State of Michigan

Department of Technology, Management and Budget
State Facilities Administration
Design and Construction Division

DCSPEC
Bidding and Contract Document
Minor Projects

File No. 472/17032.RWG
Funding Code: 472ElectronicComm

Department of Corrections

Wi-Fi Cabling Infrastructure

Kinross Correctional Facility (KCF)

11/18/2024

DTMB-0401D (R 03/21)

BID SUMMARY

DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET

STATE FACILITIES ADMINISTRATION
DESIGN AND CONSTRUCTION DIVISION
3111 W. St. Joseph Street
Lansing, Michigan 48917

Bids must be submitted electronically through the SIGMA VSS website at
https://sigma.michigan.gov/webapp/PRDVSS2X1/AltSelfService

FILE NUMBER	FUNDING CODE	DEPARTMENT/AGENCY	
472/17032.RWG	472ElectronicComm	Corrections	
CONTRACT TIME(S)	PROJECT NAME		LOCATION
120 Days from Notice to Proceed	WiFi Cabling Infrastructure		Kinross C.F. (KCF)
BID OPENING DATE		FOR AN EXAMINATION OF THE SITE CONTACT:	
Wednesday 12/18/2024 at 2:00 pm ET		Must attend Mandatory pre-bid walk through	

SEE SECTION 00100 INSTRUCTIONS TO BIDDERS AND SECTION 00700 GENERAL CONDITIONS PROVIDED WITH THE BIDDING DOCUMENTS.
BID: WE PROPOSE TO FURNISH, PERFORM AND COMPLETE THE ENTIRE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS IN CONSIDERATION OF THE BID PRICE (S) STATED BELOW.

FIRM NAME AND COMPLETE ADDRESS	TELEPHONE NUMBER and E-MAIL ADDRESS
	SIGMA VENDOR NUMBER (protected information required for processing payments)
☐ Qualified Disabled Veteran	
BIDDER'S SIGNATURE AND TITLE DATE	WITNESS' SIGNATURE DATE

By signing this bid above, bidder certifies their enclosed Qualified Disabled Veteran and Michigan-Based Business Certifications.

BASE BID FROM BID SCHEDULE (Include specified Allowances):

_____ Dollars $_____
(use words) (in figures)

Alternate1: (Add/Subtract) _____ Dollars $ _____
(use words) (in figures)

Alternate 2: (Add/Subtract) _____ Dollars $ _____
(use words) (in figures)

Alternate 3: (Add/Subtract) _____ Dollars $ _____
(use words) (in figures)

A PERFORMANCE BOND AND A PAYMENT BOND ARE REQUIRED FOR ALL BIDS OVER $50,000.00. EACH BID MUST BE ACCOMPANIED BY A FIVE (5) PERCENT BID GUARANTEE. BUILDERS RISK INSURANCE IS REQUIRED TO BE PROVIDED BY THE CONTRACTOR UNLESS OTHERWISE INDICATED IN THE BID DOCUMENTS.

BIDDERS ARE ALSO CAUTIONED TO FAMILIARIZE THEMSELVES WITH ALL OF THE OTHER CONDITIONS OF THE CONTRACT.

Project Scope of Work:

- The MDOC is obtaining a new WIFI cabling system and installation and connection of owner provided Wireless Network equipment.
- The scope of this project is the provision and installation of the cabling, raceway and systems as described below, on the drawings and in the detailed specifications.
- Electrical Power
    - Provide and install power circuits where shown on the electrical drawing and as described in the specifications.

- Systems Grounding
    - Install ground bars and bond equipment to the ground bars as shown on the drawings and as described in the specifications
- Wireless network equipment shall include:
    - Wireless Access points –(WAPS) and their enclosures. Interior and Exterior. All these devices and their enclosures are provided by owner, Contractor installee.
    - Contractor shall install WAPS and WAP enclosures at each building. Owner will provide the WAPS and Oberon type enclosures.
- WIFI cabling scope shall include but not be limited to:
    - Provide, install, terminate, test and label a complete CAT-6A cabling infrastructure to support a new WIFI (wireless) network.
    - Provide, install, terminate, test and label a complete CAT-6 cabling infrastructure where noted to transition existing cables to racks or cabinets.
    - Provide and install raceways and cable supports as specified and as required to support all new cabling and Wireless Access Points.
    - Upgrade and/or add communications racks and equipment to the racks. Make change as noted on the drawings and specifications
    - See drawings and specifications for raceways and pathways.
- The contract shall include the installation and connection of Wireless network equipment. Work shall include:
    - Providing a 40’ long Conex box onsite for the duration of the project. Coordinate location with the owner.
    - Moving of WAPS and enclosures from the delivery truck to the owner’s storage building.
    - Moving of WAPS and enclosures from the owner’s storage location to the actual building where they will be installed.
    - Installation of all wireless network equipment. this includes:
        - Mounting of owner provided WAPS and enclosures in all buildings.
        - Mounting of owner provided WAPS on the building exterior or poles at the site.
        - Owner will install Ethernet Switches and provide/install Patch cables at the switches
- Provide and install CAT-6A patch cords at each WAP. See specifications for types and lengths required.
    - Owner will provide and install CAT-6A patch cords at the Ethernet Switches
- Verify connectivity lights on all WAPS after the owner installs the Ethernet Switches.
- Label WAP patch panels with the WAP number as shown in the drawings and specifications.
- The owners (and their Cisco Partner) work on the WIFI network equipment includes:
    - Obtaining of Wireless network equipment and storage at their warehouse in Michigan.
    - Deliver of WAPS and WAP enclosures to the site.
    - Configuration of all wireless network equipment per owners’ recommendations
    - Labeling of WAPS with WAP number and labeling outside of WAP enclosure with WAP number and building where it is to be installed.

The Bidder must figure its Base Bid on the specified, or Addendum-approved, materials and equipment **only**. No “or equal” or substitution proposals will be permitted after Bid opening, except as provided in the General Conditions.

Addenda: Bidder acknowledges receipt of Addenda: No. ___ dated: _____, No. ___ dated: _____ No. ___ dated: _____

FIRM NAME	TELEPHONE NUMBER and E-MAIL ADDRESS

BID SCHEDULE

Base Bid Schedule - The Bidder will complete the Work and accept as full payment, for the Work items listed, the following Unit Prices and/or Item Bid Prices, as applicable:

Base Bid Item No.	Bid Quantity	Description	Unit Price	Item Bid Price
1	**1**	Data cabling, racks/cabinets and fiber cabling equipment		
2	**1**	Data cabling, racks/cabinets and fiber cabling labor		
3	**1**	Raceway equipment		
4	**1**	Raceway labor		
5	**1**	Electrical power equipment		
6	**1**	Electrical power labor		
7	**1**	Conex Box Container		
8	**1**	WAP Installation equipment		
9	**1**	WAP Installation labor		
10	**1**	2% Code Approval		
11	**1**	2% Warranty		
12	**1**	2% As-Builts		
		ALLOWANCE AMOUNT	**$15,000.00**	**$15,000.00**
TOTAL (This amount should equal the Base Bid amount on the Bid Summary Form)				**$**

Base Bid (Sum of Item Bid Prices for all Base Bid Items):

_____ Dollars $_____
(use words) (in figures)

Schedule of Alternates - The Bidder will complete (or deduct from the Contract) the parts of the Work designated by the Alternates that follow and accept in full payment (or allow in full credit) for those parts of the Work the following Item Bid Prices:

Alternate Item No.	Bid Quantity	Description	Unit Price	Item Bid Price
N/A				

The Bidder further acknowledges and agrees that the separate prices bid on this "Schedule of Alternates," where they are applicable and deemed acceptable by the **Owner**, will be used if incorporated into the Contract when the **Owner** issues the Notice of Award.

Schedule of Unit Prices or Contingent Change Order Prices - The Bidder shall use this "Schedule" to quote unit prices identified in the bid documents or propose other contingent Change Order prices. The proposed Unit Prices or contingent Change Order prices set forth in this schedule, at the sole discretion of the **Owner,** may, or may not be incorporated into the Contract Documents. The **Owner** reserves the right to negotiate Unit Prices or contingent Change Order prices set forth herein prior to their possible incorporation into the Contract Documents.

Item No.	Bid Quantity	Description	Unit Price	Item Bid Price
N/A				

DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
State Facilities Administration
Design & Construction Division

Qualified Disabled Veteran (QDV) Business Representation

'Qualified Disabled Veteran,' means a business entity that is 51% or more owned by one or more veterans with a service-connected disability.

'Qualified Disabled,' means a business entity that is 51% or more owned by one or more with a service-connected disability.

The vendor represents that it IS _____, a qualified disabled veteran.

The contractor represents and warrants that the company meets the above (when checked) and has attached supporting documentation per the following:

Each bid requesting the Qualified Disabled Veterans (QDV) preference, in accordance with Public Act 22 of 2010, MCL 18.1241.3 shall include a DD214 Proof of Service and Discharge, a Veterans Administration rating decision letter, proof of disability (if the disability is not indicated on the DD214), and appropriate legal documents setting forth the 51% natural persons QDV ownership.

Fraudulent Certification as a Qualified Disabled Veteran may result in debarment under MCL 18.264.

Certification of a Michigan Based Business

(Information Required Prior to Contract Award for Application of State Reciprocity Provisions)

To qualify as a Michigan Based Business:

Vendor must have, during the 12 months immediately preceding this bid deadline:
or
If the business is newly established, for the period the business has been in existence, it has:

(Check all that apply):

- ☐ Filed a Michigan single business tax return showing a portion, or all the income tax base allocated or apportioned to the State of Michigan pursuant to the Michigan Single Business Tax Act, 1975 PA 228, MCL 208.1 – 208.145: or
- ☐ Filed a Michigan income tax return showing income generated in or attributed to the State of Michigan; or
- ☐ Withheld Michigan income tax from compensation paid to the bidder's owners and remitted the tax to the Department of Treasury; or

I certify that **I have personal knowledge** of such filing or withholding, that it was more than a nominal filing for the purpose of gaining the status of a Michigan business, and that it indicates a significant business presence in the state, considering the size of the business and the nature of its activities.

I authorize the Michigan Department of Treasury to verify that the business has or has not met the criteria for a Michigan business indicated above and to disclose the verifying information to the procuring agency.

Bidder shall also indicate one of the following:

- ☐ Bidder qualifies as a Michigan business (provide zip code: _____)
- ☐ Bidder does not qualify as a Michigan business (provide name of State: _____).
- ☐ Principal place of business is outside the State of Michigan, however service/commodity provided by a location within the State of Michigan (provide zip code: (_____).

Fraudulent Certification as a Michigan business is prohibited by MCL 18.1268 § 268. A BUSINESS THAT PURPOSELY OR WILLFULLY SUBMITS A FALSE CERTIFICATION THAT IT IS A MICHIGAN BUSINESS OR FALSELY INDICATES THE STATE IN WHICH IT HAS ITS PRINCIPAL PLACE OF BUSINESS IS GUILTY OF A FELONY, PUNISHABLE BY A FINE OF NOT LESS THAN $25,000 and subject to debarment under MCL 18.264.

BID BOND

BID SUBMITTED ON the _____ day of _____, 20____.

Bid Security **is in the form of a Bid Bond _____ Bid Bond form has been duly executed _____; or**

A Bank Certified or Cashier's check ___ or Money Order ___ is attached to this page ____ (***If Bid Security is by Check or Money Order, the original check or money order must be delivered to the issuing office before Bid Due Time. ALL other SIGMA bid submittals are also still to be made).***

If the Bidder is an Individual:

Name of Individual: _____

Name & Title of Person Authorized to sign: _____

Signature: _____
(If not the Individual, Attach Power of Attorney) Date

Doing Business as: _____

Business Address: _____

County of registration _____

Telephone: _____ FAX: _____

If the Bidder is a Partnership:

By: _____
(True Name of the Partnership)

_____
Partner Authorized to Sign Date

Signature: _____
(Attach evidence of Authority to sign) Date

Business Address: _____

County of registration _____

Telephone: _____ FAX _____

If the Bidder is a Corporation:

By: _____
(Legal Corporation Name)

Name & Title of Authorized Officer: _____

Signature: _____
(Attach evidence of Authority to sign) Date

Name & Title of Officer Attesting: _____

Signature: _____
Date

Business Address: _____

Telephone: _____ FAX _____

(State of Incorporation): _____

If The Bidder is A Joint Venture: JOINT VENTURE SIGNATURES MUST BE AS PROVIDED IN INSTRUCTIONS TO BIDDERS. EACH JOINT VENTURER SIGNING THE BID MUST SIGN IN THE MANNER INDICATED FOR AN INDIVIDUAL, A PARTNERSHIP OR A CORPORATION. IF MORE THAN TWO JOINT VENTURERS OF THE SAME TYPE ARE INCLUDED, USE ADDITIONAL PAGES. JOINT VENTURE STATE OF INCORPORATION _____ OR COUNTY OF REGISTRATION _____

POST-BID SUBMITTALS

The PSC will request this submittal after bid opening. Complete and submit these items within two business days after the request.

BIDDER'S EXPERIENCE MODIFICATION RATING (EMR) ____________
Attach letter of explanation if the Bidder does not have an EMR.

PROPOSED PROJECT SUPERINTENDENT _______________________________
Attach brief resume or list of similar successful projects.

LIST OF SIMILAR PROJECTS COMPLETED BY THE BIDDER
Please list at least three completed projects of similar size and complexity to the project being bid, with reference contact information

REFERENCE #___

Owner: ____

Project/Contract Name: ____

Location of Project/Contract: ____

Contract Price: ________________________ Project/Contract Started: ____________ Completed: ____________

Owner's Representative (Name and Telephone): ____

____

Scope of Project/Contract: ____

____

REFERENCE #___

Owner: ____

Project/Contract Name: ____

Location of Project/Contract: ____

Contract Price: ________________________ Project/Contract Started: ____________ Completed: ____________

Owner's Representative (Name and Telephone): ____

____

Scope of Project/Contract: ____

____

REFERENCE #___

Owner: ____

Project/Contract Name: ____

Location of Project/Contract: ____

Contract Price: ________________________ Project/Contract Started: ____________ Completed: ____________

Owner's Representative (Name and Telephone): ____

____

Scope of Project/Contract: ____

POST BID SUBMITTALS: LIST OF SUBCONTRACTORS

The Apparent Low Bidder shall nominate for each Division of Specification and/or trade category, the Subcontractor to be awarded Sub-agreements, including the apparent Low Bidder if work is to be self-performed. Nominated subcontractors shall not be removed, replaced, or added to except by written request for good reason, subject to Owner acceptance.

Division, Specification Section and/or Trade	Nominated Subcontractor(s)	Amount of Subcontract
1._____	_____	_____
2._____	_____	_____
3._____	_____	_____
4._____	_____	_____
5._____	_____	_____
6._____	_____	_____
7._____	_____	_____
8._____	_____	_____
9._____	_____	_____
10._____	_____	_____
11._____	_____	_____
12._____	_____	_____
13._____	_____	_____
14._____	_____	_____

The undersigned Apparent Low Bidder _____ certifies that all the information and data furnished in this List of Subcontractors are current, accurate and complete as of the date stated below.

Signed by:_____Name_____ Title _____

on this _____ day of _____, 20_____.

PERFORMANCE BOND

SURETY COMPANY REFERENCE No. _____

That "the **Contractor**," _____, a corporation ___, individual ___, partnership ___, joint venture ___ of the State of _____, qualified to do business in the State of Michigan, as Principal, and "the Surety," _____, of the State of _____, as surety, are held and bound unto the State of Michigan, "the **Owner**," as Obligee, in the amount of _____ Dollars ($_____), for the payment of which the **Contractor** and Surety bind themselves, their respective heirs, successors, legal representatives and assigns, jointly and severally, in compliance with 1963 PA 213, as amended, MCL 129.201 et seq.

The **Contractor** has entered into "the Contract" with the **Owner** for _____ _____, "the Work," covered by the Contract Documents, which are incorporated into this Performance Bond by this reference.

If the **Contractor** faithfully performs and fulfills all the undertakings, covenants, terms, conditions, warranties, indemnifications and agreements of the Contract Documents within the Contract Time (including any authorized changes, with or without notice to the Surety) and during the Correction Period, and if the **Contractor** also performs and fulfills all the undertakings, covenants, terms, conditions, warranties, indemnifications and agreements of any and all duly authorized modifications of the Contract Documents, then THIS OBLIGATION IS VOID, OTHERWISE TO REMAIN IN FULL FORCE AND EFFECT.

A. No change in Contract Price or Contract Time, "or equal" or substitution or modification of the Contract Documents (including addition, deletion, or other revision) releases the Surety of its obligations under this Section 00610 Performance Bond. The Surety expressly waives notice of any such change in Contract Price or Contract Time, "or equal" or substitution or modification of the Contract Documents (including addition, deletion, or other revision).

B. This Performance Bond must be solely for the protection of the **Owner** and its successors, legal representatives or assigns.

C. It is the intention of the **Contractor** and Surety that they must be bound by all terms and conditions of the Contract Documents (including, but not limited to General Conditions and this Performance Bond). However, this Performance Bond is executed pursuant to 1963 PA 213, as amended, MCL 129.201 et seq., and if any provision(s) of this Performance Bond is/are illegal, invalid, or unenforceable, all other provisions of this Performance Bond must nevertheless remain in full force and effect, and the **Owner** must be protected to the full extent provided by 1963 PA 213, as amended, MCL 129.201 et seq.

IMPORTANT: The Surety must be authorized to do business in the State of Michigan by the Department of Licensing and Regulatory Affairs – Insurance Bureau, must be listed on the current U.S. Department of the Treasury Circular 570, and, unless otherwise authorized by the **Owner** in writing, must have at least an A– Best's rating and a Class VII or better financial size category per current A. M. Best Company ratings.

Name, Address and Telephone of the Surety:

Address and Telephone of Agent, who is either a resident of, or whose principal office is maintained in, the State of Michigan

Signed and sealed this _____ day of _____, 20_____.

THE **CONTRACTOR**: (Print Full Name and Sign) By:_____

WITNESS _____ Name & Title: _____

Telephone No. _____

THE SURETY: (Print Full Name and Sign) Agent: _____

WITNESS _____ Attorney-in-Fact: _____

Telephone No. _____

PAYMENT BOND

SURETY COMPANY REFERENCE No._____

"the **Contractor**," _____, a corporation ___, individual ___, partnership ___, joint venture ___ of the State of _____, qualified to do business in the State of Michigan, as Principal, and "the Surety," _____, of the State of _____, as surety, are held and bound unto the State of Michigan, "the **Owner**," as Obligee, in the amount of _____ Dollars ($_____), for the payment of which the **Contractor** and Surety bind themselves, their respective heirs, successors, legal representatives and assigns, jointly and severally, in compliance with 1963 PA 213, as amended, MCL 129.201 et seq.

The **Contractor** has entered into "the Contract" with the **Owner** for _____ _____, "the Work," covered by the Contract Documents, which are incorporated into this Payment Bond by this reference.

If the **Contractor** promptly pays all claimants supplying labor or materials to the **Contractor** or to the **Contractor's** Subcontractors in the prosecution of the Work, then THIS OBLIGATION IS VOID, OTHERWISE TO REMAIN IN FULL FORCE AND EFFECT.

A. All rights and remedies on this Payment Bond are solely for the protection of all claimants supplying labor and materials to the **Contractor** or the **Contractor's** Subcontractors in the prosecution of the Work and must be determined in accordance with Michigan Law.

B. No change in Contract Price or Contract Time, "or equal" or substitution or modification of the Contract Documents (including addition, deletion, or other revision) must release the Surety of its obligations under this Payment Bond. The Surety hereby expressly waives notice of any such change in Contract Price or Contract Time, "or equal" or substitution or modification of the Contract Documents (including addition, deletion, or other revision).

C. It is the intention of the **Contractor** and Surety that they must be bound by all terms and conditions of the Contract Documents (including, but not limited to this Payment Bond). However, this Payment Bond is executed pursuant to 1963 PA 213, as amended, MCL 129.201 et seq., and if any provision(s) of this Payment Bond is/are illegal, invalid, or unenforceable, all other provisions of this Payment Bond must nevertheless remain in full force and effect, and the **Owner** must be protected to the full extent provided by 1963 PA 213, as amended, MCL 129.201 et seq.

IMPORTANT: The Surety must be authorized to do business in the State of Michigan by the Department of Licensing and Regulatory Affairs – Insurance Bureau, must be listed on the current U.S. Department of the Treasury Circular 570, and, unless otherwise authorized by the **Owner** in writing, must have at least an A– Best's rating and a Class VII or better financial size category per current A. M. Best Company ratings.

Name, Address and Telephone of the Surety:

Address and Telephone of Agent, who is either a resident of, or whose principal office is maintained in, the State of Michigan

Signed and sealed this _____ day of _____, 20_____.

THE **CONTRACTOR**: (Print Full Name and Sign) By:_____

WITNESS _____ Name & Title: _____

Telephone No. _____

THE SURETY: (Print Full Name and Sign) Agent: _____

WITNESS _____ Attorney-in-Fact: _____

Telephone No. _____

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DIVISION 00

BIDDING REQUIREMENTS AND CONTRACT CONDITIONS

SECTION 00010 PRE-BID INFORMATION

1. **Invitation to Bid (ITB)** – Your firm is invited to submit a Bid. The State of Michigan as the Owner will receive **bids electronically through the SIGMA VSS website at https://sigma.michigan.gov/webapp/PRDVSS2X1/AltSelfService, Wi-Fi Cabling Infrastructure at Kinross Correctional Facility, until 2:00 p.m. EST, on December 18, 2024**. The State reserves the right to cancel this Invitation to Bid (ITB) or change the date and time for submitting Bids by announcing same at any time before the established date and time for Bid opening. Bids must remain open for acceptance by the Owner for no less than the Bid hold period. Contractor may agree to extend the Bid hold period. However, any such extension must be based upon no increase in the Bid Price and/or Contract Time.

2. **Work Description** – The Work, Wi-Fi Cabling Infrastructure Agency No:472 Funding Code. 472ElectronicComm, DTMB File No. 472/17032.RWG includes, but is not necessarily limited to:

- The MDOC is obtaining a new WIFI cabling system and installation and connection of owner provided Wireless Network equipment.
- The scope of this project is the provision and installation of the cabling, raceway and systems as described below, on the drawings and in the detailed specifications.
- Electrical Power
    - Provide and install power circuits where shown on the electrical drawing and as described in the specifications.
- Systems Grounding
    - Install ground bars and bond equipment to the ground bars as shown on the drawings and as described in the specifications
- Wireless network equipment shall include:
    - Wireless Access points –(WAPS) and their enclosures. Interior and Exterior. All these devices and their enclosures are provided by owner, Contractor installee.
    - Contractor shall install WAPS and WAP enclosures at each building. Owner will provide the WAPS and Oberon type enclosures.
- WIFI cabling scope shall include but not be limited to:
    - Provide, install, terminate, test and label a complete CAT-6A cabling infrastructure to support a new WIFI (wireless) network.
    - Provide, install, terminate, test and label a complete CAT-6 cabling infrastructure where noted to transition existing cables to racks or cabinets.
    - Provide and install raceways and cable supports as specified and as required to support all new cabling and Wireless Access Points.
    - Upgrade and/or add communications racks and equipment to the racks. Make change as noted on the drawings and specifications
    - See drawings and specifications for raceways and pathways.
- The contract shall include the installation and connection of Wireless network equipment. Work shall include:
    - Providing a 40’ long Conex box onsite for the duration of the project. Coordinate location with the owner.
    - Moving of WAPS and enclosures from the delivery truck to the owner’s storage building.
    - Moving of WAPS and enclosures from the owner’s storage location to the actual building where they will be installed.
    - Installation of all wireless network equipment. this includes:
        - Mounting of owner provided WAPS and enclosures in all buildings.
        - Mounting of owner provided WAPS on the building exterior or poles at the site.
        - Owner will install Ethernet Switches and provide/install Patch cables at the switches
- Provide and install CAT-6A patch cords at each WAP. See specifications for types and lengths required.
    - Owner will provide and install CAT-6A patch cords at the Ethernet Switches
- Verify connectivity lights on all WAPS after the owner installs the Ethernet Switches.

