certainteed Architectural: [www.certainteed.com/ceilings-and-walls/#sle](http://www.certainteed.com/ceilings-and-walls/#sle).
  - 3. USG Corporation: [www.usg.com/ceilings/#sle](http://www.usg.com/ceilings/#sle).
  - 4. Architect- approved equal.
  - 5. Substitutions: See Section 016000 - Product Requirements.
- B. Suspension Systems:
  - 1. Same as for acoustical units.

### **2.02 PERFORMANCE REQUIREMENTS**

- A. Fire-Resistance Rating: Determined in accordance with test procedures in ASTM E119 and complying with the following:
  - 1. UL (FRD) Assembly Design No. \_\_\_\_.
- B. Surface Burning Characteristics: Flame spread index of 25 or less, smoke developed index of 450 or less, when tested in accordance with ASTM E84.

### **2.03 ACOUSTICAL UNITS**

- A. Acoustical Units - General: ASTM E1264, Class A.
- B. Acoustical Panels, Type ACT1: Painted mineral fiber, with the following characteristics:
  - 1. Classification: ASTM E1264 Type A.
    - a. Form: 2, water felted.
    - b. Pattern: Fine Fissured and "E" - lightly textured.
  - 2. Size: As indicated in Color & Finish Schedule in Drawings.
  - 3. Thickness: 7/8 inch.
  - 4. Light Reflectance: Not less than .85, determined in accordance with ASTM E1264.
  - 5. NRC: Not less than 0.75, determined in accordance with ASTM E1264.
  - 6. Ceiling Attenuation Class (CAC): Not less than 35, determined in accordance with ASTM E1264.
  - 7. Panel Edge: Square.
  - 8. Color: White.
  - 9. Suspension System: Exposed grid, 15/16 inch face.
  - 10. Products: As indicated in Color & Finish Schedule in Drawings.
    - a. Armstrong World Industries, Inc; Fine Fissured High NRC: [www.armstrongceilings.com/#sle](http://www.armstrongceilings.com/#sle).
    - b. Substitutions: See Section 016000 - Product Requirements.
- C. Acoustical Panels, Type[ACT2]: Painted mineral fiber, with the following characteristics:
  - 1. Classification: ASTM E1264 Type A.
    - a. Form: 2, water felted.
    - b. Pattern: [Fine Texture]
  - 2. Size: As indicated in Color & Finish Schedule in Drawings.
  - 3. Thickness: [7/8] inch.

4. Light Reflectance: Not less than .85, determined in accordance with ASTM E1264.NRC
5. NRC: Not less than 0.80, determined in accordance with ASTM E1264.
6. Ceiling Attenuation Class (CAC): Not less than 35, determined in accordance with ASTM E1264.
7. Panel Edge: Tegular.
8. Color: White.Suspension System[<>]:
9. Exposed grid, 15/16 inch face.Suspension System[<>]: Concealed.
10. Products: As indicated in Color & Finish Schedule in Drawings.
  - a. Armstrong World Industries, Inc; Ultima Tegular: [www.armstrongceilings.com/#sle](http://www.armstrongceilings.com/#sle);  
**Basis of Design.**
  - b. Architect Approved Equal

- D. Acoustical cloud assembly: Complete system with factory- cut acoustical panels, suspension system, perimeter trim, cables, and hardware. Acoustical Panels, Type ASC-1: Painted mineral fiber, with the following characteristics:
1. Classification: ASTM E1264 Type III.
    - a. Form: 2, water felted.
    - b. Pattern: "C" - perforated, small holes.
  2. Size, Color, and Product: As indicated in Color & Finish Schedule in Drawings.
  3. Thickness: 7/8 inch.
  4. Light Reflectance: Not less than .85, determined in accordance with ASTM E1264.
  5. NRC: Not less than 0.75, determined in accordance with ASTM E1264.
  6. Ceiling Attenuation Class (CAC): Not less than 35, determined in accordance with ASTM E1264.
  7. Panel Edge: Square.
  8. Suspension System: Exposed grid, 15/15 inch face; included with cloud assembly.
  9. Perimeter Trim: Not required. Install perimeter condition as detailed in Drawings.

## 2.04 SUSPENSION SYSTEM(S)

- A. Manufacturers: Match that of acoustical panels.
- B. Metal Suspension Systems - General: Complying with ASTM C635/C635M; die cut and interlocking components, with perimeter moldings, hold down clips, stabilizer bars, clips, and splices as required.
1. Materials:
    - a. Steel Grid: ASTM A653/A653M, G30 coating, unless otherwise indicated.
- C. Exposed Suspension System: Hot-dipped galvanized steel grid with steel cap.
1. Structural Classification: Intermediate-duty, when tested in accordance with ASTM C635/C635M.
  2. Profile: Tee; 15/16 inch face width.
  3. Finish: Baked enamel.
  4. Color: White.
  5. Products:
    - a. Armstrong World industries: 15/16 Prelude XL; **Basis of Design**
    - b. Certaineed Architectural; 15/16" EZ Stab Classic  
System: [www.certainteed.com/ceilings-and-walls/#sle](http://www.certainteed.com/ceilings-and-walls/#sle).
    - c. USG Corporation; Donn Brand ZXLA 15/16 inch Acoustical Suspension  
System: [www.usg.com/ceilings/#sle](http://www.usg.com/ceilings/#sle).
    - d. Architect Approved Equal.
    - e. Substitutions: See Section 016000 - Product Requirements.

## 2.05 ACCESSORIES

- A. Support Channels and Hangers: Galvanized steel; size and type to suit application and ceiling system flatness requirement specified.
- B. Hanger Wire: 12 gauge, 0.08 inch galvanized steel wire.

- C. Hold-Down Clips: Manufacturer's standard clips to suit application.
- D. Perimeter Moldings: Aluminum.
  - 1. Size: As required for installation conditions, refer to reflected ceiling plan and interior color and finish legend..
  - 2. Angle Molding: L-shaped, for mounting at same elevation as face of grid.
  - 3. Acoustical Sealant For Perimeter Moldings: Non-hardening, non-skinning, for use in conjunction with suspended ceiling system.
- E. Metal Edge Trim for Suspension Systems: Steel or extruded aluminum; provide attachment clips, splice plates, and preformed corner pieces for complete trim system.
  - 1. Trim Height: 4 inch. Verify required height in the field.
  - 2. Finish: Baked enamel.
  - 3. Color: Custom, match color indicated in Drawings.
  - 4. Products: As indicated in Color & Finish Schedule in Drawings
  - 5. Profile: Curved
    - a. Armstrong World industries; Axiom Classic; **Basis of Design**
    - b. Architect Approved Equal.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Verify existing conditions before starting work.
- B. Verify that layout of hangers will not interfere with other work.

#### **3.02 PREPARATION**

- A. Install after major above-ceiling work is complete.
- B. Coordinate the location of hangers with other work.

#### **3.03 INSTALLATION - SUSPENSION SYSTEM**

- A. Install suspension system in accordance with ASTM C636/C636M, ASTM E580/E580M, and manufacturer's instructions and as supplemented in this section.
- B. Rigidly secure system, including integral mechanical and electrical components, for maximum deflection of 1:360.
- C. Perimeter Molding: Install at intersection of ceiling and vertical surfaces and at junctions with other interruptions.
  - 1. Install in bed of acoustical sealant.
  - 2. Use longest practical lengths.
- D. Suspension System, Non-Seismic: Hang suspension system independent of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.
- E. Where ducts or other equipment prevent the regular spacing of hangers, reinforce the nearest affected hangers and related carrying channels to span the extra distance.
- F. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability.
- G. Support fixture loads using supplementary hangers located within 6 inches of each corner, or support components independently.
- H. Do not eccentrically load system or induce rotation of runners.

#### **3.04 INSTALLATION - ACOUSTICAL UNITS**

- A. Install acoustical units in accordance with manufacturer's instructions.
- B. Fit acoustical units in place, free from damaged edges or other defects detrimental to appearance and function.
- C. Fit border trim neatly against abutting surfaces.

- D. Install acoustical units level, in uniform plane, and free from twist, warp, and dents.
- E. Cutting Acoustical Units:
  - 1. Make field cut edges of same profile as factory edges.
- F. Where round obstructions occur, provide preformed closures to match perimeter molding.
- G. Install hold-down clips on panels within 20 ft of an exterior door.

### **3.05 TOLERANCES**

- A. Maximum Variation from Flat and Level Surface: 1/8 inch in 10 feet.
- B. Maximum Variation from Plumb of Grid Members Caused by Eccentric Loads: 2 degrees.

### **3.06 CLEANING**

- A. See Section 017000 - Execution and Closeout Requirements for additional requirements.
- B. Clean surfaces.
- C. Replace damaged or abraded components.

**END OF SECTION**



**SECTION 095423  
LINEAR METAL CEILINGS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Linear metal ceilings.
- B. Supplementary insulation above ceiling.

**1.02 REFERENCE STANDARDS**

- A. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2023.
- B. ASTM C423 - Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method; 2023.
- C. ASTM C553 - Standard Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications; 2013 (Reapproved 2019).
- D. ASTM C636/C636M - Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels; 2019.
- E. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2023.
- F. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2023c.
- G. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2023.
- H. ASTM E580/E580M - Standard Practice for Installation of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Subject to Earthquake Ground Motions; 2022.

**1.03 DESIGN REQUIREMENTS**

- A. Design components to ensure light fixtures will not induce eccentric loads. Where components may induce rotation of ceiling system components, provide stabilizing reinforcement.

**1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Coordination: Coordinate work of this section with installation of mechanical and electrical components and with other construction activities affected by work of this section.

**1.05 SUBMITTALS**

- A. Product Data: Furnish for component profiles, materials, and perimeter and integral trim.
- B. Shop Drawings: Indicate reflected ceiling plan and location of mechanical and electrical components.
- C. Samples: Submit two samples 6 by 6 inch in size illustrating color and finish of components exposed to view.
- D. Manufacturer's qualification statement.
- E. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
  - 1. See Section 016000 - Product Requirements for additional provisions.
  - 2. Extra Linear Panels: 3, standard length.

**1.06 QUALITY ASSURANCE**

- A. Designer Qualifications for Seismic Design: Perform under direct supervision of a Professional Structural Engineer experienced in design of this work and licensed at the State in which the Project is located.
- B. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.

- C. Installer Qualifications: Company specializing in performing the work of this section.
  - 1. Approved by metal ceiling manufacturer.
- D. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories Inc.

#### **1.07 DELIVERY, STORAGE, AND HANDLING**

- A. See Section 017419 - Construction Waste Management and Disposal for packaging waste requirements.
- B. Accept factory-finished products on site in manufacturer's unopened factory packaging only; reject opened packages.
- C. Protect factory-finished products from damage to appearance by storing products in manufacturer's unopened factory packaging in dry storage area.

#### **1.08 WARRANTY**

- A. See Section 017800 - Closeout Submittals for additional warranty requirements.
- B. Manufacturer Warranty: Provide 5-year manufacturer warranty; include coverage for corrosion resistance and discoloration of surface finish.

### **PART 2 PRODUCTS**

#### **2.01 MANUFACTURERS**

- A. Linear Metal Ceilings:
  - 1. Armstrong World Industries, Inc; Metal Works: [www.armstrongceilings.com/#sle](http://www.armstrongceilings.com/#sle). **Basis of Design**
  - 2. Certainteed Architectural; Heartfelt: [www.certainteed.com/ceilings-and-walls/#sle](http://www.certainteed.com/ceilings-and-walls/#sle).
  - 3. Substitutions: See Section 016000 - Product Requirements.

#### **2.02 LINEAR METAL CEILINGS**

- A. Linear Metal Ceiling System: Panels (ASC-3), suspension members, trim, and accessories as required to provide a complete system.
- B. Performance Requirements:
  - 1. Design to support imposed loads of indicated items without eccentric loading of supports.
  - 2. Design for maximum deflection of 1/360 of span.
  - 3. Noise Reduction Coefficient (NRC): 0.85, measured in accordance with ASTM C423 with insulation installed.

#### **2.03 COMPONENTS**

- A. Linear Metal Panels: (ASC-3)
  - 1. Type: Linear panel with reveals; snap-in installation.
    - a. Size and Configuration: As indicated on drawings.
    - b. Panel Profile: Channel shaped with square edges.
    - c. Perforations: Microperforation.
  - 2. Material: Electrogalvanized Steel
    - a. Finish: As indicated on drawings, (Powder coated).
  - 3. Acoustical Material: Felt; nonwoven polyester fibers.
    - a. Color: Black.
- B. Edge Molding and Splices: Same material, thickness, and finish as linear panels.
- C. End Caps: Formed metal; same color and finish as sight-exposed surfaces of linear panels.
- D. Accessories: Stabilizer bars as required for suspended grid system; sight-exposed surfaces same color and finish as sight-exposed surfaces of linear panels.
- E. Suspension Members: Formed steel sections, with integral attachment points; galvanized finish; size and type to suit application, seismic requirements, and ceiling system flatness requirement specified.



- F. Suspension Wire: Steel, annealed, galvanized finish, 9 gauge, 0.1144 inch diameter.
- G. Insulation: ASTM C665, glass fiber batt, friction fit; comply with the following:
  - 1. Facing: Unfaced.

#### **2.04 FABRICATION**

- A. Shop cut linear panels to accommodate mechanical and electrical items.
- B. Factory-form internal and external corners of same material, thickness, finish, and profile to match exposed linear panels ; back brace internal corners.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Verify existing conditions before starting work.
- B. Verify that layout of hangers will not interfere with other work.
- C. Verify that required utilities are available, in proper location, and ready for use.
- D. Verify that field measurements are as indicated.
- E. Coordinate with mechanical, electrical, and plumbing drawings.

#### **3.02 INSTALLATION**

- A. Suspension Components:
  - 1. Install after above-ceiling work is complete in accordance with manufacturer's instructions, ASTM C636/C636M, and ASTM E580/E580M.
  - 2. Hang carrying members independent of walls, columns, ducts, light fixtures, pipe, and conduit; where carrying members are spliced, avoid visible displacement of face panels with adjacent panels.
  - 3. Where ducts or other equipment prevent regular spacing of hangers, reinforce nearest adjacent hangers to span the required distance.
- B. Linear Metal Ceiling:
  - 1. Install linear ceiling and other system components in accordance with manufacturer's instructions.
  - 2. Stagger end joints minimum 12 inches.
  - 3. Butt interior end joints tight.
  - 4. Set exterior end joints with 1/16 inch gap for expansion and contraction.
  - 5. Install edge moldings at junctions with other finishes and at vertical surfaces; use maximum piece lengths.
  - 6. Exercise care when site cutting sight-exposed finished components to ensure surface finish is not defaced.
- C. Insulation: Install above panel members; fit tight between grid members ; place insulation with facing side down.

#### **3.03 TOLERANCES**

- A. Maximum Variation from Flat and Level Surface: 1/8 inch in 10 feet.
- B. Maximum Variation From Dimensioned Position: 1/4 inch.

#### **3.04 CLEANING**

- A. See Section 017000 - Execution and Closeout Requirements for additional requirements.
- B. Clean surfaces.
- C. Replace damaged or abraded components.

### **END OF SECTION**



**SECTION 096500  
RESILIENT FLOORING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Static control resilient tile flooring.
- B. Resilient tile flooring.
- C. Static control resilient tile flooring.
- D. Resilient base.
- E. Installation accessories.

**1.02 RELATED REQUIREMENTS**

- A. Section 016116 - Volatile Organic Compound (VOC) Content Restrictions.
- B. Section 090561 - Common Work Results for Flooring Preparation: Removal of existing floor coverings, cleaning, and preparation.

**1.03 REFERENCE STANDARDS**

- A. ASTM E648 - Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source; 2023.
- B. ASTM F150 - Standard Test Method for Electrical Resistance of Conductive and Static Dissipative Resilient Flooring; 2006 (Reapproved 2018).
- C. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring; 2022.
- D. ASTM F1344 - Standard Specification for Rubber Floor Tile; 2021a.
- E. ASTM F1700 - Standard Specification for Solid Vinyl Floor Tile; 2020.
- F. ASTM F1861 - Standard Specification for Resilient Wall Base; 2021.
- G. ASTM F1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride; 2023.
- H. ASTM F2170 - Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes; 2019a.
- I. NFPA 253 - Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source; 2023.
- J. RFCI (RWP) - Recommended Work Practices for Removal of Resilient Floor Coverings; 2018.

**1.04 SUBMITTALS**

- A. See Section 013000 - Administrative Requirements for submittal procedures.
- B. Product Data: Provide data on specified products, describing physical and performance characteristics; including sizes, patterns and colors available; and installation instructions.
- C. Shop Drawings: Indicate seaming plans and floor patterns.
- D. Verification Samples: Submit two samples, 6 by 6 inch in size illustrating color and pattern for each product specified.
- E. Concrete Subfloor Test Report: Submit a copy of the moisture and alkalinity (pH) test reports.
- F. Certification: Prior to installation of flooring, submit written certification by flooring manufacturer and adhesive manufacturer that condition of subfloor is acceptable.
- G. Installer's Qualification Statement.
- H. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning, stripping, and re-waxing.
- I. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.

1. See Section 016000 - Product Requirements, for additional provisions.
2. Extra Wall Base: Quantity equivalent to 5 percent of each type of color.
3. Extra Flooring Materials: Quantity equivalent to 5 percent of each type and color.

#### 1.05 QUALITY ASSURANCE

- A. Installer Qualifications: Company specializing in installing specified flooring with minimum five years documented experience.
- B. Testing Agency Qualifications: Independent firm specializing in performing concrete slab moisture testing and inspections of the type specified in this section.

#### 1.06 DELIVERY, STORAGE, AND HANDLING

- A. Upon receipt, immediately remove any shrink-wrap and check materials for damage and the correct style, color, quantity and run numbers.
- B. Store all materials off of the floor in an acclimatized, weather-tight space.
- C. Maintain temperature in storage area between 55 degrees F and 90 degrees F.
- D. Protect roll materials from damage by storing on end.
- E. Do not double stack pallets.

#### 1.07 FIELD CONDITIONS

- A. Store materials for not less than 48 hours prior to installation in area of installation at a temperature of 70 degrees F to achieve temperature stability. Thereafter, maintain conditions above 55 degrees F.

### PART 2 PRODUCTS

#### 2.01 TILE FLOORING

- A. Vinyl Tile - LVT: Homogenous Tile.
  1. Manufacturers: Subject to compliance with the requirements, provide products listed in Color & Finish Schedule in Drawings or comparable product by one of the following:
    - a. **PatCraft; Admix; Basis of Design**
    - b. Johnsonite, a Tarkett Company: [www.johnsonite.com/#sle](http://www.johnsonite.com/#sle).
    - c. Mannington Commercial: [www.manningtoncommercial.com/#sle](http://www.manningtoncommercial.com/#sle).
    - d. Altro.
    - e. Substitutions: See Section 016000 - Product Requirements.
  2. Minimum Requirements: Comply with ASTM F1700, of Class corresponding to type specified.
  3. Critical Radiant Flux (CRF): Minimum 0.45 watt per square centimeter, when tested in accordance with ASTM E648 or NFPA 253.
  4. Square Tile Size, total thickness, color, pattern: As indicated on Color & Finish Schedule in Drawings.
  5. Total Thickness: As indicated on Drawings, Refer to I000 on finish schedule.
- B. Rubber Tile - RBF: Homogeneous, color and pattern throughout thickness.
  1. Manufacturers: Subject to compliance with the requirements, provide products indicated in Color & Finish Schedule in Drawings: **Nora by Interface; Basis of Design**; or comparable product by one of the following:
    - a. Johnsonite, a Tarkett Company; \_\_\_\_\_: [www.johnsonite.com/#sle](http://www.johnsonite.com/#sle).
    - b. Mannington Commercial; \_\_\_\_\_: [www.manningtoncommercial.com/#sle](http://www.manningtoncommercial.com/#sle).
    - c. Substitutions: See Section 016000 - Product Requirements.
  2. Minimum Requirements: Comply with ASTM F1344, Class I-B
  3. Critical Radiant Flux (CRF): Minimum 0.45 watt per square centimeter, when tested in accordance with ASTM E648 or NFPA 253.
  4. Size, total thickness. pattern, color: As indicated in Color & Finish Schedule in Drawings.
  5. Total Thickness: As indicated on drawings.
  6. Texture: Smooth

7. Pattern: As indicated on drawings.
8. Color: As indicated on drawings.
- C. Static Control Tile - Type SDT: Homogeneous; color and pattern throughout thickness.
  1. Manufacturers: Subject to compliance with the requirements, provide products indicated in Color & Finish Schedule: Tarkett, Basis of Design, or comparable product by one of the following:
    - a. Flexco Corporation; Delane ESD Vinyl: [www.flexcofloors.com/#sle](http://www.flexcofloors.com/#sle).
    - b. Roppe Corporation; ESD Vinyl Static Control Tile: [www.roppe.com/#sle](http://www.roppe.com/#sle).
    - c. Substitutions: See Section 016000 - Product Requirements.
  2. Minimum Requirements: Solid vinyl tile complying with ASTM F1700, Class 1, Type A.
  3. Electrical Resistance:
    - a. Dissipative Tile: Resistance between 1.0 megohms and 1000 megohms as tested in accordance with ASTM F150.
  4. Critical Radiant Flux (CRF): Minimum 0.45 watt per square centimeter, when tested in accordance with ASTM E648 or NFPA 253.
  5. Tile Size: 12 by 12 inch.
  6. Color: As indicated on drawings.

## 2.02 RESILIENT BASE

- A. Resilient Base - Type RB-1: ASTM F1861, Type TS, rubber, vulcanized thermoset; style as scheduled.
  1. Manufacturers: Subject to compliance with the requirements, provide products indicated in Color & Finish Schedule in Drawings or comparable product by one of the following:
    - a. Johnsonite, a Tarkett Company; Baseworks: [www.johnsonite.com/#sle](http://www.johnsonite.com/#sle). - **Basis of Design.**
    - b. Mannington Commercial; \_\_\_\_: [www.manningtoncommercial.com/#sle](http://www.manningtoncommercial.com/#sle).
    - c. Nora Rubber Flooring.
    - d. Substitutions: See Section 016000 - Product Requirements.
  2. Critical Radiant Flux (CRF): Minimum 0.45 watt per square centimeter, when tested in accordance with ASTM E648 or NFPA 253.
  3. Height: As indicated in Color & Finish Schedule in Drawings.
  4. Thickness: 0.125 inch.
  5. Finish: Satin.
  6. Length: Roll.

## 2.03 ACCESSORIES

- A. Subfloor Filler: Refer to Specification section 090561 Common work Results for FI
- B. Primers and Primers: Waterproof; types recommended by flooring manufacturer.
- C. Adhesive for Vinyl and Rubber Flooring:
  1. Manufacturers: Same as tile, or as recommended in writing by flooring manufacturer.
- D. Moldings, Transition and Edge Strips: (TS).
  1. Manufacturers: Subject to compliance with the requirements, provide products indicated in Color & Finish Schedule in Drawings or comparable product by one of the following:
    - a. Johnsonite, a Tarkett Company
    - b. Mannington Commercial
    - c. Nora Rubber Flooring
  2. Provide carpet edge for glue-down applications, reducer strip for resilient flooring and joiner for tile and carpet, and transition strips at all locations of juncture of resilient flooring with other flooring types.
- E. Copper Grounding Strips: Type and size as recommended by static control flooring manufacturer.

## PART 3 EXECUTION

### **3.01 EXAMINATION**

- A. Verify that surfaces are flat to tolerances acceptable to flooring manufacturer, free of cracks that might telegraph through flooring, clean, dry, and free of curing compounds, surface hardeners, and other chemicals that might interfere with bonding of flooring to substrate.
- B. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive resilient base.
- C. Cementitious Subfloor Surfaces: Verify that substrates are ready for resilient flooring installation by testing for moisture and alkalinity (pH).
  - 1. Test in accordance with Section 090561.
  - 2. Obtain instructions if test results are not within limits recommended by resilient flooring manufacturer and adhesive materials manufacturer.
  - 3. Follow moisture and alkalinity remediation procedures in Section 090561.

### **3.02 PREPARATION**

- A. Prepare floor substrates for installation of flooring in accordance with Section 090561.
- B. Prepare floor substrates as recommended by flooring and adhesive manufacturers.
- C. Remove subfloor ridges and bumps. Fill minor low spots, cracks, joints, holes, and other defects with subfloor filler to achieve smooth, flat, hard surface.
- D. Clean substrate.

### **3.03 INSTALLATION - GENERAL**

- A. Starting installation constitutes acceptance of subfloor conditions.
- B. Install in accordance with manufacturer's written instructions.
- C. Match floor tiles for color and pattern by selecting tiles from cartons in the same sequence as manufactured and packaged, if so numbered. Discard broken, cracked, chipped, or deformed tiles.
- D. Adhesive-Applied Installation:
  - 1. Fit joints and butt seams tightly.
  - 2. Set flooring in place, press with heavy roller to attain full adhesion.
  - 3. Adhere floor tiles to flooring substrates using a full spread of adhesive applied to substrate to produce a completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.
- E. Where type of floor finish, pattern, or color are different on opposite sides of door, terminate flooring under centerline of door.
- F. Install edge strips at unprotected or exposed edges, where flooring terminates, and where indicated.
  - 1. Resilient Strips: Attach to substrate using adhesive.
- G. Scribe flooring to walls, columns, cabinets, floor outlets, and other appurtenances to produce tight joints.
- H. Match floor tiles for color and pattern by selecting tiles from cartons in the same sequence as manufactured and packaged, if so numbered. Discard broken, cracked, chipped, or deformed tiles.
- I. Extend floor tiles into toe spaces, door reveals, closets, and similar openings. Extend floor tiles to center of door openings.

### **3.04 INSTALLATION - TILE FLOORING**

- A. Mix tile from container to ensure shade variations are consistent when tile is placed, unless otherwise indicated in manufacturer's installation instructions.
- B. Lay flooring with joints and seams parallel to building lines to produce symmetrical pattern.

### **3.05 INSTALLATION - RESILIENT BASE**

- A. Fit joints tightly and make vertical. Maintain minimum dimension of 18 inches between joints.
- B. Install base on solid backing. Bond tightly to wall and floor surfaces, with base in continuous contact with horizontal and vertical substrates.
- C. Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.
- D. Do not stretch resilient base during installation.
- E. Job-Formed Corners:
  - 1. Outside Corners: Use straight pieces of maximum lengths possible and form with returns not less than 6 inches in length. Form without producing discoloration (whitening) at bends.
  - 2. Inside Corners: Use straight pieces of maximum lengths possible and form with returns not less than 6 inches in length. Miter or cope corners to minimize open joints.
- F. Resilient Molding Accessories: Butt to adjacent materials and tightly adhere to substrates throughout length of each piece. Install reducer strips at edges of floor covering that would otherwise be exposed.