- Label WAP patch panels with the WAP number as shown in the drawings and specifications.
- The owners (and their Cisco Partner) work on the WIFI network equipment includes:
    - Obtaining of Wireless network equipment and storage at their warehouse in Michigan.
    - Deliver of WAPS and WAP enclosures to the site.
    - Configuration of all wireless network equipment per owners' recommendations
    - Labeling of WAPS with WAP number and labeling outside of WAP enclosure with WAP number and building where it is to be installed.

The site is located at: 4533 W. Industrial Park Drive, Kincheloe, MI 49788, as shown on the Drawings.

3. **Bidding Documents** – Sets of Bidding Documents may be obtained at https://sigma.michigan.gov/webapp/PRDVSS2X1/AltSelfService .

4. **Bid Security** – Each Bid must enclose a duly executed Bid Security, in the amount of five percent (5%) of the Bidder's Base Bid, paid to the "State of Michigan" in the form of a certified or cashier's check or money order drawn upon a bank insured by an agency of the Federal Government, or a bid bond signed by both the Contractor and authorized surety company. *If Bid Security is by check or money order, such certified or cashier's check or money order must be delivered in original copy before the Bid Due Time to:*

State Facilities Administration
Design & Construction Division
3111 W. St. Joseph Street
Lansing, Michigan 48917

All other Bid information must be submitted via SIGMA as per standard bidding procedure

5. **Pre-Bid Conference** – A mandatory pre-bid conference will be held at Kinross Correctional Facility - 4533 W. Industrial Park Drive, Kincheloe, MI 49788 on December 3rd, 2024, at 3:00 PM Local Time. A tour will be held on the same day, starting at 3:00 PM local time. All prospective Bidders are required to attend the tour, if held. Other parties interested in the Work are encouraged to attend the tour. Addenda may be issued, in response to issues raised at the pre-bid conference and tour, or as the Owner and/or Professional may otherwise consider necessary.

   The purpose of the pre-bid conference and inspection is to answer questions and provide an inspection tour of the Project site at the scheduled time on the day of the meeting. A representative will be available to assist the Contractors. Other inspection visits may be allowed if needed. Individuals needing special services to fully participate in the meeting due to a disability may contact Amos Woods @ (906) 495-2282 Ext. 1112171275.

   FOR CORRECTIONAL FACILITIES ONLY: All contractor/vendor representatives attending a Pre-Bid Walk Through Meeting must submit a Vender/Contractor LEIN Request five business days prior to the meeting date, (LEIN Request For CAJ-1037 attached to Bid posting). Send the LEIN Request form, filled out and signed, by email to Daniel T. Smith at email address: SmithD76@michigan.gov. The email "Subject" must include (Facility Name, Project Name, Date & Time of Pre-Bid Walk Through Meeting).

6. **SIGMA VENDOR NUMBER:** If you are bidding a State job for the first time, visit the State of Michigan SIGMA website, https://sigma.michigan.gov/webapp/PRDVSS2X1/AltSelfService, and follow the "SOM VSS User Guide for New Vendors" instructions, located under Forms and Reference Documents. Registration is required for bid submission. **Do not wait until the last minute to submit a proposal**, as the SIGMA system requires the creation of an account and entry of certain information, in addition to uploading and submitting the materials. The SIGMA system **will not** allow a proposal to be submitted after the proposal deadline, even if a portion of the proposal has been updated.

   Questions on how to submit information or how to navigate in the SIGMA VSS system can be answered by calling **(517) 373-4111 or (888) 734-9749**.

7. **Equal Employment Opportunity** – Covenants to not discriminate in employment by Contractors, Subcontractors and Suppliers required by Law are contained in Instructions to Bidders and General Conditions and are applicable to the Work and any Sub-agreement under the Contract.

8. **Contract Times** – The Contract Times and the associated liquidated damages are specified in the Contract.

9. **Contact Person** – All requests or inquiries concerning the Bidding Documents, or the Work must be addressed to Bret Emerson, Commtech Design, bids@commtechdesign.com. Questions will be accepted until December 6th, 2024, at 2:00 PM ET.

10. Award – Subject to any agreed extension of the period for holding Bids, Bids must remain valid for acceptance by the Owner for 60 Calendar Days after the date of Bid opening. In addition, the Owner expressly reserves the right, within the Owner's sole discretion, to reject any or all Bids, to waive any irregularities, to issue post-Bid Addenda and re-bid the Work without re-advertising, to re-advertise for Bids, to withhold the award for any reason the Owner determines and/or to take any other appropriate action.

11. Performance and Payment Bonds – A performance bond and a payment bond are required for all contracts over $50,000.00.

END OF SECTION 00010

SECTION 00100 INSTRUCTIONS TO BIDDERS

1. **PREPARATION OF BID:** Execute Bid fully and properly. Bid Summary Form (DTMB -0401D) and Bid Form Attachments must be used and completely filled out for the Bid to be considered responsive and meeting the requirements of the contract solicitation. All Bid prices must be printed or typed in both words and figures.

2. **BID CHECKLIST:** Submit Bid Summary Form with original signatures plus Bid Form Attachments in accordance with the electronic bidding procedures on the SIGMA VSS website.

A complete Bid will consist of the following forms, which are included immediately following the Bid Summary Form:

Bids	SUBMIT THESE Bid Forms and Bid Form Attachments
All Bids	☐ **Signed** and completed Bid Summary Form (DTMB-0401D).
	☐ Bid Schedule.
	☐ Qualified Disabled Veteran (QDV) Business Representation.
	☐ Bid Security in the amount of 5% of Base Bid Price.

If Bid Security is by check or money order, such certified or cashier's check or money order must be delivered in original copy before the Bid Due Time to:

State Facilities Administration
Design & Construction Division
3111 W. St. Joseph Street
Lansing, Michigan 48917

All other Bid information must be submitted via SIGMA as per standard bidding procedure

	☐ Signature Authorization or copy of the partnership agreement if signed by all partners.
	☐ Other Forms: None.
Over $50K	☐ Forms listed under All Bids.
	☐ Payment and Performance Bond (upon issuing the Notice of Award).
Over $100K	☐ Forms listed under All Bids.
	☐ Certification of a Michigan Based Business.
	☐ Payment and Performance Bond (upon issuing the Notice of Award).
Over $250K	☐ Forms listed under All Bids.
	☐ Certification of a Michigan Based Business.
	☐ Payment and Performance Bond (upon issuing the Notice of Award).

Apparent Low Bidders ONLY (upon request from the Professional)

- ☐ Experience Modification Rating (EMR), or a letter stating why the Bidder does not have one.
- ☐ Identification of the proposed project superintendent, with a resume or list of similar projects handled by that individual.
- ☐ A list of at least three (3) projects completed by the Bidder, within the last three (3) years of similar size and complexity, with contact information for references for each.
- ☐ A list of nominated sub-contractors, including proposed self-performed categories, for each Division/Trade/etc.

3. **BID SUBMISSION**: **Bids must be submitted electronically through the SIGMA VSS website at https://sigma.michigan.gov/webapp/PRDVSS2X1/AltSelfService**.

4. **BID GUARANTEE:** Each proposal must be accompanied by either a bank certified or cashier's check on an open, solvent bank or a bid bond with an authorized surety company (the surety must be listed on the current U.S. Department of the Treasury Circular 570) in the amount of five percent of the base bid payable to the State of Michigan, as a guarantee of good faith. If the successful Bidder fails to furnish satisfactory bonds and insurance within fifteen Calendar Days after Notice of Award, such

guarantee must be forfeited to the State as liquidated damages. *If Bid Security is by check or money order, such certified or cashier's check or money order must be delivered in original copy before the Bid Due Time to the Issuing Office.* The bid security, exclusive of bid bonds, of all unsuccessful Bidders will be returned when an award is made or upon substitution of a bid bond. The bid security of the successful Bidder will be returned when the performance bond and labor and material bond are approved.

5. Left Blank Intentionally.

6. MICHIGAN BASED BUSINESS CERTIFICATION: All Bidders submitting Bids in excess of $100,000.00 must complete the Certification of Michigan Based Business. This information will determine if a Bidder qualifies as a "Michigan" business for purposes of application of reciprocity where applicable.

7. POST-BID SUBMITTAL: For all projects, the Professional may request a Post-Bid Submittal from the Apparent Low Bidders. The Apparent Low Bidders must submit to the Professional, within **two** Business Days after receipt of the Professional's request,

- Experience Modification Rating (EMR), or a letter stating why the Bidder does not have one.
- Identification of the proposed project superintendent with a resume or list of similar projects managed by that individual.
- A list of at least three (3) projects completed by the Bidder, within the last three (3) years of similar size and complexity, with contact information for references for each.
  Failure to provide the submittals may disqualify the Bid.

8. SIGNATURES: All Bids, notifications, claims, and statements must be signed as follows:

(a) **Corporations:** Signature of official must be accompanied by a certified copy of the Resolution of the Board of Directors authorizing the individual signing to bind the corporation.
(b) **Partnerships:** Signature of one partner must be accompanied by a signed copy of the legal document (e.g., Power of Attorney or partnering agreement) authorizing the individual signing to bind all partners. If Bid is signed by all partners, no authorization is required.
(c) **Individual:** No authorization is needed. Each signature must be witnessed.

9. **BID PRICES:** The Bidder's Base Bid and Alternate Bid prices must include, and payment for completed Work will compensate in full for: all services, obligations, responsibilities, management, supervision, labor, materials, devices, equipment, construction equipment, general conditions, permits, patent fees and royalties, testing, inspection and approval responsibilities, warranties, temporary facilities, small tools, supplies, Bonds, insurance, taxes, mobilization, close-out, overhead and profit and all connections, appurtenances and any other incidental items of any kind or nature, as are necessary to complete the Work, in a neat, first quality, workmanlike and satisfactory manner in accordance with the Drawings and Specifications and as otherwise required to fulfill the requirements of the Bidding Documents. For each Cash Allowance item, the Bidder must include, within the Bid, all labor costs, construction equipment costs, insurance and Bond premiums and other general conditions costs and Fees (Bidder's and Subcontractors') to complete Work associated with the material, equipment, or other designated item to be furnished under the Cash Allowance. For each Provisionary Allowance, the Bidder must include, within the Bid, insurance, premiums (not recoverable as labor burden) and Bond premiums required to complete Work that may be ordered under a Provisionary Allowance.

10. INSPECTION OF BIDDING DOCUMENTS AND SITE CONDITIONS: The Bidder must carefully review and inspect all documents referenced and made part of this ITB, site conditions, all applicable statutes, regulations, ordinances, and resolutions addressing or relating to the goods and services under this contract. Failure to do so or failure to acquire clarifications and answers to any discovered conflicts, ambiguities, errors, or omissions in the Bidding Documents will be at the Bidder's sole risk.

11. SAFETY REQUIREMENTS AND LAWS: The Bidder awarded the Contract must comply with all applicable federal, state, and local Laws including health and safety regulations, environmental protection, permits and licensing.

12. INTERPRETATIONS AND ALTERATIONS TO THE BID AND BIDDING DOCUMENTS: All requests for clarification or interpretation of the Bidding Documents, all proposals for any modifications to the Bidding Documents, all requests for information and all other questions or inquiries about the Bidding Documents and/or the Work shall be submitted in writing to the Contact Person identified in the Bid Documents. Requests or inquiries received less than seven Calendar Days before the date of Bid opening will be answered only if (a) the response can be given through an Addendum made available at least seventy-two hours before Bid opening (counting Business Days only), (b) the Bid opening is postponed by Addendum, or (c) the Work is rebid without readvertising following the issuance of post-Bid Addenda.

Bidders must not rely upon any oral statements or conversations regarding interpretations, clarifications, corrections, additions, deletions or other revisions or information to the Bidding Documents. Any addition, limitation or provision made with or attached to the Bid may render it non-responsive and/or irregular and be a cause for rejection. The Owner reserves the right to issue a post-Bid Addendum after opening the Bids and set a new date for the receipt and opening of sealed Bids. The Bidder

acknowledges that any quantities of Unit Price Work given in this ITB are approximate only and payments will be made only for actual quantities of Unit Price Work completed in accordance with the Contract Documents.

13. MODIFICATION OF BID: The entire bid must be resubmitted on the SIGMA VSS website.

14. BID WITHDRAWAL: Except for timely filed claims of mathematical or clerical errors granted by the State, no Bid may be withdrawn within sixty Calendar Days after the Bid Opening time and date or before the Bid expiration date without forfeiting Bid security. The request to withdraw a Bid due to error must be submitted in writing along with the supporting documents within two Business Days after the date of Bid Opening. The claim must describe in detail the error(s), include a signed affidavit stating the facts of the alleged error(s) and request that the Bidder be released from its Bid. The review of the claim and its supporting documents by the State is only for the purpose of evaluating the Bidder's request and must not create duty or liability on the State to discover any other Bid error or mistake. The sole liability of any Bid error or mistake rests with Bidder.

15. OBJECTION TO THE AWARD: A Bidder may file a written protest with the Director-DCD to object to the Apparent Low Bidder. This objection must be filed within seven Calendar Days after the date of Bid opening and must describe in detail the basis for the protest and request a determination. The Director-DCD will either dismiss or uphold the protest and notify the protestor within ten Calendar Days after receipt of the written protest.

16. BID IRREGULARITIES: The following irregularities on any Bid Form or Bid Form Attachment must be resolved as follows:

(a) between SIGMA entry and signed Bid Summary attachment, the signed Bid Summary attachment will be used.
(b) between words and figures, the words must be used.
(c) between any sum, computed by the Bidder, and the correct sum, the sum computed by the Bidder must be used.
(d) between the product, computed by the Bidder, of any quantity and Bid Unit Price and the correct product of the Unit Price and the quantity of Unit Price Work, the product extended by the Bidder must be used.
(e) between a stipulated Allowance and the amount entered, the Allowance must be used.
(f) any mobilization pay item exceeding the maximum specified must be ignored and the Bid must remain unchanged.
(g) if any Bidder fails or neglects to bid a Unit Price for an item of Unit Price Work but shows an "Bid Price" for that item, the missing unit price must be computed from the respective quantity and the Item Bid Price shown.
(h) if any Bidder fails or neglects to show a "Bid Price" for an item of Unit Price Work but bids a unit price, the missing Bid Price must remain as "zero"; and
(i) if any Bidder fails or neglects to enter a Bid Price in both words and figures, the Bid Price printed or typed, whether in words or figures, must be used.

17. CERTIFICATION: The bidder certifies to the best of its knowledge and belief that, within the past three (3) years, the bidder, an officer of the bidder, or an owner of a 25% or greater interest in the bidder:

(a) Has not been convicted of a criminal offense incident to the application for or performance of a contract or subcontract with the State of Michigan or any of its agencies, authorities, boards, commissions, or departments.
(b) Has not had a felony conviction in any state (including the State of Michigan).
(c) Has not been convicted of a criminal offense which negatively reflects on the bidder's business integrity, including but not limited to, embezzlement, theft, forgery, bribery, falsification, or destruction of records, receiving stolen property, negligent misrepresentation, price-fixing, bid rigging, or a violation of state or federal anti-trust statutes.
(d) Has not had a loss or suspension of a license or the right to do business or practice a profession, the loss or suspension of which indicates dishonesty, a lack of integrity, or a failure or refusal to perform in accordance with the ethical standards of the business or profession in question.
(e) Has not been terminated for cause by the Owner.
(f) Has not failed to pay any federal, state, or local taxes.
(g) Has not failed to comply with all requirements for foreign corporations.
(h) Has not been debarred from participation in the bid process pursuant to Section 264 of 1984 PA 431, as amended, MCL 18.1264, or debarred or suspended from consideration for award of contracts by any other State or any federal Agency.
(i) Has not been convicted of a criminal offense or other violation of other state or federal law, as determined by a court of competent jurisdiction or an administrative proceeding, that in the opinion of DTMB indicates that the bidder is unable to perform responsibly or which reflects a lack of integrity that could negatively impact or reflect upon the State of Michigan, including but not limited to, any of the following offenses under or violations of:
    1. The Natural Resources and Environmental Protection Act, 1994 PA 451, MCL 324.101 to 324.90106.
    2. A persistent and knowing violation of the Michigan Consumer Protection Act, 1976 PA 331, MCL 445.901 to 445.922.
    3. A finding that the bidder failed to pay the wages and/or fringe benefits due within the time period, as may be required by applicable law.
    4. Repeated or flagrant violations of 1978 PA 390 MCL 408.471 to 408.490 (law relating to payment of wages and fringe benefits).
    5. A willful or persistent violation of the Michigan Occupational Health and Safety Act, 1974, PA 154, MCL 408.10001 to 408.1094, including: a criminal conviction, repeated willful violations that are final orders, repeated violations that are final orders, and failure to abate notices that are final orders.
    6. A violation of federal or state civil rights, equal rights, or non-discrimination laws, rules, or regulations.

7. Been found in contempt of court by a Federal Court of Appeals for failure to correct an unfair labor practice as prohibited by Section 8 of Chapter 372 of the National Labor Relations Act, 29 U. s. C. 158 (1980 PA 278, as amended, MCL 423.321 et seq).

(j) Is not an Iran-Linked Business as defined in MCL 129.312.

A false statement, misrepresentation, or concealment of material facts on this certification may be grounds for rejection of this proposal or termination of the award and may be grounds for debarment.

18. REJECTION OF BID: The Bidder acknowledges the right of the Owner to reject any Bids and to waive any informality, defects or irregularity in any Bid received. In addition, the Bidder recognizes the right of the Owner to reject a Bid if:

(a) the Bid is in any way incomplete or irregular.
(b) the Bidder, Subcontractor or Supplier is not responsible as determined by the Owner.
(c) the Bidder's performance as a Contractor was unsatisfactory under a prior Contract with the Owner for the construction, repair, modification, or demolition of a facility with the Owner, or under any other Contract, which was funded, directly or indirectly, by the Owner.
(d) there are reasonable grounds for believing that collusion or unlawful agreements exists between any Bidders, that a Bidder is interested in more than one Bid, or that the Bid is not genuine.
(e) the Bid exceeds the funds available.

19. MATERIALS AND EQUIPMENT SUBSTITUTION: Any Bidder wishing to use manufacturers or materials other than those specified must submit a written request to the Professional not later than seven days before due date for Bids. Request must be accompanied by product data to permit evaluation and comparison with specified products or materials. The Person submitting the request will be responsible for its prompt delivery. The Professional and the Owner will examine and evaluate the product data and if found acceptable, an Addendum will be issued and mailed or delivered to each Person who has received a set of Drawings and Specifications. All Addenda issued must be made a part of the Contract requirements. Contractor will be responsible for any extra work and expense incurred to satisfactorily and completely incorporating each substitute product into the Project.

20. MICHIGAN PRODUCTS AND RECYCLED PRODUCTS: All Contractors and Suppliers are encouraged to provide Michigan-made products and/or recycled products and/or green products and/or environmentally friendly products whenever possible where price, quality, and performance are equal to, or superior to, non-Michigan products and the requirements of the Contract Documents. The Contractor will be required to use alternatives to landfills for waste disposal such as reuse or recycle of asphalt, bricks, concrete, masonry, plastics, paint, glass, carpet, metals, wood, drywall, insulation, and any other waste materials to the extent practical.

21. PRE-AWARD PRODUCT SUBMITTALS: If requested, the Apparent Low Bidders must submit a summary of preliminary technical data on each product listed in ***. The Apparent Low Bidders will furnish this summary data to the Professional within forty-eight hours of the Bid Opening. These submittals will be used to evaluate the Bid before the award. Failure to provide the submittals may disqualify the Bid.

22. CONTRACT AND CONTRACT AWARD: The Owner intends to award a Contract to the responsive and responsible best value bidder, except as provided below relative to veteran's preference.

22.1 Determination of the lowest three Bidders shall be based on the sum of the Base Bid and any additive and deductive Alternates the Owner accepts, in the order in which they are listed only. The Owner will accept an Alternate only if all other previously listed Alternates are also accepted unless acceptance by the Owner of Alternates in a different order does not affect determination of the lowest three bidders in any way.

22.2 The bids will be evaluated for best value based on price and qualitative components by comparing the qualitative components of the three lowest responsive and responsible Bidders. The comparison may also include other Bidders whose bids are within 10% of the lowest responsive and responsible Bidder.

22.3 If a Qualified Disabled Veteran meets the requirements of the contract solicitation, provides acceptable responses to both Part One and Part Two of the Best Value Construction Bidder Evaluation to achieve a Best Value recommendation and with the veteran's preference is the lowest responsive, responsible, best value Bidder, the Owner will award the contract to the Qualified Disabled Veteran bidder. A determination as to whether the requirements of the bid solicitation have been met will be based solely on the Owner's and Professional's evaluation of the Bid Summary, Bid Attachments, Bidder-provided documents, and interview.

22.4 For the purpose of evaluating and determining the low responsive bid, 10% of the lowest responsive bid (the bid that would otherwise receive the contract award if the preference were not being considered) will be deducted from all QDV bids. If the low responsive QDV bid, less the 10% preference, is less than the lowest responsive bid, then the QDV bid will be declared the official low responsive bid. The original QDV bid amount will be the basis of the contract award.

Example:

Lowest Responsive Bid	$100,000
Lowest Responsive QDV Bid	$109,000
Preference (10% of the Lowest Responsive Bid)	$ 10,000
Lowest Responsive QDV Bid Less Preference	$ 99,000 ($109,000 - $10,000)
Official Low Responsive Bid	**$109,000**

22.5 The Apparent Low Bidders will be evaluated for responsiveness and responsibility based on the following:

- Compliance with the bid specifications and requirements.
- The Bidder's financial resources.
- The Bidder's technical capabilities.
- The Bidder's technical experience.
- The Bidder's past performance.
- The Bidder's insurance and bonding capacity.
- The Bidder's business integrity.

Some qualitative components that may be evaluated are:

- Technical approach.
- Quality of proposed personnel.
- Management plans.

22.6 For contracts under $250,000, best value will primarily be based on the lowest responsive and responsible bid.

23. **CONTRACT TIME; LIQUIDATED DAMAGES:** Work of all trades as specified in the Contract Documents must be completed in 120 calendar days from the date of Project Kickoff meeting. This Contract Time is of the essence and liquidated damages for each Calendar Day that expires after this Substantial Completion of the entire Work must be in the amount of $250.00. Liquidated damages are not a penalty, are cumulative and represent a reasonable estimate of the Owner's extra costs and damages, which are difficult to estimate with accuracy in advance.

24. MOBILIZATION: If used in the Specifications/Bid schedule, all the up-front costs incurred by the Contractor must be covered by the mobilization. The costs to establish temporary site offices, to obtain required permits for commencing the Work and for bonds and insurance premiums are examples of costs to the Contractor that are covered by mobilization pay item. This cost must not exceed four percent (4%) of the Base Bid, unless otherwise expressly provided in the Bidding Documents.

25. SOIL EROSION AND SEDIMENTATION CONTROL: All Work under this Contract must meet the storm water management requirements of the Project and comply with the applicable Soil Erosion and Sedimentation Control (SESC) rules and regulations and specific provisions for same within the Contract Documents. SESC measures will be monitored and enforced by the State Facilities Administration, or another authorized enforcing agency if so delegated, through the review of the Contractor's implementation plans and site inspections. State Facilities Administration or the Professional will notify the Contractor in writing of any violation(s) of the applicable SESC statutes and/or the corrective action(s) undertaken by the Owner and may issue stop work orders. State Facilities Administration has the right to assess a fine to the Contractor for noncompliance with the provisions of the Contract Documents and/or SESC regulations applicable to this Work and fines must be in addition to any other remediation costs or liquidated damages applicable to the Project and may exceed the value of the Contract.

END OF SECTION 00100

SECTION 00120 SUPPLEMENTARY INSTRUCTIONS

The provisions of this Section amend or supplement Section 00100 Instructions to Bidders and those other provisions of the Bidding Requirements that are indicated below. All other Bidding Requirements that are not so amended or supplemented remain in full force and effect.

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END OF SECTION 00120

SECTION 00200 INFORMATION FOR BIDDERS

1. UNDERGROUND UTILITIES

Information or data about physical conditions of existing Underground Utilities, which have been used by the Professional in preparing the Bidding Documents, is shown, or indicated in the Drawings and technical Specifications and those Underground Utility drawings itemized immediately below.
We have used previous camera project drawing in preparation of this project.

2. PERMITS, APPROVALS, LICENSES AND FEES

2.1 If the Owner has secured or will secure any permits, approvals and licenses and has paid or will pay any associated charges and fees, any such permits, approvals and licenses are itemized in this paragraph:

- Each existing camera has a license thru July 1, 2024.
- The owner has a pool of existing camera licenses that shall be applied to new cameras.
- Contractor shall pay the software upgrade costs for all new cameras to extend the pool licenses thru July 1, 2024. Include that cost in the bid response.

2.2 If any permits, approvals, and licenses itemized above have been obtained by the Owner and the fees have been paid, copies of those permits, approvals, licenses, and corresponding fee receipts, are attached to this Section 00200 Information for Bidders.

Except for any permits, approvals, licenses, and fees identified above, the Contractor shall be responsible for all permits, approvals, licenses, and fees applicable to Work.

3. SEQUENCING REQUIREMENTS

Refer to the technical Specifications, including, but not limited to the General Requirements, for information, data, and criteria on sequences of Work restraints, construction, and maintenance of service to existing facilities, which, if provided, must govern the selection of Work sequences. Each Bidder must be responsible for any conclusions or interpretations the Bidder makes related to the selection of sequences and Means and Methods, based on the technical data made available, and/or those additional investigations or studies made or obtained by that Bidder.

4. SUBSURFACE CONDITIONS

4.1 The Drawings and technical Specifications and those drawings itemized immediately below contain information or data that have been used in the preparation of the Bidding Documents, and that may be properly considered Authorized Technical Data concerning physical conditions of existing surface and subsurface facilities

4.1.1 None.

5. OTHER PHYSICAL CONDITIONS

5.1 The Drawings and technical Specifications and those drawings itemized immediately below contain information or data that have been used in the preparation of the Bidding Documents, and that may be properly considered Authorized Technical Data concerning physical conditions of existing surface and subsurface facilities

END OF SECTION 00200

SECTION 00700 GENERAL CONDITIONS

1. Interpretations: Any requests for clarifications or interpretations of the Contract Documents must be in writing to the Professional, who will issue written clarifications or interpretations as appropriate. If the Contractor believes that such clarification or interpretation justifies an adjustment to the Contract Price/Time, the Contractor must promptly notify the Professional in writing before proceeding with the Work Involved.

1.1 **Standards**: The Contract Documents describe the entire Work. The provisions of the Contract Documents must govern over any standard specifications, manual or code of any technical society, organization, or association but, if lower than the standards set by any Law applicable to the Work or the Project, the higher standards must govern. The Contractor's responsibilities extend to cover Subcontractors and Suppliers if liable as a result of their actions or obligations.

1.2 **Contract Time Computation**: The time to complete the Work must be made in Calendar Days and must include both the first and last day. The first day is established by the Notice-to-Proceed.

1.3 **Technical Specifications and Priority:** The following applies whenever priority is called for in Contract Documents: specifications must govern Drawings; figured dimensions must govern scaled dimensions; detail drawings must govern general drawings; Drawings must govern Submittals.

1.4 **Indemnification:** The Contractor is required to defend, indemnify and hold harmless the Owner and the Professional, their employees, agents, servants, and representatives from and against all claims, suits, demands, actions of whatever type and nature and all judgments, costs, losses and damages, whether direct, indirect or consequential including, but not limited to, charges of architects, engineers, attorneys and others and all court, hearing and any other dispute resolution costs arising from:

(a) any patent or copyright infringement by the Contractor.
(b) any damage to the premises or adjacent lands, areas, properties, facilities, rights-of-way, and easements, including loss of use to the business and property of others as a result of Contractor's operations.
(c) any bodily injury, sickness, disease or death, or injury to or destruction of property, including loss of use due to or related to the Work and caused in whole or in part by the Contractor or Subcontractor or Supplier's negligence, omissions, or failure to maintain the required insurance and coverage and,
(d) a failure by the Contractor to appropriately handle Hazardous Materials for the Work or the Contractor's operations in compliance with the Owner requirements and/or applicable Laws and regulations.

The indemnification obligations are not affected by the limitation on the amount and types of damages, compensation or benefits payable by or for the Contractor or Subcontractor or Supplier under worker's or workman's compensation acts, disability benefit acts or other employee benefit acts.

1.5 **Contract Documents Ownership:** The State is the owner of the Contract Documents. The Contractor, Subcontractor or Supplier must not reuse any of the documents on any other Project without prior consent of the State and Professional. The Professional will furnish on behalf of the Owner at no cost to the Contractor, one (1) electronic copy of the Drawings and Project Manual. If the **Contractor**, or the Contractor's Subcontractors or Suppliers request hard copy sets, reproduction of these documents will be the responsibility of the **Contractor**.

2. GENERAL PROVISIONS

2.1 **Owner:** The Project Director and/or Owner Field Representative will represent the Owner. Neither the Project Director nor the Owner Field Representative has the authority to interpret the requirements of the Contract Documents or to authorize any changes in the Work or any adjustment in Contract Price/Time. The State will provide the necessary easements for permanent structure and permanent changes in existing lands, areas, properties, and facilities. However, the Contractor must obtain, at no increase in Contract Price/Time, permits for any other lands, areas, properties, facilities, rights-of-way, and easements required by the Contractor for temporary facilities, storage, disposal of soil or waste material or any other purpose. The Contractor must submit copies of the permits and written agreements to the Owner. The Contractor must engage a registered land surveyor to establish the necessary reference points and/or base lines for construction and must be responsible for protecting them including benchmarks and Project elevations.

2.2 **Professional:** Acting as the Owner's representative during the Contract Time period, the Professional will endeavor to guard the Owner from Defective work and to keep the Owner informed of the progress of the Work. Unless delegated by specific written notice from the Owner, the Professional and the Professional's representatives do not have the authority to authorize any changes in the Work or any adjustment in Contract Price/Time. The On-site Inspections by the Owner Field Representative and/or the Professional do not relieve the Contractor from its obligation to provide the Work in accordance with the Contract Documents or represent acceptance of Defective Work.

2.3 **Contractor:** The Contractor must manage, supervise, and direct the Work competently, applying the management, supervision, skills, expertise, scheduling, coordination, and attention necessary to provide the Work in accordance with the Contract Documents with a minimum disturbance to or interference to the business operations on site or adjacent properties. The Contractor must assign and maintain a competent full-time **superintendent** on the Work, as its representative, at all times while Work is being done on site and must not be replaced without the Owner's consent. The Contractor shall enforce good order among its employees and shall not employ on the work any disorderly, intemperate, or unfit persons, or not skilled in the work assigned to them. The Contractor is solely responsible for his Means and Methods, safety precautions and programs related to safety, the Contractor's failure to execute the Work in accordance with the Contract Documents and any act of omissions by the Contractor, Subcontractor or Supplier. The Contractor must **compare Contract Documents for conflicts**, unworkable or unsafe specified Means and Methods and verify against manufacturer's recommendations for installations and handling and must notify the Professional in writing of the discovery of any such conflicts or errors. The Contractor is required to furnish certifications that lines and grades for all concrete work were checked before and after placing concrete, and that final grades are as required by the Contractor Documents. Wherever required, the Contractor must be responsible for all cutting, fitting, drilling, fixing-up, and patching of concrete, masonry, gypsum board, piping and other materials that may be necessary to make in-place Work and dependent Work fit together properly. The Contractor must restore to pre-existing conditions all walks, roadways, paved or landscaped areas and other real and personal property not designated for alteration by the Contract Documents. The Contractor

must maintain at the site one copy of safety data sheets (SDS) and one copy of all **as built/Record Documents** in good order and annotated in a neat and legible manner to show:

(a) all revisions made,
(b) dimensions noted during the furnishing and performance of the Work, and
(c) all deviations between the as-built installation and the Contract Documents, all approved Submittals and all clarifications and interpretations.

The Contractor must maintain and furnish promptly to the Owner and the Professional upon their request **daily field reports and photos** recording the on-site labor force and equipment (Contractor and Subcontractors); materials/equipment received; visits by Suppliers; significant in-progress and completed trade Work within major areas; and other pertinent information. The Contractor is obligated to act to prevent threatened damage, death, injury, or loss without any special instruction in **emergencies** and must give the Owner prompt written notice of any changes in Work resulting from the action taken for review and approval.

2.4 **Subcontractors and Suppliers:** The Owner assumes no contractual obligations to anyone other than the Contractor. All trade construction Drawings must be field coordinated before fabrication and/or installation. The Owner reserves the right to reject or revoke, for its convenience, any approved Subcontractor/Supplier. Work performed by any Subcontractor or Supplier must be through an appropriate written agreement that:
(a) expressly binds the Subcontractor/Supplier to the requirements of the Contract Documents,
(b) requires such Subcontractor or Supplier to assume toward the Contractor all the obligations that the Contractor assumes toward the Owner and the Professional, and
(c) contains the waiver of rights and dispute resolution provisions.

2.5 **Access to Payroll Records:** The Contractor and its Subcontractors must, to the extent applicable, comply with the Prevailing Wage Rates for the county where the Project is located, and must maintain and keep, in accordance with generally accepted accounting principles, records pertaining to the bidding, award and performance of the Work, including, but not limited to certified payroll, employment records and all data used in estimating the Contractor's prices for the Bid, Change Order, proposal or claim. The Owner or its representative must have access to those records, must have the right to interview the Contractor's employees and must be provided with appropriate facilities for the purpose of inspection, audit/review and copying for five years after final payment, termination, or date of final resolution of any dispute, litigation, audit exception or appeal. The payroll and other employment records of workers assigned to the site must contain the name and address of each worker, correct wage classification, rate of pay, daily and weekly number of hours worked, deduction made, and actual wages paid. The Contractor must maintain records that show: (a) the anticipated costs or actual costs incurred in providing such benefits, (b) that commitment to provide such benefits is enforceable, and (c) that the plan or program is financially responsible and has been communicated in writing to the workers affected.

3. Bonds and Insurance:

3.1 Both the Performance Bond and Payment Bond must remain in effect from the date of Contract Award until final completion of the Work or the end of Correction Period, whichever comes later. The surety bonds required for a Construction Contract will not be accepted by SFA unless the surety bonding company is listed in the current United States Government, Department of Treasury's, Listing of approved sureties (bonding/insurance companies), Department Circular 570. Copies of the current Circular listing may be obtained through the internet web site https://www.fiscal.treasury.gov/fsreports/ref/suretyBnd/c570.htm.

Insurers must have an "A-" A.M. Best Company Rating and a Class VII or better financial size category as shown in the most current A.M. Best Company ratings. Insurance must be provided by insurers authorized by the Department of Insurance and Financial Services (DIFS) to do business as an insurer in Michigan. The insurance company and must attach evidence of the authorization. These certificates must specify the Project File No., Funding Code., Project Title, and a description of the Project. The Contractor agrees that insurance coverage afforded under the policies as such coverage relate to the State under this Contract as determined by the Contractor will not be modified or canceled without at least thirty calendar days prior written notice to the State. The latest A.M. Best's Key Ratings Guide and the A.M. Best's Company Reports (which include the A.M. Best's Ratings) are found at: http://www.ambest.com. The Contractor must not perform any part of the Work unless the Contractor has all the required insurance in full force and effect.

3.2 The Contractor is required to provide proof of the minimum levels of insurance coverage as indicated below. The purpose of this coverage must be to protect the State from claims which may arise out of or result from the Contractor's performance of services under the terms of this Contract, whether such services are performed by the Contractor, or by any subcontractor, or by anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable.

The Contractor waives all rights against the State for recovery of damages to the extent these damages are covered by the insurance policies the Contractor is required to maintain pursuant to this Contract. The Contractor also agrees to provide evidence that all applicable insurance policies contain a waiver of subrogation by the insurance company.

All insurance coverages provided relative to this Contract/Purchase Order is PRIMARY and NON-CONTRIBUTING to any comparable liability insurance (including self-insurances) carried by the State.

The Insurance must be written for not less than any minimum coverage herein specified or required by law, whichever is greater. All deductible amounts for any of the required policies are subject to approval by the State.

The State reserves the right to reject insurance written by an insurer the State deems unacceptable.

BEFORE THE CONTRACT IS SIGNED BY BOTH PARTIES and BEFORE THE PURCHASE ORDER IS ISSUED BY THE STATE, THE CONTRACTOR MUST FURNISH TO THE DIRECTOR-DCD CERTIFICATE(S) OF INSURANCE VERIFYING INSURANCE COVERAGE. THE CERTIFICATE MUST BE ON THE STANDARD "ACCORD" FORM. THE CONTRACT OR PURCHASE ORDER NUMBER MUST BE SHOWN ON THE CERTIFICATE OF INSURANCE TO ASSURE CORRECT FILING. All such Certificate(s) are to be prepared by the Insurance Provider and not by the Contractor. All such Certificate(s) must contain a provision indicating that coverages afforded under the policies WILL NOT BE CANCELLED, MATERIALLY CHANGED, OR NOT RENEWED without THIRTY days prior written notice, except for 10 days for non-payment of premium, having been given to the Director-DCD Such NOTICE must include the CONTRACT NUMBER affected and be mailed to the Project Director.

The Contractor is required to provide the type and amount of insurance below:

(a) Commercial General Liability Insurance with a limit of not less than $1,000,000 each occurrence. If such CGL insurance contains a general aggregate limit, it must apply separately to this project.

The Contractor must list the State, its departments, divisions, agencies, offices, commissions, officers, employees, and agents as ADDITIONAL INSUREDS on the Commercial General Liability policy.

(b) Vehicle Liability Insurance for bodily injury and property damage as required by law on any auto including owned, hired, and non-owed vehicles used in the Contractor's business.

The Contractor must list the State, its departments, divisions, agencies, offices, commissions, officers, employers, and agents as ADDITIONAL INSUREDS on the vehicle liability policy.

(c) Worker's disability compensation, disability benefit or other similar employee benefit act with minimum statutory limits.

NOTE:

(i) If coverage is provided by a State fund or if Contractor has qualified as a self-insurer, separate certification must be furnished that coverage is in the state fund or that Contractor has approval to be a self-insurer.
(ii) Any citing of a policy of insurance must include a listing of the States where that policy's coverage is applicable; and
(iii) This provision must not be applicable where prohibited or limited by Michigan law.

(d) Employer's Liability Insurance with the following minimum limits:

$1,000,000 each accident
$1,000,000 each employee by disease
$1,000,000 aggregate disease

(e) Pollution Liability Insurance in the amounts of not less than $1,000,000 per occurrence is required.

3.3 **Liability Insurance:** Liability insurance must be endorsed to list as additional insureds the Professional's consultants and agents. Worker's Compensation, Employer's Liability Insurance and all other liability insurance policies must be endorsed to include a waiver of rights to recover from the Owner, Professional and the other additional insureds. The Contractor's liability insurance must remain in effect through the Correction Period and through any special correction periods. For any employee of the Contractor who is resident of and hired in Michigan, the Contractor must have insurance for benefits payable under Michigan's Worker's Compensation Law. For any other employee protected by Worker's Compensation Laws of any other state, the Contractor must have insurance or participate in a mandatory state fund, where applicable, to cover the benefits payable to any such employee. These requirements must not be construed to limit the liability of the Contractor or its insurers. The Owner does not represent that the specified coverage or limits of insurance are sufficient to protect the Contractor's interests or liabilities.

3.4 **Builder's Risk Insurance:** Unless indicated otherwise in the bid document, the Contractor will purchase and maintain property insurance for 100% of actual cash replacement value of the insurable Work while in the course of construction, including foundations, additions, attachments, and all fixtures, machinery and equipment belonging to and constituting a permanent part of the building structures. The property insurance also will cover temporary structures, materials and supplies to be used in completing the Work, only while on the building site premises or within five hundred feet of the site. The property insurance insures the interests of the Owner, Contractor and all Subcontractors and Suppliers at any tier as their interest may appear. The property insurance insures against "all risk" of physical loss or damage to the extent usually provided in policy forms of insurers authorized to transact this insurance in Michigan. A copy of the master insurance policy will be available for review by the State, upon request. Any deductible shall be both the option and responsibility of the **Contractor**.

3.5 The Owner and Contractor intend that the required policies of property insurance must protect all the parties insured and provide primary coverage for all losses and damages caused by the perils covered. Accordingly, to the extent that the insurance company pays claims, the Owner and the Contractor and its Subcontractors/Suppliers waive all rights against each other for any such losses and damages and waive all such rights against the Professional and all other persons named as insureds or additional insureds.

4. Prosecutions; Substantial Completion:

4.1 The Contractor must not start the Work at the site before the first day established by the Notice to Proceed and/or before all insurance is in effect. A pre-construction conference will be held with the Contractor to review its Progress Schedule, qualifications of its key personnel, its proposed access to the site, traffic and parking, procedures for submittal, change orders, etc., and to exchange emergency contact information. The Contractor must use its accepted Progress Schedule when making proposals or claims for adjustment in Contract Time/Price.

4.2 Except in an Emergency, all Work at the site must take place during normal working hours; 6:00 AM to 6:00 PM, during Business Days and in accordance with the special working conditions for the Agency. If the Contract Documents allow work outside the normal hours, the Contractor must provide a written notice to the Owner twenty-four hours before performing such Work and must reimburse the Owner any related increase in the costs incurred by the Owner such as overtime charges of the Professional and payments for custodial and security personnel.

4.3 If, upon inspection and completion of all pre-requisite testing of the Work, the Contractor considers that a portion of the work or all the Work is substantially completed, it must provide a list of items to be corrected or completed to the Owner and the Professional for joint inspection. Within ten Calendar Days of this joint inspection, the Professional will deliver to the Owner and Contractor a list of incomplete/Defective work or a Certificate of Substantial Completion with a Punch List. The certificate must:

(a) fix a reasonable date of Substantial Completion,
(b) fix a date for completion of the Punch List, and
(c) recommend the division of responsibilities between the Owner and Contractor for utilities, security, safety, insurance, maintenance, etc.

Upon issuing the Certificate of Substantial Completion, the Owner will pay for the completed Work subject to (a) withholding of two hundred percent of the value of any uncompleted Work, as determined by the Professional, and (b) any other deductions as the Professional may recommend or may withhold to cover Defective work, liquidated damages and the fair value of any other items entitling the Owner to a withholding. Prerequisites for Substantial Completion, over and above the extent of Work completion required, include (a) receipt by the **Owner** of operating and maintenance documentation, (b) all systems have been successfully tested and demonstrated by the **Contractor** for their intended use, and (c) the **Owner** having received all required certifications and/or occupancy approvals from the State and those Political Subdivisions having jurisdiction over the Work. Receipt of all certifications and/or occupancy approvals from those Political Subdivisions with jurisdiction in and of itself does not necessarily connote Substantial Completion. The Contractor must provide all related operating and maintenance (O&M) documentation to the Owner before training if training is required and not later than Substantial Completion otherwise. The Contractor must give the Owner the final O&M documentation (with revisions made after Substantial Completion) before the request for final payment.

4.4 The Owner may decide to use, at its sole option, any functioning portion of the Work and will inform the Contractor in writing of the decision. The portion of Work to be used must be jointly inspected to determine the extent of completion if it has not undergone the inspection for Substantial Completion. The Professional must prepare a list of items to be corrected/completed and the Owner will allow the Contractor reasonable access to correct/complete the listed items and finish other work.

5. Warranty; Tests, Inspections and Approvals; Corrections of Work:

5.1 **Warranty:** The Contractor must furnish the State with a written guarantee to remedy any defects due to faulty materials or labor which appear in the Work within one year from the date of final acceptance by the State. This warranty excludes defect or damage caused by (a) abuse, modification by others, insufficient or improper operation or maintenance, or (b) normal wear and tear under normal usage. Manufacturer warranties for materials and equipment received by the Contractor must be assigned and promptly delivered to the Owner at Substantial Completion. The warranties period starts from the date of the substantial completion and must be in full force and effect for the entire duration of the Correction Period.

Roof Warranty: For roofing systems, the following warranties are required as minimum:

(a) A two-year contractor's warranty against any defects due to faulty materials or labor.
(b) A fifteen-year manufacturer's total system warranty; and
(c) A twenty-year membrane/shingles/tiles warranty.