### **3.06 CLEANING**

- A. Remove excess adhesive from floor, base, and wall surfaces without damage.
- B. Strictly comply with manufacturer's written instructions for cleaning, protecting, and covering floor tile.
- C. Perform the following operations immediately after completing floor tile installation, or in time limit indicated by manufacturer's written instructions:
  - 1. Remove production residues, adhesive, and other blemishes from exposed surfaces.
  - 2. Sweep and vacuum surfaces thoroughly.
  - 3. Damp-mop surfaces to remove marks and soil.

### **3.07 PROTECTION**

- A. Prohibit traffic on resilient flooring for 48 hours after installation and cover tile until substantial completion.

### **3.08 WARRANTY**

- A.

**END OF SECTION**





**SECTION 097200  
WALL COVERINGS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Wall covering.

**1.02 RELATED REQUIREMENTS**

- A. Section 099123 - Interior Painting: Preparation and priming of substrate surfaces.

**1.03 REFERENCE STANDARDS**

- A. ASTM D1308 - Standard Test Method for Effect of Household Chemicals on Clear and Pigmented Coating Systems; 2020.
- B. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2023c.
- C. ASTM F793/F793M - Standard Classification of Wall Coverings by Use Characteristics; 2020.

**1.04 SUBMITTALS**

- A. See Section 013000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on wall covering and adhesive.
- C. Shop Drawings: Indicate wall elevations with seaming layout.
- D. Samples: Submit two samples of wall covering, in size illustrating color, finish, and texture.
  - 1. For custom digital wall covering, submit:
    - a. A one yard sample of a full scale portion of the final digital graphics. Area of graphic to be selected by Architect
    - b. a one yard sample of a reduced scale showing the full digital graphic.
- E. Maintenance Data: Submit data on cleaning, touch-up, and repair of covered surfaces.
- F. Installer's Qualification Statement.
- G. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
  - 1. See Section 016000 - Product Requirements, for additional provisions.
  - 2. Extra Wall Covering Materials: 25 linear feet of each color and pattern of wall covering; store where directed.
  - 3. Package and label each roll by manufacturer, color and pattern, and destination room number.

**1.05 QUALITY ASSURANCE**

- A. Installer Qualifications: Company specializing in performing work of the type specified and with at least five years of documented experience.

**1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Inspect roll materials at arrival on site, to verify acceptability.
- B. Protect packaged adhesive from temperature cycling and cold temperatures.
- C. Do not store roll goods on end.

**1.07 FIELD CONDITIONS**

- A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the adhesive or wall covering product manufacturer.
- B. Maintain these conditions 24 hours before, during, and after installation of adhesive and wall covering.
- C. Provide lighting level of 80 ft candles measured mid-height at substrate surfaces.

**PART 2 PRODUCTS**

## 2.01 WALL COVERINGS

- A. General Requirements:
  - 1. Surface Burning Characteristics: Flame spread/Smoke developed index of 25/50, maximum, when tested in accordance with ASTM E84.
  - 2. Chemical and Stain Resistance: No visible staining or discoloration and no damage to surface texture when tested in accordance with ASTM D1308.
- B. Wall Covering - Type DWG1: Fabric-backed vinyl roll stock.
  - 1. Comply with ASTM F793/F793M, Category V, Type II.
  - 2. Total Weight: Not less than 20 oz/sq yd.
  - 3. Roll Width: 54 inches.
  - 4. Backing: Woven, osnaburg fabric.
  - 5. Color and Pattern : Custom digital.
  - 6. Surface Texture: As selected by Architect from manufacturer's full range.
  - 7. Overcoating: Manufacturer's standard coating for stain resistance.
  - 8. Manufacturers: Subject to compliance with the requirements provide product indicated in the Color & Finish Schedule in Drawings **Level Wallcovering, Basis of Design**, or comparable product by one of the following:
    - a. Koroseal/RJF International; \_\_\_\_\_: [www.koroseal.com/#sle](http://www.koroseal.com/#sle).
    - b. MDC Interior Solutions; MDC Type II Wallcoverings: [www.mdcwall.com/#sle](http://www.mdcwall.com/#sle).
    - c. Wolf-Gordon; \_\_\_\_\_: [www.wolfgordon.com/#sle](http://www.wolfgordon.com/#sle).
    - d. Substitutions: See Section 016000 - Product Requirements.
- C. Termination Trim , as required by
- D. Substrate Filler: As recommended by adhesive and wall covering manufacturers; compatible with substrate.
- E.

## PART 3 EXECUTION

### 3.01 EXAMINATION

- A. Verify that substrate surfaces are prime painted and ready to receive work, and comply with requirements of wall covering manufacturer.
- B. Ensure surface conditions meet or exceed a Level 4 finish, per GA-214-M-97: Recommended Levels of Gypsum Board Finish, and permanent lighting should be installed and operational.
- C. Verify flatness tolerance of surfaces does not vary more than 1/8 inch in 10 feet nor vary at a rate greater than 1/16 inch/ft.
- D. Beginning of installation means acceptance of surface conditions

### 3.02 PREPARATION

- A. Fill cracks in substrate and smooth irregularities with filler; sand smooth.
- B. Wash impervious surfaces with tetra-sodium phosphate, rinse and neutralize; wipe dry.
- C. Surface Appurtenances: Remove or mask electrical plates, hardware, light fixture trim, escutcheons, and fittings prior to preparing surfaces or finishing.
- D. Surfaces: Correct defects and clean surfaces that affect work of this section. Remove existing coatings that exhibit loose surface defects.
- E. Vacuum clean surfaces free of loose particles.
- F. Acclimatize wall-covering materials by removing them from packaging in the installation areas not less than 24 hours before installation.

### 3.03 INSTALLATION

- A. Apply adhesive and wall covering in accordance with manufacturer's instructions.
- B. Apply adhesive to wall surface immediately prior to application of wall covering.

- C. Use wall covering in roll number sequence.
- D. Apply wall covering smooth, without wrinkles, gaps or overlaps. Eliminate air pockets and ensure full bond to substrate surface. Install wall covering without lifted or curling edges and without visible shrinkage.
- E. Butt edges tightly.
- F. Overlap adjacent panels as recommended by manufacturer.
- G. Do not seam within 2 inches of internal corners or within 6 inches of external corners.
- H. Install wall covering before installation of bases and items attached to or spaced slightly from wall surface.
- I. Install termination trim.
- J. Remove excess adhesive while wet from seam before proceeding to next wall covering sheet. Wipe clean with dry cloth.

#### **3.04 CLEANING**

- A. Clean wall coverings of excess adhesive, dust, dirt, and other contaminants. Use cleaning methods recommended in writing by wall-covering manufacturer.
- B. Reinstall wall plates and accessories removed prior to work of this section.

#### **3.05 PROTECTION**

- A. Do not permit construction activities at or near finished wall covering areas.

**END OF SECTION**



**SECTION 097800  
INTERIOR WALL PANELING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Pre-manufactured panel system including mounting hardware and specified accessories.

**1.02 RELATED REQUIREMENTS**

- A. Section 06100 - Rough Carpentry; furring, blocking, and other carpentry work that is not exposed to view.
- B. Section 06402 - Interior Architectural Woodwork; for interior woodwork other than wall systems not included in this section.
- C. Section 09260 - Gypsum Board Assemblies; for metal support systems not included in this section.

**1.03 REFERENCE STANDARDS**

- A. Architectural Woodwork Institute (AWI) Quality Standards.
- B. National Electrical Manufacturer's Association (NEMA).
- C. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2023c.

**1.04 SUBMITTALS**

- A. See Section 013000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Submit manufacturer's safety data sheets (MSDS) on each product to be used, including:
  - 1. Preparation instructions and recommendations.
  - 2. Storage and handling requirements and recommendations.
  - 3. Installation methods.
- C. Shop Drawings: Submit elevations, plans, and sections in sufficient detail to show fabrication, installation, anchorage, and interface of the work of this Section with adjacent work.
- D. Samples: Submit two samples 12 by 12 inches in size, indicating finish, surface design, and color for each type of panels.
- E. Installer's qualification statement.
- F. Maintenance Data: Include recommended instructions, methods, and materials for cleaning aluminum framing and decorative panels.
- G. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
  - 1. See Section 016000 - Product Requirements, for additional provisions.

**1.05 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with at least five years of documented experience.
- B. Installer Qualifications: Company specializing in installing work of the type specified in this section, and with at least three years of documented experience.

**1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver products to project site in manufacturer's original packaging, marked with manufacturer's product identification.
- B. Store panels flat, indoors, on a clean, dry surface. Remove packaging and allow panels to acclimate to room temperature for 48 hours prior to installation.
- C. Do not deliver wall system until painting, wet work, grinding, and similar operations that could damage, soil, or deteriorate wall system have been completed in installation areas as specified

by AWI 1700-G-3.

- D. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

## **1.07 PROJECT CONDITIONS**

- A. Do not deliver or install wall system until building is enclosed, wet work is complete and HVAC system is operating and will maintain temperature and relative humidity at occupancy levels during the remainder of the construction period as specified by AWI 1700-G-3.
- B. Do not install wall system until normal lighting conditions exist. Normal lighting conditions are described as those in place when the project is finished. This includes, but not limited to, design lighting (wall washers, spotlights and flood lights, and similar fixtures) and natural lighting.
- C. Wall, ceilings, floors, and openings must be level, plumb, straight, in-line and square as specified by AWI 1700-G-3.
- D. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results, both during installation and subsequent occupancy. Do not install products under environmental conditions outside manufacturer's absolute limits. Panels shall be conditioned in the environment in which they will be installed for a minimum of 72 hours prior to installation. The recommended environment is 60° to 80° F and 35% to 55% relative humidity.
- E. Manufacturer warrants any product it has manufactured and sold against defects in materials or workmanship for a period of one year from the date of original purchase and acceptance for use. This warranty extends to products assembled / installed and used in the manner intended and does not cover damage or failure caused by misuse, abuse or accidents, exposure to extreme temperature, improper installation, improper maintenance and exposure to water or excessive humidity or excessive moisture.

## **PART 2 PRODUCTS**

### **2.01 MANUFACTURERS**

- A. Acceptable Manufacturer: Panel Specialists, Inc.; 3115 Range Rd., Temple, TX 76504. ASD. Toll Free Tel: (800) 947-9422. Tel: (254) 774-9800. Fax: (254) 598-3222. Email: [psiwalls@panelspec.com](mailto:psiwalls@panelspec.com). Web: <http://www.panelspec.com>.
  - 1. Substitutions: See Section 01 6000 - Product Requirements.

### **2.02 PANEL SYSTEMS**

- A. Provide prefinished decorative panels where shown on the drawings, as specified herein, and as needed for a complete and proper installation.
- B. Comply with applicable requirements of "Architectural Woodwork Quality Standards" in the production and installation of the wall panel system as published by the Architectural Woodwork Institute (AWI) unless otherwise indicated.
- C. Panel System: #410 as manufactured by Panel Specialists Inc. A progressive panel system with and exposed ½ in. (12mm) divided molding resting over the vertical and horizontal edges of a panel. Recommended for vertical and horizontal interior installations. Maximum panel length for horizontal applications is 96 inches (2438MM).
  - 1. Panel Thickness: 7/16 inches (11.1 mm).
  - 2. Horizontal and Vertical Reveals: System to provide a ½ in. (12mm) exposed molding covering the edges of the panels.
  - 3. Panel Edge Finish: Panel edges to be unfinished.
  - 4. Panel Finish: Refer to drawings.
  - 5. Main Laminated Panel Fire Rating:
    - a. Fire Rating: ASTM E84, Class A
- D. Molding: All moldings to be .062" thick (at structural areas) 6063 alloy aluminum with T5 temper.
  - 1. Divider Moldings

- a. #410 H Divider Molding with ½ in. (12mm) wide face
2. ½" Wide Edge Trims
  - a. #304 ½" Edge Trim Molding
3. 3/8" Wide Edge Trims
  - a. #604 3/8" Edge Trim molding

## **2.03 MATERIALS**

- A. Panel Substrate:
  1. Panel core to be Fire-rated particle board.
- B. High Pressure Decorative Laminate Panel (**VD-1**)
  1. High Pressure Laminate (VGS, VGF.) and non-decorative backers (BKV) used to surface wall panels systems shall be manufactured to meet or exceed the National Electrical Manufacturing Association (NEMA LD3-2005) for thickness, performance properties and appearance.
  2. Color: Refer to I000 Color and Finish Legend.
- C. Tackboard Panel (**VD-2**)
  1. Linoleum resilient homogeneous tackable surface material shall be of natural materials consisting of linseed oil, granulated cork, resin binders and dry pigments, mixed and bonded to a natural jute backing.
    - a. Panels are not edge banded.
  2. Color: Refer to I000 Color and Finish Legend.
- D. Magnetic Marker Board Panel (**VD-3**)
  1. Magnetic porcelain enamel steel faced panels.
    - a. Panels are not edge banded.
  2. Color: White.

## **PART 3 EXECUTION**

### **3.01 FIELD DIMENSIONS**

- A. Where wall system is indicated, check actual dimensions of other constructions by accurate field measurements before manufacturing wall system; show recorded measurements on final shop drawings. Coordinate manufacturing schedule with construction progress to avoid delay of work.

### **3.02 EXAMINATION**

- A. Verify existing conditions and substrate flatness before starting work.
- B. Verify that substrate surfaces for adhered items are clean and smooth.
  1. Test painted or wall covering surfaces for adhesion in inconspicuous area, as recommended by manufacturer.
- C. Start of installation constitutes acceptance of project conditions.

### **3.03 PREPARATION**

- A. Panels must be acclimated to ambient temperature and humidity conditions in accordance with manufacturer's specifications prior to installation. Refer to PSI installation guide for proper, handling, storage, and acclimation procedures.
- B. Clean surfaces thoroughly prior to installation.
- C. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

### **3.04 INSTALLATION**

- A. Install panels in accordance with manufacturer's instructions.
- B. Field cutting of all wall systems should be accomplished using carbide tools. All face penetrations and cutouts should have a minimal 1/8-inch (3 mm) radius in corners according to NEMA Standards Publication LD 3-2005.

- C. All wall systems should receive an "S" bead of panel mastic on the back of panel during installation.
- D. For vertical applications, wall systems shall be mechanically fastened to horizontal metal furring strapping spaced 24 inches (610 mm) O.C. Furring straps shall be no less than 18-ga 3-1/2 inches (89 mm) wide, continuously. Metal strapping to be installed to the drywall studs prior to the application of the gypsum board by the framing contractor.

### **3.05 PROTECTION**

- A. Protect installed interior wall paneling from subsequent construction operations.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

### **END OF SECTION**



## SECTION 099113 – EXTERIOR PAINTING

### PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.02 SUMMARY

- A. This Section includes surface preparation and field painting of exposed exterior items and surfaces including, but not limited to:
  - 1. Exterior Steel

#### 1.03 SUBMITTALS

- A. Product Data: For each product indicated.
- B. Samples: For each type of finish-coat material indicated. Samples to be sufficient to establish.
  - 1. Required sheen of finish.
  - 2. Accuracy of color matching.

#### 1.04 PROJECT CONDITIONS

- A. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg F. Maintain storage containers in a clean condition, free of foreign materials and residue.
- B. Apply waterborne paints only when temperatures of surfaces to be painted and surrounding air are between 50 and 90 deg F.
- C. Apply solvent-thinned paints only when temperatures of surfaces to be painted and surrounding air are between 45 and 95 deg F.
- D. Do not apply paint in snow, rain, fog, or mist; or when relative humidity exceeds 85 percent; or at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

#### 1.05 EXTRA MATERIALS

- A. Furnish extra paint materials from the same production run as the materials applied and in the quantities described below. Package with protective covering for storage and identify with labels describing contents. Deliver extra materials to Owner.

1. Quantity: 5 percent, but not less than 1 gal. or 1 case, as appropriate, of each material and color applied.

## PART 2 - PRODUCTS

### 2.01 MANUFACTURERS

- A. Manufacturers' Names: Shortened versions (shown in parentheses) of the following manufacturers' names are used in other Part 2 articles:
  1. **“Basis of Design”** Sherwin-Williams Co. (Sherwin-Williams).
  2. Benjamin Moore & Co. (Benjamin Moore).
  3. ICI Dulux Paint Centers (ICI Dulux Paints).
  4. PPG Industries, Inc. (Pittsburgh Paints).

### 2.02 PAINT MATERIALS, GENERAL

- A. Material Compatibility: Provide block fillers, primers, and finish-coat materials that are compatible with one another and with the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
- B. Material Quality: Provide manufacturer's best-quality paint material of the various coating types specified that are factory formulated and recommended by manufacturer for application indicated. Paint-material containers not displaying manufacturer's product identification will not be acceptable.
- C. Colors: As indicated by basis of design, manufacturer's designations as indicated in Paint Color Schedule at the end of this section, or as selected from manufacturer's full range if not indicated.
- D. Tints/Colorants Shall Add No VOC**

### 2.03 PREPARATORY COATS

- A. Exterior Primer: Exterior alkyd or latex-based primer of finish coat manufacturer and recommended in writing by manufacturer for use with finish coat and on substrate indicated.
  1. Ferrous-Metal and Aluminum Substrates: Rust-inhibitive metal primer.
  2. Zinc-Coated Metal Substrates: Galvanized metal primer.
  3. Hardie Plank – Pre-primed, field prime cuts with recommended primer.

### 2.04 EXTERIOR FINISH COATS

- A. Exterior Semigloss Acrylic Enamel:
  1. Sherwin Williams; Superpaint Exterior Semi Gloss #A84
  2. Benjamin Moore; Moorcraft Semigloss #170.

3. ICI Dulux Paints; Wondershield Exterior Acrylic Latex #DR17XX.

B. Exterior Full-Gloss Acrylic Enamel for Ferrous and Other Metals:

1. Sherwin-Williams; Pro Industrial DTM Acrylic Coating Gloss B66 Series
2. Benjamin Moore; Moore's IMC Acrylic Gloss Enamel M28.
3. ICI Dulux Paints; 3028-XXXX Dulux Interior/Exterior Acrylic Gloss Finish.

### PART 3 - EXECUTION

#### 3.01 APPLICATION

- A. Examine substrates, areas, and conditions, with Applicator present, for compliance with requirements for paint application.
- B. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.
- C. Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be painted. If removal is impractical or impossible because of size or weight of the item, provide surface-applied protection before surface preparation and painting.
  1. After completing painting operations in each space or area, reinstall items removed using workers skilled in the trades involved.
- D. Surface Preparation: Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition and as specified.
  1. Provide barrier coats over incompatible primers or remove and reprime.
  2. Cementitious Materials: Remove efflorescence, chalk, dust, dirt, grease, oils, and release agents. Roughen as required to remove glaze. If hardeners or sealers have been used to improve curing, use mechanical methods of surface preparation.
  3. Wood: Clean surfaces of dirt, oil, and other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sand surfaces exposed to view smooth and dust off.
    - a. Scrape and clean small, dry, seasoned knots, and apply a thin coat of white shellac or other recommended knot sealer before applying primer. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood filler. Sand smooth when dried.

4. Ferrous Metals: Clean ungalvanized ferrous-metal surfaces that have not been shop coated; remove oil, grease, dirt, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with SSPC's recommendations.
    - a. Treat bare and sandblasted or pickled clean metal with a metal treatment wash coat before priming.
    - b. Touch up bare areas and shop-applied prime coats that have been damaged. Wire-brush, clean with solvents recommended by paint manufacturer, and touch up with same primer as the shop coat.
  5. Galvanized Surfaces: Clean galvanized surfaces with nonpetroleum-based solvents so surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods.
- E. Material Preparation:
1. Maintain containers used in mixing and applying paint in a clean condition, free of foreign materials and residue.
  2. Stir material before application to produce a mixture of uniform density. Stir as required during application. Do not stir surface film into material. If necessary, remove surface film and strain material before using.
- F. Exposed Surfaces: Include areas visible when permanent or built-in fixtures, grilles, convector covers, covers for finned-tube radiation, and similar components are in place. Extend coatings in these areas, as required, to maintain system integrity and provide desired protection.
1. Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Before final installation of equipment, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
    - a. Finish exterior doors on tops, bottoms, and side edges the same as exterior faces.
- G. Sand lightly between each succeeding enamel or varnish coat.
- H. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.
1. Omit primer over metal surfaces that have been shop primed and touchup painted.
  2. If undercoats, stains, or other conditions show through final coat of paint, apply additional coats until paint film is of uniform finish, color, and appearance.
- I. Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators according to manufacturer's written instructions.
- J. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate. Provide total dry film thickness of the entire system as recommended by manufacturer.

- K. Mechanical and Electrical Work: Painting of mechanical and electrical work is limited to items specifically designated in contract documents. See painting schedule in section 3.03 of this section.
- L. Prime Coats: Before applying finish coats, apply a prime coat, as recommended by manufacturer, to material that is required to be painted or finished and that has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no burn-through or other defects due to insufficient sealing.
- M. Pigmented (Opaque) Finishes: Completely cover surfaces as necessary to provide a smooth, opaque surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable. Apply additional finish coats beyond those scheduled as required to provide color uniformity.
- N. Transparent (Clear) Finishes: Use multiple coats to produce a glass-smooth surface film of even luster. Provide a finish free of laps, runs, cloudiness, color irregularity, brush marks, orange peel, nail holes, or other surface imperfections.
- O. Stipple Enamel Finish: Roll and redistribute paint to an even and fine texture. Leave no evidence of rolling, such as laps, irregularity in texture, skid marks, or other surface imperfections.
- P. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.
- Q. Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

### 3.02 CLEANING AND PROTECTING

- A. At the end of each workday, remove empty cans, rags, rubbish, and other discarded paint materials from Project site.
- B. Protect work of other trades, whether being painted or not, against damage from painting. Correct damage by cleaning, repairing or replacing, and repainting, as approved by Architect.
- C. Provide "Wet Paint" signs to protect newly painted finishes. After completing painting operations, remove temporary protective wrappings provided by others to protect their work.
  - 1. After work of other trades is complete, touch up and restore damaged or defaced painted surfaces. Comply with procedures specified in PDCA P1.

### 3.03 EXTERIOR PAINT SCHEDULE

- B. Ferrous Metal: Semi-Gloss Finish

- 1st Coat:    S-W Pro Industrial Pro-Cryl Universal Primer, B66-310 Series  
                  (5.0 mils wet, 2.0 mils dry)
- 2nd Coat:    S-W Solo Acrylic Semi-Gloss, A76 Series
- 3rd Coat:    S-W Solo Acrylic Semi-Gloss, A76 Series  
                  (4.0 mils wet, 1.5 mils dry per coat)

END OF SECTION 099113

**SECTION 099123  
INTERIOR PAINTING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Surface preparation.
- B. Field application of paints.
- C. Scope: Finish interior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated, including the following:
  - 1. Prime surfaces to receive wall coverings.
  - 2. Mechanical and Electrical:
    - a. In finished areas, paint insulated and exposed pipes, conduit, boxes, insulated and exposed ducts, hangers, brackets, collars and supports, mechanical equipment, and electrical equipment, unless otherwise indicated.
    - b. In finished areas, paint shop-primed items.
- D. Do Not Paint or Finish the Following Items:
  - 1. Items factory-finished unless otherwise indicated; materials and products having factory-applied primers are not considered factory finished.
  - 2. Items indicated to receive other finishes.
  - 3. Items indicated to remain unfinished.
  - 4. Fire rating labels, equipment serial number and capacity labels, bar code labels, and operating parts of equipment.
  - 5. Stainless steel, anodized aluminum, bronze, terne-coated stainless steel, and lead items.
  - 6. Marble, granite, slate, and other natural stones.
  - 7. Floors, unless specifically indicated.
  - 8. Ceramic and other tiles.
  - 9. Brick, architectural concrete, cast stone, integrally colored plaster, and stucco.
  - 10. Glass.
  - 11. Acoustical materials, unless specifically indicated.
  - 12. Concealed pipes, ducts, and conduits.

**1.02 RELATED REQUIREMENTS**

- A. Section 099113 - Exterior Painting.

**1.03 DEFINITIONS**

- A. Comply with ASTM D16 for interpretation of terms used in this section.

**1.04 REFERENCE STANDARDS**

- A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; Current Edition.
- B. ASTM D16 - Standard Terminology for Paint, Related Coatings, Materials, and Applications; 2024.
- C. ASTM D4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Based Materials; 2020.
- D. CARB (SCM) - Suggested Control Measure for Architectural Coatings; California Air Resources Board; 2020.
- E. MPI (APL) - Master Painters Institute Approved Products List; Master Painters and Decorators Association; Current Edition.
- F. MPI (APSM) - Master Painters Institute Architectural Painting Specification Manual; Current Edition.
- G. SCAQMD 1113 - Architectural Coatings; 1977, with Amendment (2016).

- H. SSPC V1 (PM1) - Good Painting Practice: Painting Manual Volume 1; 2016.
- I. SSPC V2 (PM2) - Systems and Specifications: Steel Structures Painting Manual Volume 2; 2021.
- J. SSPC-SP 1 - Solvent Cleaning; 2015, with Editorial Revision (2016).
- K. SSPC-SP 2 - Hand Tool Cleaning; 2024.
- L. SSPC-SP 3 - Power Tool Cleaning; 2024.
- M. SSPC-SP 6 - Commercial Blast Cleaning; 2007.
- N. SSPC-SP 13 - Surface Preparation of Concrete; 2018.

#### **1.05 SUBMITTALS**

- A. See Section 013000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide complete list of products to be used, with the following information for each:
  - 1. Manufacturer's name, product name and/or catalog number, and general product category (e.g., "alkyd enamel").
  - 2. MPI product number (e.g., MPI #47).
  - 3. Cross-reference to specified paint system products to be used in project; include description of each system.
  - 4. Manufacturer's installation instructions.
- C. Samples: Submit three paper "draw down" samples, 8-1/2 by 11 inches in size, illustrating range of colors available for each finishing product specified.
  - 1. Where sheen is specified, submit samples in only that sheen.
- D. Manufacturer's Instructions: Indicate special surface preparation procedures.
- E. Maintenance Data: Submit data including product technical data sheets, material safety data sheets (MSDS), care and cleaning instructions, touch-up procedures, repair of painted and finished surfaces, and color samples of each color and finish used.
- F. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
  - 1. See Section 016000 - Product Requirements, for additional provisions.
  - 2. Extra Paint and Finish Materials: 1 gal of each color; from the same product run, store where directed.
  - 3. Label each container with color in addition to the manufacturer's label.

#### **1.06 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum three years documented experience.
- B. Applicator Qualifications: Company specializing in performing the type of work specified with minimum three years experience and approved by manufacturer.

#### **1.07 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
- B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.
- C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

#### **1.08 FIELD CONDITIONS**

- A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.
- B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.



- C. Do not apply materials when relative humidity exceeds 85 percent, at temperatures less than 5 degrees F above the dew point, or to damp or wet surfaces.
- D. Minimum Application Temperatures for Paints: 50 degrees F for interiors unless required otherwise by manufacturer's instructions.
- E. Provide lighting level of 80 fc measured mid-height at substrate surface.

## **PART 2 PRODUCTS**

### **2.01 MANUFACTURERS**

- A. Provide paints and finishes from the same manufacturer to the greatest extent possible.
  - 1. Substitution of other products by the same manufacturer is preferred over substitution of products by a different manufacturer.
- B. Paints:
  - 1. Manufacturers: Subject to compliance with the requirements, provide indicated in Color & Finish Schedule in Drawings or comparable product by one of the following:
  - 2. PPG Paints: [www.ppgpaints.com/#sle](http://www.ppgpaints.com/#sle).
  - 3. Benjamin Moore Brand products
- C. Primer Sealers: Same manufacturer as top coats.
- D. Substitutions: See Section 016000 - Product Requirements.

### **2.02 PAINTS AND FINISHES - GENERAL**

- A. Paints and Finishes: Ready-mixed, unless intended to be a field-catalyzed paint.
  - 1. Where MPI paint numbers are specified, provide products listed in Master Painters Institute Approved Product List, current edition available at [www.paintinfo.com](http://www.paintinfo.com), for specified MPI categories, except as otherwise indicated.
  - 2. Provide paints and finishes of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
  - 3. Provide materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
  - 4. For opaque finishes, tint each coat including primer coat and intermediate coats, one-half shade lighter than succeeding coat, with final finish coat as base color.
  - 5. Supply each paint material in quantity required to complete entire project's work from a single production run.
  - 6. Do not reduce, thin, or dilute paint or finishes or add materials unless such procedure is specifically described in manufacturer's product instructions.
- B. Volatile Organic Compound (VOC) Content:
  - 1. Provide paints and finishes that comply with the most stringent requirements specified in the following:
    - a. 40 CFR 59, Subpart D--National Volatile Organic Compound Emission Standards for Architectural Coatings.
    - b. Architectural coatings VOC limits of the State in which the Project is located.
  - 2. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.
- C. Flammability: Comply with applicable code for surface burning characteristics.
- D. Sheens: Provide the sheens specified; where sheen is not specified, sheen will be selected later by Architect from the manufacturer's full line.
- E. Colors: As indicated in Color & Finish Schedule in Drawings.
  - 1. Extend colors to surface edges; colors may change at any edge as directed by Architect.
  - 2. In finished areas, finish pipes, ducts, conduit, and equipment the same color as the wall/ceiling under which they are mounted.

## 2.03 PAINT SYSTEMS - INTERIOR

- A. Paint I-OP - Interior Surfaces to be Painted, Unless Otherwise Indicated: Including gypsum board and plaster.
  - 1. Two top coats and one coat primer. Refer to I000 drawing for finish requirements.
  - 2. Top Coat(s): High Performance Architectural Interior Latex; MPI #138, 139, 140, 141, or 142.
    - a. Products: Sherwin-Williams Pre-Catalyzed Waterbased Epoxy, Eg-Shel. (MPI #139)  
**Basis of Design**
      - 1) Behr Ultra Scuff Defense Interior Eggshell [No.2750]. (MPI #139)
      - 2) PPG Paints Pure Performance Interior Latex, 9-310XI Series, Eggshell. (MPI #138)
      - 3) Architect approved equal.
- B. Concrete Substrates, Traffic Surfaces:
  - 1. Water-Based Concrete Floor Sealer System, MPI INT 3.2G:
  - 2. First Coat: Sealer, water based, for concrete floors, matching topcoat.
  - 3. Topcoat: Sealer, water based, for concrete floors, MPI #99.
    - a. S-W H&C CLARISHIELD Water-Based Wet-Look Concrete Sealer
- C. CMU Substrates: Latex System:
  - 1. Block Filler: Block filler, latex, interior/exterior, MPI #4 X-Green:
    - a. S-W PrepRite Block Filler, B25W25, at 100 to 200 sq. ft. per gal (2.4 to 4.9 sq. m per l).
  - 2. Intermediate Coat: Latex, interior, matching topcoat.
  - 3. Topcoat: Latex, interior, eggshell, (Gloss Level 3), MPI #52 X-Green/#145 X-Green:
    - a. S-W ProMar 200 Zero VOC Latex Eg-Shel, B20-2600 Series, at 4.0 mils wet, 1.7 mils dry, per coat.
- D. CMU Substrates: Water-Based Light Industrial Coating System (EPT):
  - 1. Block Filler: Block filler, latex, interior/exterior, MPI #4 X-Green:
    - a. S-W PrepRite Block Filler, B25W25, at 100 to 200 sq. ft. per gal (2.4 to 4.9 sq. m per l).
  - 2. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
  - 3. Topcoat: Light industrial coating, interior, water based, eggshell, (Gloss Level 3), MPI #151:
    - a. S-W Pro Industrial Pre-Catalyzed Water Based Epoxy, K45-151 Series, at 4.0 mils wet, 1.5 mils dry, per coat.
- E. Metal Substrates (Aluminum, Steel, Galvanized Steel): Latex System:
  - 1. Prime Coat: Primer, rust-inhibitive, water based, MPI #107:
    - a. S-W Pro Industrial Pro-Cryl Universal Primer, B66-310 Series, at 5.0 to 10 mils wet, 2.0 to 4.0 mils dry.
  - 2. Intermediate Coat: Water-based acrylic, interior, matching topcoat.
  - 3. Topcoat: Water-based acrylic, semi-gloss, (Gloss Level 5), MPI #147 X-Green:
    - a. S-W Pro Industrial Acrylic Semi-Gloss Coating, B66-650 Series, at 2.5 to 4.0 mils dry, per coat.
- F. Gypsum Board, Plaster and Spray-Texture Ceiling Substrates: Latex System:
  - 1. Prime Coat: Primer, latex, interior, MPI #149 X-Green:
    - a. S-W ProMar 200 Zero VOC Latex Primer, B28W2600, at 4.0 mils wet, 1.5 mils dry.
  - 2. Intermediate Coat: Latex, interior, matching topcoat.
    - a. S-W Zero VOC products can be used in occupied areas without typical odor complaints because of the very low odor during application and drying; they are available in all but gloss finish, and include anti-microbial agents to help control bacterial growth.
  - 3. Ceilings: Topcoat: Latex, interior, low sheen, (Gloss Level 2), MPI #44 X-Green/#144 X-Green:

- a. S-W ProMar 200 Zero VOC Latex Low Sheen Enamel, B24-2600 Series, at 4.0 mils wet, 1.6 mils dry, per coat.
4. Walls: Topcoat: Latex, interior, eggshell, (Gloss Level 3), MPI #52 X-Green/#145 X-Green:
  - a. S-W ProMar 200 Zero VOC Latex Eg-Shel, B20-2600 Series, at 4.0 mils wet, 1.7 mils dry, per coat.
5. Topcoat for areas scheduled to receive EPT: Light industrial coating, interior, water based, eggshell, (Gloss Level 3),
  - a. S-W Pro Industrial Pre-Catalyzed Water Based Epoxy, K45-151 Series, at 4.0 mils wet, 1.5 mils dry, per coat.

## **2.04 ACCESSORY MATERIALS**

- A. Accessory Materials: Provide primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials as required for final completion of painted surfaces.
- B. Patching Material: Latex filler.
- C. Fastener Head Cover Material: Latex filler.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Do not begin application of paints and finishes until substrates have been adequately prepared.
- B. Verify that surfaces are ready to receive work as instructed by the product manufacturer.
- C. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.
- D. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
- E. Test shop-applied primer for compatibility with subsequent cover materials.
- F. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces is below the following maximums:
  1. Gypsum Wallboard: 12 percent.
  2. Plaster and Stucco: 12 percent.
  3. Masonry, Concrete, and Concrete Masonry Units: 12 percent.
  4. Interior Wood: 15 percent, measured in accordance with ASTM D4442.
  5. Concrete Floors and Traffic Surfaces: 8 percent.

### **3.02 PREPARATION**

- A. Clean surfaces thoroughly and correct defects prior to application.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Remove or repair existing paints or finishes that exhibit surface defects.
- D. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces or finishing.
- E. Seal surfaces that might cause bleed through or staining of topcoat.
- F. Remove mildew from impervious surfaces by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.
- G. Masonry:
  1. Remove efflorescence and chalk. Do not coat surfaces if moisture content, alkalinity of surfaces, or if alkalinity of mortar joints exceed that permitted in manufacturer's written instructions. Allow to dry.
  2. Prepare surface as recommended by top coat manufacturer.
  3. Clean surfaces with pressurized water. Use pressure range of 600 to 1,500 psi at 6 to 12 inches. Allow to dry.

- H. Concrete Floors and Traffic Surfaces: Remove contamination, acid etch and rinse floors with clear water. Verify required acid-alkali balance is achieved. Allow to dry.
- I. Gypsum Board: Fill minor defects with filler compound. Spot prime defects after repair.
- J. Plaster: Fill hairline cracks, small holes, and imperfections with latex patching plaster. Make smooth and flush with adjacent surfaces. Wash and neutralize high-alkali surfaces.
- K. Galvanized Surfaces:
  - 1. Remove surface contamination and oils and wash with solvent according to SSPC-SP 1.
  - 2. Prepare surface according to SSPC-SP 2.
- L. Ferrous Metal:
  - 1. Solvent clean according to SSPC-SP 1.
  - 2. Shop-Primed Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces. Re-prime entire shop-primed item.
  - 3. Remove rust, loose mill scale, and other foreign substances using methods recommended in writing by paint manufacturer and blast cleaning according to SSPC-SP 6 Commercial Blast Cleaning. Protect from corrosion until coated.
- M. Wood Surfaces to Receive Opaque Finish: Wipe off dust and grit prior to priming. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after primer has dried; sand between coats. Back prime concealed surfaces before installation.
- N. Metal Doors to be Painted: Prime metal door top and bottom edge surfaces.

### **3.03 APPLICATION**

- A. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.
- B. Apply products in accordance with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual".
- C. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.
- D. Apply each coat to uniform appearance in thicknesses specified by manufacturer.
- E. Dark Colors and Deep Clear Colors: Regardless of number of coats specified, apply as many coats as necessary for complete hide.
- F. Sand wood and metal surfaces lightly between coats to achieve required finish.
- G. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.
- H. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

### **3.04 FIELD QUALITY CONTROL**

- A. See Section 014000 - Quality Requirements, for general requirements for field inspection.

### **3.05 CLEANING**

- A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

### **3.06 PROTECTION**

- A. Protect finishes until completion of project.
- B. Touch-up damaged finishes after Substantial Completion.

### **END OF SECTION**

**SECTION 099600  
HIGH-PERFORMANCE COATINGS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. High performance coatings.
- B. Surface preparation.

**1.02 RELATED REQUIREMENTS**

**1.03 REFERENCE STANDARDS**

- A. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2023c.
- B. MPI (APL) - Master Painters Institute Approved Products List; Master Painters and Decorators Association; Current Edition.
- C. MPI (APSM) - Master Painters Institute Architectural Painting Specification Manual; Current Edition.
- D. SCAQMD 1113 - Architectural Coatings; 1977, with Amendment (2016).

**1.04 SUBMITTALS**

- A. See Section 013000 - Administrative Requirements for submittal procedures.
- B. Product Data: Provide complete list of all products to be used, with the following information for each:
  - 1. Manufacturer's name, product name and/or catalog number, and general product category (e.g. "alkyd enamel").
  - 2. MPI product number (e.g. MPI #47).
  - 3. Cross-reference to specified coating system(s) product is to be used in; include description of each system.
- C. Samples: Submit two samples 8 by 8 inch in size illustrating colors available for selection. samples to be provided in a draw down, on white paper, in specified color and finish.
- D. Manufacturer's Certificate: Certify that high-performance coatings comply with VOC limits specified.
- E. Maintenance Data: Include cleaning procedures and repair and patching techniques.

**1.05 QUALITY ASSURANCE**

- A. Maintain one copy of each referenced document that applies to application on site.
- B. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.

**1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
- B. Container Label: Include manufacturer's name, type of coating, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.
- C. Coating Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

**1.07 FIELD CONDITIONS**

- A. Do not install materials when temperature is below 55 degrees F or above 90 degrees F.
- B. Maintain this temperature range, 24 hours before, during, and 72 hours after installation of coating.
- C. Restrict traffic from area where coating is being applied or is curing.

## **PART 2 PRODUCTS**

### **2.01 MANUFACTURERS**

- A. Only materials (primers, coatings, etc.) listed in the latest edition of the MPI Approved Product List (APL) are acceptable for use on this project.
- B. Provide high performance coating products from the same manufacturer to the greatest extent possible.
- C. High-Performance Coatings:
  - 1. **Sherwin-Williams Company; Water Based Catalyzed Epoxy**  
**: [www.protective.sherwin-williams.com/industries/#sle](http://www.protective.sherwin-williams.com/industries/#sle). Basis of Design**
  - 2. Substitutions: Section 016000 - Product Requirements.

### **2.02 TOP COAT MATERIALS**

- A. Coatings - General: Provide complete multi-coat systems formulated and recommended by manufacturer for the applications indicated, in the thicknesses indicated; number of coats specified does not include primer or filler coat.
- B. Shellac: Pure, white type.

### **2.03 PRIMERS**

- A. Primers: Provide the following unless other primer is required or recommended by coating manufacturer.
  - 1. Primer Sealer, Latex, Interior; MPI #50.
    - a. Products:
      - 1) Sherwin-Williams; ProMar 200 Zero VOC Interior Latex  
Primer: [www.protective.sherwin-williams.com/#sle](http://www.protective.sherwin-williams.com/#sle). (MPI #50)
      - 2) Architect approved equal.
      - 3) Substitutions: Section 016000 - Product Requirements.
  - 2. Block Filler, Epoxy; MPI #116.

### **2.04 ACCESSORY MATERIALS**

- A. Accessory Materials: Provide primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials as required for final completion of coated surfaces.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify existing conditions before starting work.
- B. Do not begin application of coatings until substrates have been properly prepared.
- C. Verify that substrate surfaces are ready to receive work as instructed by the coating manufacturer. Obtain and follow manufacturer's instructions for examination and testing of substrates.
- D. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.

### **3.02 PREPARATION**

- A. Clean surfaces of loose foreign matter.
- B. Remove substances that would bleed through finished coatings. If unremovable, seal surface with shellac.
- C. Remove finish hardware, fixture covers, and accessories and store.
- D. Existing Painted and Sealed Surfaces:
  - 1. Clean with mixture of trisodium phosphate and water to remove surface grease and foreign matter.
- E. Concrete:

F. Masonry:

**3.03 PRIMING**

- A. Apply primer to all surfaces, unless specifically not required by coating manufacturer. Apply in accordance with coating manufacturer's instructions.

**3.04 COATING APPLICATION**

- A. Apply coatings in accordance with manufacturer's written instructions, to thicknesses specified and recommendations in MPI - Architectural Painting and Specification Manual.
- B. Apply in uniform thickness coats, without runs, drips, pinholes, brush marks, or variations in color, texture, or finish. Finish edges, crevices, corners, and other changes in dimension with full coating thickness.

**3.05 FIELD QUALITY CONTROL**

- A. See Section 014000 - Quality Requirements for general requirements for field inspection.

**3.06 CLEANING**

- A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.
- B. Clean surfaces immediately of overspray, splatter, and excess material.
- C. After coating has cured, clean and replace finish hardware, fixtures, and fittings previously removed.

**3.07 PROTECTION**

- A. Protect finished work from damage.

**3.08 SCHEDULE**

- A. Color: As indicated on Finish Schedule.

**END OF SECTION**





## **SECTION 099672 - FLUID APPLIED INSULATION COATING**

### **PART 1 - GENERAL**

#### **1.1 DESCRIPTION OF WORK**

- A. Section includes a spray-applied insulative coating including primer, insulative coating and topcoat for the following applications:
  - 1. Applied to steel penetrating the exterior envelope, from 18 inches outboard of the face of the wall to 18 inches inside the face of metal framing.
  - 2. Applied to the interior of aluminum window frames, on top of exposed framing.
  - 3. Applied to concrete slab edges.

#### **1.2 RELATED SECTIONS**

- A. Section 05 12 00 Structural Steel Framing.
- B. Section 05 50 00 Metal Fabrications.

#### **1.3 REFERENCES**

- A. American Institute of Steel Construction (AISC)
  - 1. AISC 303-05 Section 10 – Erection and storage of coated material during shipment and site handling shall be protected to minimize field touch up.
- B. American Society of Testing and Materials (ASTM)
  - 1. ASTM B117 – Standard Practice for Operating Salt Spray (Fog) Apparatus
  - 2. ASTM C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
  - 3. ASTM C1057 – Standard Practice for Determination of Skin Contact Temperature from Heated Surfaces Using a Mathematical Model and Thermesthesiometer.
  - 4. ASTM D870 – Standard Practice for Testing Water Resistance of Coatings Using Water Immersion.
  - 5. ASTM D4060 – Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser.
  - 6. ASTM D4541 – Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers.
  - 7. ASTM D4585 – Standard Practice for Testing Water Resistance of Coatings Using Controlled Condensation.
  - 8. ASTM D4587 – Standard Practice for Fluorescent UV-Condensation Exposures of Paint and Related Coatings.
  - 9. ASTM D4624/ISO 4624 – Standard Test Method for Bond Strength
  - 10. ASTM D5894 – Standard Practice for Cyclic Salt Fog/UV Exposure of Painted Metal, (Alternating Exposures in a Fog/Dry Cabinet and a UV/Condensation Cabinet).
  - 11. ASTM D638 – Standard Test Method for Tensile Strength
  - 12. ASTM D695 – Standard Test Method for Compressive Strength
  - 13. ASTM D790 – Standard Test Method for Flexural Strength
  - 14. ASTM D2240 – Standard Test Method for Determining Durometer Hardness
  - 15. ASTM E84 – Standard Test Method for Surface Burning Characteristics of Building Materials.
  - 16. ASTM E119 – Standard Test Methods for Fire Tests of Building Construction and Materials.
- C. Association of the American Walls and Ceilings Industries (AWCI)
- D. Underwriters Laboratory (UL):
  - 1. UL 263: Standard for Fire Tests of Building Construction and Materials.

- E. The Society of Protective Coatings (SSPC)
  - 1. SSPC-SP6: Commercial Blast Cleaning Standard
  - 2. SSPC-PA1: Shop, Field, and Maintenance Painting of Steel.
  - 3. SSPC-PA2: Procedure for Determining Conformance to Dry Coating Thickness Requirements.

#### **1.4 SYSTEM DESCRIPTION**

- A. The liquid applied thermal break acrylic material shall be applied at the required thickness specified by the manufacturer in order to mitigate thermal bridging. In no case shall the K-value of the liquid applied thermal break be more than 0.040 W/mK.

#### **1.5 SUBMITTALS**

- A. Product Data: Submit product data including manufacturers technical data indicating product performance characteristics, performance and limitation criteria.
- B. Manufacturer's Instructions: Submit manufacturer written installation instructions.
- C. Applicator Qualifications: Submit applicators current certification as a manufacturer trained applicator.

#### **1.6 QUALITY ASSURANCE**

- A. Manufacturer:
  - 1. Company specializing in manufacturing product in this section with a minimum of 2 years documented experience in manufacturing insulative technology.
  - 2. Applicator: Company specializing in applying the work of this section with documented experience and trained by the manufacturer.
  - 3. Fluid Applied Thermal Break Acrylic system shall be the complete system from a sole source consisting of primer, acrylic thermal break material and topcoat. All materials shall be LEED compliant.
- B. Mock-up:
  - 1. Minimum thirty days prior to application in any area, provide mock-up Samples of thermal break materials in accordance with the following requirements:
    - a. Provide minimum two square feet on representative substrate, where directed by the Engineer, for each different thickness and finish of required for the work.
    - b. Provide mock-up areas that comply with thickness, density application, finish texture, and color.
    - c. Inspect mock-up areas within one hour of application for variance due to shrinkage, temperature, and humidity.
    - d. Where shrinkage and cracking are evident, adjust mixture and method of application as necessary to meet required installation, finish, and color requirements.
    - e. Continue to provide mock-up areas until acceptable areas are produced.
    - f. Acceptable areas shall constitute standard of acceptance for method of application, thickness, finish texture, and color requirements, for fluid applied thermal break material applications.

#### **1.7 DELIVERY, STORAGE AND HANDLING**

- A. Delivery: Deliver materials in manufacturers' original, sealed, undamaged container with identification label intact. Packaged materials shall bear the appropriate labels, seals.
- B. Storage: Materials shall be stored in strict accordance with manufacturers documented instructions.

- C. Documentation: All batch number, product identification and quantities shall be recorded on appropriate QC documents. A copy of the transport document and manufacturers conformance certificate shall be attached to the material delivery on site.

#### **1.8 PROJECT/SITE CONDITIONS**

- A. Project Environmental Requirements: Substrate and air temperature shall be in accordance with the manufacturers' requirements.
  - 1. Protect work area from windblown dust and rain. Protect adjacent areas from over spray of material.
  - 2. Provide ventilation in areas to receive work of this section during application and minimum 24 hours after application.
- B. Temperature and Humidity Requirements: Maintain air temperature and relative humidity in areas where products will be applied for a time period before during and after application as recommended by manufacturer.
  - 1. Do not apply Fluid Applied Acrylic Thermal Break when temperature of substrate and/or surrounding ambient air temperature is below 45° F. Temporary protection and heat shall be maintained at this minimum temperature for 24 hours before, during and 24 hours after material application.
  - 2. Steel substrate temperature shall be a minimum of 5° F (3° C) above the dew point of the surrounding air for a period of 24 hours prior, during the application of the material and 24 hour cure period.
  - 3. If necessary for job schedule, the General Contractor shall provide enclosures and heat to maintain proper temperatures and humidity levels in the application areas.
  - 4. The relative humidity of the application area shall not exceed a maximum of 85% 24 hours prior, during and 24 hours after the application of the material. The relative humidity shall not exceed 75% throughout the application and curing of the decorative top coat finish.

### **PART 2 - PRODUCTS**

#### **2.0 FLUID APPLIED INSULATION COATING GENERAL**

- A. Materials Compatibility:
  - 1. Provide shop and field primers, and finish-coat materials that are compatible with one another and with the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
  - 2. Provide products of same manufacturer for each coat in a coating system.

#### **2.1 MANUFACTURERS**

- A. Basis-of Design products are manufactured by Tnemec Company Incorporated, 6800 Corporate Drive, Kansas City, Missouri 64120-1372, 1-800-TNEMEC-1, [www.tnemec.com](http://www.tnemec.com), [ist@tnemec.com](mailto:ist@tnemec.com), and are specified as a standard of quality. Substitutions may be reviewed for compliance.
- B. Materials specified herein shall not preclude consideration of equivalent or superior materials. Suggested equivalent materials or other substitutions shall be submitted to Engineer for consideration in compliance with substitution procedures in Section 01 25 00 of this Project Manual and include the following:
  - 1. Submittals shall be provided no later than (10) days after Owner/Owner's Agent letter of Notice to Proceed.
  - 2. Requests for substitution shall include evidence of satisfactory past performance in similar environment.

3. Substitutions will not be considered that change the number of coats or do not meet specified dry film thicknesses.
  4. Manufacturer's certified test reports showing the substitute product(s) performance as outlined in Paragraph 2.15 shall be submitted.
  5. After second submittal, Architect/Engineer/ Owner or Owner's Agent hourly rates will be charged to review further submittals.
- C. Bidders desiring to use coatings other than those specified shall submit those with their proposal based on the specified materials, together with the information required in Paragraph 1.5 above, and indicate the sum which will be added to or deducted from the base bid should alternate materials be accepted.

## 2.2 PRIMERS

A. Water-Based Cementitious Epoxy:

1. Tnemec Series 1224 Epoxoline WB, or approved equal.
  - a. VOC Content: 1 gram/liter
  - b. Color: 1288 Off-White
  - c. Requirements:
    - 1) Abrasion (ASTM D4060): No more than 149 mg loss after 1,000 cycles.
    - 2) Adhesion to Steel (ASTM D4541): No less than 1,989 psi after 10 freeze/thaw cycles.
    - 3) Humidity Resistance (ASTM D4585): No blistering, cracking, rusting, or delamination after 2,000 hours.
    - 4) CDPH Compliant: Passes the California Department of Public Health (CDPH) Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers, Version 1.1-2010 (also known as Section 01350).

B. Zinc-Rich Aromatic Urethane:

1. Tnemec Series 90-97 Tneme-Zinc®, or approved equal.
  - a. VOC Content: 321 grams/liter
  - b. Color: 90-97 Reddish Gray
  - c. Requirements:
    - 1) Adhesion to Steel (ASTM D4541): No less than 2,083 psi.
    - 2) Salt Spray (ASTM B117): No blistering, cracking or delamination of film. No more than 1/8" rust creepage at scribe and no more than 1% rusting on plane after 50,000 hours exposure.

C. Mio-Zinc Filled Aromatic Polyurethane:

1. Tnemec Series 394-0250 PerimePrime®, or approved equal.
  - a. VOC Content: 246 grams/liter
  - b. Color: 0250 Greenish-Gray
  - c. Requirements:
    - 1) Adhesion to Steel (ASTM D4541): No less than 1,150 psi.
    - 2) Fire Testing (UL 263, ASTM E119): Any UL Classified spray-applied fire resistive materials having a maximum average density of 19.5 pcf. Including W.R. Grace Monokote MK-6/HY and Isolatek (Cafco) Blaze-Shield II (Type II).
    - 3) Salt Fog Corrosion (ASTM B117): No cracking or delamination of film. No more than 1/64" rust creepage at scribe and no more than 3% rusting on plane after 10,250 hours exposure.