5.2 **Tests, Inspections and Approvals:** The Owner will perform or retain a professional/agency to perform inspections, tests or approvals for those materials required to meet quality control standards specified in the Contract Documents except for those inspections, tests or approvals specifically designated to the Contractor in the Contract Documents. However, the Contractor must assume full responsibility for any testing, inspection, or approval
(a) required to meet code requirements, as promulgated by code inspecting authorities.
(b) required by Law.
(c) indicated or required by the Contract Documents as designated to the Contractor.
(d) required for the Professional's acceptance of a Supplier, materials or equipment or mix designs submitted for prior approval by the Contractor; or
(e) Defective work, including an appropriate portion of the Delay and costs occasioned by discovery of Defective work. The Contractor must (a) pay all related costs; (b) schedule related activities; and (c) secure and furnish to the Professional the required certificates of inspection, testing or approval. The Contractor must provide proper and safe access to the site for inspection, testing or approval. The Contractor must provide the Professional a timely notice whenever any Work is ready for inspection, testing or approval. If the Contractor covers any Work without proper approval by the Professional as required by the Contract Documents, the Contractor must, at its own expense, uncover, expose, or otherwise make available, when requested by the Professional or Owner, for testing, inspection, or approval of the covered Work.

5.3 **Correction of Work:** If any testing, inspection, or approval reveals Defective Work and the Work is rejected by the Professional, the Contractor, at its sole expense, must promptly, as directed, correct, or remove the Defective Work from the site and replace it with non-Defective Work within the Correction Period. The Contractor must bear responsibility for its proportionate share of the Delay and costs resulting from the correction and/or removal and replacement of Defective Work. If the Contractor, within reasonable and agreed upon time after receipt of written notice, (a) fails to correct Defective Work or remove and replace rejected Work, or (b) fails to correct or complete items on any Punch List, or (c) fails to perform Work in accordance with the Contract Documents, or (d) fails to comply with any other provision of the Contract Documents, the Owner, directly or through others, after seven Calendar Days from the date of the written notice to the Contractor, may correct and remedy the Defective Work. To the extent necessary to correct and remedy such Defective Work, the Owner must be allowed to exclude the Contractor from all or part of the site; take possession of all or part of the Work and stop related operations of the Contractor; take possession of the Contractor's tools, plant and office and construction equipment at the site; and incorporate into the Work materials and equipment for which the Owner has paid the Contractor. The Contractor must allow the Owner and the Professional easy access to the site to correct such Defective Work. The Owner must be entitled to an appropriate decrease in Contract Price for all claims, costs, losses, damages, and Delay incurred or sustained by the Owner which are attributable to the Contractor. Such costs may include, but not limited to, costs of correction or removal and replacement of Defective Work, costs of repair and replacement of other work destroyed or damaged by the action and related charges of the Professional. If the discovery of the Defective Work takes place after final payment and the Contractor fails to correct and pay the Owner any of these costs, the Owner must demand due performance under the Performance Bond. Until the period of limitation provided by Michigan Law, the Contractor must promptly, and upon receipt of written notice from the Owner, correct Defective Work. In the event of an Emergency or unacceptable risk of loss or damage or if appropriate under the circumstances, the Owner, directly or through others under contract with the Owner, may correct or remove and replace the Defective Work. The specified correction of Work requirements has no limitation on the rights of the Owner to have Defective Work corrected or removed and replaced, if rejected, except as otherwise provided by the Michigan Law.

5.4 **Special Correction Period Requirements:** Whenever the Owner undertakes any portion of the Work because the Contractor's act or omission Delays completion of the Work or it is eligible for Partial Use, the warranties for all materials and equipment incorporated into that portion of the Work must remain in full force and effect between the start of such Partial Use and the date when the Correction Period starts. The Correction Period for any Defective Work that is corrected or rejected and replaced within the last three months of the Correction Period must be extended by an additional six months, starting on the date such Work was made non-Defective.

5.5 **Special Maintenance Requirements:** If the Contract Documents specify that the entire Work, or a portion of the Work, upon reaching Substantial Completion, must not be placed in use by the Owner, the Contractor must maintain the Work, or specified part of the Work, in good order and proper working condition and must take all other actions necessary for its protection between the certified date of Substantial Completion and the date when the Work, or designated part of the Work, is placed in use. If no separate price for such special maintenance period was requested and made part of the Contract Documents, the Owner will amend the Contract Documents to appropriately increase the Contract Price.

6. Changes:

6.1 **Changes in the Work:** The Owner may, at any time, without notice to sureties, make any changes bilaterally or unilaterally, by a written Change Order, in the Work within the general scope of the Contract, including but not limited to changes in the Specifications, materials, or Contract Time. In a bilateral change order, the Owner may direct the Professional to prepare a Bulletin describing the change being considered. Upon receiving the Bulletin, the Contractor establishes the cost and returns it to the Professional for review within 15 calendar days. The Contractor's proposal must be irrevocable for 60 Calendar Days after it is submitted to the Professional. If the Professional recommends acceptance of the Bulletin and the Owner agrees with the changes, the Owner issues a written bilateral Contract Change Order to amend the Contract Documents. However, the Owner may issue a unilateral Change Order if the Owner and Contractor are unable to agree on the adjustment in Contract Price or Time. If the Contractor disagrees with such unilateral Contract Change Order, the Contractor must complete the Work and may deliver notice of a claim in accordance with the claim submittal process.

6.2 Differing Site Condition: The Owner does not warrant that any technical data, including the Project reference points, provided by the Owner is necessarily sufficient and complete for the purpose of selecting Means and Methods, initiating, maintaining, and supervising safety precautions and programs or discharging any other obligation assumed by the Contractor under the Contract Documents. If different or unknown site conditions are discovered, the Contractor must notify the Owner in writing before the conditions are disturbed or before proceeding with the affected Work. Upon review, if the Owner decides to agree with the differing site conditions, with the Professional's advice, the Owner may issue a written Contract Change Order to amend the Contract Price or Time through the Bulletin authorization process. If the Owner decides to disagree with the Contractor and the Contractor disagrees with the Owner's decision, the Contractor must complete the Work and may deliver notice of a claim in accordance with the claim submittal process. No proposal or claim by the Contractor due to differing site conditions will be allowed (a) if the Contractor knew of their existence before submitting its Bid or if those conditions could have been discovered by any reasonable examinations for which the Contractor, as Bidder, was made responsible under the Bidding Requirements and/or (b) unless the Contractor's written notice is provided within not more than 21 days after the contractor first recognizes the condition giving rise to the proposal or claim and gives the Owner adequate opportunity to investigate the asserted differing site conditions. A full and detailed breakdown of cost and time requested, with supporting documentation, if not provided with the initial notice shall be delivered to the Professional and Owner within 15 days of the notice, unless otherwise agreed in writing, by the Owner prior to expiration of such time.

6.3 Responsibilities for Underground Utilities: The Contractor must comply with the 1974 PA 53, as amended, MCL 460.701 et seq., and all other Laws concerning Underground Utilities. Before performing site Work, all Underground Utilities, lines, and cables (public and private) must be located and marked. The Contractor must notify MISS DIG to locate and mark utilities on properties that are not State properties. In addition, the Contractor must be responsible for immediately notifying the Owner of any contact with or damage to Underground Utilities, and for the safety, protection of and repairing any damage done to any Work, surface, and subsurface facilities. If the Contractor encounters Underground Utilities that inaccurately located by the Contract Documents or not previously located/marked, which could not be reasonably have been seen, the Owner may issue a written Contract Change Order to amend the Contract Price or Time through the Bulletin authorization process.

6.4 Hazardous Material Conditions: If the Contractor encounters material reasonably believed to be Hazardous Material, which was not described in the Drawings and/or Specifications and was not generated or brought to the site by the Contractor, the Contractor shall immediately stop all affected work, give written notice to the Owner of the conditions encountered, and take appropriate health and safety precautions in accordance with all federal, state, and local laws. Upon receipt of the notice, the Owner will investigate the conditions and (a) may stop the Work and terminate the affected Work or the Contract for convenience; (b) may contract others to have the Hazardous Material removed or rendered harmless or (c) issue a written Contract Change Order to amend the Contract Price/Time through the Bulletin authorization process. If the Hazardous Material is brought to site by the Contractor or as a result in whole or in part from any of its violation of any Law covering the use, handling, storage, disposal of, processing, transport and transfer or from any other act or omission within its control, the Contractor is responsible for the Delay and costs to clean up the site, remove and render harmless the Hazardous Material to the satisfaction of the Owner, State and all Political Subdivisions with jurisdiction.

6.5 Incidents with Archaeological Features: The Contractor must immediately notify the Owner in writing of any Archeological Feature deposits encountered at the site and must protect the deposits in a satisfactory manner. If the Contractor encounters such features, which result in an anticipated change to the Contract Price/Time, the Owner may issue a written Contract Change Order through the Bulletin authorization process.

6.6 Unit Price Work: Quantities as listed have been carefully estimated but are not guaranteed. The Owner reserves the right to increase or decrease the quantities of the Work to be performed at the Unit Price by amounts up to 20 percent of the listed estimated quantities. For Unit Price Work, the Contractor must promptly inform the Professional in writing if actual quantities differ from the estimated quantities for any item. For quantities over 120% or below 80% of the estimated quantity, the Owner may negotiate a Unit Price with the Contractor, or direct a unilateral change, or bid that Work under separate contract. Any adjusted Unit Price agreed upon by the Owner will only apply to the actual quantities above 120% or below 80% of the estimated quantity. No adjustment due to quantity variations must be allowed (a) unless the Contractor met the notice requirements, or (b) if any Unit Price increase results in whole or in part from any act or omission within the control of the Contractor (errors in the Contractor's Bid, unbalanced Unit Prices, etc.). If a dispute arises between the Owner and the Contractor on the adjusted Unit Price, the Contractor must carry on the Work with due diligence during the disputes/disagreements.

6.7 Cash Allowances; Provisionary Allowances: The Contractor must obtain the Professional's and Project Director's written acceptance before providing materials, equipment, or other items covered by Cash Allowance. Work authorized under any Provisionary Allowance may consist of (a) changes required by actual conditions, as determined by the **Professional**, and (b) any other Work authorized and completed under the pertinent provisions of the Contract Documents.

6.8 Changes in Contract Price:

6.8.1 The Contractor's proposals or claims for Work Involved must detail all affected items of Work, whether increased, revised, added, or deleted, and must be fully documented and itemized as to (a) individual adds and deducts in Work quantities and labor man-hours; (b) corresponding itemized cost of Work Involved; (c) materials and equipment cost including transportation, storage, and suppliers' field services; and (d) Fee.

6.8.1.1 No proposal or claim by the Contractor on account of any asserted change not issued as a Bulletin by the PSC or Owner, shall be allowed unless initiated by written notice of such proposal or claim to the Professional and Owner within 21 days after the occurrence of the event giving rise to the proposal or claim. A full and detailed breakdown of cost and time requested, with supporting documentation, if not provided with the initial notice shall be delivered to the Professional and Owner within 15 days of the notice, unless otherwise agreed in writing, by the Owner prior to expiration of such time.

6.8.2 For Contractor's proposals or claims for adjustments in Contract Price arising from Delays, the Contractor's estimates must be as comprehensive and detailed as may be appropriate to support the proposal or claim. Examples of related information include labor manpower levels, production data and Progress Schedule revision.

6.8.3 If the Contract Documents use lump sum or Unit Prices for the Work Involved, those prices must be used in estimating the price change. Otherwise, the Owner may direct the Contractor to proceed (a) on a negotiated lump sum; or (b) on an actual cost basis with or without a guaranteed maximum; or (c) through a unilateral Change Order on a lump sum basis or a not-to-exceed basis, based on the Professional's estimate of the anticipated Cost of the Work Involved and a fee. Items making-up the Cost of the Work Involved must be allowable to the extent (a) consistent with those prevailing in the Project locality, (b) necessary, reasonable, and clearly allocable to the Work Involved, and (c) limited to labor costs, subcontract costs, material and equipment costs, construction equipment costs and general conditions costs.

6.8.4 In estimating any additional cost by the Contractor or its Subcontractor, the rates for the craft labor man-hour used in estimating changes in Contract Price must not exceed the rates in Means Cost Data (Means) or other cost guide acceptable to the Owner. If the rates exceed the acceptable cost guides, the Contractor must provide proper justifications acceptable to the Professional and the Owner. The payroll costs may be used to quote a Bulletin. However, the payroll costs must include wages, labor burdens and a factor for field supplies and purchase costs (less market values if not consumed) of tools not owned by the workers. Labor burdens must be certified by an authorized financial representative of the Contractor and may include social security, unemployment, taxes, workers' compensation, health and retirement benefits, vacation, and holiday pay. The factor for field supplies and tools (individually valued at less than $1,000.00) must not exceed 4% of the wages without burdens, unless detailed data, which supports higher costs, is provided. Rates for owned, rented, or leased construction equipment must be in accordance with the contract price rates. Otherwise, the appropriate hourly, daily, weekly, or monthly rates listed in Means must be used. However, if the total rental or lease cost of an item to the Project exceeds the reasonable purchase price of the rented or leased item, the Owner reserves the right to pay only the purchase price of the item and take title to the item. Operating cost must not exceed the hourly operating rate in Means and for multiple shifts, rates must not exceed the shift work adjustments recommended in the cost guide.

6.8.5 The cost of any Work Involved may include necessary general conditions costs to the extent those costs increase or decrease on account of, or are directly attributable to, the performance of the furnishing and/or performance of the additional Work Involved or are required due to an extension in Contract Times or Delays. Such costs may include payroll costs of personnel, temporary facilities at the site, liability insurance and bond premiums, Subcontractors, royalty payments and fees for permits and licenses and taxes on the Work Involved.

6.8.6 A contractor or subcontractor who performs the Work may charge a fee of up to 15% of the cost of Work involved for overhead and profit. Contractor may charge a mark-up fee of up to 5% of its Subcontractor's cost excluding fees if the Work is performed by the Subcontractor. If Work is to be performed by lower tier subcontractor(s), intermediate subcontractors and the Contractor must share a fee of up to 5% of the lowest tier subcontractor's cost excluding fees. The total mark-up fees for the Work must not exceed 20% of the lowest tier subcontractor's cost excluding fees. If the adjustment to the Contract Price incorporates a contractor reservation of rights to claim additional adjustments, the fees must be reduced by one-third. Contractor's administrative costs and home office overhead must be non-reimbursable expenses covered by the Fee for the Work.

6.9 Changes in Contract Time:

6.9.1 If a justified extension beyond the Contract Time is not reasonably anticipatable under the circumstances, the Owner may approve an extension to the Contract Time through the Bulletin authorization process at no additional cost to the Owner. Examples of events that may justify an extension in the Contract Time include acts of God; acts of the public enemy; fires; floods; and strikes.

6.9.2 If, at any time during the life of this Contract, the Contractor finds that for reasons beyond its control, it will be impossible to complete the Work on or before the Contract completion date, a written request for a change to the Contract extending the time of completion must be submitted. Such a request must set forth in precise detail the reasons believed to justify an extension and must be in such format as the State may require.

6.9.3 When submitting a quotation for a Contract change authorization for extra work or change in plans, the Contractor must include as part of the quotation, a statement requesting any extra time necessary to complete the related Work. Lack of such a statement will serve as notification that the extra time will not be required to complete the Contract work and will waive the right to a later claim. The Owner will not pay additional compensation to the Contractor for performing Contract Work during any extension period granted.

6.9.4 If the Progress Schedule and the funding allow for an early completion date, the Contractor may submit to the Owner for approval, a request to shorten the Contract Time. If approved by the Owner, the new Contract Time applies to the Project and liquidated damages, if any, will be assessed for any delays after the new completion date.

6.10 Price Reduction for Defective Cost or Pricing Data: Whenever the Contractor signs a proposal for a change in the Contract or claim settlement, the Contractor will be deemed to have certified on behalf of itself, Subcontractors and Suppliers, to its best knowledge and belief that the proposal and its contents (a) were made in good faith and are consistent with the facts and the provisions of the Contract; and (b) are current, complete, and accurate. If the Contract Price/Time is increased by any Change Order, claim or dispute settlement because the Contractor, Subcontractor or Supplier, at any tier, represented or furnished cost or pricing data of any kind that were false, contained math errors or were incomplete, the Contract Price must be correspondingly reduced by Change Order. If there is a good cause to doubt the Contractor's compliance with the Defective cost and pricing data requirements, the Owner must be entitled to make an appropriate withholding from any payment otherwise owed to the Contractor.

7. Payments

7.1 **Schedule of Values:** The Schedule of Values must be approved by the Professional and accepted by the Owner and must divide the Work into pay items for significant Sections and areas, facilities, or structures, with subtotals for first tier Subcontractors. As required or as noted in Division 1, the accepted Schedule of Values must be supported by a more detailed breakdown allocating the pay items to the Progress Schedule Activities. It must tabulate labor costs, Subcontract costs and material and equipment costs. Labor costs must include appropriate sums for construction equipment costs, general conditions costs, administrative costs, and profit, unless separate pay items are itemized for those costs. The Schedule of Values must include two percent of the Contract Price for each of the following close-out pay items: (a) fire safety inspection, certificate of occupancy and other code approvals, as specified in the Contract Documents, (b) manufacturer warranties, finalized operating and maintenance documentation, Owner training documentation, and test and balance reports, and (c) finalized as built/Record Documents.

7.2 **Requests for Payment:** Not more than once every thirty Calendar Days, the Contractor may submit to the Professional a Request for Payment on the Owner's form signed by the Contractor certifying Work completed and enclosing all supporting documentation. A draft copy of the payment request must be submitted to the Owner Field Representative for review and comments. For projects under $50,000, the Contractor may not submit more than two requests in addition to the final payment request. Each Request for Payment must certify that all monies owed by the Contractor to Subcontractors and Suppliers for which payment previously has been sought has been paid from payments received and include a sworn statement. No Request for Payment must include amounts for a Subcontractor or Supplier if the Contractor does not intend to use the payments requested, when received, to reduce the Contractor's outstanding obligations on the Work. The Owner will pay the Contractor within thirty Calendar Days after the Owner receives and approves a certified Request for Payment from the Professional. The Contractor will provide a certification in writing that the payment request submittal is true and accurate. If payment is requested based on materials and equipment stored at the site or at another location agreed to in writing, the Request for Payment also must be accompanied by (a) consent of surety, (b) a bill of sale, invoice or other documentation warranting that the Owner has received the materials and equipment free and clear of all liens, and (c) evidence that the materials and equipment are covered by appropriate property insurance and other arrangements to protect them and the Owner's interests. The Contractor warrants and guarantees that title to all Work, materials and equipment covered by any Request for Payment, whether incorporated in the Work or not, will pass to the Owner free and clear of all liens no later than at the time of payment by the Owner to the Contractor.

7.2.1 **Electronic Funds Transfer:** The State will only disburse payments under this Contract through Electronic Funds Transfer (EFT). Contractor must register with the State at http://www.michigan.gov/SIGMAVSS to receive electronic fund transfer payments. If Contractor does not register, the State is not liable for failure to provide payment. Without prejudice to any other right or remedy it may have, the State reserves the right to set off at any time any amount then due and owing to it by Contractor against any amount payable by the State to Contractor under this Contract.

7.3 **Review of Request for Payment; Intent of Review:** Within ten Calendar Days after receipt of a Request for Payment, the Professional must certify to the Owner the amount the Professional determines to be due or must return the Request for

Payment to the Contractor indicating the reasons for withholding certification. The Professional's certification of any Request for Payment constitutes a representation to the Owner that the Work has progressed to the point indicated; that to the best of the Professional's knowledge, information and belief, the quality of the Work is in accordance with the Contract Documents; and that the Contractor is entitled to payment in the amount certified. In the case of final payment, the Professional's certification of final payment and recommendation that the Work is acceptable must be a further representation that conditions governing final payment to the Contractor have been met.

7.4 **Refusal to Make or to Recommend Payment:** The Owner may withhold from any payment an amount based on the (a) Professional's refusal to recommend payment or (b) Owner's estimate of the fair value of items included in the payment request. The Owner will give the Contractor reasonably prompt written notice supporting such action. The Professional may refuse to recommend any part of any payment, or because of subsequently discovered evidence, inspections or tests or the value of the Punch List, nullify all or any portion of any payment previously recommended, as the Professional may consider necessary to protect the Owner from loss because:

(a) the Work is Defective or completed Work has been damaged requiring correction or replacement,
(b) the Contract Price has been reduced by Change Order,
(c) it has been necessary that the Owner correct Defective Work or complete Work,
(d) reasonable evidence exists that all or a part of the Work will not be completed within the corresponding Contract Time,
(e) the Contractor failed to comply with any material requirements of the Contract, including, but not limited to the failure to submit Progress Schedule Submittals or as built/Record Documents when due,
(f) stored materials for which payment has been made or is sought has been determined by the Professional or the Owner Field Representative to be damaged or missing, or
(g) the Professional reasonably believes or knows of the occurrence of an event justifying termination for cause.

7.5 **Request for Final Inspection:** The Contractor must complete the Substantial Completion Punch List within the Contract Time and date. The Contractor must assemble all required documentation before requesting final inspection in writing. The Contractor may request final inspection of the entire Work, or the part of the Work for which final payment is specified in the Contract Documents. Upon this written notice, and if deemed appropriate by the professional, the Professional will make a final completion inspection with the Owner and Contractor and notify the Contractor of all incomplete or Defective Work revealed by the Final Inspection. The Contractor must immediately correct and complete the Work.

7.6 **Close-out Documents:** The Contractor must prepare and submit the following documentation before requesting final inspection or final payment: final operating and maintenance documentation (with revisions made after Substantial Completion), warranties, inspection certificates, as built/Record Documents, release of payment claim forms, and all other required documents.

7.7 **Request for Final Payment:** The Contractor may request final payment after correcting or completing the Work to the satisfaction of the Professional and delivering close-out documentation (7.6). The Contractor's request for final payment must also enclose:

(a) evidence of completed operations insurance and an affidavit certifying that the insurance coverage will not be canceled, materially changed, or renewal refused,
(b) an affidavit certifying that the surety agrees that final payment does not relieve the surety of any of its obligations under the Performance Bond and Payment Bond,
(c) a completed DTMB-0460 Form close out checklist,
(d) a list of all pending insurance claims arising out of or resulting from the Work being handled by the Contractor and/or its insurer
(e) Contractor's 'Guarantee and Statement' (DTMB-0437) containing a statement of guaranteed indebtedness acceptable to the Owner in the full amount of the Contract Price, or a release of payment claims in the form of a release of liens, or a Bond or other security acceptable to the Owner to indemnify the Owner against any payment claim.

7.8 **Final Payment and Acceptance:** If the Professional is satisfied that the entire Work, or the part of the Work for which final payment is specified in the Contract Documents, is complete and the Contractor's other obligations under the Contract Documents has been fulfilled, the Professional will furnish to the Owner and Contractor the Professional's certification of final payment and acceptance within thirty Calendar Days after receipt of the final payment request. If the Professional is not satisfied, the Professional will return the request to the Contractor indicating in writing the reasons for not certifying final payment. If the final payment request is returned, the Contractor must correct the deficiencies and re-request final payment. If the Owner concurs with the Professional's certification of final payment the Owner will, within thirty Calendar Days after receipt of the Professional's certification of final payment, pay the balance of the Contract Price subject to those provisions governing final payment specified in the Contract Documents. If the Owner does not concur with the Professional's determination, the Owner will return the request for final payment to the Contractor with written reasons for refusing final payment and acceptance.