- 4) Slip Coefficient & Tension Creep: Meets AISC requirements of a Class B surface with a mean slip coefficient no less than 0.57.
- 5) CDPH Compliant: Passes the California Department of Public Health (CDPH) Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers, Version 1.1-2010 (also known as Section 01350).

## **2.3 THERMAL INSULATING COATING**

### **A. Fluid Applied Acrylic Insulation Coating**

1. Tnemec Series 971 Aerolon Acrylic, or approved equal.
  - a. VOC Content: 1.9 grams/liter
  - b. Solids by Volume: 76 percent.
  - c. Colors: 1278 Insulation Yellow
  - d. Requirements:
    - 1) Abrasion (ASTM D4060): No more than 50.2 mg loss after 1,000 cycles.
    - 2) Cyclic Salt Fog/UV Exposure (ASTM D5894): No blistering, cracking, rusting or delamination of film after 5,000 hours.
    - 3) Humidity Resistance (ASTM D4585): No blistering, cracking, rusting, or delamination after 2,000 hours.
    - 4) Immersion (ASTM D870): No blistering, cracking, rusting, or delamination after six months continuous tap water immersion.
    - 5) Surface Burning Characteristics (ASTM E84): Class A
    - 6) Thermal Conductivity (ASTM C518): No greater than 0.0356 W/m-°K or 0.2468 BTU-in/ft<sup>2</sup>-hr-°F.
    - 7) NORSOK M-501 ISO 20340: Passed 25 cycles.
    - 8) CDPH Compliant: Passes the California Department of Public Health (CDPH) Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers, Version 1.1-2010 (also known as Section 01350).

## **2.4 TOPCOAT**

### **A. Waterbased, High Dispersion Pure Acrylic Polymer**

1. Tnemec Series 1028 Enduratone®, or approved equal.
  - a. VOC Content: 94 grams/liter.
  - b. Colors: As selected by Architect.
  - c. Requirements:
    - 1) Adhesion (ASTM D4541): No less than 2,363 psi.
    - 2) Abrasion (ASTM D4060): No more than 102 mg loss after 1,000 cycles.
    - 3) Impact (ASTM D2794): No visible cracking or delamination of film after 93 inch-pounds or less direct impact.
    - 4) QUV (ASTM D4587): No blistering, cracking or delamination of film. No less than 72% gloss retention, no more than 0.69 DE00 color change and no more than 22 units gloss loss after 3,000 hours.
    - 5) Salt Spray (Fog) (ASTM B117): No blistering, cracking, rusting or delamination of film. No more than 3/16" (5 mm) rust creepage at scribe after 5,000 hours exposure.
    - 6) CDPH Compliant: Passes the California Department of Public Health (CDPH) Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers, Version 1.1-2010 (also known as Section 01350).

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
- C. All surfaces to receive the specified Tnemec Series 971 Aerolon®, or approved equal, shall follow the manufacturer's printed instructions and be clean, dry and free of oil, grease, loose mill scale, dirt, dust or other foreign substances which would impair bond of the material to the substrate.
- D. Other corrections of the surfaces to receive the Fluid Applied Insulation Coating material shall be the responsibility of the Contractor, at no additional cost to the Owner.
- E. Application of the primer, Series 971 Aerolon® or approved equal, and topcoat shall not commence until the contractor, applicator and inspector have examined the surfaces to receive the primer and determined the surfaces are acceptable to receive the primer and Aerolon® or approved equal. Commencement of application means acceptance of substrate.
- E. Verify that substrate and workspace temperature and humidity conditions are in accordance with manufacturers recommendations.

### **3.2 SURFACE PREPARATION**

- A. Prepare surfaces in accordance with manufacturer's instructions.
- B. Provide masking, drop cloths or other suitable coverings to prevent overspray onto surfaces not intended to be coated with thermal break coating.
- C. Weld spatter and defects shall be ground smooth prior to commencement of primer and fluid applied thermal break material.
- D. Primer shall not be applied to prepared substrate until the area has been adequately vented to remove all airborne dust. Prior to the application of any coating material, the blast products, dust and debris shall be removed by vacuuming.
- E. Steel Substrates: Remove rust and loose mill scale.
  - 1. Fabrication defects:
    - a. Correct steel and fabrication defects revealed by surface preparation.
    - b. Remove weld spatter and slag.
    - c. Round sharp edges and corners of welds to a smooth contour.
    - d. Smooth weld undercuts and recesses.
    - e. Grind down porous welds to pinhole-free metal.
    - f. Remove weld flux from surface.
  - 2. Ensure surfaces are dry.
  - 3. Remove visible oil, grease, dirt, dust, mill scale, rust, paint, oxides, corrosion products, and other foreign matter in accordance with SSPC-SP 6/NACE 3, unless otherwise specified.
- E. Abrasive Blast-Cleaned Surfaces: Coat abrasive blast-cleaned surfaces with primer before visible rust forms on surface. Do not leave blast-cleaned surfaces uncoated for more than 8 hours.
  - 1. Shop Primer: Prepare shop primer to receive field coat in accordance with manufacturer's instructions.
- G. Concrete Surfaces (where thermal break is needed):
  - 1. Grind all surfaces to receive primer.

2. Apply Series 1224 Epoxoline WB, or approved equal.

### **3.3 APPLICATION**

- A. Apply coatings in accordance with manufacturer's instructions.
  1. Mix and thin coatings, including multi-component materials, in accordance with manufacturer's instructions.
  2. Keep containers closed when not in use to avoid contamination.
  3. Do not use mixed coatings beyond pot life limits.
  4. Use application equipment, tools, pressure settings, and techniques in accordance with manufacturer's instructions.
- B. Uniformly apply coatings at spreading rate required to achieve specified Final Dry Film Thickness (DFT).
- C. Apply coatings to be free of film characteristics or defects that would adversely affect performance or appearance of coating systems.
- D. Apply primer at thickness recommended by manufacturer.
- E. Apply Series 971 Aerolon® Thermal Insulative Coating, or approved equal, as specified in Section 3.8 Coating Schedule.
- F. Apply topcoat at thickness recommended by the manufacturer.
- G. Final Dry Film Thickness (DFT) shall be measured with a dry film thickness gauge.
- H. The steel deck is not to be sprayed unless otherwise indicated.

### **3.4 REPAIR**

- A. Materials and Surfaces Not Scheduled to Be Coated: Repair or replace damaged materials and surfaces not scheduled to be coated.
- B. Damaged Coatings: All patching and repair to material, due to damage by other trades, shall be performed under this section and paid for by the trade responsible for the damage. Patching shall be performed by applicators certified by the manufacturer and applied in accordance with the manufacturer application instructions.
- C. Coating Defects: Repair in accordance with manufacturer's instructions coatings that exhibit film characteristics or defects that would adversely affect performance or appearance of coating systems.

### **3.5 FIELD QUALITY CONTROL**

- A. The Owner will engage an independent testing laboratory inspect and verify the application of material in accordance with the provisions of materials and installation.
  1. Material inspection and testing shall be performed 24 hours after completion of final application coat.
  2. The results of the above tests shall be made available to all parties at the completion of each pre-designated area and approval.
  3. In-place material not in compliance with the specified thickness requirements shall be corrected prior to final acceptance.
- B. The dry film thickness (DFT) of the applied material shall be measured with a non-destructive coating thickness gage after material has completely cured. All measurements shall be documented in writing and furnished to the Owner.
- C. Manufacturer's Technical Services: Coordinate with coating manufacturer's technical service department or independent sales representative for current technical data and instructions.

**3.6 CLEANING AND PROTECTION**

- A. Remove overspray materials from surfaces not required to be thermally protected.
- B. Protect surfaces of coating systems from damage during construction.
- C. Touch-up, or repair damaged products before Substantial Completion.

**3.7 ONE-YEAR INSPECTION**

- A. Owner will set date for one-year inspection of coating systems.
- B. Inspection shall be attended by Owner, Contractor, and manufacturer's representative.
- C. Repair deficiencies in coating systems as determined by Architect in accordance with manufacturer's instructions.

**3.8 FLUID APPLIED INSULATION COATING SCHEDULE**

- A. Steel Members Penetrating Exterior Building Envelope/Inside Face of Metal Framing/Concrete Slab Edges/Aluminum Window Frames, Condensation Control:
  - 1. Fluid Applied Thermal Break System, Water-Based:
    - a. Surface Preparation: SSPC-SP6/NACE 3
    - b. Prime Coat (Shop or Field): Series 1224 Epoxoline WB (or approved equal), DFT of 4.0 to 10.0 mils per coat.
    - c. Intermediate Coat (Shop or Field) – Two Coats: Series 971 Aerolon Acrylic (or approved equal), DFT of 40.0 to 50.0 mils per coat. Total thickness of Series 971: 80 to 100 mils.
    - d. Finish Coat (Optional): Series 1028 Enduratone(or approved equal), DFT of 2.0 to 3.0 mils per coat.
  - 2. Fluid Applied Thermal Break System, Zinc-Rich MCU Primer:
    - a. Surface Preparation: SSPC-SP6/NACE 3
    - b. Prime Coat (Shop or Field): Series 90-97 Tneme-Zinc (or approved equal), DFT of 2.5 to 3.5 mils per coat.
    - c. Intermediate Coat (Shop or Field) – Two Coats: Series 971 Aerolon Acrylic (or approved equal), DFT of 40.0 to 50.0 mils per coat. Total thickness of Series 971: 80 to 100 mils.
    - d. Finish Coat (Optional): Series 1028 Enduratone (or approved equal), DFT of 2.0 to 3.0 mils per coat.
  - 3. Fluid Applied Thermal Break System, Mio-Zinc MCU Primer:
    - a. Surface Preparation: SSPC-SP6/NACE 3
    - b. Prime Coat (Shop or Field): Series 394-0250 PerimePrime (or approved equal), DFT of 2.5 to 3.5 mils per coat.
    - c. Intermediate Coat (Shop or Field) – Two Coats: Series 971 Aerolon Acrylic(or approved equal), DFT of 40.0 to 50.0 mils per coat. Total thickness of Series 971: 80 to 100 mils.
    - d. Finish Coat (Optional): Series 1028 Enduratone (or approved equal), DFT of 2.0 to 3.0 mils per coat.

**END OF SECTION**



## SECTION 101100 - VISUAL DISPLAY UNITS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Porcelain Steel Magnetic Dry Erase Boards.
  - 2. Support systems for visual display boards.
  - 3. Installation of electronic markerboards, tackboards and projection screens furnished by Owner.

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for visual display surfaces.
- B. Shop Drawings: For visual display surfaces. Include plans, elevations, sections, details, and attachments to other work.
  - 1. Show locations of panel joints.
  - 2. Show locations of special-purpose graphics for visual display surfaces.
  - 3. Include sections of typical trim members.
  - 4. Wiring Diagrams: For power, signal, and control wiring.
- C. Product Schedule: For visual display surfaces. Use same designations indicated on Drawings.

#### 1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified Installer.
- B. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for surface-burning characteristics of fabrics.
- C. Warranties: Sample of special warranties.

1.5 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For visual display surfaces and power-operated units to include in maintenance manuals.

1.6 QUALITY ASSURANCE

- A. Source Limitations: Obtain visual display surfaces from single source from single manufacturer.
- B. Preinstallation Conference: Conduct conference at Project site.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver factory-built visual display surfaces, including factory-applied trim where indicated, completely assembled in one piece without joints, where possible. If dimensions exceed maximum manufactured panel size, provide two or more pieces of equal length as acceptable to Architect. When overall dimensions require delivery in separate units, prefit components at the factory, disassemble for delivery, and make final joints at the site.
- B. Store visual display surfaces vertically with packing materials between each unit.

1.8 PROJECT CONDITIONS

- A. Field Measurements: Verify actual dimensions of construction contiguous with visual display surfaces by field measurements before fabrication.
  - 1. Allow for trimming and fitting where taking field measurements before fabrication might delay the Work.

1.9 WARRANTY

- A. Special Warranty for Porcelain-Enamel Face Sheets: Manufacturer's standard form in which manufacturer agrees to repair or replace porcelain-enamel face sheets that fail in materials or workmanship within specified warranty period.
  - 1. Failures include, but are not limited to, the following:
    - a. Surfaces lose original writing and erasing qualities.
    - b. Surfaces exhibit crazing, cracking, or flaking.
  - 2. Warranty Period: Life of the building.

## PART 2 - PRODUCTS

### 2.1     PROCELAIN STEEL MAGNETIC DRY ERASE BOARD

- A.    Balanced, high-pressure, factory-laminated assembly of three-ply construction consisting of backing sheet, core material, and 0.021-inch- thick porcelain-enamel face sheet with low-gloss finish.
  - 1.    Manufacturers:    Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a.    AARCO Products, Inc.
    - b.    ADP Lemco, Inc.
    - c.    Aywon.
    - d.    Bangor Cork Company, Inc.
    - e.    Best-Rite Manufacturing.
    - f.    Claridge Products and Equipment, Inc.
    - g.    Egan Visual Inc.
    - h.    Ghent Manufacturing, Inc.
    - i.    Marsh Industries, Inc.; Visual Products Group.
    - j.    Platinum Visual Systems; a division of ABC School Equipment, Inc.
    - k.    PolyVision Corporation; a Steelcase company.
    - l.    Tri-Best Visual Display Products.
  - 2.    Writing Surface: Porcelain on steel.
  - 3.    Magnetic.
  - 4.    Particleboard Core:    1/2 inch thick; with 0.013-inch- thick, galvanized-steel sheet backing.
  - 5.    Frame and Tray Material: Aluminum.
  - 6.    Size: 48" x 72".

## PART 3 - EXECUTION

### 3.1     EXAMINATION

- A.    Examine substrates and conditions, with Installer present, for compliance with requirements for installation tolerances, surface conditions of wall, and other conditions affecting performance of the Work.
- B.    Examine walls and partitions for proper preparation and backing for visual display surfaces.
- C.    Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

- A. General: Install visual display surfaces in locations and at mounting heights indicated on Drawings, or if not indicated, at heights indicated below. Keep perimeter lines straight, level, and plumb. Provide grounds, clips, backing materials, adhesives, brackets, anchors, trim, and accessories necessary for complete installation.
  - 1. Mounting Height: 30 inches above finished floor to top of tray or as directed by Owner.
- B. Provide adjustable standards at all new visual display units. Install using Manufacturer's standard mounting hardware.

3.3 CLEANING AND PROTECTION

- A. Clean visual display surfaces according to manufacturer's written instructions. Attach one cleaning label to visual display surface in each room.
- B. Touch up factory-applied finishes to restore damaged or soiled areas.
- C. Cover and protect visual display surfaces after installation and cleaning.

END OF SECTION 101100

## SECTION 101200 - DISPLAY CASES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Display cases.
- B. Related Requirements:
  - 1. Section 101100 "Visual Display Units" for tackable wall covering.

#### 1.3 DEFINITIONS

- A. Display Case: Glazed cabinet with tackboard panel back surface and adjustable shelves.
- B. Tackboard Panel: A material for holding push-pins or tacks, typically consisting of a facing such as fabric, vinyl, or cork; adhered to a substrate such as fiberboard, hardboard, or particleboard.

#### 1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

#### 1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product.
  - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for display cases. Include furnished specialties and accessories.
- B. Shop Drawings: For display cases.
  - 1. Include plans, elevations, sections, and attachment details.
  - 2. Show location of seams and joints in tackboard panels.
  - 3. Include sections of typical trim members.
  - 4. Include diagrams for wiring of illuminated display cases.

C. Samples for Verification: For each type of exposed finish for the following.

1. Tackboard Panel: Not less than 8-1/2 by 11 inches, with facing and substrate indicated for final Work. Include one panel for each type, color, and texture required.
2. Trim: 6-inch- long sections of each trim profile including corner section.

## 1.6 INFORMATIONAL SUBMITTALS

A. Product Test Reports: For tackboard panels, for tests performed by a qualified testing agency.

## 1.7 CLOSEOUT SUBMITTALS

A. Maintenance Data: For display cases to include in maintenance manuals.

## 1.8 FIELD CONDITIONS

A. Environmental Limitations: Do not deliver or install display cases for indoor installations until spaces are enclosed and weathertight, wet-work in spaces is complete and dry, work above ceilings is complete, and temporary HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.

# PART 2 - PRODUCTS

## 2.1 MANUFACTURERS

A. Source Limitations: Obtain display cases from single source from single manufacturer.

## 2.2 PERFORMANCE REQUIREMENTS

- A. Surface-Burning Characteristics: Comply with ASTM E84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
1. Flame-Spread Index: 25 or less.
  2. Smoke-Developed Index: 50 or less.
- B. Electrical Components: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

## 2.3 DISPLAY CASES

A. Subject to compliance with the requirements provide Claridge Series 390 Large Door Recessed Display Case or comparable product from Architect- approved equal.

- B. Recessed Display Case: Factory-fabricated display case; with finished interior, operable glazed doors at front, and trim on face to cover edge of recessed opening.
  - 1. Display Case Cabinet: Extruded aluminum.
  - 2. Face Frame: Aluminum.
  - 3. Aluminum Finish: Clear anodic.
- C. Glazed Sliding Doors: Tempered glass; unframed; with extruded-aluminum top and bottom track; supported on nylon or ball-bearing rollers; with plastic top guide and rubber bumpers. Equip each door with ground finger pull and adjustable cylinder lock with two keys.
  - 1. Thickness: Not less than 1/4 inch thick.
  - 2. Number of Doors: Two.
- D. Shelves: 6-mm-thick tempered glass; supported on adjustable shelf standards and supports.
  - 1. Shelf Depth: 8 inches / As indicated on Drawings
  - 2. Number of Shelves: As indicated on Drawings.
- E. Adjustable Shelf Standards and Supports: BHMA A156.9, B04102; with shelf brackets, B04112; recess mounted in rear surface. Provide standards extending full height of display case.
- F. Plastic-Impregnated Back Panel: Plastic-impregnated-cork tackboard panel.
- G. Top and Bottom Panels: Laminate.
  - 1. Color: As selected by Architect from manufacturer's full range.
- H. Size: As indicated on Drawings wide, by high, by deep.
- I. Lighting: Interior LED light strip and channel by electrical contractor.

## 2.4 MATERIALS

- A. Hardboard: ANSI A135.4, tempered.
- B. Fiberboard: ASTM C208.
- C. Particleboard: ANSI A208.1, Grade M-1.
- D. Hardwood Plywood: HPVA HP-1.
- E. Plastic-Impregnated-Cork Sheet: Seamless, homogeneous, self-sealing sheet consisting of granulated cork, linseed oil, resin binders, and dry pigments that are mixed and calendared onto burlap backing; with washable vinyl finish and integral color throughout.
- F. Extruded-Aluminum Bars and Shapes: ASTM B221 (ASTM B221M), Alloy 6063.
- G. Aluminum Tubing: ASTM B429/B429M, Alloy 6063.

- H. Clear Tempered Glass: ASTM C1048, Kind FT, Condition A, Type I, Class 1, Quality Q3, with exposed edges seamed before tempering.
- I. High-Pressure Plastic Laminate: NEMA LD 3.
- J. Fasteners: Provide screws, bolts, and other fastening devices made from same material as items being fastened, except provide hot-dip galvanized, stainless steel, or aluminum fasteners for exterior applications. Provide types, sizes, and lengths to suit installation conditions. Use security fasteners where exposed to view.

## 2.5 FABRICATION

- A. Fabricate display cases to requirements indicated for dimensions, design, and thickness and finish of materials.
- B. Use metals and shapes of thickness and reinforcing required to produce flat surfaces, and to impart strength for size, design, and application indicated.
- C. Fabricate cabinets and door frames with reinforced corners, mitered to a hairline fit, with no exposed fasteners.
- D. Fabricate shelf standards plumb and at heights to align shelf brackets for level shelves.

## 2.6 GENERAL FINISH REQUIREMENTS

- A. Comply with NAAMM/NOMMA 500 for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Noticeable variations in same piece are unacceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

## 2.7 ALUMINUM FINISHES

- A. Clear Anodic Finish: AAMA 611, AA-M12C22A31, Class II, 0.010 mm or thicker.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine walls, with Installer present, for compliance with requirements for installation tolerances, surface conditions of wall, and other conditions affecting performance of the Work.



- B. Examine roughing-in for electrical power systems to verify actual locations of connections before installation of illuminated units.
- C. Examine walls and partitions for proper backing for display cases.
- D. Examine walls and partitions for suitable framing depth if recessed units will be installed.
- E. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Prepare recesses for display cases as required by type and size of unit.

### 3.3 INSTALLATION

- A. General: Install units in locations and at mounting heights indicated on Drawings, or if not indicated, at heights indicated below. Keep perimeter lines straight, level, and plumb. Provide grounds, clips, backing materials, adhesives, brackets, anchors, trim, and accessories necessary for complete installation.
- B. Recessed Display Cases: Attach units to wall framing with fasteners at not more than 16 inches (400 mm) o.c. Attach aluminum trim over edges of recessed display cases and conceal grounds and clips. Attach trim with fasteners at not more than 24 inches (600 mm) o.c.
- C. Comply with requirements specified elsewhere for connecting illuminated display cases.
- D. Install display case shelving level and straight.

### 3.4 ADJUSTING AND CLEANING

- A. Adjust doors to operate smoothly without warp or bind and so contact points meet accurately. Lubricate operating hardware as recommended in writing by manufacturer.
- B. Touch up factory-applied finishes to restore damaged areas.

END OF SECTION 101200

## SECTION 101400 - SIGNAGE

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Panel Signage
  - 2. Code Required Signage
  - 3. Room-Identification Signs
- B. Related Requirements:
  - 1. Section 015000 "Temporary Facilities and Controls" for temporary Project identification signs and for temporary informational and directional signs.
  - 2. Section 142400 "Hydraulic Elevators" for code-required conveying equipment signage.
  - 3. Section 220553 "Identification for Plumbing Piping and Equipment" for labels, tags, and nameplates for plumbing systems and equipment.
  - 4. Section 230553 "Identification for HVAC Piping and Equipment" for labels, tags, and nameplates for HVAC systems and equipment.
  - 5. Section 260553 "Identification for Electrical Systems" for labels, tags, and nameplates for electrical equipment.
  - 6. Section 265213 "Emergency and Exit lighting" for illuminated, self-luminous, and photoluminescent exit sign units.

#### 1.3 DEFINITIONS

- A. Accessible: In accordance with the accessibility standard.
- B. Illuminated: Illuminated by lighting source integrally constructed as part of the sign unit.

#### 1.4 COORDINATION

- A. Furnish templates for placement of sign-anchorage devices embedded in permanent construction by other installers.
- B. Furnish templates for placement of electrical service embedded in permanent construction by other installers.

## 1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: For panel signs.
  - 1. Include fabrication and installation details and attachments to other work.
  - 2. Show sign mounting heights, locations of supplementary supports to be provided by other installers, and accessories.
  - 3. Show message list, typestyles, graphic elements, including raised characters and Braille, and layout for each sign at least half size.
  - 4. Show locations of electrical service connections.
  - 5. Include diagrams for power, signal, and control wiring.
- C. Samples for Initial Selection: For each type of sign assembly, exposed component, and exposed finish.
  - 1. Include representative Samples of available typestyles and graphic symbols.
- D. Samples for Verification: For each type of sign assembly showing all components and with the required finish(es), in manufacturer's standard size unless otherwise indicated and as follows:
  - 1. Panel Signs: Full-size Sample.
  - 2. Variable Component Materials: Full-size Sample of each base material, character (letter, number, and graphic element) in each exposed color and finish not included in Samples above.
  - 3. Exposed Accessories: Full-size Sample of each accessory type.
  - 4. Full-size Samples, if approved, will be returned to Contractor for use in Project.
- E. Product Schedule: For panel signs. Use same designations indicated on Drawings or specified.

## 1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer and manufacturer.
- B. Evaluation Reports: For post-installed anchors and power-actuated fasteners, from ICC-ES or other qualified testing agency acceptable to authorities having jurisdiction.
- C. Sample Warranty: For special warranty.

## 1.7 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For signs to include in maintenance manuals.

## 1.8 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Variable Component Materials: 12 replaceable text inserts and interchangeable characters (letters, numbers, and graphic elements) of each type.
2. Tools: Three set(s) of specialty tools for assembling signs and replacing variable sign components.

#### 1.9 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer of products.

#### 1.10 FIELD CONDITIONS

- A. Field Measurements: Verify locations of anchorage devices and electrical service embedded in permanent construction by other installers by field measurements before fabrication, and indicate measurements on Shop Drawings.

#### 1.11 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of signs that fail in materials or workmanship within specified warranty period.
  1. Failures include, but are not limited to, the following:
    - a. Deterioration of finishes beyond normal weathering.
    - b. Deterioration of embedded graphic image.
    - c. Separation or delamination of sheet materials and components.
  2. Warranty Period: Five years from date of Substantial Completion.

### PART 2 - PRODUCTS

#### 2.1 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Signs and supporting elements shall withstand the effects of gravity and other loads within limits and under conditions indicated.
  1. Uniform Wind Load: As indicated on Drawings.
  2. Concentrated Horizontal Load: As indicated on Drawings.
  3. Other Design Load: As indicated on Drawings.
  4. Uniform and concentrated loads need not be assumed to act concurrently.
- B. Thermal Movements: For exterior signs, allow for thermal movements from ambient and surface temperature changes.
  1. Temperature Change: 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

- C. Accessibility Standard: Comply with applicable provisions in the USDOJ's "2010 ADA Standards for Accessible Design" the ABA standards of the Federal agency having jurisdiction and ICC A117.1.
- D. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

## 2.2 PANEL SIGNS

- A. Signage System: Basis-of-Design Product: Subject to compliance with requirements, provide Takeform Signage Systems Vivid; or a comparable product by one of the following
  - 1) ID Sign Systems
  - 2) ASI Sign Systems, Inc.
  - 3) InPro Corporation (IPC).
- B. The signage shall be a direct print acrylic sign system with applied graphics including all tactile requirements in adherence to ADA specifications.
- C. Signage shall be capable of accepting direct prints including colors, patterns, graphic images and photography. Prints shall be second surface to protect from scratches, fading or other damage. Allow for multiple image types, colors, and sizes.
- D. All signs, including work station and room ID's, overheads and flag mounts, directionals and directories shall have a matching appearance and constructed utilizing the same manufacturing process to assure a consistent look throughout.
- E. Within the signage system shall be signs with capabilities as follows:
  - a. signs with raised copy capable of accepting images in designated image areas and changeable printed inserts
  - b. signs with raised copy and Braille with changeable printed insert
  - c. signs with raised copy and Braille only

## 2.3 MATERIALS

- A. Signage shall be fabricated of acrylic, .375" thick, comprised of two layers. Edges shall be smooth without chips, burrs, sharp edge or marks. The direct print shall be second surface or underside of the top layer to prevent scratching, fading or other damage. A top-side print shall not be accepted.
- B. Acrylic shall be non-glare optically clear with a P99 finish assuring no loss of clarity or composition of the print.
- C. Tactile lettering shall be precision machined, raised 1/32", matte PETG and subsurface colored for scratch resistance.
- D. The signage shall utilize an acrylic sphere for Grade II Braille inserted directly into a scratch resistant, acrylic face. Braille dots are to be pressure fit in high tolerance drilled holes. Braille dots shall be half hemispherical domed and protruding a minimum 0.025".