7.9 **Contractor's Continuing Obligation:** The following does not constitute acceptance of the Work in the event the Work or any Work is not in accordance with the Contract Documents, and therefore does not release the Contractor from its obligation to perform and furnish the Work in accordance with the Contract Documents:

(a) a certification by the Professional of any Request for Payment or final payment.
(b) the issuance of a Substantial Completion certificate.
(c) any payment by the Owner to the Contractor.
(d) any Partial Use.
(e) any act of acceptance by the Owner or any failure to do so.
(f) any review and approval of a Shop Drawing, sample, test procedure or other Submittal.
(g) any review of a Progress Schedule.
(h) any On-Site Inspection.
(i) any inspection, test, or approval.
(j) any issuance of a notice of acceptability by the Professional; or
(k) any correction of Defective Work or any completion of Work by the Owner.

7.10 **Waiver of Claims:** The making of final payment does not constitute a waiver by the Owner of any rights as to the Contractor's continuing obligations under the Contract Documents, nor will it constitute a waiver of any claims by the Owner against the Contractor still unsettled, or arising from unsettled payment claims, Defective Work appearing after final inspection or failure by the Contractor to comply with the Contract Documents or the terms of any special warranties provided by the Contract Documents or by Law. The acceptance of final payment will constitute a waiver of all claims by the Contractor against the Owner, other than those claims previously made in writing, on a timely basis.

8. Other Work: During the Contract Time, the Owner may self-perform or Contract for other work at the site. By doing so, the Owner or its representative will coordinate the operations of the Contractor and the other work. Whenever the other work interfaces with the Contractor's Work on site, the Contractor must coordinate its activities with the interfacing work, inspect the other work and promptly report to the Professional in writing if the other work is unavailable or unsuitable. The Contractor's failure to do so will constitute an acceptance of such other work as fit and proper for integration with the Work except for latent or non-apparent defects and deficiencies in the other work. The Contractor must provide proper and safe access to the site for handling, unloading and storage of their materials and equipment and for the execution of the other work. The Contractor must do all cutting, fitting, patching, and interfacing of the Work that may be required to make any part of the Work come together properly and integrate with other work. If the Contractor becomes party to a dispute or claim due to damages caused to its Work/property or other work/their property, the Contractor must promptly attempt, without involving the Owner or the Professional or their agents, to settle with the other party by agreement or otherwise resolve the claim. If the Owner determines that the other work resulted in a delay to the Work to be performed by the Contractor and such delay justifies a Change Order, the Owner will authorize the necessary adjustment in Contract Price and/or Time.

9. Stop Work Orders and Suspension of Work: The Owner may order the Contractor in writing to defer, stop, suspend, or interrupt all or part of the Work, in the event any of the following situations:

(a) any Work is Defective,
(b) any Work, when completed, will not conform to the Contract Documents,
(c) any materials or equipment are unsuitable,
(d) any workers are insufficiently skilled,
(e) failure of the Contractor to implement appropriate measures for the SESC, or
(f) as the Owner may determine appropriate for its convenience. The Contractor is responsible for the Delays and any additional costs if at fault. Any justified increase in Contract Price/Time due to suspension of Work must be submitted within twenty-one Calendar Days of knowing the extent of Delays and before submitting the final payment.

10. Termination:

10.1 **Termination for Breach**: The Owner may elect to terminate all or any part of the Work if:

(a) the Contractor fails to complete the Work, or a specified part of the Work, within the corresponding Contract Time; fails or refuses to supply sufficient management, supervision, workers, materials, or equipment; or otherwise fails to prosecute the Work, or any specified part of the Work, with the diligence required to comply with the Contract Time(s).
(b) the Contractor persistently disregards the authority of the Professional or violates or disregards a provision of the Contract Documents or the Laws of any Political Subdivision with jurisdiction.
(c) the Contractor admits in writing, or the Owner otherwise establishes, the Contractor's inability or refusal to pay the Contractor's debts generally as they become due.
(d) in response to the Owner's demand, the Contractor fails to provide adequate, written assurance that the Contractor has the financial resources necessary to complete the Work within the Contract Time.
(e) the Contractor fails to comply with the Michigan Residency requirements (1984 PA 431, as amended, MCL 18.1241a); or is found to be in violation of Section 4 of 1980 PA 278 concerning unfair labor practices, or any nondiscrimination requirements imposed by Law.
(f) at any time, the Contractor, Subcontractor or Supplier is in violation of unfair labor practices prohibited by Section 8 of Chapter 327 of the National Labor Relations Act, 29 U.S.C. 158; or

(g) the Contractor violates or breaches any material provision of the Contract Documents, which provides contractually for cause termination or rescission of the Contract or of the Contractor's right to complete the Work.

Within seven Calendar Days after the Contractor receives a notice requiring assurance of due performance for any of the above occurring non-conformances, the Contractor must meet with the Owner and present the Contractor's plan to correct the problems. If the Owner determines that the Contractor's plan provides adequate assurance of correction, that determination does not waive the Owner's right to subsequently default the Contractor or affect any rights or remedies of the Owner against the Contractor and/or surety then existing or that may accrue in the future. The Owner, after giving the Contractor and surety seven Calendar Days' written notice of intent to default, may declare the Contractor in default and terminate the services of the Contractor for cause. Unless otherwise agreed between the Owner and Contractor, at the expiration of the Seven-Calendar Day (intent to default) period, the Contractor must immediately stop all Work and proceed in accordance with the Owner's instructions. Following the expiration of the Seven-Calendar Day (intent to default) notice, the Contractor will be sent a default letter – notice of termination for cause. The Owner will issue a Contract Change Order to revise the name of the contract party to the name of the surety company. The surety company must undertake to perform and complete the Work, in accordance with the Contract Documents, in place of the Contractor, either through the surety's agents or by executing agreements with qualified contractors (excluding the Contractor and any of the Contractor's affiliates), or both.

The Owner may issue a fifteen-Calendar Day notice of intent to default the surety company if they fail to execute in a timely manner the completion of the Contract Work. Without an adequate plan of correction, the Owner may issue a notice of termination for cause letter to the surety. If a termination of the contract with the surety occurs, the Owner reserves the right to complete the Work.

If the Owner has terminated the Contractor, any such termination will not affect any rights or remedies of the Owner against the Contractor or surety, or both, then existing or that may accrue after termination. All provisions of the Contract Documents that, by their nature, survive final acceptance of the Work must remain in full force and effect after a termination for cause of the Contractor or default of the surety, or both. The Owner may, in its sole discretion, permit the Contractor to continue to perform Work when the Contractor is in default or has been defaulted. Such decision by the Owner in no way operates as a waiver of any of the Owner's rights under the Contract Documents or Performance Bond, nor in the event of a subsequent default, entitle the Contractor or surety to continue to perform or prosecute the Work to completion.

10.2 **Termination on Non-Bonded Project**: For non-bonded projects, the Owner will follow the termination protocol in Paragraph 10.1 without involving a surety.

10.3 **Termination for Convenience of the Owner**: Upon fifteen Calendar Days' written notice to the Contractor and surety, or sooner if reasonable under the circumstances, the Owner may, without cause and without prejudice to any other right or remedy it may have, elect to terminate any part of the Work, or the Contract in whole or in part, as the Owner may deem appropriate for its convenience. Upon receipt of any such termination notice, the Contractor must immediately proceed in accordance with any specific instructions, protect and maintain the Work, and make reasonable and diligent efforts to mitigate costs associated with the termination. In such termination, the Contractor must be paid in accordance with the terms of this Contract for only services rendered before the effective date of termination. Upon termination for convenience, the Contractor must be released from any obligation to provide further services and the Owner must have full power and authority to take possession of the Work, assume any agreements with Subcontractors and Suppliers that the Owner selects, and prosecute the Work to completion by Contract or as the Owner may deem expedient.

10.4 **Termination for Lack of Funding:** If expected or actual funding is withdrawn, reduced, or limited in any way before the completion date set forth in this Contract or in any amendment, the State may, upon written notice to the Contractor, terminate this Contract in whole or in part in accordance with Paragraph 10.3.

11. Disputes: All claims, counterclaims, disputes, and other matters in question between the Owner and Contractor arising out of or relating to the Contract Documents must be submitted in writing to the Professional and otherwise processed and resolved as provided in this Article. *Claims by either the Owner or Contractor must be initiated by written notice to the other party and to the Initial Decision Maker (Professional/PSC). Claims by either party must be initiated within 21 days after the occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognized the condition giving rise to the claim. Provided such timely notice is delivered, a full and detailed breakdown of cost and time requested, with supporting documentation, if not provided with initial notice shall be delivered to Professional and Owner within 15 days of the notice, unless otherwise agreed in writing, by the Owner prior to expiration of such time*. The Contractor must carry on the Work with due diligence during all disputes or disagreements. Work must not be delayed or postponed pending resolution of any disputes or disagreements. The Contractor must exercise reasonable precautions, efforts, and measures to avoid situations that would cause delay.

11.1 **Notice of Claim**: Except for Owner claims for liquidated damages, no claim is valid unless it is based upon written notice delivered by the claimant to the other party and the Professional/PSC within 21 days of the event giving rise to the claim. The notice must state the nature of the dispute, the amount involved, if any, and the remedy sought. The claim submittal with all supporting data must be delivered within thirty (30) Calendar Days after the initial notice unless the Professional allows an extension by written approval. A claim by the Contractor must be submitted to the Professional and Project Director for a

recommendation or decision from the Professional. A claim by the Owner must be submitted to the Contractor and the Professional for a written recommendation or decision by the Professional. The Owner reserves the right to audit any Contractor claim (or claim package) that the Contractor values at more than $50,000.00. Pending final resolution of any claim under this Article, the Contractor must proceed diligently with the Work and comply with any decision of the Owner and/or Professional. For all Contractor claims seeking an increase in Contract Price or Contract Time, the Contractor must submit an affidavit, certifying that the amount claimed accurately reflects any Delay and all costs that the Contractor is entitled from the occurrence of the claimed event and that supporting cost and pricing data are current, accurate, complete and represent the Contractor's best knowledge and belief. The affidavit must be signed in the same manner as required in Item 6 of Section 00100.

11.2 **Recommendations or Decisions from the Professional:** For claims under $100,000.00, if requested in writing by the Contractor, the Professional will render a recommendation or decision within thirty Calendar Days after the request and the Owner will issue, if necessary, a determination within thirty Calendar Days after the Professional's recommendation or decision. For claims exceeding $100,000.00, the Professional will issue its recommendation or decision and the Owner, if necessary, will issue its determination, within sixty Calendar Day.

If the Professional denies a Contractor claim or agrees with an Owner claim, that decision must be final and binding on the Contractor, without any determination by the Owner, unless the Contractor files a request for a presentation with the Director-DCD within thirty Calendar Days. To the extent that any recommendation from the Professional is partly or wholly adverse to a claim from the Owner, that determination must be final and binding on both the Owner and Contractor unless either party files a request for a presentation with the Director-DCD within thirty Calendar Days. If the Professional recommends payment of any Contractor claim which increases the Contract Price, that recommendation is subject to the Owner's written approval. In the event any such determination from the Owner is partly or wholly adverse to the preceding recommendation from the Professional, that determination must be final and binding on the Contractor unless the Contractor files suit in the Michigan Court of Claims within thirty Calendar Days after receipt of such determination. The claim is waived if not made in accordance with these requirements.

If either the Contractor or Owner is not satisfied with any decision of the Professional on a claim, that party must, within thirty Calendar Days of receiving that decision, file a written appeal with complete supporting documentation with the Director-DCD. The Director-DCD has discretion concerning the allowability of evidence submitted and is not bound to any rules of evidence. If the right to a presentation is waived or if a presentation is conducted and the dispute remains unresolved, the Director-DCD, at the Director-DCD's sole option, must specify in which forum the dispute must be conducted by issuing a written determination to the Contractor that the dispute if the Contractor so elects, be submitted in writing to the Michigan Court of Claims. The Director-DCD's determination on the dispute is final and binding on the Contractor unless the Contractor files a lawful action in the Michigan Court of Claims within thirty Calendar Days after receiving the Director-DCD's determination. After settlement or final adjudication of any claim, if payment by the Contractor is not made to the Owner, the Owner may offset the appropriate amounts against (a) payments due to the Contractor under any other Contract between the Owner and the Contractor, or (b) any amounts for which the Owner may be obligated to the Contractor in any capacity. The Director-DCD may designate someone to fulfill the Director-DCD's duties under these terms and conditions.

END OF SECTION 00700

SECTION 00750 SPECIAL WORKING CONDITIONS

1. The Work is for the Department Corrections and their special working conditions are included in Appendix II. Contractor must comply with all security regulations. Access to and egress from the buildings and State Agency grounds must be via routes specifically designated by the State Agency. Whenever the Contractor has caused an operating security or fire system to go out of service or left unsecured openings in existing facilities or security fences, the Contractor must furnish a security guard or fire watch acceptable to the Owner to maintain security of the facility outside of normal working hours and will be held responsible for any losses from the facility.

2. The Contractor must maintain, at all times, dust control measures to the satisfaction of the Owner.

3 Working hours are 8:00 AM to 4:00 PM
- There will be one escort available for most of the work. Two escorts may be available for specific working times
- Contractor will be provided with an area inside the fence to store a Jobox for tools

END OF SECTION 00750

SECTION 00800 SUPPLEMENTARY CONDITIONS

1. The following conditions must supplement the general conditions:

The provisions of this Section 00800 Supplementary Conditions amend or supplement Section 00700 General Conditions and those other provisions of the Contract Documents, as indicated below. All other provisions of the Contract Documents that are not so amended or supplemented remain in full force and effect.

Lien clearance must be completed and sent in before November 26, 2024, or contractor will not be allowed

at facility.

Allowance shall be a provisional allowance as defined in specifications.

Prime contractor shall have a site superintendent who is an employee of the bidding contractor. They shall also be present at site During Construction. Subcontractors are not allowed to be site supervisor.

No subcontractor shall perform work on site without site superintendent on site.

Clarification: Daily reports are required each day. Submit weekly via email.

Clarification: Contractor will be responsible for any additional lighting required to perform work.

Clarification: Preliminary schedule:

a. Bids due date: 12/18/2024 at 2:00 PM EST
b. Pre-Bid Conference/walk thru: 12/3/2024 at 3:00 PM EST
c. Accepting Questions up to 12/6/2024 at 2:00 PM EST
d. Last Addendum issued: 12/10/2024

Clarification: Contractors are required to furnish a preliminary schedule that includes the following items:

a. Crew size and number of crews.
b. The number of days per week that they will be onsite.
c. Provide dates and times for completion

Clarification: Escorts to be included for one (1) location inside the facility.

Clarification: Contractors will be allowed to work Monday – Friday 7:00am to 3:30pm

Clarification: There will be the following project meetings for each site:

a. Pre-Construction conference – Scheduled after contract is executed.
b. Progress Meetings – This will be determined at each Pre-Construction conference, a minimum of two per month.
c. Substantial completion and final completion meeting.
d. 11 Month Post Construction Meeting.

Clarification: O and M Manuals shall be completed, approved and available for Substantial completion and final completion meeting.

STATE-FUNDED PROJECT PREVAILING WAGE REQUIREMENTS

1. The Contractor (and its Subcontractors) represents and warrants that it pays all mechanics and laborers employed directly on the site of the work, unconditionally and at least once a week, and without subsequent deduction or rebate on any account, the full amounts accrued at time of payment, computed at wage rates not less than those stated in the advertised specifications as prevailing wages based on locality, regardless of any contractual relationship which may be alleged to exist between the Contractor or subcontractor and the laborers and mechanics.
2. The Contractor represents and warrants that Contractor will post the scale of wages to be paid in a prominent and easily accessible place at the site of the work.

END OF SECTION 00800

SECTION 00900 ADDENDA

1. Each Bid submittal must include acknowledgement of receipt and review of all Addenda issued during the Bidding period.

END OF SECTION 00900

DIVISION 01

GENERAL REQUIREMENTS

SECTION 01010 SUMMARY OF WORK

1. **General**

1.1 General information covering the "Scope of Work" is specified on the Invitation to Bid. Additional information is as follows:

- The MDOC is obtaining a new WIFI cabling system and installation and connection of owner provided Wireless Network equipment.
- The scope of this project is the provision and installation of the cabling, raceway and systems as described below, on the drawings and in the detailed specifications.
- Electrical Power
    - Provide and install power circuits where shown on the electrical drawing and as described in the specifications.
- Systems Grounding
    - Install ground bars and bond equipment to the ground bars as shown on the drawings and as described in the specifications
- Wireless network equipment shall include:
    - Wireless Access points –(WAPS) and their enclosures. Interior and Exterior. All these devices and their enclosures are provided by owner, Contractor installee.
    - Contractor shall install WAPS and WAP enclosures at each building. Owner will provide the WAPS and Oberon type enclosures.
- WIFI cabling scope shall include but not be limited to:
    - Provide, install, terminate, test and label a complete CAT-6A cabling infrastructure to support a new WIFI (wireless) network.
    - Provide, install, terminate, test and label a complete CAT-6 cabling infrastructure where noted to transition existing cables to racks or cabinets.
    - Provide and install raceways and cable supports as specified and as required to support all new cabling and Wireless Access Points.
    - Upgrade and/or add communications racks and equipment to the racks. Make change as noted on the drawings and specifications
    - See drawings and specifications for raceways and pathways.
- The contract shall include the installation and connection of Wireless network equipment. Work shall include:
    - Providing a 40’ long Conex box onsite for the duration of the project. Coordinate location with the owner.
    - Moving of WAPS and enclosures from the delivery truck to the owner’s storage building.
    - Moving of WAPS and enclosures from the owner’s storage location to the actual building where they will be installed.
    - Installation of all wireless network equipment. this includes:
        - Mounting of owner provided WAPS and enclosures in all buildings.
        - Mounting of owner provided WAPS on the building exterior or poles at the site.
        - Owner will install Ethernet Switches and provide/install Patch cables at the switches
- Provide and install CAT-6A patch cords at each WAP. See specifications for types and lengths required.
    - Owner will provide and install CAT-6A patch cords at the Ethernet Switches
- Verify connectivity lights on all WAPS after the owner installs the Ethernet Switches.
- Label WAP patch panels with the WAP number as shown in the drawings and specifications.
- The owners (and their Cisco Partner) work on the WIFI network equipment includes:
    - Obtaining of Wireless network equipment and storage at their warehouse in Michigan.
    - Deliver of WAPS and WAP enclosures to the site.
    - Configuration of all wireless network equipment per owners’ recommendations
    - Labeling of WAPS with WAP number and labeling outside of WAP enclosure with WAP number and building where it is to be installed.

1.2 The Agency will provide the following Work:

(a) State Salvage: The State reserves the right to salvage certain items and equipment and those salvaged items will be identified to the Bidder at the time of their inspection of the proposed Work. The State will remove salvaged items before commencement of the Work.

(b) Moving Furnishings and Equipment: The Contractor must give timely notice to the State Agency representative identified in the pre-construction meeting of all furnishings, window covering and movable equipment that will interfere with the Work or which the Contractor cannot protect with coverings of paper, plastic, drop cloths or clean tarpaulin. The Contractor must furnish, install, maintain, and remove all coverings used to protect furnishings, window coverings and movable equipment.

END OF SECTION 01010

SECTION 01020 ALLOWANCES

1. **Allowances**

1.1 **Cash Allowances:**

(a) None

1.2 **Provisional/Contingency Allowances:**

(a) Bidders must include in their Base Proposal Sum two separate allowances.
   a. A contingency allowance of $15,000.00 The base bid shall include bonds and insurance on the value of the allowance.
(b) Monies will be used in the contingency allowance only if directed in writing by the Project Director and Professional.
(c) Payments under a Provisionary Allowance will include not only the purchase/furnished cost of the materials and equipment involved, but also all related labor costs, subcontract costs, construction equipment costs, general conditions costs and Fee, provided they are calculated in accordance with the requirements of the contract documents.
(c) Unused allowances will be deducted from the contract amount through contract change order.

END OF SECTION 01020

SECTION 01025 MEASUREMENT AND PAYMENT

1. **Schedule of Values**: Unless noted otherwise, before mobilization and start of construction, the Contractor must submit a Schedule of Values to the Professional for review and approval, of the various tasks that must be performed to complete all the Work. The schedule must show each task and the corresponding value of the task, including separate monies allocated for General Condition items and Project close-out. The aggregate total value for all tasks must be equal to the total Contract sum.

END OF SECTION 01025

SECTION 01030 ALTERNATES

1. **Use of Alternates**: Determination of the lowest three Bidders shall be based on the sum of the Base Bid and any additive and deductive Alternates the Owner accepts, in the order in which they are listed only. The Owner will accept an Alternate only if all other previously listed Alternates are also accepted unless acceptance by the Owner of Alternates in a different order does not affect determination of the lowest three bidders in any way.

2. **Execution:** (a) Coordinate pertinent related Work and modify surrounding work as required to complete the Project for each alternate.
   (b) Description of Alternates: NONE

END OF SECTION 01030

SECTION 01040 COORDINATION

1. **Project Coordination:**

(a) Before beginning Work the Contractor must coordinate with the State Agency representative to implement the schedule for the Project. Once the Project is started, it must be carried to completion without delay.(b)Any building utility service interruptions or outages including security required by the Contractor in performing the Work must be prearranged with the staff of the State

Agency and must occur only during those scheduled times.(c) The Contractor is not responsible for removing room furnishings unless is required by the Contract Documents.

2. **Cutting and Patching:**

(a) The Contractor must do all cutting, fitting, or patching of the Work that may be required to make its several parts fit together properly or make new Work join with the existing structure. The Contractor must take proper precautions so as not to endanger any existing Work. The Contractor must not cut or alter existing structural members or foundations unless specifically required by the Contract Documents.
(b) Holes or openings cut in exterior walls and roofs for installation of materials or equipment must be waterproofed by appropriate, approved materials and methods.
(c) All adjacent finished surfaces that are damaged by the new Work must be patched with materials matching existing surfaces. Joints between patched and existing material must be straight, smooth, and flush. Workers skilled in its installation must apply all patching material.

END OF SECTION 01040

SECTION 01050 FIELD ENGINEERING

1. When applicable, the Contractor must employ a surveyor who must establish and maintain all lines and levels required for laying out and constructing the Work. The Contractor agrees to assume all responsibility due to inaccuracy of any Work of the surveyor, and including incorrect benchmarks, their loss or disturbance. Upon completion of the Project, the Contractor must submit two copies of site layout Drawings prepared for the Project and certified by the surveyor.

END OF SECTION 01050

SECTION 01060 REGULATORY REQUIREMENTS

1. **Laws:** The Contractor and its Subcontractors/Suppliers must comply with all Federal, State, and local Laws applicable to the Work and site.

2. **Codes:** All Works must be provided in accordance with the State Construction Code Act, 1972 PA 230, as amended, MCL 125.1501 et seq., International Building and Residential Codes and all applicable Michigan construction codes and fire safety including but not limited to: Michigan Building Code, Michigan Residential Code, Michigan Uniform Energy Code, Michigan Electrical Code, Michigan Rehabilitation Code for Existing Buildings, Michigan Mechanical Code, Michigan Elevator Code and Michigan Plumbing Code. If the Contractor observes that any Contract Document conflicts with any Laws or the State Construction Code or any permits in any respect, the Contractor must promptly notify the Professional in writing. If the Contractor provides any Work knowing or having to reason to know of such conflict, the Contractor must be responsible for that performance.

3. **Permits:** All required construction permits must be secured and their fees including inspection costs must be paid by the Contractor. The time incurred by the Contractor in obtaining construction permits must constitute time required to complete the Work and does not justify any increases to the Contract Time or Price, except when revisions to the Drawings and/or Specifications required by the permitting authority cause the Delays. The Contractor must pay all charges of Public Utilities for connections to the Work, unless otherwise provided by Cash Allowances specific to those connections. The following permit fees will be paid by the Owner - None

4. **Taxes:** The Contractor must pay all Michigan sales and use taxes and any other similar taxes covering the Work that are currently imposed by legislative enactment and as administered by the Michigan Department of Treasury, Revenue Division. If the Contractor is not required to pay or bear the burden or obtains a refund of any taxes deemed to have been included in the Bid and Contract Price, the Contract Price must be reduced by a like amount and that amount, whether as a refund or otherwise, must ensure solely to the benefit of the State of Michigan.

5. **Safety and Protection:** The Contractor and its Subcontractors/Suppliers must comply with all applicable Federal, State, and local Laws governing the safety and protection of persons or property, including, but not limited to the Michigan Occupational Safety and Health Act (MIOSHA), 1974 PA 154, as amended, MCL 408.1001 et seq., and all rules promulgated under the Act. The Contractor is responsible for all damages, injury or loss to the Work, materials, equipment, fines, penalties as a result of any violation of such Laws, except when it's due to the fault of the Drawings or Specifications or to the Act, error, or omission of the Owner or Professional. The Contractor is solely responsible for initiating, maintaining, and supervising all safety precautions and programs and such responsibility must continue until such time as the Professional is satisfied that the Work, or Work inspected, is completed and ready for final payment. In doing the Work and/or in the event of using explosives, the Contractor must take all necessary precautions for the safety of, and must erect and maintain all necessary safeguards and provide the necessary protection to prevent damage, injury or loss to: (a) all employees on the Work and other persons who may be affected by the Work, (b) all the Work and materials and equipment to be incorporated into the Work, whether stored on or off the site, and (c) other property at or adjacent to the site, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities and Underground Utilities not designated for removal, relocation or replacement. In the event of severe weather, the Contractor must

inspect the Work and the site and take all reasonably necessary actions and precautions to protect the Work and ensure that public access and safety are maintained.

6. Fire Hazard Conditions:

(a). The fire hazard classification of finish materials were used in the specification must be in accordance with the current Michigan Building Code.

(b) Classification must be determined by tunnel test in accordance with National Fire Protection Association (NFPA-255), American Society for Testing Materials (ASTM E-84) or Underwriters' Laboratories, Inc. (UL-723).

***7. **Flame/Smoke Resistance Standards**: The Contractor must provide carpeting complying with "Class B" requirements as set forth in Michigan Department of State Police State Fire Safety Board "Health Care Facilities Fire Safety Rules' R29.1243, Rule 243, when tested in accordance with the following procedures:

(a) Tunnel Test: Test for surface burning characteristics, with ratings for flame spread, fuel contribution, and/or smoke density; ASTM E 84, UL 723, or NFPA No. 255.
(b) Pill Test: Test for flammability; ASTM D 2859, or DOC FF-1-70.
(c) Floor Radiant Panel Test: Test for burning under varying radiant energy levels; ASTM E 648, with minimum average radiant flux ratings not less than 0.45 watts/sq. cm.
(d) Smoke Density Test: Test in radiant heat chamber, with and without flame, for density of smoke generated; ASTM E 662, or NFPA No. 258, also known as NBS Smoke Density Chamber Test.***

8. Michigan Right-To-Know Law: The Contractor and its Subcontractors/Suppliers must comply with MIOSHA, Michigan Right-to-Know Law (Public Act 80 of 1986) and the rules promulgated under it. The Act places certain requirements on employers to develop a communication program designed to safeguard the handling of hazardous chemicals through labeling of chemical containers and development and availability of Safety Data Sheets (SDS), and to provide training for employees who work with these chemicals and develop a written hazard communications program. The Act also provides for specific employee rights, including the right to be notified of the location of SDS and to be notified at the site of new or revised SDS within five Business Days after receipt and to request SDS copies from their employers. The Contractor, employer or Subcontractor must post and update these notices at the site.

9. Environmental Requirements: The Contractor and its Subcontractors/Suppliers must comply with all applicable Federal, State and local environmental Laws, standards, orders or requirements including but not limited to the National Environmental Policy Act of 1969, as amended, Michigan Natural Resources and Environmental Protection Act, P.A. 451 of 1994, as amended, the Clean Air Act, as amended, the Clean Water Act, as amended, the Safe Drinking Water Act, as amended, Pollution Prevention Act, as amended, Resource Conservation and Recovery Act, as amended, National Historic Preservation Act, as amended and Energy Policy and Conservation Act and Energy Standards for Buildings Except Low-Rise Residential Buildings, ANSI/ASHRAE/IESNA Standard 90.1-1999.

10. Nondiscrimination: For all State Contracts for goods or services in amount of $5,000 or more, or for Contracts entered into with parties employing three or more employees; in connection with the performance of Work under this Contract, the Contractor and its Subcontractors and Suppliers must comply with the following requirements:

10.1 Not to discriminate against any employee or applicant for employment because of race, color, religion, national origin, age, sex *(as defined in Executive Directive 2019-09)*, height, weight or marital status and take affirmative action to ensure that applicants are employed, and the employees are not subject to such discrimination. Such action must include, but is not limited to, the following: employment, upgrading, demotion or transfer; recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training.

10.2 To state in all solicitations or advertisements for employees that all qualified applicants will receive consideration for employment without regard to race, color, religion, national origin, age, sex, height, weight, or marital status.

10.3 To send, or have its collective bargaining representative send, each labor union or representative of workers with which there is a collective bargaining agreement or other contract or understanding, a notice advising the labor unions or workers' representative of the commitments under this provision.

10.4 To comply with the Elliot-Larsen Civil Rights Act, 1976 PA 453, as amended , MCL 37.2201 et seq.; the Michigan Persons with Disability Civil Rights Act, 1976 PA 220, as amended, MCL 37.1101 et Seq.; *Executive Directive 2019-09;* and all published rules, regulations, directives, and orders of the Michigan Civil Rights Commission (MCRC) which may be in effect on or before the date of Bid opening.

10.5 The Contractor must furnish and file compliance reports within the times, and using the forms prescribed by the MCRC. Compliance report forms may also elicit information as to the practices, policies, programs, and employment statistics of the Contractor and Subcontractors. The Contractor must permit access to Records by the MCRC and its agent for purposes of ascertaining compliance with the Contract and with rules, regulations, and orders of the MCRC.

10.6 If, after a hearing held under its rules, the MCRC finds that the Contractor has not complied with the Elliott-Larson requirements of the Contract Documents, MCRC may, as part of its order, certify its findings to the Administrative Board of the State of Michigan, which may order the cancellation of the Contract and/or declare the Contractor ineligible for future contracts with the State until the Contractor complies with the MCRC's order.

11. Michigan Residency for Employees: Fifty percent of the persons employed on the Work by the Contractor must have been residents of the State of Michigan for not less than one year before beginning employment on the Work. This residency requirement may be reduced or waived to the extent that Michigan residents are not available or to the extent necessary to comply with the federal funds used for the Project. This requirement does not apply to employers who are signatories to collective bargaining agreements that allow for the portability of employees on an interstate basis.

END OF SECTION 01060

SECTION 01090 REFERENCES

1. References will be made in an abbreviated alpha numeric form to specific standard specifications, reference publications and building codes of federal or state agencies, manufacturers, associations, or trade organizations. Such references will be identified by the alphabetic abbreviation which identifies the government agency, the association or organization followed by the rule, section or detail number that are to form a part of these specifications, the same as if fully set forth herein, and must be of latest issued date in effect three months before the Bid opening date shown on the Proposal and Contract. The abbreviations used are referred to as follows:

Abbreviation	Agency, Association or Organization
ACI	American Concrete Institute
AISC	American Institute of Steel Construction, Inc.
AMCA	Air Moving and Conditioning Association
ANSI	American National Standards Institute, Inc.
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASSE	American Society of Sanitary Engineering
ASTM	American Society of Testing and Materials
AWS	American Welding Society
AWWA	American Water Works Association
BOCA	Building Officials and Code
CDA	Copper Development Assn., Inc.
CLFMI	Chain Link Fence Manufacturer's Institute
CISPI	Cast Iron Soil Pipe Institute
CRSI	Concrete Reinforcing Steel Institute
CS	Commercial Standard
F/M	Factory Mutual Research Corporation
FS	Federal Specifications
HEW	United States Department of Health Education and Welfare
MDOT	Michigan Department of Transportation
NFPA	National Fire Protection Association
NSF	National Sanitation Foundation Testing Laboratory, Inc
NSWMA	National Solid Waste Management Association
PCA	Portland Cement Association
PDI	Plumbing and Drainage Institute
SMACNA	Sheet Metal & Air Conditioning Contractors
UL	Underwriters Laboratories, Inc.
USBM	United States Bureau of Mines
USDC	United States Department of Commerce

END OF SECTION 01090

SECTION 01100 PROJECT PROCEDURES

1. Signage and Safety: The Contractor must post appropriate construction signs to advise the occupants and visitors of occupied facilities of the limits of construction work areas, hardhat areas, excavations, construction parking and staging areas, etc. Advertising signage by contractors, subcontractors, or suppliers is not allowed. The Contractor must maintain safe and adequate pedestrian and vehicular access to fire hydrants, commercial and industrial establishments, churches, schools, parking lots, hospitals, fire, and police stations and like establishments. The Contractor must obtain written approval from the Owner ten Calendar Days before connecting to existing facilities or interrupting the services on site.

2. Required Project Sign: None.

3. Barrier and Enclosures:

(a) The Contractor must furnish, install, and maintain as long as necessary and remove when no longer required adequate barriers, warning signs or lights at all dangerous points throughout the Work for protection of property, workers, and the public. The Contractor must hold the State of Michigan harmless from damage or claims arising out of any injury or damage that may be sustained by any person or persons as a result of the Work under the Contract.

(b) **Temporary Fence**: None

4. Construction Aids:

(a) The Contractor must furnish, install, and maintain as long as necessary and remove when no longer required, safe and adequate scaffolding, ladders, staging, platforms, chutes, railings, hoisting equipment, etc., as required for proper execution of the Work. All construction aids must conform to Federal, State, and local codes or Laws for protection of workers and the public.

(b) **Debris Chute**: The Contractor must use a chute to lower debris resulting from their Work. The chute must be the enclosed type with its discharge directly into the truck or approved container.

END OF SECTION 01100

SECTION 01200 PROJECT MEETINGS

1. **Pre-Construction Conferences**: The Project Director will schedule a pre-construction conference to be attended by the Professional, State Agency staff, and the Contractors. A project procedure as outlined in Form DTMB-0460, will be established for the Work during the pre-construction meeting. When no organizational meeting is called, the Contractor, before beginning any Work, must meet with the staff of the Agency and arrange a Work schedule for the Project. Once the Project has been started, the Contractor must carry it to completion without delay.

2. **Progress Meetings**: The Professional will schedule progress meetings to be held on the job site whenever needed to supply information necessary to prevent job interruptions, to observe the Work or to inspect completed Work. The Contractor must be represented at each progress meeting by persons with full authority to act for the Contractor in regard to all portions of the Work.

END OF SECTION 01200

SECTION 01300 SUBMITTALS

1. **Shop Drawings, Samples and Technical Submittals**: .

1.1 Contractor's Review: Before each submission, the Contractor must:
(a) determine and verify all field measurements, quantities, dimensions, instructions for installation and handling of equipment and systems, installation requirements (including location, dimensions, access, fit, completeness, etc.), materials, color, catalog numbers and other similar data as to correctness and completeness, and
(b) have reviewed and coordinated that technical Submittal with other technical submittals and the requirements of the Contract Documents.

1.2 Notice of Variation: The Contractor must give the Professional specific written notice of any variation from the requirements of the Contract Documents.

1.3 Contractor's Approval: The Contractor shall not submit unapproved submittals. Each submittal shall be stamped/certified to indicate that the submittal satisfies the requirements of the Contract Documents before submission to the Professional.

1.4 Responsibility and Authority: Neither the Owner's authority to review any of the Submittals by the Contractor, nor the Owner's decision to raise or not to raise any objections about the Submittals, creates or imposes any duty or responsibility on the Owner to exercise any such authority or decision for the benefit of the Contractor/Subcontractor/Supplier, any surety to any of them or any other third party. The Contractor is not relieved of responsibility for errors or omissions in shop drawings, product data, samples, or similar submittals just because the Professional approved them for general design intent.

1.5 Final As-Built/Record Documents and Submittals: The approved Submittals are a part of the final As-Built/Record Documents required for processing final payment to the Contractor.

1.6 Submissions: Contractor must submit to the Professional:

(a) See Specification 28 7200

1.7 Professional's Review and Return: Professional's Review and Return: Submittals will be returned to the Contractor within fifteen Calendar Days. The Contractor is responsible for any time Delay and any cost incurred by the Professional, Contractor or Subcontractors/Suppliers as a result of resubmissions and re-reviews of a particular Submittal. The Contractor shall revise, and correct submittals returned for revision and resubmittal until approval by the Professional is achieved. All time consumed by the resubmissions and rereviews of a particular Submittal shall constitute time required to furnish that Submittal or shall represent Delays not justifying any increase in Contract Time or Contract Price, or both.

2. Progress Schedule:

2.1 SUMMARY

A. The **Contractor** will submit CPM Progress Schedules to the **Owner** depicting its approach to prosecution of the Work. This includes but is not limited to the **Contractor's** approach to recovering schedule and managing the effect of changes, substitutions, and Delays on Work sequencing.

B. The Progress Schedule will include the Rev. 0 Submittal (par. 2.14), Update Submittals (par. 2.15) and Revision Submittals (par. 2.16). Each Submittal will be assigned a unique number. For a resubmission, the initial number will be modified by the letter A, B, C, etc., as appropriate.

C. Through the Progress Schedule, the **Owner** will seek to stay current on progress, updated Activity and Milestone Dates, and the **Contractor's** approach to Work remaining.

D. References to the Critical Path Method (CPM) are to CPM construction industry standards that are consistent with the requirements of this Section.

2.2 RELATED SECTIONS

A. Section 00700 General Conditions; and Section 00800 Supplementary Conditions.

2.3 GLOSSARY OF TERMS

A. Capitalized terms not already defined in any Division 0 Specification have the following intent and meanings:

1. Milestone–A key point of progress, designating interim targets toward the Contract Times. They may pinpoint critical path foundations, key deliveries, building framing, start of MEP rough-in, building enclosure, partitions, interior finishes, conditioned space, commissioning stages, Substantial Completion, and other events of like import.
2. Official Schedule–The most recent Revision Submittal returned to the **Contractor** as Resubmittal Not Required. The Rev. 0 Official Schedule is the *As-Planned* Schedule.
3. Revision 0 Submittal–Progress Schedule submitted by the **Contractor** depicting the entire Work as awarded.
4. Update Submittal–A monthly Progress Schedule update reflecting progress and minor adjustments on the Activities, sequencing and restraints for Work remaining.

2.4 QUALITY ASSURANCE

A. The **Contractor** will obtain a written interpretation from the **Professional,** if the **Contractor** believes the selection of Activities, logic ties or restraints requires an interpretation of the Contract Documents. With each submission, the **Contractor** will point out by specific, written notation, any Progress Schedule feature that may reflect variations from any requirements of the Contract Documents.

B. The **Contractor** is responsible to obtain information from each Subcontractor and Supplier when scoping their respective Activities, Values, logic ties and restraints

C. No review of any Progress Schedule by or on behalf of the **Owner** will relieve the **Contractor** from complying with the Contract Times and any required sequence of Work or from completing Work omitted from the Progress Schedule. No review will imply approval of any variation from or interpretation of the Contract Documents, unless approved by the **Professional** through a written interpretation or by means of a separate, written notation.

2.5 ALLOWANCES

A. Work covered by Cash Allowances will be completed within the Contract Times. To the extent reasonable and consistent with the **Contractor's** plan, Work authorized by provisionary contingency allowances will be completed within the Contract Times. The Progress Schedule will incorporate the **Contractor's** best estimate of the Activities, logic and restraints required, using the information in the Contract Documents, or as indicated by the **Professional** in writing.

2.6 "OR EQUALS" AND SUBSTITUTIONS

A. Activities in the Rev. 0 Progress Schedule will be based on materials and equipment required by the Contract Documents and will not reflect any "or equal" or substitute materials or equipment, even if the **Contractor** intends to pursue "or equal" and substitution proposals. This limitation also applies to any Means and Methods indicated in or required by the Contract Documents.

2.7 MEASUREMENT AND PAYMENT

A. The Schedule of Values will include a Progress Schedule *pay item*. Fifteen percent (15%) of this *pay item* will be eligible for payment upon delivery of the *complete* Rev. 0 Submittal. The balance of this *pay item* will be eligible for payment, on a prorated basis, with each Request for Payment attaching an Update Submittal.

2.8 PROGRESS SCHEDULE SUBMITTALS

A. Each Progress Schedule Submittal will consist of an electronic copy the **Contractor's file**, a narrative and a PDF file of the project schedule report and plots, each file appropriately titled for the schedule version and date of publishing.

B. The CPM scheduling software will be Primavera Project Planner®, SureTrak® or Microsoft Project®.

C. In addition to the monthly update schedule submittal, **Contractor** shall provide prior to each Progress Meeting, a 2-week look ahead schedule extracted from the current overall schedule and providing sufficient additional activity detail to appropriately define the expected activity during the upcoming 2-week period.

2.9 PRINTOUTS

A. Schedule Reports will include Activity (ID) code and description, duration, calendar, Early Dates, Late Dates and Total Float, all of which will comport with the requirements of paragraph 8.3.4 of Section 00700 General Conditions.

1. Late Finish Date for an Activity pinpointing a Contract Time will equal that Contract Time. Early Start Date for an Activity designating a Contract restraint will equal the proper Notice to Proceed date. Schedule Reports may or may not append CPM Plots (time-scaled Activity/logic).

2. For Precedence Diagram Method, separate Schedule Reports will tabulate, for each Activity, all preceding and succeeding logic types and lead times, whether CPM Plots displaying vertical logic ties are appended or not.

B. CPM Schedule Plots will be plotted on a suitable time scale and identify the Contract Times, Critical Paths, and sub-Critical Paths. Activities will be shown on the Early Dates with Total Floats noted by Late Date flags.

c. Line of Balance Plots will reflect industry practice for repetitive construction and will segregate the production lines for all trades within the hammock Activities.

2.10 NARRATIVE REQUIREMENTS

A. In general, a narrative will describe the **Contractor's** approach to prosecution of the Work, subject to the requirements of the Contract Documents. Further, each narrative will list the Critical Path Activities and compare Early and Late Dates with Contract Times and Milestone Dates. The basis for restraint dates will be explained.

B. For each Update Submittal, the narrative will compare current Dates to the respective Milestone Dates, describe changes in crewing and construction equipment and identify new Delays. For each Revision Submittal, the narrative also will itemize changes in Activities, logic ties and restraint dates made necessary by each change, Delay, schedule recovery, substitution and **Contractor**-initiated revision occurring since the previous Submittal.

2.12 ACTIVITY REQUIREMENTS

A. The Progress Schedule will detail Work sequencing only to the extent necessary to allow the **Owner** to correlate percent complete, compare actual dates with Milestones and Contract Times and the data in Requests for Payment.

B. Separate Activities will designate permits, construction, Submittal preparation/review (and resubmission and re-review, for same); MEP coordination drawings; deliveries; commissioning; and Punch List. Separate Activities will designate **Owner**-furnished items, interface with other work and the **Owner** and **Professional's** responsibilities.

C. Activities will be detailed only to the extent required to show the transition of trade Work. Activities will detail the progression through site/excavation, foundations, building framing, start/completion of interior partitions, MEP rough-in, building enclosure, interior finishes, conditioned space, and commissioning.

1. Submittal Activities will segregate long-lead items, any item requiring structural access and other procurements that, in the **Contractor's** judgment, may bear on the rate of progress. Separate MEP coordination drawing Activities will be used for each floor. Beyond these requirements, it is not necessary to burden the Progress Schedule with Activities for less significant Submittals and deliveries.

2. For multiunit Work (e.g., rough-in overhead MEP for each floor, etc.), detailed Activities will be shown for a typical (often, the first) unit). Other or follow-on units may be replicated, as appropriate, or modeled with a hammock Activity combining the sum total of the typical detailed Activities. Separate Activities, as may be suitable to the Divisions of Work involved, will be identified for single-unit Work. This requirement applies to such scope as Work in mechanical rooms, building framing, commissioning, etc.

3. Activities will not combine separate or non-concurrent items of Unit Price or lump sum Work, Work in separate structures and Work in distinct areas, locations or floors within an area or structure; or rough-in and finish Work.

D. Activity durations will equal the Business Days required to sufficiently complete the Work designated by the Activity (i.e., when finish-to-start successors may start, even if the Activity is not quite 100% complete). Installation Activities will last from twenty (20) to forty (40) Days.

E. Activities will be assigned consistent descriptions and identification codes. Sort codes will group Activities by building or structure, floor or area, Change Order and Change Authorization and other meaningful schemes.

2.13 FLOAT TOLERANCES

A. Any Progress Schedule with Early Dates after a Contract Time will yield negative Total and Contract Floats, whether shown/calculated or not. Any Revision Submittal with less than negative twenty (20) Days of Float will be returned as "Revise and Resubmit," unless a time extension is requested, or the **Owner** withholds liquidated damages or asserts intent to do so in the event schedule is not recovered.

B. Floats calculated from the definitions given in Section 00020 Glossary supersede any conflicting Float values calculated within any early completion Progress Schedule.

2.14 REVISION 0 (Rev. 0) SUBMITTAL

A. The complete Revision 0 Submittal will be due with the first Request for Payment. The Rev. 0 Submittal will show the Work as awarded, without Delays, "or equal" or substitutions, Change Orders or Change Authorizations.

1. The Rev. 0 narrative will detail the **Contractor's** management of the site (lay down, parking, etc.). Further, the Rev. 0 narrative will identify shifts, weekend Work, Activity calendars, Delays since award and all pending and anticipated "or equal" and substitution proposals.

B. Once endorsed by the **Owner** and returned as "Resubmittal Not Required," the Rev. 0 Progress Schedule (or Rev. 0A, etc.) will be the As-Planned Schedule and the basis for Update Submittals until the Rev. 1 Official Schedule is established. Once the As-Planned Schedule is established, the **Owner** will select Milestones and note Milestone Early and Late Dates. As the Official Schedule evolves, Milestone Dates will be revised accordingly.