- E. The signage shall utilize a pressure activated adhesive. The adhesive shall be nonhazardous and shall allow for flexing and deflection of the adhered components due to changes in temperature and humidity without bond failure.
- F. Signage shall have an acrylic shim plate. The shim shall lift the sign off the wall to facilitate cleaning and painting without sign removal.
- G. All signs shall be provided with appropriate mounting hardware. All hardware shall have a polished anodized finish, architectural in appearance and suitable for the mounting surface.
- H. Some signs may be installed on glass. A blank backer is required to be placed on the opposite side of the glass to cover tape and adhesive. The backer shall match the sign in size and shape.
- I. Colors, Patterns, Imagery and Artwork:
  - 1. Face and background colors: Allow from manufacturer's full range.
  - 2. Standard tactile colors shall match manufacturer's ADA standard color selection. Font and font colors shall be selected from manufacturer's full range.
- J. Printed Inserts
  - 1. The signage shall be capable of accepting paper inserts to allow changing and updating as required. Insert components shall have a 0.040" thickness non-glare acrylic window and shall be flush to sign face for a smooth, seamless appearance.
  - 2. The signage contractor shall provide and install all signage inserts.
  - 3. Manufacturer shall provide a template containing layout, font, color, artwork and trim lines to allow Owner to produce inserts on laser or ink jet printer. The template shall be in an Acrobat or Word format (.pdf).

## 2.3 ACCESSORIES

- A. Fasteners and Anchors: Manufacturer's standard as required for secure anchorage of signs, noncorrosive and compatible with each material joined, and complying with the following unless otherwise indicated:
  - 1. Use concealed fasteners and anchors unless indicated to be exposed.
  - 2. For exterior exposure, furnish nonferrous-metal devices unless otherwise indicated.
  - 3. Exposed Metal-Fastener Components, General:
    - a. Fabricated from same basic metal and finish of fastened metal unless otherwise indicated.

- b. Fastener Heads: For nonstructural connections, use flathead or oval countersunk screws and bolts with tamper-resistant Allen-head spanner-head or one-way-head slots unless otherwise indicated.
  - 4. Sign Mounting Fasteners:
    - a. Concealed Studs: Concealed (blind), threaded studs welded or brazed to back of sign material or screwed into back of sign assembly unless otherwise indicated.
    - b. Projecting Studs: Threaded studs with sleeve spacer, welded or brazed to back of sign material or screwed into back of sign assembly, unless otherwise indicated.
    - c. Through Fasteners: Exposed metal fasteners matching sign finish, with type of head indicated, and installed in predrilled holes.
  - 5. Inserts: Furnish inserts to be set by other installers into concrete or masonry work.
- B. Post-Installed Anchors: Fastener systems with bolts of same basic metal as fastened metal, if visible, unless otherwise indicated; with working capacity greater than or equal to the design load, according to an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC01 ICC-ES AC193 ICC-ES AC58 or ICC-ES AC308 as appropriate for the substrate.
  - 1. Uses: Securing signs with imposed loads to structure.
  - 2. Type: Torque-controlled, expansion anchor torque-controlled, adhesive anchor or adhesive anchor.
  - 3. Material for Interior Locations: Carbon-steel components zinc-plated to comply with ASTM B 633 or ASTM F 1941 (ASTM F 1941M), Class Fe/Zn 5, unless otherwise indicated.
  - 4. Material for Exterior or Interior Locations and Where Stainless Steel Is Indicated: Alloy Group 1 (A1) stainless-steel bolts, ASTM F 593 (ASTM F 738M), and nuts, ASTM F 594 (ASTM F 836M).
- C. Power-Actuated Anchors: Fastener systems with working capacity greater than or equal to the design load, according to an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.
- D. Adhesive: As recommended by sign manufacturer.
- E. Two-Face Tape: Manufacturer's standard high-bond, foam-core tape, 0.045 inch (1.14 mm) thick, with adhesive on both sides.
- F. Hook-and-Loop Tape: Manufacturer's standard two-part tape consisting of hooked part on sign back and looped side on mounting surface.
- G. Magnetic Tape: Manufacturer's standard magnetic tape with adhesive on one side.
- H. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187/D 1187M.

## 2.4 FABRICATION

- A. General: Provide manufacturer's standard sign assemblies according to requirements indicated.

1. Preassemble signs in the shop to greatest extent possible. Disassemble signs and assemblies only as necessary for shipping and handling limitations. Clearly mark units for reassembly and installation; apply markings in locations concealed from view after final assembly.
  2. Mill joints to a tight, hairline fit. Form assemblies and joints exposed to weather to resist water penetration and retention.
  3. Comply with AWS for recommended practices in welding and brazing. Provide welds and brazes behind finished surfaces without distorting or discoloring exposed side. Clean exposed welded and brazed connections of flux, and dress exposed and contact surfaces.
  4. Conceal connections if possible; otherwise, locate connections where they are inconspicuous.
  5. Internally brace signs for stability, to meet structural performance loading without oil-canning or other surface deformation, and for securing fasteners.
  6. Provide rabbets, lugs, and tabs necessary to assemble components and to attach to existing work. Drill and tap for required fasteners. Use concealed fasteners where possible; use exposed fasteners that match sign finish.
- B. Surface-Engraved Graphics: Machine engrave characters and other graphic devices into indicated sign surface to produce precisely formed copy, incised to uniform depth.
1. Engraved Metal: Fill engraved graphics with manufacturer's standard baked enamel.
  2. Engraved Opaque Acrylic Sheet: Fill engraved graphics with manufacturer's standard enamel.
  3. Face-Engraved Clear Acrylic Sheet: Fill engraved copy with manufacturer's standard enamel. Apply manufacturer's standard opaque background color coating to back face of acrylic sheet.
  4. Engraved Plastic Laminate: Engrave through exposed face ply of plastic-laminate sheet to expose contrasting core ply.
- C. Subsurface-Applied Graphics: Apply graphics to back face of clear face-sheet material to produce precisely formed image. Image shall be free of rough edges.
- D. Subsurface-Engraved Graphics: Reverse engrave back face of clear face-sheet material. Fill resulting copy with manufacturer's standard enamel. Apply opaque manufacturer's standard background color coating over enamel-filled copy.
- E. Shop- and Subsurface-Applied Vinyl: Align vinyl film in final position and apply to surface. Firmly press film from the middle outward to obtain good bond without blisters or fishmouths.
- F. Signs with Changeable Message Capability: Fabricate signs to allow insertion of changeable messages as follows:
1. For slide-in changeable inserts, fabricate slot without burrs or constrictions that inhibit function. Furnish initial changeable insert. Furnish two blank inserts for each sign for Owner's use.
  2. For frame to hold changeable sign panel, fabricate frame without burrs or constrictions that inhibit function. Furnish initial sign panel. Subsequent changeable sign panels are by Owner.
- G. Brackets: Fabricate brackets, fittings, and hardware for bracket-mounted signs to suit sign construction and mounting conditions indicated. Modify manufacturer's standard brackets as required.



1. Aluminum Brackets: Factory finish brackets with baked-enamel or powder-coat finish to match sign-background color unless otherwise indicated.
2. Stainless-Steel Brackets: Factory finish brackets to match sign background finish unless otherwise indicated.

## 2.5 GENERAL FINISH REQUIREMENTS

- A. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- B. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- C. Directional Finishes: Run grain with long dimension of each piece and perpendicular to long dimension of finished trim or border surface unless otherwise indicated.
- D. Organic, Anodic, and Chemically Produced Finishes: Apply to formed metal after fabrication but before applying contrasting polished finishes on raised features unless otherwise indicated.

## 2.6 ALUMINUM FINISHES

- A. Clear Anodic Finish: AAMA 611, Class I, 0.018 mm or thicker.
- B. Color Anodic Finish: AAMA 611, Class I, 0.018 mm or thicker.
- C. Baked-Enamel or Powder-Coat Finish: AAMA 2603 except with a minimum dry film thickness of 1.5 mils (0.04 mm). Comply with coating manufacturer's written instructions for cleaning, conversion coating, and applying and baking finish.

## 2.7 METALLIC-COATED STEEL FINISHES

- A. Surface Preparation: Clean surfaces of oil and other contaminants. Use cleaning methods that do not leave residue. After cleaning, apply a conversion coating compatible with the organic coating to be applied over it. Clean welds, mechanical connections, and abraded areas and apply galvanizing repair paint, complying with SSPC-Paint 20, to comply with ASTM A 780/A 780M.
- B. Factory Prime Finish: After cleaning and pretreating, apply an air-dried primer compatible with the organic coating to be applied over it.
- C. Baked-Enamel or Powder-Coat Finish: After cleaning and pretreating, apply manufacturer's standard two-coat, baked-on finish consisting of prime coat and thermosetting topcoat to a minimum dry film thickness of 2 mils (0.05 mm).

## 2.8 STEEL FINISHES

- A. Surface Preparation: Remove mill scale and rust, if present, from uncoated steel, and prepare for coating according to coating manufacturer's written instructions.
  - 1. For Baked-Enamel or Powder-Coat Finish: After cleaning, apply a conversion coating compatible with the organic coating to be applied over it.
- B. Factory Prime Finish: After surface preparation and pretreatment, apply manufacturer's standard, fast-curing, lead- and chromate-free, universal primer.
- C. Baked-Enamel or Powder-Coat Finish: After cleaning and pretreating, apply manufacturer's standard two-coat, baked-on finish consisting of prime coat and thermosetting topcoat to a minimum dry film thickness of 2 mils (0.05 mm).

## 2.9 STAINLESS-STEEL FINISHES

- A. Surface Preparation: Remove tool and die marks and stretch lines, or blend into finish.
- B. Polished Finishes: Grind and polish surfaces to produce uniform finish, free of cross scratches.
  - 1. When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.
  - 2. Directional Satin Finish: No. 4.
  - 3. Dull Satin Finish: No. 6.
  - 4. Reflective, Directional Polish: No. 7.
  - 5. Mirrorlike Reflective, Nondirectional Polish: No. 8.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Verify that sign-support surfaces are within tolerances to accommodate signs without gaps or irregularities between backs of signs and support surfaces unless otherwise indicated.
- C. Verify that anchorage devices embedded in permanent construction are correctly sized and located to accommodate signs.
- D. Verify that electrical service is correctly sized and located to accommodate signs.
- E. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION

- A. General: Install signs using mounting methods indicated and according to manufacturer's written instructions.
  - 1. Install signs level, plumb, true to line, and at locations and heights indicated, with sign surfaces free of distortion and other defects in appearance.
  - 2. Install signs so they do not protrude or obstruct according to the accessibility standard.
  - 3. Before installation, verify that sign surfaces are clean and free of materials or debris that would impair installation.
  - 4. Corrosion Protection: Coat concealed surfaces of exterior aluminum in contact with grout, concrete, masonry, wood, or dissimilar metals, with a heavy coat of bituminous paint.
- B. Accessible Signage: Install in locations on walls as indicated on Drawings and according to the accessibility standard.
- C. Mounting Methods:
  - 1. Concealed Studs: Using a template, drill holes in substrate aligning with studs on back of sign. Remove loose debris from hole and substrate surface.
    - a. Masonry Substrates: Fill holes with adhesive. Leave recess space in hole for displaced adhesive. Place sign in position and push until flush to surface, embedding studs in holes. Temporarily support sign in position until adhesive fully sets.
    - b. Thin or Hollow Surfaces: Place sign in position and flush to surface, install washers and nuts on studs projecting through opposite side of surface, and tighten.
  - 2. Projecting Studs: Using a template, drill holes in substrate aligning with studs on back of sign. Remove loose debris from hole and substrate surface.
    - a. Masonry Substrates: Fill holes with adhesive. Leave recess space in hole for displaced adhesive. Place spacers on studs, place sign in position, and push until spacers are pinched between sign and substrate, embedding the stud ends in holes. Temporarily support sign in position until adhesive fully sets.
    - b. Thin or Hollow Surfaces: Place spacers on studs, place sign in position with spacers pinched between sign and substrate, and install washers and nuts on stud ends projecting through opposite side of surface, and tighten.
  - 3. Through Fasteners: Drill holes in substrate using predrilled holes in sign as template. Countersink holes in sign if required. Place sign in position and flush to surface. Install through fasteners and tighten.
  - 4. Two-Face Tape: Clean bond-breaking materials from substrate surface and remove loose debris. Apply tape strips symmetrically to back of sign and of suitable quantity to support weight of sign without slippage. Keep strips away from edges to prevent visibility at sign edges. Place sign in position, and push to engage tape adhesive.
  - 5. Shim-Plate Mounting: Provide 1/8-inch- (3-mm-) thick, concealed aluminum shim plates with predrilled and countersunk holes, at locations indicated, and where other direct mounting methods are impractical. Attach plate with fasteners and anchors suitable for secure attachment to substrate. Attach signs to plate using method specified above.

- D. Signs Mounted on Glass: Provide opaque sheet matching sign material and finish onto opposite side of glass to conceal back of sign.

### 3.3 ADJUSTING AND CLEANING

- A. Remove and replace damaged or deformed signs and signs that do not comply with specified requirements. Replace signs with damaged or deteriorated finishes or components that cannot be successfully repaired by finish touchup or similar minor repair procedures.
- B. Remove temporary protective coverings and strippable films as signs are installed.
- C. On completion of installation, clean exposed surfaces of signs according to manufacturer's written instructions, and touch up minor nicks and abrasions in finish. Maintain signs in a clean condition during construction and protect from damage until acceptance by Owner.

### 3.4 SIGNAGE SCHEDULE

- A. Refer to Architectural Drawings for Signage Type and Quantity.

END OF SECTION 101423

## SECTION 101419 - DIMENSIONAL LETTER SIGNAGE

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Cast dimensional characters.

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: For dimensional letter signs.
  - 1. Include fabrication and installation details and attachments to other work.
  - 2. Show sign mounting heights, locations of supplementary supports to be provided by others, and accessories.
  - 3. Show message list, typestyles, graphic elements, and layouts for each sign.
- C. Samples for Verification: For each type of sign assembly showing all components and with the required finish, in manufacturer's standard size unless otherwise indicated and as follows:
  - 1. Dimensional Characters: Full-size Sample of dimensional character.

#### 1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For installer and manufacturer.
- B. Sample Warranty: For special warranty.

#### 1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For signs to include in maintenance manuals.

1.6     QUALITY ASSURANCE

- A.     Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.

1.7     WARRANTY

- A.     Special Warranty: Manufacturer agrees to repair or replace components of signs that fail in materials or workmanship within specified warranty period.
1.     Failures include, but are not limited to, the following:
    - a.     Deterioration of finishes beyond normal weathering.
    - b.     Separation or delamination of sheet materials and components.
  2.     Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1     DIMENSIONAL CHARACTERS

- A.     Basis-of-Design Product: Subject to compliance with requirements, provide **LC Cast Metal Dimensional Letters as manufactured by ASI**, or comparable product by one of the following:
- a.     APCO Graphics, Inc.
  - b.     Takeform, Inc.
  - c.     InPro Corporation (IPC).
- B.     Cast Characters: Characters with uniform faces, sharp corners, and precisely formed lines and profiles, and as follows:**
1.     Character Material: Cast aluminum.
  2.     Character Height: As indicated.
  3.     Thickness: Manufacturer's standard for size of character.
  4.     Finishes:
    - a.     Integral Metal Finish: As selected by Architect from full range of industry finishes.
  5.     **Mounting: Concealed studs.**
  6.     Typeface: To be selected by the Architect.
  7.     Lighting: LED Backlit (refer to Electrical drawings for voltage type).

## 2.2 DIMENSIONAL CHARACTER MATERIALS

- A. Aluminum Castings: ASTM B 26/B 26M, alloy and temper recommended by sign manufacturer for casting process used and for type of use and finish indicated.

## 2.3 ACCESSORIES

- A. Fasteners and Anchors: Manufacturer's standard as required for secure anchorage of signage, noncorrosive and compatible with each material joined, and complying with the following:
  - 1. Use concealed fasteners and anchors unless indicated to be exposed.
  - 2. For exterior exposure, furnish nonferrous-metal, stainless-steel or hot-dip galvanized devices unless otherwise indicated.
- B. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187.

## 2.4 FABRICATION

- A. General: Provide manufacturer's standard sign assemblies according to requirements indicated.
  - 1. Preassemble signs and assemblies in the shop to greatest extent possible. Disassemble signs and assemblies only as necessary for shipping and handling limitations. Clearly mark units for reassembly and installation; apply markings in locations concealed from view after final assembly.
  - 2. Mill joints to a tight, hairline fit. Form assemblies and joints exposed to weather to resist water penetration and retention.
  - 3. Comply with AWS for recommended practices in welding and brazing. Provide welds and brazes behind finished surfaces without distorting or discoloring exposed side. Clean exposed welded and brazed connections of flux, and dress exposed and contact surfaces.
  - 4. Conceal connections if possible; otherwise, locate connections where they are inconspicuous.
  - 5. Internally brace signs for stability and for securing fasteners.
  - 6. Provide rebates, lugs, and brackets necessary to assemble components and to attach to existing work. Drill and tap for required fasteners. Use concealed fasteners where possible; use exposed fasteners that match sign finish.
  - 7. Castings: Fabricate castings free of warp, cracks, blowholes, pits, scale, sand holes, and other defects that impair appearance or strength. Grind, wire brush, sandblast, and buff castings to remove seams, gate marks, casting flash, and other casting marks before finishing.

## 2.5 GENERAL FINISH REQUIREMENTS

- A. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- B. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

- C. Directional Finishes: Run grain with long dimension of each piece and perpendicular to long dimension of finished trim or border surface unless otherwise indicated.
- D. Organic, Anodic, and Chemically Produced Finishes: Apply to formed metal after fabrication but before applying contrasting polished finishes on raised features unless otherwise indicated.

## 2.6 ALUMINUM FINISHES

- A. Clear Anodic Finish: AAMA 611, [**Class I, 0.018 mm**] [**Class II, 0.010 mm**] or thicker.
- B. Color Anodic Finish: AAMA 611, [**Class I, 0.018 mm**] [**Class II, 0.010 mm**] or thicker.
- C. Baked-Enamel or Powder-Coat Finish: AAMA 2603 except with a minimum dry film thickness of 1.5 mils. Comply with coating manufacturer's written instructions for cleaning, conversion coating, and applying and baking finish.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of signage work.
- B. Verify that sign-support surfaces are within tolerances to accommodate signs without gaps or irregularities between backs of signs and support surfaces unless otherwise indicated.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION

- A. General: Install signs using mounting methods indicated and according to manufacturer's written instructions.
  - 1. Install signs level, plumb, true to line, and at locations and heights indicated, with sign surfaces free of distortion and other defects in appearance.
  - 2. Before installation, verify that sign surfaces are clean and free of materials or debris that would impair installation.
  - 3. Corrosion Protection: Coat concealed surfaces of exterior aluminum in contact with grout, concrete, masonry, wood, or dissimilar metals, with a heavy coat of bituminous paint.
- B. Mounting Methods:
  - 1. Concealed Studs: Using a template, drill holes in substrate aligning with studs on back of sign. Remove loose debris from hole and substrate surface.



- a. Masonry Substrates: Fill holes with adhesive. Leave recess space in hole for displaced adhesive. Place sign in position and push until flush to surface, embedding studs in holes. Temporarily support sign in position until adhesive fully sets.
  - b. Thin or Hollow Surfaces: Place sign in position and flush to surface, install washers and nuts on studs projecting through opposite side of surface, and tighten.
2. Projecting Studs: Using a template, drill holes in substrate aligning with studs on back of sign. Remove loose debris from hole and substrate surface.
  - a. Masonry Substrates: Fill holes with adhesive. Leave recess space in hole for displaced adhesive. Place spacers on studs, place sign in position, and push until spacers are pinched between sign and substrate, embedding the stud ends in holes. Temporarily support sign in position until adhesive fully sets.
  - b. Thin or Hollow Surfaces: Place spacers on studs, place sign in position with spacers pinched between sign and substrate, and install washers and nuts on stud ends projecting through opposite side of surface, and tighten.

### 3.3 ADJUSTING AND CLEANING

- A. Remove and replace damaged or deformed characters and signs that do not comply with specified requirements. Replace characters with damaged or deteriorated finishes or components that cannot be successfully repaired by finish touchup or similar minor repair procedures.
- B. Remove temporary protective coverings and strippable films as signs are installed.
- C. On completion of installation, clean exposed surfaces of signs according to manufacturer's written instructions, and touch up minor nicks and abrasions in finish. Maintain signs in a clean condition during construction and protect from damage until acceptance by Owner.

END OF SECTION 101419

## SECTION 102113 - TOILET COMPARTMENTS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Floor-mounted, overhead-braced phenolic-core toilet compartments configured as toilet enclosures and urinal screens.
- B. Related Sections:
  - 1. Section 061000 "Rough Carpentry" for blocking overhead support of floor-and-ceiling-anchored compartments.
  - 2. Section 102800 "Toilet Accessories" for toilet tissue dispensers, grab bars, and similar accessories.

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
- B. Shop Drawings: For toilet compartments. Include plans, elevations, sections, details, and attachments to other work.
  - 1. Show locations of cutouts for compartment-mounted toilet accessories.
  - 2. Show locations of reinforcements for compartment-mounted grab bars.
  - 3. Show locations of centerlines of toilet fixtures.
- C. Samples for Initial Selection: For each type of unit indicated. Include Samples of hardware and accessories involving material and color selection.
- D. Samples for Verification: For the following products, in manufacturer's standard sizes unless otherwise indicated:
  - 1. Each type of material, color, and finish required for units, prepared on 6-inch- square Samples of same thickness and material indicated for Work.
  - 2. Each type of hardware and accessory.

#### 1.4 INFORMATIONAL SUBMITTALS

- A. Product Certificates: For each type of toilet compartment, from manufacturer.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For toilet compartments to include in maintenance manuals.

1.6 QUALITY ASSURANCE

- A. Comply with requirements in GSA's CID-A-A-60003, "Partitions, Toilets, Complete."
- B. Surface-Burning Characteristics: As determined by testing identical products according to ASTM E 84, or another standard acceptable to authorities having jurisdiction, by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
  - 1. Flame-Spread Index: 25 or less.
  - 2. Smoke-Developed Index: 450 or less.
- C. Regulatory Requirements: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA) and Architectural Barriers Act (ABA) Accessibility Guidelines for Buildings and Facilities" for toilet compartments designated as accessible.

1.7 PROJECT CONDITIONS

- A. Field Measurements: Verify actual locations of toilet fixtures, walls, columns, ceilings, and other construction contiguous with toilet compartments by field measurements before fabrication.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Aluminum Castings: ASTM B 26/B 26M.
- B. Aluminum Extrusions: ASTM B 221.
- C. Brass Castings: ASTM B 584.
- D. Brass Extrusions: ASTM B 455.
- E. Steel Sheet: Commercial steel sheet for exposed applications; mill phosphatized and selected for smoothness.
  - 1. Electrolytically Zinc Coated: ASTM A 879/A 879M, 01Z.
  - 2. Hot-Dip Galvanized: ASTM A 653/A 653M, either hot-dip galvanized or galvannealed.
- F. Stainless-Steel Sheet: ASTM A 666, Type 304, stretcher-leveled standard of flatness.
- G. Stainless-Steel Castings: ASTM A 743/A 743M.

- H. Zamac: ASTM B 86, commercial zinc-alloy die castings.

## 2.2 PHENOLIC-CORE UNITS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide Series 400 “Sentinel” floor-mounted, overhead-braced partitions as manufactured by Bradley Corporation; Mills Partitions or comparable product by one of the following:
1. American Sanitary Partition Corporation.
  2. Bobrick Washroom Equipment, Inc.
  3. General Partitions Mfg. Corp.
  4. ASI-Global Partitions
- B. Toilet-Enclosure Style: Overhead braced.
- C. Urinal-Screen Style: Wall hung.
- D. Door, Panel, and Pilaster Construction: Solid phenolic-core panel material with melamine facing on both sides fused to substrate during panel manufacture (not separately laminated), and with eased and polished edges and no-sightline system. Provide minimum 3/4-inch- thick doors and pilasters and minimum 1/2-inch- thick panels.
- E. Pilaster Shoes: Fabricated from stainless-steel sheet, not less than 0.031-inch nominal thickness and 3 inches high, finished to match hardware.
- F. Brackets (Fittings):
1. Full-Height (Continuous) Type: Manufacturer's standard design; stainless steel.
- G. Phenolic-Panel Finish:
1. Facing Sheet Finish: One color and pattern in each room.
  2. Color and Pattern: As selected by Architect from manufacturer's full range, with manufacturer's standard through-color core matching face sheet.

## 2.3 ACCESSORIES

- A. Hardware and Accessories: Manufacturer's standard design, heavy-duty operating hardware and accessories.
1. Material: Stainless steel.
  2. Hinges: Manufacturer's standard continuous, spring-loaded type.
  3. Latch and Keeper: Manufacturer's standard surface-mounted latch unit designed for emergency access and with combination rubber-faced door strike and keeper. Provide units that comply with regulatory requirements for accessibility at compartments designated as accessible.
  4. Coat Hook: Manufacturer's standard combination hook and rubber-tipped bumper, sized to prevent in-swinging door from hitting compartment-mounted accessories.
  5. Door Bumper: Manufacturer's standard rubber-tipped bumper at out-swinging doors.

6. Door Pull: Manufacturer's standard unit at out-swinging doors that complies with regulatory requirements for accessibility. Provide units on both sides of doors at compartments designated as accessible.
- B. Overhead Bracing: Manufacturer's standard continuous, extruded-aluminum head rail with antigrip profile and in manufacturer's standard finish.
- C. Anchorages and Fasteners: Manufacturer's standard exposed fasteners of stainless steel or chrome-plated steel or brass, finished to match the items they are securing, with theft-resistant-type heads. Provide sex-type bolts for through-bolt applications. For concealed anchors, use stainless steel, hot-dip galvanized steel, or other rust-resistant, protective-coated steel.

## 2.4 FABRICATION

- A. Overhead-Braced Units: Provide manufacturer's standard corrosion-resistant supports, leveling mechanism, and anchors at pilasters to suit floor conditions. Provide shoes at pilasters to conceal supports and leveling mechanism.
- B. Floor-Anchored Units: Provide manufacturer's standard corrosion-resistant anchoring assemblies with leveling adjustment nuts at pilasters for structural connection to floor. Provide shoes at pilasters to conceal anchorage.
- C. Floor-and-Ceiling-Anchored Units: Provide manufacturer's standard corrosion-resistant anchoring assemblies with leveling adjustment at tops and bottoms of pilasters. Provide shoes and sleeves (caps) at pilasters to conceal anchorage.
- D. Urinal-Screen Posts: Provide manufacturer's standard corrosion-resistant anchoring assemblies with leveling adjustment at **tops and** bottoms of posts. Provide shoes **and sleeves** at posts to conceal anchorage.
- E. Door Size and Swings: Unless otherwise indicated, provide 24-inch- wide, in-swinging doors for standard toilet compartments and 36-inch- wide, out-swinging doors with a minimum 32- inch-wide, clear opening for compartments designated as accessible.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. General: Comply with manufacturer's written installation instructions. Install units rigid, straight, level, and plumb. Secure units in position with manufacturer's recommended anchoring devices.
  1. Maximum Clearances:
    - a. Pilasters and Panels: 1/2 inch.
    - b. Panels and Walls: 1 inch.
  2. Stirrup Brackets: Secure panels to walls and to pilasters with no fewer than three brackets attached at midpoint and near top and bottom of panel.

- a. Locate wall brackets so holes for wall anchors occur in masonry or tile joints.
  - b. Align brackets at pilasters with brackets at walls.
- B. Overhead-Braced Units: Secure pilasters to floor and level, plumb, and tighten. Set pilasters with anchors penetrating not less than 1-3/4 inches into structural floor unless otherwise indicated in manufacturer's written instructions. Secure continuous head rail to each pilaster with no fewer than two fasteners. Hang doors to align tops of doors with tops of panels, and adjust so tops of doors are parallel with overhead brace when doors are in closed position.
- C. Floor-Anchored Units: Set pilasters with anchors penetrating not less than 2 inches into structural floor unless otherwise indicated in manufacturer's written instructions. Level, plumb, and tighten pilasters. Hang doors and adjust so tops of doors are level with tops of pilasters when doors are in closed position.
- D. Urinal Screens: Attach with anchoring devices to suit supporting structure. Set units level and plumb, rigid, and secured to resist lateral impact.

### 3.2 ADJUSTING

- A. Hardware Adjustment: Adjust and lubricate hardware according to hardware manufacturer's written instructions for proper operation. Set hinges on in-swinging doors to hold doors open approximately 30 degrees from closed position when unlatched. Set hinges on out-swinging doors to return doors to fully closed position.

END OF SECTION 102113

## SECTION 102600 CORNER GUARDS

### PART 1 - GENERAL

#### 1.01 SCOPE OF WORK

A. Work of this Section shall be performed in accordance with the requirements of the Contract Documents, including but not limited to Instructions to Bidders, Agreement and General Conditions and General Requirements.

B. Providing corner guards at renovated rooms.

#### 1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Section 06100 – Rough Carpentry

B. Section 09250 – Gypsum Wallboard

#### 1.03 SUBMITTALS

A. Submit Shop Drawings for approval in accordance with requirements described in Section 01300, Submittals. Obtain approval prior to proceeding with fabrication.

B. Submit three (3) sets of color samples for each type of corner guard.

C. Product data and detailed specifications for each system component and installation accessory required, including installation methods for each type of substrate.

D. Shop drawings showing locations, extent and installation details of corner guards. Show methods of attachment to adjoining construction.

E. Samples for verification purposes: Submit the following samples, as proposed for this work, for verification of color, texture, pattern and end cap attachment and alignment.

F. Provide (2) 12" (304.8mm) long sample of each model specified including end cap and mounting hardware.

G. Product test reports from a qualified independent testing laboratory showing compliance of each component with requirements indicated.

F. Maintenance data for wall protection system components for inclusion in the operating and maintenance manuals specified in Division 1.

#### 1.04 QUALITY ASSURANCE

A. Installer qualifications: Engage an installer who has no less than 3 years experience in installation of systems similar in complexity to those required for this project.

B. Manufacturer's qualifications: Not less than 5 years experience in the production of specified products and a record of successful in-service performance.

- C. Code compliance: Assemblies should conform to all applicable codes including New York State Building Codes, N.Y.S.E.D. Manual of Planning Standards, and Life Safety.
- D. Fire performance characteristics: Provide wall protection system components with UL label indicating that they are identical to those tested in accordance with ASTM-E84-01 (CAN/ULC S102.2) for Class 1 characteristics listed below:
  - 1. Flame spread: 25 or less
  - 2. Smoke developed: 450 or less
- E. Impact Strength: Provide assembled wall protection units that have been tested in accordance with the applicable provisions of ASTM F476-76.
- F. Chemical and stain resistance: Provide wall protection system components with chemical and stain resistance in accordance with ASTM D-1308.
- G. Color match: Provide wall protection components that are color matched in accordance with the following:
  - 1. Delta E difference of no greater than 1.5 using the Hunter (Lab) Scale. (Specifier note: Construction Specialties' colors are matched under cool white fluorescent lighting and computer controlled within manufacturing tolerances. Color may vary if alternate lighting sources are present.)
  - 2. Single source responsibility: Provide all components of the wall protection system manufactured by the same company to ensure compatibility of color, texture and physical properties.

#### 1.05 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials to the project site in unopened original factory packaging clearly labeled to show manufacturer.
- B. Store materials in original, undamaged packaging in a cool, dry place out of direct sunlight and exposure to the elements. A minimum room temperature of 40°F (4°C) and a maximum of 100°F (38°C) should be maintained.
- C. Material must be stored flat.
- D. Project Conditions
  - 1. Materials must be acclimated in an environment of 65° - 75°F (18° - 24°C) for at least 24 hours prior to beginning the installation.
  - 2. Installation areas must be enclosed and weatherproofed before installation commences.

#### 1.06 ACCEPTABLE MANUFACTURERS



A. Products manufactured by the following manufacturer and meeting these specifications shall be acceptable:

1. Construction Specialties, Inc., Muncy, Pa., Mississauga, Ontario.

## **PART 2 -PRODUCTS**

### **2.01 CORNER GUARDS**

- A. Vinyl/Acrylic: Extruded material should be high impact Acrovyn with pebblette grain texture, .078" (1.98mm) thickness. Chemical and stain resistance should be per ASTM D-1308 standards as established by the manufacturer. Colors to be indicated in the finish schedule from one of manufacturer's standard color range.
- B. Aluminum Retainers: Extruded aluminum retainers should be 6063-T6 alloy, .063" (1.60mm) thickness. Minimum strength and durability properties as specified in ASTM B221.
- C. Fasteners: All fasteners to be non-corrosive and compatible with aluminum retainers. All necessary fasteners to be supplied by the manufacturer.
- D. Vinyl/Acrylic corner guards to be Acrovyn by Construction Specialties or approved equal: Surface mounted guards consisting of continuous aluminum retainer with snap-on Acrovyn cover. Color matched end caps to be provided for both partial and full height applications. Attachment hardware shall be appropriate for wall construction.
  1. Model SSM-25A End wall corner guard assembly to be composed of (2) 90° surface mounted corner guards with 2" (51mm) legs and .040" Acrovyn sheet as a spacer. Provide continuous aluminum retainer. Selection shall be from manufacturer's (60) Acrovyn solid colors.

### **2.02 FABRICATION**

- A. General: Fabricate wall protection systems to comply with requirements indicated for design, dimensions, detail, finish and member sizes.

## **PART 3 - EXECUTION**

### **3.01 EXAMINATION**

- A. Verification of conditions: Examine areas and conditions under which work is to be performed and identify conditions detrimental to proper or timely completion.
- B. Do not proceed until unsatisfactory conditions have been corrected.

### **3.02 PREPARATION**

- A. Surface preparation: Prior to installation, clean substrate to remove dirt, debris and loose particles. Perform additional preparation procedures as required by manufacturer's instructions.
- B. Protection: Take all necessary steps to prevent damage to material during installation as required in manufacturer's installation instructions.

### 3.03 INSTALLATION

- A. Install corner guards in location at mounting heights as indicated in accordance with manufacturer's instructions. Provide grounds, clips, backing materials, brackets and anchors trim and accessories for complete installation.
- B. Install the work of this section in strict accordance with the manufacturer's recommendations, using only approved mounting hardware, and locating all components firmly into position, level and plumb.
- C. Temperature at the time of installation must be between 65° - 75°F (18° - 24°C) and be maintained for at least 48 hours after the installation.
- D. Adjust installed end caps as necessary to ensure tight seams.

### 3.04 CLEANING

- A. General: Immediately upon completion of installation, clean vinyl covers and accessories in accordance with manufacturer's recommended cleaning method.
- B. Remove surplus materials, rubbish and debris resulting from installation as work progresses and upon completion of work.

### 3.05 PROTECTION

- A. Protect installed materials to prevent damage by other trades. Use materials that may be easily removed without leaving residue or permanent stains.

## **END OF SECTION**

## SECTION 102800 TOILET ACCESSORIES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Mirror units.
  - 2. Warm Air dryers.
  - 3. Sanitary napkin disposal units.
  - 4. Grab bars.
- B. Owner-Furnished Material to be Contractor installed:
  - 1. Toilet paper dispensers.
  - 2. Paper towel dispensers.
  - 3. Soap dispensers.

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated. Include the following:
  - 1. Construction details and dimensions.
  - 2. Anchoring and mounting requirements, including requirements for cutouts in other work and substrate preparation.
  - 3. Material and finish descriptions.
  - 4. Features that will be included for Project.
  - 5. Manufacturer's warranty.
- B. Samples: Full size, for each accessory item to verify design, operation, and finish requirements.
  - 1. Approved full-size Samples will be returned and may be used in the Work.
- C. Product Schedule: Indicating types, quantities, sizes, and installation locations by room of each accessory required.
  - 1. Identify locations using room designations indicated.
  - 2. Identify products using designations indicated.

#### 1.4 INFORMATIONAL SUBMITTALS

- A. Warranty: Sample of special warranty

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For toilet and bath accessories to include in maintenance manuals.

1.6 QUALITY ASSURANCE

- A. Source Limitations: For products listed together in the same Part 2 articles, obtain products from single source from single manufacturer.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

1.7 COORDINATION

- A. Coordinate accessory locations with other work to prevent interference with clearances required for access by people with disabilities, and for proper installation, adjustment, operation, cleaning, and servicing of accessories.
- B. Deliver inserts and anchoring devices set into concrete or masonry as required to prevent delaying the Work.

1.8 WARRANTY

- A. Special Mirror Warranty: Manufacturer's standard form in which manufacturer agrees to replace mirrors that develop visible silver spoilage defects and that fail in materials or workmanship within specified warranty period.

1. Warranty Period: 15 years from date of substantial completion

2.1 MATERIALS

- A. Stainless Steel: ASTM A 666, Type 304, 0.031-inch minimum nominal thickness unless otherwise indicated.
- B. Brass: ASTM B 19, flat products; ASTM B 16/B 16M, rods, shapes, forgings, and flat products with finished edges; or ASTM B 30, castings.
- C. Steel Sheet: ASTM A 1008/A 1008M, Designation CS (cold rolled, commercial steel), 0.036- inch minimum nominal thickness.
- D. Galvanized-Steel Sheet: ASTM A 653/A 653M, with G60 hot-dip zinc coating.

- E. Galvanized-Steel Mounting Devices: ASTM A 153/A 153M, hot-dip galvanized after fabrication.
- F. Fasteners: Screws, bolts, and other devices of same material as accessory unit and tamper- and- theft resistant where exposed, and of galvanized steel where concealed.
- G. Chrome Plating: ASTM B 456, Service Condition Number SC 2 (moderate service).
- H. Mirrors: ASTM C 1503, Mirror Glazing Quality, clear-glass mirrors, nominal 6.0 mm thick.
- I. ABS Plastic: Acrylonitrile-butadiene-styrene resin formulation.

## 2.2 TOILET ACCESSORIES

### A. Grab Bar:

- 1. Basis-of-Design Product: Subject to compliance with requirements, provide Series B stainless steel grab bars with snap flange, as manufactured by Bobrick or ASI 3701 or comparable product.
- 2. Mounting: Flanges with concealed fasteners.
- 3. Material: Stainless steel, 0.05 inch thick.
  - a. Finish: Smooth, No. 4 finish (satin) on ends and slip-resistant texture in grip area.
- 4. Outside Diameter: 1-1/4 inches.
- 5. Configuration and Length: As indicated on Drawings.

### B. Sanitary-Napkin Disposal Unit:

- 1. Basis-of-Design Product: Subject to compliance with requirements, provide B-270 Contura-Series as manufactured by Bobrick or ASI 0852 or comparable product.
- 2. Mounting: Surface mounted.
- 3. Door or Cover: Self-closing, disposal-opening cover and hinged face panel with tumbler lockset.
- 4. Receptacle: Removable.
- 5. Material and Finish: Stainless steel, No. 4 finish (satin).

C. Mirror Unit:

1. Basis-of-Design Product: Subject to compliance with requirements, provide B-165 Series as manufactured by Bobrick or ASI 0620 or comparable product..
2. Frame: Stainless-steel channel.
  - a. Corners: Manufacturer's standard.
3. Hangers: Produce rigid, tamper- and theft-resistant installation, using method indicated below.
  - a. One-piece, galvanized-steel, wall-hanger device with spring-action locking mechanism to hold mirror unit in position with no exposed screws or bolts.
  - b. Wall bracket of galvanized steel, equipped with concealed locking devices requiring a special tool to remove.
4. Size: As indicated on Drawings.

2.3 WARM-AIR DRYERS

A. Warm-Air Dryer:

1. Basis-of-Design Product: Subject to compliance with requirements, provide "Excel Dryer XLERATOR XL GR Series", Grey powder coat, 120 V, One Phase, as manufactured by Excel Dryer Inc., or comparable product.
2. Mounting: Surface mounted.
3. Operation: Electronic-sensor activated with timed power cut-off switch.
  - a. Operation Time: 30 to 40 seconds.
4. Cover Material and Finish: Cast iron, with enamel finish in color selected by Architect.
5. Electrical Requirements: 120 V, 15 A, 530 W.

2.4 FABRICATION

- A. General: Fabricate units with tight seams and joints, and exposed edges rolled. Hang doors and access panels with full-length, continuous hinges. Equip units for concealed anchorage and with corrosion-resistant backing plates.
- B. Keys: Provide universal keys for internal access to accessories for servicing and resupplying. Provide minimum of six keys to Owner's representative.

**PART 3 - EXECUTION**

**3.1 INSTALLATION**

- A. Install accessories according to manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.
- B. Grab Bars: Install to withstand a downward load of at least 250 lbf, when tested according to ASTM F 446.

**3.2 ADJUSTING AND CLEANING**

- A. Adjust accessories for unencumbered, smooth operation. Replace damaged or defective items.
- B. Remove temporary labels and protective coatings.
- C. Clean and polish exposed surfaces according to manufacturer's written recommendations.

**END OF SECTION**





SECTION 104300 – LED SIGNAGE

PART 1 - PRODUCTS

1.01 MATERIALS

A.     **LED Signage:**

1.     Basis of Design: Double sided 19mm full color time-o-matic “Watch-Fire” brand LED Electronic message display system.
  - a.     Display of up to (6) six line of 5” pitch letters with full animated and digital graphics software
  - b.     Each cabinet is to be 41”H x 99” L x 5”D, Double Face Twinpak (Slim), to match depth of header box .
  - c.     Pixel Spacing: center to center pixel space must not exceed 19.1 mm
  - d.     Pixel design: separate one from another. No virtual or hybrid pixel technologies will be accepted. Each pixel must be comprised of no more or less than 1 red, 1 green and 1 blue LED.
  - e.     Half – Brightness viewing angles: 140 degrees horizontal/70 degrees vertical
  - f.     Video and Graphic Capability: The display must be able to show pre-recorded video clips at up to 30 frames per second. Software driving display must have the ability to import AVI, BMP, GIF, JPG and other graphic file types
  - g.     Brightness/Dimming: Maximum brightness up to 10,000 nits. Dimming must be automated using a minimum of 100-step photo cell
  - h.     Temperature Display: Bid must include temperature sensor for real time display of temperature.
  - i.     Data Integration: Display must have the ability to display RSS feeds for real time data such as news, sports, weather, etc.
  - j.     LEDs must be lifetime rated at 100,000 hours. Lifetime is defined as the point at which the LED degradation reaches 50% original brightness.
  - k.     Color Capability: Display must have ability to display from a total color palette of no less than 1.15 quintillion colors.
  - l.     Matrix: LED display will be no less than 48 pixels high x 128 pixels wide.
  - m.     Character Capability: LED display will show no less than 6 lines of text with 26 characters across. Minimum character size must be no greater than 5”. Display will have ability to display true type fonts as well as fixed-width fonts.
  - n.     LED & Pixel Density: LED display must have no fewer than 2,750 pixels per square meter and 8,250 LEDs per square meter. Total LED count for this specific display should be no less than 23040 (7680 red LEDs, 7680green LEDs, and 7680 blue LEDs).
  - o.     LED modules must be encapsulated for protection from the environment and be fully submersible under water to demonstrate weatherproof capability.
  - p.     Electrical Requirements: (1) 120 volt 30 amp constant feed for the LED EMC signage (must be on 24/7).

2.     **Communication:**

- a. Computer: Manufacturer's display control software will be loaded and set-up on customer-provided computer by manufacturer's representative.
  - b. Software: Display software must be provided with the display with 2 software licenses and 2 USB software keys. Software must be capable of running on Windows and have the capability of editing, scheduling, proof of performances, 3rd party software importation, font editor, as well as true type font use from customer's font library. Overview of features of the display software as well as hardware requirements must be included with bid proposal.
  - c. Security: Password protection must be built into the display software as well as the extra security measure of a USB software key that will enable the updating of the display. Software must not have the capability to update the display without the required USB software key and password.
  - d. Training: Display manufacturer is to provide an in-person on-site training session at a mutually agreed upon time.
  - e. Content: A content CD must be included with the manufacturer's control software and be pre-loaded with a minimum of 1,000 pre-produced content files formatted to the display size being specified; the content must include animations and backgrounds that can be utilized on the display without size modification. The pre-produced content files need not be specific to any industry type.
3. **LED Display Cabinets:**
  - a. Extruded aluminum cabinetry featuring precision mitered corners, solid welds and 30% gloss black polyurethane finish.
  - b. LED modules to be mounted to the front of the cabinet without being covered by a Lexan or other transparent face.
  - c. Access: LED display must have front access for maintenance and repair
4. **Header Cabinet:**
  - a. Custom double-sided 14" deep comp cabinet with white lexan faces.
  - b. Extruded aluminum cabinetry featuring precision mitered corners, solid welds and 30% gloss black polyurethane finish.
  - c. Cabinet and retainers with 3/16" white lexan faces with translucent red (Pantone 186) background with reversed out white copy.
  - d. Lighting: D/HO lighting with low energy electronic ballast.
  - e. Electrical Requirements: (1) 120 volt 20 amp controlled feed by timer or photo-eye sensors to allow sign to be illuminated at night and to be off during the day.
  - f. Letter style: Optima Black and Optima Black Italic
5. **School Logo Cabinet:**
  - a. Two (2) single sided 5" deep sign comp cabinet with white lexan faces.

- b. Extruded aluminum cabinetry featuring precision mitered corners, solid welds and 30% gloss black polyurethane finish.
  - c. 1-1/2" retainers with 3/16" white lexan faces with translucent red (Pantone 186) vinyl graphics. Block-out vinyl to be placed over white area outside outer circle for non-illumination at night. Only logo graphics to illuminate (white and red) at night.
  - d. Lighting: White LED modules.
  - e. Electrical Requirements: (1) 120 volt 20 amp controlled feed by photo-eye sensors to allow sign to be illuminated at night and to be off during the day.
  - f. Signs mounted back to back on steel beams with appropriate hardware,
  - g. School logo: To be provided by Owner prior to production.
6. **Individual Powder Coated Aluminum Routed Letters:**
- a. Two (2) sets (one set each side) of 5/8" thick individual cast aluminum with welded studs for flush mount.
  - b. Character Height of 4"
  - c. Characters: **Gifted by the Classes of 2005, 2006, 2007**
  - d. Custom Color: 2025 Black
  - e. Letter style: Helvetica
7. **Powder Coated Aluminum Logo Disk:**
- a. Two (2) sets (one set each side) of 5/8" thick cast aluminum logo disk with welded studs for flush mount.
  - b. Character Height of 12"
  - c. International Baccalaureate Logo: To be provided by Owner prior to production.
  - d. Custom Color: 2025 Black

## PART 2 – EXECUTION

### 2.01 GENERAL

- A. Provide 4 hours of onsite training for staff, install software and instruct staff as required for proper programming of sign.
  - 1. Training to be provided by the contractor within five (5) days of substantial completion.
  - 2. Video recording of training shall be provided to the owner at the contractor's expense.

END OF SECTION 104300



## SECTION 104413 - FIRE EXTINGUISHER CABINETS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Related Sections:
- B. Section includes: fire protection cabinets.

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: For fire protection cabinets. Include plans, elevations, sections, details, and attachments to other work.
- C. Samples: For each exposed product and for each color and texture specified.

#### 1.4 CLOSEOUT SUBMITTALS

- A. Maintenance data.

#### 1.5 QUALITY ASSURANCE

- A. Fire-Rated, Fire Protection Cabinets: Listed and labeled to comply with requirements in ASTM E 814 for fire-resistance rating of walls where they are installed.
- B. Coordinate size of fire protection cabinets to ensure that type and capacity of fire extinguishers indicated are accommodated.
- C. Coordinate sizes and locations of fire protection cabinets with wall depths.

## PART 2 - PRODUCTS

### 2.1 FIRE PROTECTION CABINET

- A. Cabinet Type: Suitable for fire extinguisher.
  - 1. Basis-or-Design: Subject to compliance with requirements, Academy Model No. 1022as manufactured by JL Industries, Inc. or comparable product by one of the following:
    - a. Fire End & Croker Corporation.
    - b. Kidde Residential and Commercial Division, Subsidiary of Kidde plc.
    - c. Larsen's Manufacturing Company.
- B. Cabinet Construction: - match fire rating of wall in which cabinet is being installed.
  - 1. Fire-Rated Cabinets: Construct fire-rated cabinets with double walls fabricated from 0.0428-inch- thick, cold-rolled steel sheet lined with minimum 5/8-inch- thick, fire-barrier material. Provide factory-drilled mounting holes.
- C. Cabinet Material: Aluminum sheet.
- D. Semi-recessed Cabinet: Cabinet box partially recessed in walls of sufficient depth to suit style of trim indicated; with one-piece combination trim and perimeter door frame overlapping surrounding wall surface with exposed trim face and wall return at outer edge (backbend). Provide where walls are of insufficient depth for recessed cabinets but are of sufficient depth to accommodate semi-recessed cabinet installation.
  - 1. Square-Edge Trim: 1-1/4- to 1-1/2-inch backbend depth.
  - 2. Rolled-Edge Trim: 4-inch backbend depth.
- E. Cabinet Trim Material: Aluminum sheet.
- F. Door Material: Aluminum sheet.
- G. Door Style: Fully glazed panel with frame.
- H. Door Glazing: Acrylic sheet.
  - 1. Acrylic Sheet Color: Clear transparent acrylic sheet.
- I. Door Hardware: Manufacturer's standard door-operating hardware of proper type for cabinet type, trim style, and door material and style indicated.

J. Accessories:

1. Identification: Lettering complying with authorities having jurisdiction for letter style, size, spacing, and location. Locate as directed by Architect.
  - a. Identify fire extinguisher in fire protection cabinet with the words "FIRE EXTINGUISHER."
    - 1) Location: Applied to cabinet glazing.
    - 2) Application Process: Pressure-sensitive vinyl letters.
    - 3) Lettering Color: Red.
    - 4) Orientation: Horizontal.

K. Finishes:

1. Manufacturer's standard baked-enamel paint for the following:
  - a. Interior of cabinet.
2. Aluminum: Clear anodic.
3. Steel: Baked enamel or powder coat.
  - a. Color and Gloss: white.

L. Quantity:

1. Provide a total of (4) cabinets to be located in new walls- location by client

2.2 FABRICATION

- A. Fire Protection Cabinets: Provide manufacturer's standard box (tub), with trim, frame, door, and hardware to suit cabinet type, trim style, and door style indicated. Miter and weld joints and grind smooth.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Examine walls and partitions for suitable framing depth and blocking where recessed cabinets will be installed and prepare recesses as required by type and size of cabinet and trim style.
- B. Install fire protection cabinets in locations and at mounting heights indicated or, if not indicated, at heights acceptable to authorities having jurisdiction.
- C. Fire Protection Cabinets: Fasten cabinets to structure, square and plumb.
- D. Adjust fire protection cabinet doors to operate easily without binding. Verify that integral locking devices operate properly.
- E. Replace fire protection cabinets that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 104413





## SECTION 104416 - FIRE EXTINGUISHERS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes portable, hand-carried fire extinguishers.
- B. Related Requirements:
  - 1. Section 104413 "Fire Protection Cabinets."

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include rating and classification, material descriptions, dimensions of individual components and profiles, and finishes for fire extinguisher.
- B. Product Schedule: For fire extinguishers. Coordinate final fire-extinguisher schedule with fire-protection cabinet schedule to ensure proper fit and function. Use same designations indicated on Drawings.

#### 1.4 INFORMATIONAL SUBMITTALS

- A. Warranty: Sample of special warranty.

#### 1.5 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For fire extinguishers to include in maintenance manuals.

#### 1.6 COORDINATION

- A. Coordinate type and capacity of fire extinguishers with fire-protection cabinets to ensure fit and function.