D. If the **Owner** refuses to endorse the Rev. 0 Submittal (or Rev. 0A, for a resubmission) as "Resubmittal Not Required," the As-Planned Schedule will not be established. In that event, the **Contractor** will continue to submit Update and Revision Submittals reflecting progress and the **Contractor's** approach to remaining Work. The **Owner** will rely on the available Update and Revision Submittals, subject to whatever adjustments it determines appropriate.

2.15 UPDATE SUBMITTALS

A. Update Submittals with progress up to the closing date and updated Early and Late Dates for progress and remaining Activities will be due with each Request for Payment. As-built data will consist of actual start dates, percent complete, actual finish dates, changes, Delays, and other significant events occurring before the closing date.

2.16 REVISION SUBMITTALS

A. Progress Schedule Revisions will be submitted with the third Request for Payment and every two (2) months after that, or more often, if necessary due to schedule recovery or other Progress Schedule revisions. Revisions will revise the Update Submittal attached to the prior Request for Payment.

B. Progress Schedule revisions will detail all impacts on pre-existing Activity scope, logic ties and restraint dates and reflect the Contractor's current approach to Work remaining. Revisions may be required because of changes in the Work, substitutions, schedule recovery and Delays.

C. Once endorsed by the **Owner** and returned as "Resubmittal Not Required," a Revision Submittal becomes the Rev. 1, Rev. 2, etc. Official Schedule and the basis for subsequent Update Submittals until a more current Official Schedule is established. If the **Owner** refuses to endorse a Revision Submittal as "Resubmittal Not Required," the **Contractor** will continue to submit Update and Revision Submittals when and as required in this Section.

2.17 RETROSPECTIVE DELAY ANALYSIS

A. If the **Owner** refuses to endorse any Revision Submittal as "Resubmittal Not Required," the **Contractor** and **Owner** will use the latest Official Schedule when evaluating the effect of Delays on Contract Time and/or Contract Price. The procedure will consist of progressively revising the latest Official Schedule at key Revision Submittal closing dates. For each Progress Schedule iteration, slippage between actual Milestone Dates and Rev. 0 Milestone Dates will be correlated to Delays occurring solely in that iteration. Revisions affecting Work after any iteration will be included only to the extent consented by the **Owner** at that time and/or if confirmed by as-built progress.

3. **Shop Drawings:** The Contractor shall deliver shop drawings of products, materials, assemblies, or equipment to the Professional.

   See Specifications 28 7200

4. **Samples**: The Contractor must deliver all samples of material or equipment to the job site for examination by the State Agency and the Professional. Samples will be examined by the Professional for conformance with the design concept of the Project and for compliance with the information given in the Contract Documents. The Contractor must furnish all Work in accordance with approved samples. The following general classifications of material and equipment require submission of samples. Samples of other items may be requested by the Professional at any time.

   See Specification 28 7200

END OF SECTION 01300

SECTION 01400 QUALITY CONTROL

1. **Testing Laboratory Services**: All tests required by the Owner must fulfill ASTM, ANSI, Commercial and other Standards for testing. The Contractor must submit a minimum of three copies of each test report to the Professional for evaluation and subsequent distribution. The following general classifications of Work require submission of test reports and/or certificates of inspection. Additional submissions may be requested by the Professional at any time.

2. **Tests:**

   (a) Paid by Owner: None
   (b) Paid by Contractor: See Specification 28 7700

3. **Concrete/Asphalt Materials**: Before placement of any concrete, the Contractor must submit for the Professional's approval complete data on the trial concrete mix formulation and a testing laboratory report for ASTM C94, twenty-eight-day standard cylinder test for compressive strength of a sample of the concrete mix. For asphalt paving, the Contractor must submit the data and testing reports for ASTM D946, AC-5. The mix must have 4.5 to 6 percent of asphalt cement by weight for binder course and 5 to 7 percent of asphalt cement by weight for surface course in accordance with Asphalt Institute Manual MS-4, MS-13, and the current Michigan Department of Transportation (MDOT) Standard Specifications for Construction.

   (a) The Contractor must furnish to the Professional tickets showing mix formulation, Contractor's name, Project name, mix identification for each load of concrete/asphalt delivered and installed. If the technical specifications allow added water to the concrete mix after leaving the batch plant, the delivery ticket must reflect the added water. The Owner Field Representative must receive a copy of each delivery ticket for transmittal to the Professional for evaluation.

   (b) The Professional may require the Contractor to core drill questionable cast-in-place concrete/asphalt for laboratory testing. Should the laboratory analysis indicate the concrete/asphalt fails to meet specification requirements, the Contractor must pay all costs for core drilling and testing in the laboratory and replace the concrete/asphalt found to fail meeting the specification requirements. Should the laboratory analysis confirm that the concrete/asphalt meets specification requirements, the Owner will pay the Contractor for their costs for core drilling, concrete/asphalt patching and the laboratory fee for testing of the concrete/asphalt core samples.

END OF SECTION 01400

SECTION 01500 CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

1. The Contractor must furnish and install all temporary facilities and controls required by the Work, must remove them from State property upon completion of the Work, and the grounds and existing facilities must be restored to their original condition.

2. If water or electricity is available in the area where Work will be performed, the Contractor will not be charged for reasonable use of these services for construction operation. The Contractor must pay costs for installation and removal of any temporary connections including necessary safety devices and controls. Use of services must not disrupt or interfere with operations of the State Agency.

3. **Temporary Sanitary Facilities**:

   (a) **Portable Toilets**: The Contractor must provide and maintain a sufficient number of portable temporary toilets in locations approved by the State Agency. They must comply with all Federal, State, and local code requirements. The Contractor must maintain the temporary toilets in a sanitary condition at all times and must remove them when the Work under this Contract is complete. The Contractor's employees are not allowed to use any existing State toilet facility.

4. **Field Office**:

   (a) **On Site Trailer:** At the beginning of the Work, the Contractor may provide a field office and storage building at the site in a location acceptable to the Owner. The building may be a trailer. The Contractor may provide such other temporary buildings as he may require for the use of workers and safe storage for tools and materials. Job signs with the Contractor's name, logos, specialty, … etc., are not allowed.
   (b) On site trailers are not allowed.

5. **Temporary Heating**: Until the new heating system is ready to provide heat, the Contractor must provide adequate temporary heaters to maintain the temperature in those areas of the building where Work is being conducted between 55 degrees F. and 70 degrees F. during working hours.

END OF SECTION 01500

SECTION 01600 MATERIAL AND EQUIPMENT

1. The Contractor must furnish and be responsible for all materials, equipment, facilities, tools, supplies and utilities necessary for completing the Work. All materials and equipment must be provided as described in the Contract Documents and of good

quality, free of defect and new and must be applied, installed, connected, erected, used, cleaned and conditioned following the manufacturer's and Suppliers' instructions.

2. **Delivery, Storage, and Handling**: All materials and equipment delivered to and used in the Work must be suitably stored and protected from the elements. The areas used for storage must only be those approved by the State Agency. The Owner assumes no responsibility for stored material. The ownership and title to materials will not be vested in the Owner before materials are incorporated in the Work unless payment is made by the Owner for stored materials and equipment. After delivery, before and after installation, the Contractor must protect materials and equipment against theft, injury, or damage from all causes. For all materials and equipment, the Contractor must provide complete information on installation, operation, and preventive maintenance.

   (a) The Contractor must cover and protect bulk materials while in storage which are subject to deterioration because of dampness, the weather or contamination. The Contractor must keep materials in their original sealed containers, unopened, with labels plainly indicating manufacturer's name, brand, type, and grade of material and must immediately remove from the Work site containers which are broken, opened, watermarked and/or contain caked, lumpy, or otherwise damaged materials.

   (b) The Contractor must keep equipment stored outdoors from contact with the ground, away from areas subject to flooding and covered with weatherproof plastic sheeting or tarpaulins.

   (c) The Contractor must certify that any materials stored off-site are:

      a) Stored on property owned or leased by the Contractor or owned by the agency.
      b) Insured against loss by fire, theft, flood, or other hazards.
      c) Properly stored and protected against loss or damage.
      d) In compliance with the plans and specifications.
      e) Specifically allotted, identified, and reserved for the project.
      f) Itemized for tracking and payment.
      g) Subject to these conditions until the items are delivered to the project site.

END OF SECTION 01600

SECTION 01650 FACILITY START-UP

1. **Tests**: The complete installation consisting of the several parts of equipment and systems installed according to the requirements of the Contract Documents must be ready in all respects for use by the State Agency and must be subjected to a test at full operating conditions and pressures for normal conditions of use.

2. **Adjustments**: Contractor must adjust and replace the Work which is necessary to fulfill the requirements of the Contract Documents and to comply with the directions and recommendations of the manufacturer of the several parts of equipment, and to comply with all provisions of architectural and/or engineering drawings/specifications and all codes and regulations which may apply to the entire installation.

3. **Demonstration**: Contractor must provide an on-site demonstration and training of all systems operations to the Owner when it is substantially completed.

END OF SECTION 01650

SECTION 01700 CONTRACT CLOSE-OUT

1. **Substantial Completion**: The Contractor must notify the Professional, the Project Director and the Agency when the Work will be substantially complete. If the Professional, Owner, and Agency agree that the project is Substantially Complete, the Professional and Project Director will inspect the Work. The Professional, upon determining that the Work, or a portion of the Work inspected, is substantially complete, will prepare a Punch List and will attach it to the respective Certificate of Substantial Completion. The Contractor must be represented on the job site at the time this inspection is made and thereafter must complete all Work by the date set for final acceptance by the Owner.

2. **Cleaning**:

   (a) **Regular Cleaning**: The Contractor must remove all scrap or removed material, debris, or rubbish from the Project work site at the end of each working day and more frequently whenever the Owner Field Representative deems such material to be a hazard. The Contractor cannot discard materials on the grounds of the State Agency without the express permission of the Project Director. No salvage or surplus material may be sold on the premises of the State Agency. No burning of debris or rubbish is allowed. Any recyclable materials must be recycled, and the Contractor will be required to provide recycling plan.

(b) **Final Cleaning**: Before final acceptance by the State, the Contractor must clean all Work and existing surfaces, building elements and contents that were soiled by their operations and make repairs for any damage or blemish that was caused by the Work.

END OF SECTION 01700

SECTION 01800 MAINTENANCE

1. The Contractor is responsible for maintaining the following parts of Work in good order and proper working conditions and must take all necessary actions for their protection until they are placed for use by the Owner:
    a. Fiber Backbone
    b. Camera system
    c. Secure Network and other systems attached to the secure network such as:
        i. HVAC controls
        ii. Gourd one Tour system
        iii. Starnet 2 fence detection system.
    d. Electrical distribution system

END OF SECTION 01800

APPENDIX I

GLOSSARY

GLOSSARY

Activity– An element in the Progress Schedule establishing a requisite step, or the time and resources required, for completing the part of the Work associated with that Activity.

Addenda– Written instruments that are used by the Owner and/or Professional to incorporate interpretations or clarifications, modifications, and other information into the Bidding Documents. An Addendum issued after Bid opening to those Bidders who submitted a Bid, for the purpose of re-bidding the Work without re-advertising, is referred to as a **post-Bid** Addendum.

Agency- Any unit, section, division, department, or other instrumentality of the State that benefits from the Work.

Alternate– Refers to work specified in the Bidding Documents for which the Bidder must bid a Bid Price.

Apparent Low Bidders: Those Bidders whose Base Bid, when added to those specific Alternates the Owner intends to accept, yields the three lowest sums of Bid and Alternates. Additional Bidders may be considered Apparent Low Bidders if their Bid, when added to those specific Alternates the Owner intends to accept, yields a sum within 10% of the lowest of the Apparent Low Bidder's sum. If a qualified disabled veteran meets the requirements of the contract solicitation, provides acceptable responses to both Part One and Part Two of the Best Value Construction Bidder Evaluation to achieve a Best Value recommendation and with the veteran's preference is the lowest responsive, responsible, best value Bidder it is considered the Apparent Low Bidder.

Archaeological Feature– Any prehistoric or historic deposit of archaeological value, as determined by a representative of a State Agency that is duly authorized to evaluate such findings and render such judgments. An Archaeological Feature deposit may include, but is not limited to Indian habitations, ceremonial sites, abandoned settlements, treasure trove, artifacts, or other objects with intrinsic archaeological value and that relate to the history and culture of the State of Michigan. The Archaeological Features are listed under Section 00800 Supplementary Conditions.

Authorized Technical Data– Information and data contained in a report of exploration and tests of subsurface conditions. Also, any physical data (dimension, location, conditions, etc.) contained in those Drawings of physical conditions of existing surface and subsurface facilities.

Best Value- The bids will be evaluated for best value based on price and qualitative components that may include but are not limited to technical design, technical approach, quality of proposed personnel, and management plans, per PA 430 of 2012.

Bid– Written offer by a Bidder for the Work, as specified, which designates the Bidder's Base Bid and Bid Prices for all Alternates. The term *Bid* includes a *re-bid*.

Bidder– The Person acting directly, or through an authorized representative, who submits a Bid directly to the **Owner**.

Bidding Documents– The proposed Contract Documents as advertised, and all Addenda issued before execution of the Contract.

Bid Price– The Bidder's price for a lump sum item of work, or the product of the Bidder's unit price for an item of Unit Price Work times the quantity given on the Bid Form for that item.

Bid Security– A security serving as a guarantee that the Bidder will conform to all conditions.

Bidding Requirements–The Advertisement, Instructions to Bidders, Supplementary Instructions, Information for Bidders, Bid Form, Bid Form Attachments, and qualification submittals, as advertised and as modified by Addenda, and any other Section included within Division 0 of the Bidding Documents for the purpose of governing bidding and award of the Contract.

Board– The Administrative Board of the State of Michigan.

Bond– Security furnished by the **Contractor**, as required by the Contract Documents.

Business Day– Any Day except Saturdays, Sundays and holidays observed by the **Owner.**

Bulletin– A request used by the **Owner** to describe a change in the Work under consideration by the **Owner** and to request the **Contractor** to submit a proposal for the corresponding adjustment in Contract Price and/or Contract Time, if any.

Calendar Day– Every day shown on the calendar, Saturdays, Sundays, and holidays included.

Cash Allowance– An **Owner**-specified sum included within the Contract Price to reimburse the **Contractor** for the actual purchase/furnished cost of materials and/or equipment or other designated items, as specifically provided in the Contract Documents. Although the scope (e.g., the required quantity) of any Work covered by a Cash Allowance is sufficiently detailed in the Contract

Documents for the purposes of bidding the required labor costs, Subcontract costs, construction equipment costs and general conditions costs and Fee, it is understood that the required materials, equipment or other designated items are of uncertain purchase cost at the time of Bid or are yet to be specified in more detail by the **Professional** as to quality, appearance, durability, finish and such other necessary features affecting purchase price.

Change Order– A written order issued and signed by the **Owner**, which amends the Contract Documents for changes in the Work or an adjustment in Contract Price and/or Contract Time, or both.

Contract Award– The official action of the **Board**, the **Director-SFA** or the **Director-DCD** awarding the Contract to the **Contractor**.

Contract Documents– Written and graphic documents that form the legal agreement between the **Owner** and the **Contractor**, consisting of this document, completed Bid and Contract forms, terms and conditions of the contract, specifications, drawings, addenda, Notice of Award, Notice-to-Proceed and contract change orders.

Contract Price– The total compensation, including authorized adjustments, payable by the **Owner** to the **Contractor** (subject to provisions for Unit Price Work).

Contract Times–The Contract Times for the entire Work are the periods allowed, including authorized adjustments, for Substantial Completion and final completion of the Work. The Contract Times for a designated portion of the Work are the periods allowed for Substantial Completion and final completion of any such portion of the Work, as specified in the Contract Documents.

Contractor– Business enterprise with which the **Owner** has entered into the Contract.

Correction Period– A period during which the **Contractor** must, in accordance with the Contract Documents, (a) correct or, if rejected, remove, and replace Defective Work, and (b) maintain warranties for materials and equipment in full force and effect.

Cost of the Work Involved– The sum of all costs that would be, or were, necessarily incurred by the **Contractor** in providing any Work Involved with the related change, less the costs that would be, or would have been, incurred by the **Contractor** to provide such Work without the related **change**.

Defective– As determined by the Professional, an adjective which when referring to or when applied to the term "Work" refers to (a) Work not conforming to the Contract Documents or not meeting the requirements of an inspection, test, or approval, or (b) Work itemized in a Punch List which the **Contractor** fails to complete or correct within a reasonable time after issuance of the Punch List by the **Professional**.

Delay– Any act or omission or other event that in any manner adversely affects or alters the schedule, progress or completion of all or any part of the Work. Delay is a generic term intended to include deferral, stoppage, slow down, interruption and extended performance, and all related hindrance, rescheduling, disruption, interference, inefficiency and productivity and production losses.

Department (DTMB)– Department of Technology, Management and Budget of the State of Michigan.

Director- The Director of the **Department.**

Director-SFA- The Director of **DTMB** State Facilities Administration.

Director-DCD- The Director of **DTMB** State Facilities Administration, Design and Construction Division.

Division– Each of the numbered, distinct parts (starting with Division 0) into which the Specifications are divided.

Drawings– Part of the Contract Documents showing the Work. Drawings must neither serve nor be used as Shop Drawings.

Emergency– A condition affecting the safety or protection of persons, or the Work, or property at or adjacent to the site.

State Facilities Administration (SFA)-Entity in the **Department** responsible for design, construction, and operations and maintenance of facilities.

Fee for the Work Involved (Fee)– An established, percentage mark-up on the Cost of the Work Involved which is allowed to the **Contractor** for (a) reasonable administrative costs, and (b) negotiated, reasonable profit on the Cost of the Work Involved.

Hazardous Material– Asbestos containing materials (ACMs), Polychlorinated biphenyls (PCBs), petroleum products, such construction materials as paint thinners, solvents, gasoline, oil, etc., and any other like material the manufacture, use, treatment, storage, transportation, or disposal of which is regulated by federal, state, or local Laws governing the protection of public health, natural resources, or the environment.

Invitation To Bid (ITB) - The solicitation document presenting the terms and conditions that will become part of the Contract when the Bid is accepted.

Law(s)– Means federal, state, and local statutes, ordinances, orders, rules and/or regulations.

MCL– The Michigan Compiled Laws of the State of Michigan.

Means and Methods– Includes means, methods, techniques, sequences and/or procedures applicable to the Work.

Notice of Award– Written notice accepting the Bid to the lowest responsive, responsible Bidder and designating the Contract Price (and establishing the Alternates accepted by the **Owner**).

Notice-to-Proceed– Written notice issued by the Project Director directing the Contractor to commence the construction activities and establishing the start date of the Contract Time.

On-Site Inspection– The **Professional's** on-site examination of the **Contractor's** completed or in progress Work to determine and verify to the Project Director that the quantity and quality of all Work complies with the requirements of the Contract Documents.

Owner– The State of Michigan, with whom the **Contractor** has entered into the Contract and for whom the Work is to be provided.

Owner Field Representative– A State employee or consultant, acting collaboratively with the Project Director, providing on-site, periodic observation and documentation of the Work for compliance with the Contract Documents.

Partial Use– The use, by the **Owner,** of a designated portion of the Work before accomplishing Substantial Completion of the entire Work. Partial Use does not mean Substantial Completion of the portion of the Work placed in use by the **Owner**.

Person–Individuals, partnerships, corporations, receivers, trustees, joint ventures or any other legal entity and any combinations of any of them.

Political Subdivision– Any county, city, village, or other local unit of the State, including any agency, department, or instrumentality of any such county, city, village, or other local unit.

Post–Bid Submittal– A Qualification Submittal required of the Bidder selected under Section 00100 - 22 before Contract Award, and which is used by the Owner in the evaluation of the Bid of the selected Bidder.

Professional Services Contractor *(PSC or* ***Professional****)*– The individual or business entity who has the authority to practice the design disciplines required by the Contract Documents. An Agency with appropriate licensing may replace the PSC in their role if a consultant is not used.

Project– The total construction, which includes the Work and possibly other work completed by others, as indicated in the Contract Documents.

Project Director- *D*esignated State employee(s) (a) Responsible for directing and supervising the **Professional's** services during the period allowed for completion of the Work; and/or (b) Acting as representative for the **Owner** and for the enforcement of the Contract Documents, approving payment to the **Contractor** and coordinating the activities of the State, **Owner, Professional** and **Contractor.**

Project Schedule– Work Schedule that shows the **Contractor's** approach to planning, scheduling, and execution of the Work and that accurately portrays completed Work as to sequencing and timing, as provided in the Contract Documents.

Project Specifications– The Contract Documents organized into Divisions. "Technical Specifications" means Divisions of the Specifications consisting of technical descriptions of materials, equipment, construction systems, standards, and workmanship.

Provisionary Allowance– An amount included within the Contract Price to reimburse the **Contractor** for the cost to furnish and perform Work that is uncertain because, for example, it is indeterminate in scope and may not be shown or detailed in the Contract Documents.

Punch List– A list of minor items to be completed or corrected by the **Contractor,** any one of which do not materially impair the use of the Work for its intended purpose.

Qualified Disabled Veteran (QDV)- *QDV as defined by* Public Act 22 of 2010, MCL 18.1241.3 and supported by a DD214 Proof of Service and Discharge, a Veterans Administration rating decision letter, proof of disability (if the disability is not indicated on the DD214), and appropriate legal documents setting forth the 51% natural persons QDV ownership.

Record Documents– Drawings, Specifications, Addenda, Change Orders, Change Authorizations, Bulletins, inspection, test and approval reports, photographs, written clarifications and interpretations and all other documents recording, or annotated to show, all revisions and deviations between the as-built installation and the Contract Documents, all approved Submittals and all clarifications and interpretations.

Records– Books, reports, documents, electronic data, and other evidence relating to the bidding, award and furnishing and performance of the Work.

Recycled Material– Recycled paper products, structural materials made from recycled plastics, re-refined lubricating oils, reclaimed solvents, recycled asphalt and concrete, recycled glass products, re-treaded tires, ferrous metals containing recycled scrap metals and all other materials that contain (a) waste materials generated by a business or consumer, (b) materials that have served their intended purpose, and/or (c) materials that have been separated from solid waste for collection, recycling and disposition in the percentage determined by the State as provided by Law.

Request for Payment– The form provided by the **Owner** (Payment Request DTMB-0440) to be used by the **Contractor** in requesting payment for Work completed, which must enclose all supporting information required by the Contract Documents.

Schedule of Values– A schedule of pay items, which subdivides the Work into its various parts and which details, for each itemized part, cost and pricing information required for making payments for Work performed. The sum of all pay item costs in the Schedule of Values must equal the Contract Price for the Work.

Shop Drawings– Includes drawings, diagrams, illustrations, standard schedules, performance charts, instructions and other data prepared by or for the **Contractor** to illustrate some part of the Work, or by a Supplier and submitted by the **Contractor** to illustrate items of material or equipment.