1.7 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace fire extinguishers that fail in materials or workmanship within specified warranty period.
  - 1. Failures include, but are not limited to, the following:
    - a. Failure of hydrostatic test according to NFPA 10.
    - b. Faulty operation of valves or release levers.
  - 2. Warranty Period: Six years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10, "Portable Fire Extinguishers."
- B. Fire Extinguishers: Listed and labeled for type, rating, and classification by an independent testing agency acceptable to authorities having jurisdiction.
  - 1. Provide fire extinguishers approved, listed, and labeled by FM Global.

2.2 PORTABLE, HAND-CARRIED FIRE EXTINGUISHERS

- A. Fire Extinguishers: Type, size, and capacity for each fire-protection cabinet indicated.
  - 1. Valves: Manufacturer's standard.
  - 2. Handles and Levers: Manufacturer's standard.
  - 3. Instruction Labels: Include pictorial marking system complying with NFPA 10, Appendix B.
- B. Multipurpose Dry-Chemical Type: UL-rated, 5 pound nominal capacity, with monoammonium phosphate-based dry chemical in manufacturer's standard enameled container.
- C. Provide a total of (4) fire extinguishers to be located by client.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine fire extinguishers for proper charging and tagging.
  - 1. Remove and replace damaged, defective, or undercharged fire extinguishers.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION

- A. General: Install fire extinguishers in locations indicated and in compliance with requirements of authorities having jurisdiction.

END OF SECTION 104416



## SECTION 122413 - ROLLER WINDOW SHADES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:

- 1. Manually operated single roller mesh shades.
  - 2. Manually operated double roller mesh and room darkening shades.

- B. Related Requirements:

- 1. Section 061053 "Miscellaneous Rough Carpentry" for wood blocking and grounds for mounting roller shades and accessories.
  - 2. Section 079200 "Joint Sealants" for sealing the perimeters of installation accessories for light-blocking shades with a sealant.

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.

- 1. Include styles, material descriptions, construction details, dimensions of individual components and profiles, features, finishes, and operating instructions for roller shades.

- B. Shop Drawings: Show fabrication and installation details for roller shades, including shadeband materials, their orientation to rollers, and their seam and batten locations.

- C. Samples: For each exposed product and for each color and texture selected, 10 inches long.

- D. Samples for Initial Selection: For each type of shade material.

- 1. Include Samples of accessories involving color selection.

- E. Samples for Verification: For each type of roller shade.

- 1. Shade Material: Not less than 10 inches square. Mark inside face of material if applicable.
  - 2. Roller Shade: Full-size operating unit, not less than 16 inches wide by 36 inches long for each type of roller shade indicated.
  - 3. Installation Accessories: Full-size unit, not less than 10 inches long.

- F. Roller-Shade Schedule: Use same designations indicated on Drawings.

#### 1.4 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For roller shades to include in maintenance manuals.

#### 1.5 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. Roller Shades: Two full-size for each size and type.

#### 1.6 QUALITY ASSURANCE

- A. Provide window treatment units which are complete assemblies, to the greatest extent possible, produced by one manufacturer for each type required, including hardware, accessory items, mounting brackets and fastenings.
- B. Provide emergency egress stickers on the interior classroom blind as per New York State Department Commissioner Regulations at each egress window,
- C. Fire Performance Characteristics - Provide shade material which is certified to be inherently flame resistant in accordance with requirements of NFPA-701-99.
- D. Fabricator/Installer Qualifications - Firm with not less than five years of successful experience in fabrication and installation of window treatment similar to those required for this project.
- E. Mockups: Build mockup of each of single roller and double roller to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.
  - 1. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
  - 2. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

#### 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver roller shades in factory packages, marked with manufacturer, product name, and location of installation using same designations indicated on Drawings.

1.8 FIELD CONDITIONS

- A. Environmental Limitations: Do not install roller shades until construction and finish work in spaces, including painting, is complete and dry and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.
- B. Field Measurements: Where roller shades are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication and indicate measurements on Shop Drawings. Allow clearances for operating hardware of operable glazed units through entire operating range. Notify Architect of installation conditions that vary from Drawings. Coordinate fabrication schedule with construction progress to avoid delaying The Work.

PART 2 - PRODUCTS

2.1 MANUALLY OPERATED SHADES WITH SINGLE ROLLERS

- A. Basis-of-Design: Manual FlexShades as manufactured by Draper, Inc. or comparable product.
- B. Provide in locations as indicated on the Drawings.
  - 1. **Verify locations with Owner prior to ordering.**
- C. Shade material: Solarweave vinyl coated (64%) fiberglass (36%) core cloth, fade and peel resistance. Fabric shall be inherently flame resistant (NFPA-701-99 & California U.S. Title #19). Breaking strength to be 290# warp and 280# fill direction, with a finished weight of 12.7 oz. per square yard.
  - 1. Fabric shall be equal to 3G-Mermet Company, E-Screen window shade material, with a 3% openness factor.
  - 2. Colors shall be selected by the Architect from Manufacturer's standard.
- D. Roller Tube: Fabricated from extruded aluminum of appropriate diameter and wall thickness, to accommodate shade size and weight without visible tube deflection. Shade fabric shall be fastened to the roller tube with double sided tape designed to adhere PVC coated textiles to aluminum.
- E. Control assembly: Bead chain and clutch operating mechanism allowing shade to stop when chain is released. Bi-directional clutch designed to not require adjustment or lubrication.
- F. Clutch mechanism: Parts to be fabricated of high carbon steel and molded fiberglass reinforced polyester or injected molded nylon.
- G. Bead chain loop: #10 Stainless steel bead chain hanging at right side (unless otherwise specified) of window. Provide 5/16" diameter NPB limit stops along the length of the loop to prevent shade from travelling beyond the opening of the window.
- H. Pin-end assembly: Provide pin-end assembly of molded nylon with adjustable spring loaded pin to facilitate easy installation, and removal of shade.

- I. Universal Brackets: Plated stamped steel suitable for mounting to ceiling, wall, or jamb. Universal design allows the same bracket to be installed on clutch and pin-end assemblies.
- J. Shade slat: Minimum 1/8 by 1 inch (3.175 mm by 25.4 mm) aluminum slat encased in welded stitch-free seamed bottom hem.

## 2.2 MANUALLY OPERATED SHADES WITH DOUBLE ROLLERS

- A. Basis-of-Design: Fascia-Dual Roller FlexShade as manufactured by Draper or comparable product.
- B. Provide in the following locations:
  - 1. Verify locations with Owner prior to ordering.**
- C. Double-Roller Mounting Configuration.
  - 1. Double-Roller Mounting Configuration: Offset, outside roller over and inside roller under.
  - 2. Inside Roller:
    - a. Drive-End Location: Right side of inside face of shade .
    - b. Direction of Shadeband Roll: Regular, from back of roller.
  - 3. Outside Roller:
    - a. Drive-End Location: Left side of inside face of.
- D. Shade Material
  - 1. Inner Roller: Solarweave vinyl coated (64%) fiberglass (36%) core cloth, fade and peel resistance. Fabric shall be inherently flame resistant (NFPA-701-99 & California U.S. Title #19). Breaking strength to be 290# warp and 280# fill direction, with a finished weight of 12.7 oz. per square yard.
    - a. Colors shall be selected by Architect from Manufacturer's standard.
  - 2. Outer Roller: Opaque close woven fiberglass base textile with sun resistant vinyl film bonded to both sides. Fabric shall be inherently flame resistant (NFPA 701-99 & California U.S. Title #19), thickness: 0.015 inches, weight: 12 oz./sq. yd.
    - a. Colors shall be selected by Architect from Manufacturer's standard
- E. Headbox
  - 1. Rectangular, extruded aluminum enclosure with white baked enamel finish, designed to be installed separately from shades.
  - 2. Nominal size: 7 in.h x 4¾ in.w, lengths to fit window sizes.
  - 3. Closure Panel: Removable bottom closure panel w/ slot for passage of shades.



4. Mounting brackets: Steel stampings designed to twist into grooves of headbox and slide into required locations.
- F. Light Seals: Equip shade on outer roller with channels to prevent light leakage.
  1. Double channel fabricated from extruded aluminum sections, one chamber to accept fabric with groove for fabric retainer, second chamber for fabric guide and channel locator.
- E. Roller Tubes: Fabricated from extruded aluminum of appropriate diameter and wall thickness, to accommodate shade size and weight without visible tube deflection. Shade fabric shall be fastened to the roller tube with double sided tape designed to adhere PVC coated textiles to aluminum.
- F. Control assembly: Bead chain and clutch operating mechanism allowing shade to stop when chain is released. Bi-directional clutch designed to not require adjustment or lubrication.
- G. Clutch mechanism: Parts to be fabricated of high carbon steel and molded fiberglass reinforced polyester or injected molded nylon.
- H. Bead chain loop: #10 Stainless steel bead chain hanging at right side (unless otherwise specified) of window. Provide 5/16" diameter NPB limit stops along the length of the loop to prevent shade from travelling beyond the opening of the window.
- I. Pin-end assembly: Provide pin-end assembly of molded nylon with adjustable spring loaded pin to facilitate easy installation, and removal of shade.
- J. Universal Brackets: Plated stamped steel suitable for mounting to ceiling, wall, or jamb. Universal design allows the same bracket to be installed on clutch and pin-end assemblies.
- K. Shade slat: Minimum 1/8 by 1 inch (3.175 mm by 25.4 mm) aluminum slat encased in welded stitch-free seamed bottom hem. Coordinate option retained in
- L. Mounting Hardware: Brackets or endcaps, corrosion resistant and compatible with roller mounting configuration, roller assemblies, operating mechanisms, installation accessories, and installation locations and conditions indicated.

## 2.3 ROLLER-SHADE FABRICATION

- A. Product Safety Standard: Fabricate roller shades to comply with WCMA A 100.1, including requirements for flexible, chain-loop devices; lead content of components; and warning labels.
- B. Unit Sizes: Fabricate units in sizes to fill window and other openings as follows, measured at 74 deg F:

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, operational clearances, and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

#### 3.2 ROLLER-SHADE INSTALLATION

- A. Install roller shades level, plumb, and aligned with adjacent units according to manufacturer's written instructions.

#### 3.3 ADJUSTING

- A. Adjust and balance roller shades to operate smoothly, easily, safely, and free from binding or malfunction throughout entire operational range.

#### 3.4 CLEANING AND PROTECTION

- A. Clean roller-shade surfaces after installation, according to manufacturer's written instructions.
- B. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, that ensure that roller shades are without damage or deterioration at time of Substantial Completion.
- C. Replace damaged roller shades that cannot be repaired, in a manner approved by Architect, before time of Substantial Completion.

#### 3.5 WINDOW SHADE SCHEDULE

---

ROOM NO.	ROOM NAME	SHADE TYPE	QUANTITY
2201	EARTH SCIENCE	WS-1	1
2203	EARTH SCIENCE	WS-1	4
2205	EARTH SCIENCE	WS-1	4
2206	EARTH SCIENCE	WS-1	1

---

---

2301	PHYSICS	WS-1	1
2303	BIOLOGY	WS-1	2
2304	PHYSICS & CHEMISTRY LAB	WS-1	2
<b>Total</b>			<b>15</b>

---

**NOTE: ALL WINDOWS TO BE VERIFIED IN FIELD. WINDOW WIDTHS MAY VARY.**

END OF SECTION 122413



## SECTION 123353 - MANUFACTURED WOOD CASEWORK

### PART 1 – GENERAL

#### 1.1 RELATED DOCUMENT

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes:

- 1. Wood veneer on plywood fixed modular casework furniture with finished interiors.

- B. RELATED SECTIONS

- 1. Section 061000 “Miscellaneous Rough Carpentry” for framing and blocking in walls, floors and ceiling to support equipment.
  - 2. Section 096513 “Resilient Base and Accessories” for base for casework.
  - 3. Division 22 Plumbing Sections for connections for drain lines, service piping, vents, re-vents, in-line vacuum breakers, special plumbing fixtures, traps and tailpieces to service fixtures.
  - 4. Division 26 Electrical Sections for connections for electrical service lines, wire and conduit to service fixtures.

#### 1.3 REFERENCES

- A. ADA (ATBCB ADAAG): Americans with Disabilities Act Accessibility Guidelines.
- B. ANSI/AIHA 9.5: American National Standard for Laboratory Ventilation.
- C. ANSI/ASHRAE 110: Method of Testing Performance of Laboratory Fume Hoods.
- D. ANSI 2358.1: Minimum Performance Requirements for Emergency Showers.
- E. ASTM A167: Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
- F. ASTM A 666: Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
- G. Architectural Woodwork Institute (AWI): Quality Standards.
- H. FS W-C-596: Electrical Power Connector, Plug, Receptacle, and Cable Outlet.
- I. NEMA WD 1: General Color Requirements for Wiring Devices.
- J. NEMA WD 6: Devices-Dimensional Requirements.

- K. NEMA LD 3: High Pressure Decorative Laminates.
- L. NFPA 30: Flammable and Combustible Liquids Code.
- M. NFPA-45: Standard for Fire Protection for Laboratories Using Chemicals.
- N. OSHA 29-CFR-1910.1450: Occupational Exposure to Hazardous Chemicals in Laboratories.
- O. SEFA 1: Laboratory Fume Hoods - Recommended Practices.
- P. SEFA 7: Laboratory and Hospital Fixtures--Recommended Practices.
- Q. SEFA 8: Laboratory Furniture--Casework, Shelving and Tables--Recommended Practices.
- R. UL 498: Attachment Plugs and Receptacles.
- S. UL 1805: Laboratory Hoods and cabinets, where applicable.
- T. FSC: Forest Stewardship Council.
- U. CARB: California Air Resources Board.
- V. “American Made”: Casework wholly manufactured and assembled in USA.

#### 1.4 SUBMITTALS

- A. Product Data: Manufacturer's data sheets on each product to be used, including:
  - 1. Test reports certifying that the casework finish complies with SEFA-8 standards for chemical and physical resistance performance requirements.
  - 2. Performance test reports from an independent testing lab on each specified top material.
  - 3. Preparation instructions and recommendations.
  - 4. Storage and handling requirements and recommendations.
  - 5. Installation methods.
- B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.
  - 1. Location, size, type and arrangement of components in unit.
  - 2. Types of materials used for fabrication.
  - 3. Size and thickness of materials.
  - 4. Hardware types, function and finish.
  - 5. Types of finish for various components.
  - 6. Anchors, fasteners, and similar items.
  - 7. Mechanical and/or electrical services required.
  - 8. Indicate locations of blocking and reinforcements required for installing laboratory casework.
  - 9. Indicate locations and types of service fittings, together with associated service supply connection required.
  - 10. Include details of utility spaces.
  - 11. Include indicators of exposed conduits, if required, for service fittings.
  - 12. Indicate locations of and clearances from adjacent walls, doors, windows, other building components, and other laboratory equipment.

13. Include coordinated dimensions for laboratory equipment specified in other Sections.
- C. Certificate of Origin: Manufacturer must supply with first submittal, an example of their Certificate of Origin declaring casework is wholly manufactured and assembled specifically in the United States, including city, county, and state locations. A notarized Certificate of Origin must be provided with closeout documents.
- D. Selection Samples: For each finish product specified, one complete set of color chips representing manufacturer's full range of available colors and patterns.
- E. One set of samples indicating full range of finishes for countertop specified.
- F. One set of casework samples indicating full range of finishes for casework specified.

#### 1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Not less than 5 years experience in the actual production of specified products. Casework shall be wholly manufactured and assembled in the USA: i.e. "American Made".
- B. Installer Qualifications: Firm with 5 years experience in installation or application of systems similar in complexity to those required for this Project, plus the following.
  1. Authorized distributor of manufacturer.
  2. Mock-Up: Provide a mock-up for evaluation of fabrication techniques and application workmanship.
  3. Installation in area designated by Architect.
  4. Do not proceed with remaining work until installation is approved by Architect.
  5. As selected and required by Architect's request for mock-up: Install base cabinet with drawer and cupboard, one adjustable shelf, hinged door and applicable hardware. Wall case with adjustable shelf, hinged door and applicable hardware. Tall case with adjustable shelves, fixed center shelf, hinged door and applicable hardware, including a 3-point latching system.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until project conditions are ready for installation.

#### 1.7 PROJECT CONDITIONS

- A. For delivery and installation of laboratory casework and equipment, building conditions shall comply with AWI Standard 1700-G-3 and 1700-G-4 and be as follows:
  1. Flooring required to be placed under casework and equipment installed.
  2. Wood or metal blocking (wall grounds) installed within partitions to allow for immediate installation upon delivery.
  3. Heating and air conditioning systems providing consistent temperature and humidity conditions to comply with by AWI Standard 1700-G-4 and 1700-G-5.
  4. Relative humidity not less than 40 percent, nor more than 60 percent.
  5. Temperatures not less than 65 degrees F (18 degrees C) and not greater than 80 degrees F (27 degrees C) in areas of casework and equipment installation.
  6. Overhead mechanical, electrical and plumbing rough-in work is complete.
  7. Wet operations complete prior to delivery.

8. Ceiling grids (with or without ceiling tiles), overhead soffits, ductwork and lighting installed.
9. Painting complete.
10. Coordination: Coordinate installation requirements with work of other trades.

## 1.8 WARRANTY

- A. Casework Manufacturer Warranty: 3 years from date of delivery. Warranty is for the conditions indicated below, and when notified in writing from Owner, manufacturer shall promptly investigate and address said deficiencies.
  1. Defects in materials and workmanship.
  2. Deterioration of material and surface performance below minimum SEFA 8 standards as certified by independent third party testing laboratory.
  3. Within the warranty period, we shall, at our option, repair, replace, or refund the purchase price of defective casework.
- B. Casework manufacturer shall be notified immediately of defective products, and be given a reasonable opportunity to inspect the goods prior to return. Casework manufacturer will not assume responsibility, or compensation, for unauthorized repairs or labor. Casework manufacturer makes no other warranty, expressed or implied, to the merchantability, fitness for a particular purpose, design, sale, installation, or use, of casework; and, shall not be liable for incidental or consequential damages, losses of or expenses, resulting from the use of their products.
  1. The warranty with respect to products from another company sold by the casework manufacturer is limited to the warranty extended by that other company.
- C. Casework manufacturer shall provide, with close-out documents, a Certificate of Warranty for products provided.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Basis-of-Design: Casework specified herein shall be equivalent to “Heritage Oak Series-FF – Face Frame Construction”, wood veneer on plywood core, as manufactured by Institutional Casework Inc., CampbellRhea, or comparable product.
- B. Product Designations: Drawings indicate sizes and configurations of laboratory casework by referencing designated manufacturer's catalog numbers. Other manufacturers' laboratory casework of similar sizes, similar door and drawer configurations, and complying with the Specifications, including certification to SEFA-8 standards for construction and chemical resistance, may be requested for approved substitution. Requests for substitutions will be considered in accordance with provisions of Section 01600. No exceptions will be made for casework that is not wholly manufactured and assembled in USA: i.e. “American Made”.



## 2.2 CONSTRUCTION

- A. Wood veneer on plywood core: Campbell Rhea Casework.
- B. Cabinet Finish, Interiors and Exteriors Match Finished:
  - 1. Wood Species: Oak.
  - 2. Finish: #1000 Natural finish (All Classroom Casework)
- C. Drawer and Door Styles:
  - 1. Heritage Drawer and Door Styling: Both door and drawer fronts are 13/16 inch thick, semi-recessed into the cabinet opening and have radius lipped edges. Doors have solid lumber rails with vertical grain wood veneer face and back. Drawer fronts are solid lumber with a horizontal grain.
- D. Door and Drawer Hardware Style:
  - 1. Drawer and door pulls:
    - a. AL-1: Extruded aluminum flattened rod in a streamline design.
  - 2. Hinges:
    - a. SS-1: Heavy-duty, institutional type, 5-knuckle hospital tipped, and is made from 0.083 inch (2 mm) thick black powder-coated steel. Hinge is semi-concealed, 2 3/4 inches (70mm) high and has off-set wings; each wing has 5 screw holes for the door leaf and 4 screw holes for the case leaf, two of which are slotted for adjustability. Hinges are attached with Euro screws.
  - 3. Latching Handle:
    - a. BK: Latching handle BK LH-1 is black powder-coated, 4 1/4 inches (108 mm) long and streamline in design. Handle operates with 1/4 turn. Double door cases have latching handles on the right door and dummy handles on the left door. A three point latching system provides a positive engagement at the top and bottom of the door with tapered aluminum rods, which pull the door snug when they engage plastic strike plates. The rods are 5/16 inch (8 mm) in diameter and move in nylon guides attached to the back of the door. The middle of the door is secured by a latch plate, which engages the side of the case, or latches behind the left door on cases with double doors.
  - 4. Locking Handle:
    - a. BK: Black epoxy powder coated locking handle is a latching handle with a lock mechanism incorporated into the handle head. On double door cases, the left door has a dummy handle, and the right door has the locking handle. Lock is laboratory grade with a 5-disc tumbler mechanism with a black powder-coated face. Tumblers and keys are brass, while the plug and cylinder is die cast zinc alloy. There are 500 key changes standard. Locks are keyed differently, master keyed and furnished with 2 keys per lock. Locks and corresponding keys are alpha-numerically coded for a quick match.

5. Locks: Removable core standards:
  - a. BK: Lock BK SL-1 is laboratory grade, cylinder cam lock, with a 5-disc tumbler mechanism with a black powder-coated face. Tumblers and keys are brass, while plug and cylinder is die cast zinc alloy. A 180-degree turn of the key moves the lock cam into, or out of, a slot cut to receive it. There are 500 key changes standard. Locks are keyed differently, master keyed and furnished with 2 keys per lock. Locks and corresponding keys are alpha-numerically coded for a quick match. Lock BK SL-1 is equipped with a removable core, keying control. With the use of a control key, the key core of the lock assembly can be removed and a new key core inserted, changing the entire locking system in a matter of minutes. Key cores can be held out of the lock assembly until the project is completed, removing the security risk of lost or stolen keys during installation and construction. Casework manufacturer can provide control keys and replacement cores as required. Locks are furnished only when specified.
6. Drawer Slides:
  - a. Drawer slides DS-1: Black epoxy powder coated, cold rolled steel, heavy-duty with a 100 lbs (45 kilograms) load capacity. They are equipped with heavy-duty, nylon rollers for smooth effortless operation. Slides have automatic positive stop to prevent drawer's accidental removal, but allow for quick removal without tools.

## 2.3 MATERIALS

- A. Oak Lumber: Grade FAS or better, air-dried and kiln dried to 6 percent moisture content, then tempered to 7 to 8 percent prior to fabrication. Lumber exposed to view, is free of stains, splits, shakes, season checks and other similar defects. Other hardwoods are grade FAS or better, air dried to 6 percent moisture content, then tempered to 7 to 8 percent prior to fabrication. Other hardwoods are used in semi-exposed, or unexposed, areas and comply with NHLA grading for FAS or better lumber.
- B. Oak Plywood: Plywood is plain sliced, book-matched Oak, select grade A-1, cross-banded, and has a veneer core. The 1 inch (25 mm) or 3/4 inch (19 mm) plywood is a minimum of 7-ply, 1/2 inch (12 mm) is a minimum of 5 ply, 1/4 inch (6 mm) is minimum of 3 ply, and 3/32 inch (2.4 mm) is 3-ply. Other hardwood plywood is sound grade, has a solid core and is suitable for semi-exposed or unexposed areas. All plywood shall be CARB Phase 1 compliant.
- C. Hardboard used in drawer bottoms and unexposed backs, consists of super-refined wood fibers and chips, highly compressed into a hard, dense, 1/4 inch (6 mm) thick, homogeneous sheet, faced with wood grain pattern melamine on the exposed face. Physical properties: Average MOR is 5,000 lbs/sq inches (3.5 kgf/sq mm); density is 48 lbs/cu ft (0.6 kg/cu m); and MOE of 500,000 psi (350 kgf/sq mm). All hardboard shall be CARB Phase 1 compliant.

## 2.4 FABRICATION

- A. Units and configurations designated for accessibility by users shall comply with ATBCB ADAAG (ADA standards).
- B. Design, material and construction of casework, shelving and tables shall comply with SEFA 8 performance and resistance standards.

- C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for its intended use.
- D. Base cabinets have a 2 1/4 inches by 1 inch, solid hardwood horizontal front top frame member and 2 1/8 inches by 1 inch, solid hardwood horizontal rear and side top frame members. Front intermediate rails are 3/4 inch by 2 1/2 inches solid wood. Back intermediate rails are furnished only when drawer separators are specified. Front face frame shall be 1-1/8" x 1-3/4 solid oak. Face frame joinery is doweled and pocket screwed. All face frame members are of equal thickness and width. Full face frame is attached to cabinet end panels, bottom panel and horizontal top frame with dowels. Face frame intermediates are of the same thickness as face frame sides, top and bottom. Exposed exterior backs are 3/4 inch (19 mm) plywood. Cabinets with exposed interiors but unexposed exteriors have 1/4 inch (6 mm) plywood backs. Cabinets with unexposed interiors and exteriors have 1/4 inch (6 mm) thick hardboard with wood grained melamine face backs. Exposed end panels are 3/4 inch (19 mm) plywood. Unexposed end panels are 3/4 inch (19 mm) hardwood plywood. End panels with unexposed interior and unexposed exterior are 3/4 inch (19 mm) hardwood plywood. Bottom and dividers in cabinets with are 3/4 inch (19 mm) plywood. All shelves shall be 1 inch (25mm) thick. Exposed edges of front top horizontal frame and intermediate rail members; end panels, bottom, shelves, and dividers are edged with 1/8 inch (3 mm) solid wood. Drawer separators, furnished only when specified, are 1/4 inch (6 mm) thick hardboard with wood grained melamine face.
- E. Cabinet construction is bored, doweled, dadoed, glued and screwed construction. Cabinets are enclosed without the use of common partitions. A full horizontal, mortise, tenon and glued, top frame is bored, doweled, glued, and reinforced with six (6) screws into the cabinet. Intermediate front rails and bottom rear horizontal parting rails are provided as required. Separators, where specified, are let into routed intermediate rails. Backs are recessed and encapsulated into dadoed end panels then screwed into the top and bottom case members. A standard enclosed toe space, 2-1/4 inches (57 mm) by 4 inches (102 mm) high, is provided, with toe rail bored, doweled and glued to end panels; however, casework cabinets, when in a library assembly such as a circulation desk, will have an enclosed toe space 2-1/4 inches (57 mm) deep by 6 inches (152 mm) high. 1" Shelves are supported on heavy-duty, laboratory grade, twin pin plastic shelf clips, which fit into two double rows of holes drilled 1-1/4 inches (32 mm) on centers, in the case end panels for maximum shelf adjustability.

- F. Construction - Wall and Upper Cases: Wall and upper cases have a 1 inch (25 mm) plywood top and bottom panel. Front face frame shall be 1-1/8" x 1-3/4 solid oak. Face frame joinery is doweled and pocket screwed. All face frame members are of equal thickness and width. Full face frame is attached to cabinet end panels, bottom panel and horizontal top frame with dowels. Face frame intermediates are of the same thickness as face frame sides, top and bottom. Adjustable shelves are 1 inch (25 mm) finished plywood in cases with exposed interiors and 1 inch (25 mm) hardwood plywood in cases with unexposed interiors. Backs are 1/4 inch (6 mm) finished plywood in cases with exposed interiors and 1/4 inch (6 mm) thick hardboard with melamine face in cases with unexposed interiors. End panels in cabinets with exposed interiors are 3/4 inch (19 mm) finished plywood; end panels in cabinets with unexposed interiors are 3/4 inch (19 mm) hardwood plywood. Exterior hanger rails are 4 inches (102 mm) by 3/4 inch (19 mm) hardwood plywood.
- G. Drawer front is 13/16 inch thick. Squared edged styles drawer faces are screwed to the face of a full drawer box. Drawer box front, sides and back are 1/2 inch, 9-ply laminated hardwood plywood, FSC PURE and CARB Phase 1 compliant. Drawer bottom is 1/4 inch thick hardboard with wood grained melamine face. All four corners of the drawer are dovetailed and glued. The top edges of drawer box are radiused. Drawer bottom is let in on four sides, and securely glued underneath with a continuous bead of glue around the perimeter of the drawer bottom. In cabinets 24 inches or less in width, drawers have one pull. In cabinets over 24 inches wide, drawers have two pulls.
- H. Construction - Hinged Doors:
1. Hinged solid doors 48 inches or less in height, 13/16 inch thick and overlap the opening on all sides. Doors have one pull. Door has two heavy duty, institutional type, and 5-knuckle hinges. Doors are secured by a friction roller catch and a metal strike plate.

## 2.5 FINISHES

- A. Wood Cabinets: Exterior and interior surfaces of cabinets are to receive the full finishing process consisting of baked-on specified NGR stain, two coats of protective moisture-resistant sealer and two applications of a topcoat of clear catalyzed chemical resistant conversion varnish.
1. Interior Surfaces: The unexposed interior surfaces of cupboards must match the exterior color and receive stain (color coat), a protective coat of moisture-resistant sealer and two applications of a clear, catalyzed, chemical resistant conversion varnish topcoat.
  2. Other Surfaces: Unexposed surfaces such as unexposed end panel, unexposed backs, drawer sides and drawer bottoms are processed through standard finishing steps and receive a baked-on protective coat of moisture resistant sealer, baked on clear catalyzed chemical resistant conversion varnish, but no stain (color coat).
  3. Finish shall comply with SEFA-8 resistance standard acceptable levels for casework surfaces. An independent third party testing facility's written certification must be provided to establish that final finish has no more than three, SEFA-8 "Level 3" conditions.
  4. Any deviations for the specified finishing procedures will be considered defective work and be rejected by the Architect.

**B. HARDWARE**

1. Provide laboratory casework Manufacturer's standard finish, commercial-quality, heavy-duty hardware complying with requirements indicated for each type.
2. Provide hanging hooks as noted at custom cubbies – Typical at Village Elementary School Classrooms (Refer to millwork details for dimensions/locations).

**PART 3 - EXECUTION**

**3.1 EXAMINATION**

- A. Do not begin installation until substrates have been properly prepared.
  1. Walls and openings are plumb, straight and square.
  2. Concrete floors level within 1/8 inch level per 10 foot run, non-accumulative, when tested with a straight edge in any one direction.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

**3.2 COORDINATION**

- A. Laboratory equipment contractor shall furnish equipment to the building, setting in place, leveling and scribing to walls and floors. Furnish plumbing and electrical fixtures, including nipples and lock nuts needed to secure each fixture to the equipment.
- B. Coordination with mechanical contractor who shall furnish, install and connect drain lines, service piping, vents, re-vents, in-line vacuum breakers, special plumbing fixtures, traps and tailpieces. Work to be completed through, under or along backs of working surfaces as required and complete final connection of services. Assemble, install and make final connections of service fixtures furnished by casework contractor, including service fixtures in fume hoods. Furnish, install and connect fume hood blowers, motors and all related ductwork. Furnish, install and connect service piping within fume hoods, including final connection.
- C. Coordination with electrical contractor who shall furnish, install and connect electrical service lines, wire and conduit within the equipment, including reagent racks and fume hoods. Work to be completed through, under or along backs of working surfaces as required. Complete final connection of services. Install and make final connections of electrical fixtures provided by casework installer, including elec. fixtures in fume hoods.

**3.3 PREPARATION**

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

**3.4 INSTALLATION**

- A. Install casework in accordance with manufacturer's instructions.
  1. Installation of casework shall be plumb, level, true and straight, with no distortions.

2. Use concealed shims as required.
  3. Where laboratory casework or equipment butts against other finished work, scribe and cut for an accurate fit.
  4. Lubricate operating hardware as recommended by the manufacturer.
- B. Install countertop and edge surfaces in one plane with flush hairline seams. Locate seams where shown on Shop Drawings.
1. Provide required holes and cutouts for service fittings as shown on Shop Drawings.
  2. Seal unfinished edges and cutouts in plastic-laminate countertops.
  3. Provide scribe moldings for closures at junctures of countertop, curb, and splash, with walls as recommended by manufacturer for materials involved. Match materials and finish to adjacent laboratory casework. Use chemical-resistant, permanently elastic sealing compound where recommended by manufacturer.
  4. Carefully dress joints smooth, remove surface scratches, and clean entire surface.
- C. Coordination with Mechanical, Plumbing and Electrical Contractors: Coordinate work of this Section with work of other Sections including but not limited to:

### 3.2 PROTECTION

- A. Cover installed casework and equipment with 4-mil polyethylene. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.
- C. A qualified manufacturer representative shall demonstrate operation and maintenance procedures of the installed casework and equipment to the Owner's personnel.

END OF SECTION 123353

## SECTION 123623.13 - PLASTIC-LAMINATE-CLAD COUNTERTOPS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes plastic-laminate countertops.

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product, including panel products high-pressure decorative laminate adhesive for bonding plastic laminate and fire-retardant-treated materials.
  - 1. Include data for fire-retardant treatment from chemical-treatment manufacturer and certification by treating plant that treated materials comply with requirements.
- B. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.
  - 1. Show locations and sizes of cutouts and holes for plumbing fixtures faucets installed in plastic-laminate countertops.
  - 2. Apply AWI Quality Certification Program label to Shop Drawings.
- C. Samples for Initial Selection:
  - 1. Plastic laminates.
- D. Samples for Verification:
  - 1. Plastic laminates, 8 by 10 inches, for each type, color, pattern, and surface finish, with one sample applied to core material and specified edge material applied to one edge.

#### 1.4 QUALITY ASSURANCE

- A. Fabricator Qualifications: Shop that employs skilled workers who custom fabricate products similar to those required for this Project and whose products have a record of successful in-service performance. Shop is a certified participant in AWI's Quality Certification Program.
- B. Installer Qualifications: Certified participant in AWI's Quality Certification Program.

- C. Testing Agency Qualifications: For testing agency providing classification marking for fire-retardant-treated material, an inspection agency acceptable to authorities having jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Do not deliver countertops until painting and similar operations that could damage countertops have been completed in installation areas. If countertops must be stored in other than installation areas, store only in areas where environmental conditions comply with requirements specified in "Field Conditions" Article.

#### 1.6 FIELD CONDITIONS

- A. Environmental Limitations: Do not deliver or install countertops until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.
- B. Environmental Limitations: Do not deliver or install countertops until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature between 60 and 90 deg F and relative humidity between 25 and 55 percent during the remainder of the construction period.
- C. Field Measurements: Where countertops are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication, and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- D. Established Dimensions: Where countertops are indicated to fit to other construction, establish dimensions for areas where countertops are to fit. Provide allowance for trimming at site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.

### PART 2 - PRODUCTS

- A. Grade: Custom .
- B. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - a. Formica Corporation.
  - b. Lamin-Art, Inc.
  - c. Wilsonart International; Div. of Premark International, Inc.
- C. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:
  - 1. As indicated by manufacturer's designations.
  - 2. Match Architect's sample.
  - 3. As selected by Architect from manufacturer's full range in the following categories:



- a. Patterns, matte finish.
- 4. Grain Direction: Parallel to cabinet fronts.
- D. Edge Treatment: Same as laminate cladding on horizontal surfaces.
- E. Core Material: Particleboard or medium-density fiberboard.
- F. Core Material at Sinks: Particleboard made with exterior glue.
- G. Core Thickness: 3/4 inch.
  - 1. Build up countertop thickness to 1-1/2 inches at front, back, and ends with additional layers of core material laminated to top.
- H. Backer Sheet: Provide plastic-laminate backer sheet, NEMA LD 3, Grade BKL, on underside of countertop substrate.

## 2.2 FIRE-RETARDANT-TREATED MATERIALS

- A. Fire-Retardant-Treated Materials, General: Where fire-retardant-treated materials are indicated, use materials complying with requirements in this article that are acceptable to authorities having jurisdiction and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.
  - 1. Use treated materials that comply with requirements of referenced woodworking standard. Do not use materials that are warped, discolored, or otherwise defective.
  - 2. Use fire-retardant-treatment formulations that do not bleed through or otherwise adversely affect finishes. Do not use colorants to distinguish treated materials from untreated materials.
  - 3. Identify fire-retardant-treated materials with appropriate classification marking of qualified testing agency in the form of removable paper label or imprint on surfaces that will be concealed from view after installation.
- B. Fire-Retardant Particleboard: Panels complying with the following requirements, made from softwood particles and fire-retardant chemicals mixed together at time of panel manufacture to achieve flame-spread index of 25 or less and smoke-developed index of 25 or less per ASTM E 84.
  - 1. For panels 3/4 inch thick and less, comply with ANSI A208.1 for Grade M-2 except for the following minimum properties: modulus of rupture, 1600 psi; modulus of elasticity, 300,000 psi; internal bond, 80 psi; and screw-holding capacity on face and edge, 250 and 225 lbf, respectively.
  - 2. For panels 13/16 to 1-1/4 inches thick, comply with ANSI A208.1 for Grade M-1 except for the following minimum properties: modulus of rupture, 1300 psi; modulus of elasticity, 250,000 psi; linear expansion, 0.50 percent; and screw-holding capacity on face and edge, 250 and 175 lbf, respectively.
  - 3. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

- a. Flakeboard Company Limited; Duraflake FR.
- b. SierraPine; Encore FR.

## 2.3 MISCELLANEOUS MATERIALS

- A. Adhesives: Do not use adhesives that contain urea formaldehyde.
- B. Adhesive for Bonding Plastic Laminate: Contact cement.
  - 1. Adhesive for Bonding Edges: Hot-melt adhesive.
- C. VOC Limits for Installation Adhesives and Sealants: Use products that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
  - 1. Wood Glues: 30 g/L.
  - 2. Multipurpose Construction Adhesives: 70 g/L.
  - 3. Structural Wood Member Adhesive: 140 g/L.
  - 4. Architectural Sealants: 250 g/L.

## 2.4 FABRICATION

- A. Sand fire-retardant-treated wood lightly to remove raised grain on exposed surfaces before fabrication.
- B. Fabricate countertops to dimensions, profiles, and details indicated. Provide front and end overhang of 1 inch over base cabinets. Ease edges to radius.
- C. Complete fabrication, including assembly, to maximum extent possible before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.
  - 1. Notify Architect seven days in advance of the dates and times woodwork fabrication will be complete.
  - 2. Trial fit assemblies at fabrication shop that cannot be shipped completely assembled. Install dowels, screws, bolted connectors, and other fastening devices that can be removed after trial fitting. Verify that various parts fit as intended and check measurements of assemblies against field measurements before disassembling for shipment.
- D. Shop cut openings to maximum extent possible to receive appliances, plumbing fixtures, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.
  - 1. Seal edges of openings in countertops with a coat of varnish.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Before installation, condition countertops to average prevailing humidity conditions in installation areas.
- B. Before installing countertops, examine shop-fabricated work for completion and complete work as required, including removal of packing and backpriming.

### 3.2 INSTALLATION

- A. Grade: Install countertops to comply with same grade as item to be installed.
- B. Assemble countertops and complete fabrication at Project site to the extent that it was not completed in the shop.
  - 1. Provide cutouts for appliances, plumbing fixtures, electrical work, and similar items.
  - 2. Seal edges of cutouts by saturating with varnish. In cases where undermount sinks occur, finish edges with plastic laminate to match top surface.
- C. Field Jointing: Where possible, make in the same manner as shop jointing, using dowels, splines, adhesives, and fasteners recommended by manufacturer. Prepare edges to be joined in shop so Project-site processing of top and edge surfaces is not required. Locate field joints where shown on Shop Drawings.
  - 1. Secure field joints in plastic-laminate countertops with concealed clamping devices located within 6 inches of front and back edges and at intervals not exceeding 24 inches. Tighten according to manufacturer's written instructions to exert a constant, heavy-clamping pressure at joints.
  - 2. Field joints should be perfectly aligned with no vertical variation and no horizontal gaps.
- D. Install countertops level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb to a tolerance of 1/8 inch in 96 inches.
- E. Scribe and cut countertops to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.
- F. Fire-Retardant-Treated Wood: Handle, store, and install fire-retardant-treated wood to comply with chemical treatment manufacturer's written instructions, including those for adhesives used to install woodwork.
- G. Countertops: Anchor securely by screwing through corner blocks of base cabinets or other supports into underside of countertop.
  - 1. Install countertops with no more than 1/8 inch in 96-inch sag, bow, or other variation from a straight line.

2. Secure backsplashes to tops with concealed metal brackets at 16 inches o.c. and to walls with adhesive.
3. Seal junctures of tops, splashes, and walls with mildew-resistant silicone sealant or another permanently elastic sealing compound recommended by countertop material manufacturer.

### 3.3 ADJUSTING AND CLEANING

- A. Repair damaged and defective countertops, where possible, to eliminate functional and visual defects; where not possible to repair, replace woodwork. Adjust joinery for uniform appearance.
- B. Clean countertops on exposed and semiexposed surfaces. Touch up shop-applied finishes to restore damaged or soiled areas.

END OF SECTION 123623.13

## SECTION 123661.16 - SOLID SURFACING COUNTERTOPS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:

- 1. Solid surface material countertops.
  - 2. Solid surface material apron fronts.
  - 3. Solid surface material sinks.
  - 4. Solid surface material window sills.

- B. Related Requirements:

- 1. Refer to Finish Schedule in Construction Documents for Basis of Design
  - 2. Section 064010 "Interior Architectural Millwork"
  - 3. Section 061000 "Rough Carpentry"
  - 4. Section 079200 "Joint Sealants"
  - 5. Provisions of plumbing fixtures: Division 22

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For countertop materials and sinks.

- B. Shop Drawings: For countertops. Show materials, finishes, edge and backsplash profiles, methods of joining, and cutouts for plumbing fixtures.

- 1. Show locations and details of joints.
  - 2. Show direction of directional pattern, if any.

- C. Samples for Verification: For the following products:

- 1. Countertop material, 4 inches (150 mm) square.

#### 1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For fabricator.

1.5        CLOSEOUT SUBMITTALS

- A.    Maintenance Data: For solid surface material countertops to include in maintenance manuals. Include Product Data for care products used or recommended by Installer and names, addresses, and telephone numbers of local sources for products.

1.6        QUALITY ASSURANCE

- A.    Fabricator Qualifications: Shop that employs skilled workers who custom-fabricate countertops similar to that required for this Project, and whose products have a record of successful in-service performance.
- B.    Installer Qualifications: Fabricator of countertops.

1.7        FIELD CONDITIONS

- A.    Field Measurements: Verify dimensions of countertops by field measurements after base cabinets are installed but before countertop fabrication is complete.

1.8        COORDINATION

- A.    Coordinate locations of utilities that will penetrate countertops or backsplashes.

PART 2 - PRODUCTS

2.1        SOLID SURFACE COUNTERTOP MATERIALS (SSR)

- A.    Solid Surface Material: Homogeneous-filled plastic resin complying with ICPA (SSR1-SSR5)
  - 1.    Basis-of-Design Product: Subject to compliance with requirements, provide **Dupont Corian** or comparable product by one of the following:
    - a.    Avonite Surfaces
    - b.    Formica Corporation
    - c.    Wilsonart
  - 2.    Type: Provide Standard type unless Special Purpose type is indicated.
  - 3.    Integral Sink Bowls: Comply with CSA B45.5/IAPMO Z124.
  - 4.    Colors and Patterns: Refer to Section 090000 "Color and Finish Legend" for Basis-of-Design selections.
- 1.    Accessory Products:
  - a.    Joint adhesive: Manufacturer's standard two part adhesive kit to create inconspicuous, non-porous joints.
  - b.    Panel Adhesive: Manufacturer's standard neoprene-based panel adhesive meeting ANSI A136.1-1967 and UL listed.

- c. Sealant: Manufacturer's standard mildew resistant FDA/UL recognized silicone sealant in colors matching components.
- B. Particleboard: ANSI A208.1, Grade M-2-Exterior Glue.
- C. Plywood: Exterior softwood plywood complying with DOC PS 1, Grade C-C Plugged, touch sanded.

## 2.2 COUNTERTOP FABRICATION

- A. Fabricate countertops according to solid surface material manufacturer's written instructions and to the AWI/AWMAC/WT's "Architectural Woodwork Standards."
  - 1. Grade: Custom.
- B. Configuration:
  - 1. Front: Straight, slightly eased at top.
  - 2. Backsplash: Straight, slightly eased at corner.
  - 3. End Splash: Matching backsplash.
- C. Countertops: 1/2-inch- thick, solid surface material with front edge built up with same material.
- D. Backsplashes: 1/2-inch- thick, solid surface material.
- E. Fabricate tops with shop-applied edges and backsplashes unless otherwise indicated. Comply with solid surface material manufacturer's written instructions for adhesives, sealers, fabrication, and finishing.
  - 1. Fabricate with loose backsplashes for field assembly.
  - 2. Install integral sink bowls in countertops in the shop.
- F. Joints: Fabricate countertops without joints wherever possible.
- G. Joints: Fabricate countertops in sections for joining in field.
  - 1. Joint Locations: Not within 18 inches (450 mm) of a sink or cooktop and not where a countertop section less than 36 inches (900 mm) long would result, unless unavoidable.
  - 2. Splined Joints: Accurately cut kerfs in edges at joints for insertion of metal splines to maintain alignment of surfaces at joints. Make width of cuts slightly more than thickness of splines to provide snug fit.
- H. Cutouts and Holes:
  - 1. Undercounter Plumbing Fixtures: Make cutouts for fixtures in shop using template or pattern furnished by fixture manufacturer. Form cutouts to smooth, even curves.
    - a. Provide vertical edges, slightly eased at juncture of cutout edges with top and bottom surfaces of countertop and projecting 3/16 inch (5 mm) into fixture opening.

- b. Provide vertical edges, rounded to 3/8-inch (10-mm) radius at juncture of cutout edges with top surface of countertop, slightly eased at bottom, and projecting 3/16 inch (5 mm) into fixture opening.
  - c. Provide 3/4-inch (20-mm) full bullnose edges projecting 3/8 inch (10 mm) into fixture opening.
2. Counter-Mounted Plumbing Fixtures: Prepare countertops in shop for field cutting openings for counter-mounted fixtures. Mark tops for cutouts and drill holes at corners of cutout locations. Make corner holes of largest radius practical.
3. Fittings: Drill countertops in shop for plumbing fittings, undercounter soap dispensers, and similar items.

## 2.3 INSTALLATION MATERIALS

- A. Adhesive: Product recommended by solid surface material manufacturer.
- B. Sealant for Countertops: Comply with applicable requirements in Section 079200 "Joint Sealants."

## 2.4 ACCESSORIES

- A. Wire-Management Grommets: Circular, metal grommets and matching caps with slot for wire passage.
  1. **Basis-of-Design Product:** Subject to compliance with requirements, provide Richelieu Metal Grommet #20694170
    - a. Outside Diameter: 2 15/16 inches.
    - b. Color: Stainless Steel

# PART 3 - EXECUTION

## 3.1 EXAMINATION

- A. Examine substrates to receive solid surface material countertops and conditions under which countertops will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of countertops.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

## 3.2 INSTALLATION

- A. Install countertops level to a tolerance of 1/8 inch in 8 feet (3 mm in 2.4 m), 1/4 inch (6 mm) maximum. Do not exceed 1/64-inch (0.4-mm) difference between planes of adjacent units.
- B. Fasten countertops by screwing through corner blocks of base units into underside of countertop. Predrill holes for screws as recommended by manufacturer. Align adjacent surfaces and, using adhesive in color to match countertop, form seams to comply with manufacturer's



written instructions. Carefully dress joints smooth, remove surface scratches, and clean entire surface.

- C. Fasten subtops to cabinets by screwing through subtops into cornerblocks of base cabinets. Shim as needed to align subtops in a level plane.
- D. Secure countertops to subtops with adhesive according to solid surface material manufacturer's written instructions. Align adjacent surfaces and, using adhesive in color to match countertop, form seams to comply with manufacturer's written instructions. Carefully dress joints smooth, remove surface scratches, and clean entire surface.
- E. Bond joints with adhesive and draw tight as countertops are set. Mask areas of countertops adjacent to joints to prevent adhesive smears.
  - 1. Install metal splines in kerfs in countertop edges at joints. Fill kerfs with adhesive before inserting splines and remove excess immediately after adjoining units are drawn into position.
  - 2. Clamp units to temporary bracing, supports, or each other to ensure that countertops are properly aligned and joints are of specified width.
- F. Install backsplashes and end splashes by adhering to wall and countertops with adhesive. Mask areas of countertops and splashes adjacent to joints to prevent adhesive smears.
- G. Install aprons to backing and countertops with adhesive. Mask areas of countertops and splashes adjacent to joints to prevent adhesive smears. Fasten by screwing through backing. Predrill holes for screws as recommended by manufacturer.
- H. Complete cutouts not finished in shop. Mask areas of countertops adjacent to cutouts to prevent damage while cutting. Make cutouts to accurately fit items to be installed, and at right angles to finished surfaces unless beveling is required for clearance. Ease edges slightly to prevent snipping.
  - 1. Seal edges of cutouts in particleboard subtops by saturating with varnish.
- I. Apply sealant to gaps at walls; comply with Section 079200 "Joint Sealants."
- J. Installation shall be in as long lengths as possible. Where joints are required they should be filled with construction adhesive in accordance with manufacturer's procedures. Installation shall be by construction adhesive to substrate in accordance with manufacturer's recommendations. Substrate shall be ¾" particle.
- K. Extend sills 1" from face of millwork or wall.
- L. Provide 1 ½" thick window sill with radius edge & 2 ½" x ½" thick vertical trim under sill.

END

OF

SECTION

123661.16



## SECTION 124813 - ENTRANCE FLOOR MATS AND FRAMES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Floor mat and frame assembly.

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
  - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for floor mats and frames.
- B. Shop Drawings:
  - 1. Divisions between mat sections.
  - 2. Perimeter floor moldings.
- C. Samples: For the following products, in manufacturer's standard sizes:
  - 1. Floor Mat: Assembled sections of floor mat.
  - 2. Frame Members: Sample of each type and color.

#### 1.4 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For floor mats and frames to include in maintenance manuals.

### PART 2 - PRODUCTS

#### 2.1 ENTRANCE FLOOR MATS AND FRAMES, GENERAL

- A. Structural Performance: Provide roll-up rail mats and frames capable of withstanding the following loads and stresses within limits and under conditions indicated:
  - 1. Uniform floor load of 300 lbf/sq. ft..
  - 2. Wheel load of 350 lb per wheel.

- B. Regulatory Requirements: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines for Buildings and Facilities.

## 2.2 ENTRANCE MATS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide T1 “Treadline” floor mat with SM tapered vinyl frame and “Monotuft HD Carpet as manufactured by Construction Specialties, Inc. or a comparable product by one of the following:
  - 1. American Floor Products Company, Inc.
  - 2. Balco, Inc.
  - 3. Pawling Corporation; Architectural Products Division.
  - 4. U.S. Mat & Rubber Corporation.
- B. Carpet-Type Mats: Fibers shall include a minimum of 100, 12 mil monofilament fibers per inch. Each carpet and monofilament shall be fusion bonded to a rigid two-ply backing and supplied in a continuous splice-free length. Carpet weight shall be 33 oz/yd<sup>2</sup>.
  - 1. Colors, Textures, and Patterns: As selected by Architect from full range of industry colors.
  - 2. Mat Size: As indicated.

## 2.3 FRAMES

- A. Surface-Mounted Frames:
  - 1. Tapered Frames: Tapered flexible vinyl edge-frame members, not less than 1-5/8 inches wide, attached to mat at all four edges, with welded mitered corners.
    - a. Vinyl Color: As selected by Architect from full range of industry colors.

## 2.4 FABRICATION

- A. Floor Mats: Shop fabricate units to greatest extent possible in sizes indicated. Unless otherwise indicated, provide single unit for each mat installation; do not exceed manufacturer's recommended maximum sizes for units that are removed for maintenance and cleaning. Where joints in mats are necessary, space symmetrically and away from normal traffic lanes. Miter corner joints in framing elements with hairline joints or provide prefabricated corner units without joints.
- B. Surface-Mounted Frames: As indicated for permanent surface-mounted installation, complete with corner connectors, splice plates or connecting pins, and postinstalled expansion anchors.
- C. Coat concealed surfaces of aluminum frames that contact cementitious material with manufacturer's standard protective coating.

2.5 ALUMINUM FINISHES

- A. Mill finish.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and floor conditions for compliance with requirements for location, sizes, minimum recess depth, and other conditions affecting installation of floor mats and frames.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install surface-type units to comply with manufacturer's written instructions at locations indicated; coordinate with entrance locations and traffic patterns.
  - 1. Anchor fixed surface-type frame members to floor with devices spaced as recommended by manufacturer.

3.3 PROTECTION

- A. After completing frame installation and concrete work, provide temporary filler of plywood or fiberboard in recesses and cover frames with plywood protective flooring. Maintain protection until construction traffic has ended and Project is near Substantial Completion.

END OF SECTION 124813