Soil Erosion and Sedimentation Control– The planning, design and installation of appropriate Best Management Practices designed and engineered specifically to reduce or eliminate the off-site migration of soils via water runoff, wind, vehicle tracking, etc. Soil erosion and sedimentation control in the State of Michigan is regulated under The Natural Resources Environmental Protection Act; Soil Erosion and Sedimentation Control, 1994 PA 451, Part 91, as amended, MCL 324.9101 et seq. Soil erosion and sedimentation control associated with this Contract is monitored and enforced by the DTMB-SFA.

State– The State of Michigan in its governmental capacity, including its departments, divisions, agencies, boards, offices, commissions, officers, employees, and agents. Non-capitalized references to a state refer to a state other than the State of Michigan.

State Construction Code– The Michigan State Construction Code Act, 1972 PA 230, as amended, MCL 125.1501 et seq.

Subcontractor– A Person having an agreement with the Contractor to provide labor at the site and furnishing materials and/or equipment for incorporation into the Work.

Submittals– Includes technical Submittals, Progress Schedules and those other documents required for submission by the Contract Documents. The term "technical Submittal" includes Shop Drawings, brochures, samples, Operation and Maintenance (O&M) Manuals, test procedures and any other Submittal the Contract Documents require the **Contractor** to submit to demonstrate how the items covered, after installation or incorporation into the Work, will conform to the information given in the Contract Documents and be compatible with the design of the completed Work as a functioning whole as indicated in the Contract Documents.

Substantial Completion– The Work, or a portion of the Work designated in the Contract Documents as eligible for separate Substantial Completion, has been completed in accordance with the Contract Documents as determined by the PSC, to the extent that the **Owner** can use or occupy the entire Work, or the designated portion of the Work, for the use intended without any outstanding, concurrent Work at the site, except as may be required to complete or correct Punch List items.

Supplier– A manufacturer or fabricator, or a distributor, material man or vendor representing a manufacturer or fabricator, who has an agreement with the Contractor to furnish materials and/or equipment.

Underground Utilities–Pipelines, piping, conduit, duct, cables, wells, tanks, tunnels and appurtenances, or other similar facilities, installed underground to convey or support conveyance of potable water, sprinkler or irrigation water, fire protection systems, electricity, gases, steam, petroleum products, sewerage and drainage removal, telephone, communications, cable TV, traffic, or control systems.

Unit Price Work– The work involving specified quantities (i.e., related Work quantities) which, when performed, is measured by the **Professional** and paid using the measured quantities and unit prices contained in the Contract Documents. Performance of Unit Price Work for undefined quantities is contingent upon conditions encountered at the site, as determined, and authorized by the **Professional**.

Unit Price Work, Specific– Work of specified and defined quantities (i.e., quantities are detailed in, and can be taken-off from, the Contract Documents) that when performed is measured by the **Professional** and paid based on the measured quantities and unit prices contained in the Contract Documents.

Work- (as in *"the Work,"* "*the entire Work"*)– The entire *completed Construction* required by the Contract Documents. The Work results from furnishing and performing all services, obligations, responsibilities, management, supervision, labor, materials, equipment, construction equipment, general conditions, permits, taxes, patent fees and royalties, testing, inspection and approval responsibilities, warranties, temporary facilities, small tools, field supplies, Bonds, insurance, mobilization, close-out, overhead and all connections, devices and incidental items of any kind or nature required and/or made necessary by the Contract Documents.

Work Involved, any Work Involved– Existing or prospective Work (a) reflected in any notice, proposal, or claim, or (b) reflected in changes ordered or in process, or (c) affected by Delay.

APPENDIX II

SPECIAL WORKING CONDITIONS

DEPARTMENT OF CORRECTIONS

The Work comprising this Project will be performed at a State of Michigan Correctional Facility and the Contractor/Professional must comply with the following special working rules, adopted December 1, 1975, as amended by the Michigan Department of Corrections.

1. Contractor/Professional must submit a LEIN request consisting of name, driver's license number, social security number, birth date, and additional information when requested, on all persons to be employed on the Project site. Such form (Vendor/Contractor LEIN Request, CAJ-1037) must be submitted directly to the Department of Corrections Designee for approval before any person's appearance at the site for Work assignments. These employees will be required to attend Contractor/Professional orientation prior to any on site activity.

2. Contractor/Professional will be allowed to work within or on Correctional Facility confines for an eight (8) hour shift as designated by the facility. Four (4) ten (10) hour shifts will be considered. No Work is allowed to be performed on Saturdays, Sundays, or State holidays without written permission from the State Agency. The State Agency may set other time schedules as discussed during the pre-construction meeting. Consideration will be given to using alternate shifts to minimize the length of time an area is out of service.

3. All employees of the Contractor/Professional may be subject to individual body search each time they enter the Correctional Facility. Packages or containers of any kind may be opened for inspection. Lunch boxes are not permitted inside the security perimeter. All employees of the Contractor/Professional will be required to have legal picture identification card.

4. All trucks and other mobile equipment may be subject to inspection both on arrival and upon departure from the Correctional Facility. Absolutely no fraternization between inmates and Contractor/Professional's employees will be tolerated. Any attempts at same by prisoners are to be reported immediately to the escorting officer or MDOC employee.

5. No requests for visits with inmates will be granted to Contractor/Professional's employees except where such visiting originated prior to award of the Contract.

6. Contractor/Professional must follow rules pertaining to foot and vehicle traffic as established by the Correctional Facility. Contractor/Professional must observe all off-limit restricted areas beyond which no unauthorized personnel may trespass. The Contractor/Professional and their workers may not leave the assigned Work areas.

7. Heavy equipment, power tools and machinery must be removed from the inside of the security perimeter through the assigned gate at times specified by each facility. Such heavy equipment including but not limited to power shovels, compressors, welding machines, air hammers, welding equipment, etc., must be immobilized in an acceptable manner and may not remain inside unless specifically approved by the Warden. Cutting torches and cutting tools in general must be securely locked as directed by the Agency and checked out as needed. No tools, small pipe, copper, or wire will remain on the site overnight unless acceptably secured as approved by the facility. Any gas powered equipment entering the secured perimeter must be equipped with locking gas caps at all times.

8. MDOC physical plant standards require Contractors/Professionals to provide a properly sized emergency generator(s) to be onsite with all associated equipment to ensure a quick install in an event where power may be disrupted to any part of the facility. Use of the MDOC regional emergency generator may be utilized when applicable and available. See contract documents for any specific generator requirements. <u>See contract documents for any specific generator requirements.</u>

9. In the event of underground excavation work of any kind, ground penetrating radar must be used to document underground utilities, wires, cables, fiber optic, tunnels, structures etc. prior to any work being performed. When the ground must be disturbed within 6' an underground obstacle as mentioned above, hydro-excavation must take place.

    - The Contractor shall call Miss Dig (811) a minimum of three (3) working days prior to start of construction.
    - The Contractor shall use Ground Penetrating Radar to survey for utilities within the area of work.
    - The Contractor shall take precautions in the area of utilities during excavation. The contractor shall use hydro vac equipment to excavate a trench ten feet either side of center line of suspected location of underground utilities.
    - Hydro excavating shall always be used for excavating holes for fence posts, lighting pole bases and trenches for foundations.
    - Damage to any utilities caused by excavation or construction work shall be repaired at the Contractor's expense. The contractor shall also be responsible for consequential damages experienced by MDOC resulting from the damaged utilities.
    - Permanent splices to underground electrical and/or fiber are not allowed. They must be fully replaced.

10. There will be no exchange, loaning or borrowing of tools, equipment, or manpower between Correctional Facility personnel and the Contractor/Professional.

11. Specific Facility and MDOC requirements regarding tools & equipment will be covered during the Contractor/Professional orientation process prior to any on site activity. Topics covered include but are not limited to:

    a. All tools and equipment within a work area which is not enclosed and secure must be disabled, secured, or removed from the facility if the entire construction crew leaves the work area/facility.

    b. Clean up of the site shall be continuously maintained and at the end of each work shift all debris shall be removed from the site or placed into a dumpster as approved by the facility. All building and grounds shall be cleaned using a magnet or metal detector to ensure no debris remains. Demolition work above occupied building requires spotter below area being disturbed to collect potential falling debris.

    c. Dumpsters for debris collection/recycle/removal are not allowed to be left inside the security perimeter unless approved by the Warden. In such cases the dumpster location and security will be specified by the Warden and may be required to be secured within a temporary fenced area or provided with a lockable cover. Removal of dumpsters is subject to coordination with the facility.

    d. Tools, tool boxes, and equipment of contractors and/or workers performing services inside an institution shall be manifested, inventoried and inspected prior to entry into and exit from the institution. Staff designated to escort workers within the facility shall ensure tools are controlled with proper security and safety procedures and work activities are confined to authorized areas.

    e. A list of Dangerous and Critical Tools will be provided to the Contractor as well as all policies and procedures dictating the security, control, and use of these of tools. Tool Control will be thoroughly covered during Contractor/Professional orientation prior to any on site activity.

    f. Explosively Driven Tools and Ammunition will not be allowed.

    g. Smoking, and the use and possession of tobacco products, is strictly prohibited.

    h. It is a felony to bring any of the following items into a correctional facility or onto facility property where prisoners may have access to them without prior written permission of the Warden:
    1. Any weapon, including a pocketknife, or other implement which may be used to injure another person, or which may be used in aiding a prisoner to escape.
    2. Any alcoholic beverage or poison.
    3. Any prescription drug or controlled substance without written certification of need from a licensed physician.
    4. Personal cellular telephones and pagers are not permitted on facility grounds except in a locked motor vehicle in designated parking areas.
    5. Audio or visual recording devices, including cameras.

12. The assigned gate through which materials, equipment and vehicles must be transported will be opened upon request between the hours as determined by agreement with facility operations.

13. Sanitary facilities will be assigned by the Correctional Facility authorities for the use of the employees of all Contractors. The MDOC or facility may require placement of portable facilities as outlined in the specifications. If used and authorized, portable sanitary facilities shall be locked at all times as when not in use.

14. Guards may be assigned to the working areas. They may inspect and search areas under construction at any time, including the Contractor/Professional's equipment.

15. Areas for employee parking, tool boxes, etc., must be assigned only by Correctional Facility authorities on the site. Remove all firearms, weapons, alcoholic beverages, drugs, medicines, or explosives from vehicles before entering Facility property. Lock vehicles when not attended.

16. Accidents - The Correctional Facility infirmary is <u>not</u> available to Contractor/Professional's employees.

17. The Warden of this Correctional Facility retains the right to revise these "Special Working Conditions" as required to meet Facility needs.

APPENDIX III

SPECIAL PROJECT PROCEDURES

SOIL EROSION AND SEDIMENTATION CONTROL PROJECT PROCEDURES FOR CONTRACTORS ON DTMB OWNED AND MANAGED PROPERTIES

1. Comply with Part 91, Soil Erosion and Sedimentation Control of the Natural Resources and Environmental Protection Act 1994 PA 451, as amended.
2. Contact the DTMB, SFA, Design and Construction Division to discuss the implementation of soil erosion and sedimentation control (SESC) on the Project with DTMB SESC Officer. Phone **(517) 388-3045** or Email mcgarryc@michigan.gov.
3. Following the award of a contract, the Contractor will be required to prepare and issue for approval an SESC Implementation Plan, which indicates the Contractor's intended implementation of SESC on the project including a schedule and sequence. The Environmental Health and Safety Section, upon approval of the implementation plan, will issue to the Contractor an "Authorization to Proceed with Earth Change" document, which is to be posted at the job site. This document is issued in lieu of a permit from the county. Earthwork shall not begin prior to the issuance of this Authorization. Upon receipt of the Authorization document, the Contractor may begin earth change activities.
4. See below the "Checklist for Contractor's SESC Implementation Plan" for details of the required information necessary for the Contractor to create the SESC Implementation Plan. The intent of this plan is to ensure that the Contractor has reviewed and understands the SESC provisions within the plans and specifications.
5. CHECKLIST FOR CONTRACTOR'S SOIL EROSION AND SEDIMENTATION CONTROL IMPLEMENTATION PLAN (For projects that include earth changes or disturb existing vegetation):

DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
STATE FACILITIES ADMINISTRATION, DESIGN AND CONSTRUCTION DIVISION
SOIL EROSION AND SEDIMENTATION CONTROL PROGRAM
P.O. Box 30026, Lansing, Michigan 48909

PROJECT TITLE: WI-FI CABLING INFRASTRUCTURE – PHASE I
PROJECT LOCATION: KINROSS CORRECTIONAL FACILITY
PROJECT FILE NUMBER: 472/17032.RWG
ACCOUNTING CODE: 472ELECTRONICCOMM

Prior to the start of earthwork, the Contractor must submit a Soil Erosion and Sedimentation Control (SESC) Implementation Plan to the Michigan Department of Technology, Management and Budget, Soil Erosion and Sedimentation Control Program. The intent of this plan is to ensure that the Contractor has reviewed and understands the SESC provisions within the plans and specifications. The following checklist will provide Contractors with assistance in creating the SESC Implementation Plan.

The SESC Implementation Plan must include:

1. ☐ A written plan or letter demonstrating:
   - ☐ The Contractor's means and methods for the implementation of SESC provisions included within the plans and specifications and compliance with the provisions of Part 91 of PA 451 of 1994, as amended.
   - ☐ The Contractor's plan for dust control.
   - ☐ The Contractor's plan for inspection and maintenance of temporary SESCs.

2. ☐ A map, location plan, drawing, or amended copy of the Project SESC or grading plan showing:
   - ☐ The locations of any stockpiles of soil associated with the Project
   - ☐ The temporary SESC controls associated with stockpiles of soil
   - ☐ The Contractor's suggested or proposed additions or relocations of any temporary or permanent SESCs. associated with the Project plans and specifications (subject to approval by Engineer and DTMB)
   - ☐ Location of site entrances, exits and vehicle routes
   - ☐ Location of site superintendent's/project manager's site trailer or office (for SESC Inspector check-in)

3. ☐ A schedule for the installation and removal of temporary controls and the installation of permanent soil erosion and sedimentation controls in relation to the overall construction schedule.

Submit the above items to the above address.

Upon approval of the Contractor's plan, an "Authorization to Proceed with Earth Change" will be issued by DTMB, Design and Construction Division.

DEMOLITION/REMODELING PROJECT PROCEDURES

Furnish all equipment, materials, labor, and services necessary to complete all building demolition required in connection with the existing building, in order to permit the installation of new Work. The goal of the Owner is to generate the least amount of waste or debris possible. However, inevitable waste and debris that are generated shall be reused, salvaged, or recycled, and disposal in landfills shall be minimized to the extent economically feasible. The Contractor will be required to prepare waste management plan for the collection, handling, storage, transportation, and disposal of the waste generated at the construction site for the Owner's review and approval. The Contractor will be required to produce waste management progress reports.

1. Locations: Notations are made in various places on the Drawings to call attention to building demolition which is required; however, these Drawings are not intended to show every item to be removed. The Contractor and the Subcontractors for the various trades must remove the materials related to their respective trades as required to permit the construction of the new Work as shown.

2. Permits: The Contractor must secure from the appropriate agencies all required permits necessary for proper execution of the work before starting work on the project site. All fees for securing the permits must be paid by the Contractor, including all inspection costs which may be legally assessed by the Bureau of Construction Codes in accordance with the authority granted under the Public Act 1980 PA 371, as amended.

3. Enclosures: Where it is necessary to make alterations to walls, floors or roof of the existing building, the Contractor must provide and maintain dustproof partitions to separate the parts where Work is being done from the adjoining parts occupied by the State Agency. Where any parts are opened and exposed to the elements, the Contractor must provide weather tight enclosures to fully protect the structure and its contents.

4. Waste Management Plan: The management plan must address waste source identification and separation, returns, reuse and salvage, recycling, landfill options, alternatives to landfilling, materials handling procedures and transportation.

5. Preparation: Protect all existing Work that is to remain and restore in an approved manner any such Work that becomes damaged.

   5.1 Rubbish and debris resulting from the Work must be removed immediately from the site by the Contractor. However, any recyclable materials must be recycled; the Contractor will be required to use alternatives to landfills for waste disposal such as reuse or recycle of asphalt, bricks, concrete, masonry, plastics, paint, glass, carpet, metals, wood, drywall, insulation, and any other waste materials to the extent practical.

   5.2 Unless otherwise specified, the Agency will remove existing furniture, drapery tracks, draperies, window blinds, and other equipment items, which might interfere with the new construction.

6. Coordination: Demolition work, in connection with any new unit of Work, must not be commenced until all new materials required for completion of that new item of Work are at hand.

7. Waste Management Plan Progress Reports: Submit an updated report with the payment requests. The progress reports shall include:
   a. The amount of waste sent to a landfill, tipping fees paid and the total disposal cost. Include supporting documents such as manifests, weight tickets, receipts and/or invoices.
   b. Records for each material recycled/reused/salvaged from the project including the amount, date removed from the job site, destination, transportation cost, recycled materials, and the net cost/ savings.
   c. Breakdown of waste by type generated to date.
   d. Recycling/salvage/landfill rates.
   e. Percent of waste recycled/salvaged to date.

HAZARDOUS MATERIALS PROJECT PROCEDURES

1. The Contractor must use, handle, store, dispose of, process, transport and transfer any material considered a Hazardous Material in accordance with all federal, state, and local Laws. If the Contractor encounters material reasonably believed to be a Hazardous Material and which may present a substantial danger, the Contractor must immediately stop all affected work, give written notice to the Owner of the conditions encountered, and take appropriate health and safety precautions.

2. This project has been identified by the DTMB-SFA as having a possibility of containing Hazardous Waste materials to be legally removed from the Project job site to complete the Work as described in the Proposal and Contract. If removal of friable asbestos material is required, the Contractor must contact the Air Quality Division, Department of Environment, Great Lakes, and Energy, at **(5I7) 284-6773**, for a permit and furnish all training, labor, materials, services, insurance, and equipment necessary to carry out the removal operations of all Hazardous Materials from the Project job site, as identified by the Scope of Work, or encountered on the Project job site, in accordance with State and Federal Hazardous Waste Codes. A Contract Change Order will be written to modify the existing Contract to pay for the additional cost.

3. Environmental Hazards (air, water, land and liquid industrial) are handled by the Waste and Hazardous Materials Division, Michigan Department of Environment, Great Lakes, and Energy (EGLE) in carrying out the requirements of the Federal Environmental Protection Agency (EPA). For general information and/or a copy of the latest regulations and publications call (517) 335-2690.

4. The Michigan Occupational Safety and Health Administration (MIOSHA) provides protection and regulations for the safety and health of workers. The Department of Licensing and Regulatory Affairs provides for the safety of workers. The Department of Community Health provides for the health of workers (517/373-3740) (TDD 517/373-3573).

   4.1 Contractor must post any applicable State and/or Federal government regulations at the job site in a prominent location.

   4.2 Contractor must be responsible for training their workers in safe work practices and in proper removal methods when encountering hazardous chemicals.

5. Applicable Regulations:

   5.1 Natural Resources and Environmental Protection Act – PA 451 of 1994, as amended, including Part 111 – Hazardous Waste Management, Part 121 – Liquid Industrial Waste and Part 147 – PCB compounds.

   5.2 RCRA, 1976 - Resource Conservation and Recovery Act: This federal statute regulates generation, transportation, treatment, storage, or disposal of hazardous wastes nationally.

   5.3 TSCA, 1979 – Toxic Substances Control Act: This statute regulates the generation, transportation, storage, and disposal of industrial chemicals such as PCBs.

6. Definitions: Hazardous substances are ignitable, corrosive, reactive, and/or toxic, based on their chemical characteristics.

   6.1 Under Federal and Michigan Law, a Small Quantity Generator of hazardous waste provides from 220 to less than 2,000 lbs./month or never accumulates 2,200 lbs. or more.

   6.2 A Generator size provider of hazardous waste provides 2,200 lbs. or more/month or accumulates above 2,200 lbs.

7. Disposals: To use an off-site hazardous waste disposal facility, the Contractor must use the Uniform Hazardous Waste Manifest (shipping paper). Small quantities of hazardous waste may not be disposed of in sanitary landfills used for solid waste.

8. Federal, state, and local Laws and regulations may apply to the storage, handling and disposal of Hazardous Materials and wastes at each State Agency. Contact the **Environmental Assistance Center** of the Michigan Department of Environment, Great Lakes, and Energy (EGLE) at **1-800-662-9278**, Fax to: 517-241-0673 or e-mail to: DEQ-EAD-env-assist@michigan.gov for general EGLE information including direct and referral assistance on air, water and wetlands permits; contaminated site clean-ups; underground storage tank removals and remediation; hazardous and solid waste disposal; pollution prevention and recycling; and compliance-related assistance. The Center provides businesses, municipalities, and the public with a single point of access to EGLE's environmental programs.

ASBESTOS ABATEMENT PROJECT PROCEDURES

Should this Work require the renovation or demolition of a building or structure initially constructed on or prior to 1980, the Contractor will use the attached copy of a Comprehensive Asbestos Building Survey for those portions of the building or structure being impacted and must plan his or her work to minimize disturbance of any known or assumed asbestos containing materials (ACM). In addition, if this building or structure was constructed on or prior to 1980, the Contractor's On-Site Superintendent and all Subcontractor On-Site Superintendents for trades that could potentially disturb known or assumed ACM, must, as a minimum, have and provide documentation of current Asbestos Awareness Training.

If the Comprehensive Asbestos Building Survey identifies known or assumed ACM that will potentially be disturbed as a part of the Contractor's renovation or demolition activities, the Contractor must remove, transport, and dispose of these materials at no additional cost to the Owner and prior to any other work taking place within the immediate vicinity of said material. If required, the Contractor must provide the Owner a minimum of 10 working day notification prior to the start of any asbestos abatement activities with abatement in occupied buildings being completed even if they will be conducted during off hours (nights, weekends, and state holidays).

If the Contractor encounters a suspected ACM that was not previously identified within the Comprehensive Asbestos Building Survey, the Contractor must immediately stop all affected work, give written notice to the Owner of the conditions encountered, and take appropriate health and safety precautions. If, after providing Owner notification, the Contractor is directed to sample and/or remove the suspected ACM in question, a Contract Change Order will be written to modify the existing Contract to pay for the additional cost. Any abatement shall be completed in accordance with the requirements of this Section.

If removal of ACM is required, removal must be completed by a contractor currently licensed to remove asbestos by the State of Michigan, Department of Licensing and Regulatory Affairs (DLARA) Asbestos Program and abatement must be performed in accordance with all federal, state, and local Laws and Regulations. Prior to commencing any asbestos abatement activities, the licensed abatement contractor must submit, as required by Federal, State and Local Laws and Regulations, a "Notification of Intent to Renovate/Demolish" to both the State of Michigan, Department of Environment, Great Lakes, and Energy (EGLE), Air Quality Division and to the DLARA, Asbestos Program, to comply with National Emission Standards for Hazardous Air Pollutants (NESHAP), and the Clean Air Act (CAA). All regulated ACM must be disposed of at an approved Type II (general refuse) landfill and must be in leak-tight wrapping or containers. ACM that is non friable and is not in poor condition or will not become regulated ACM at any time can be disposed of in a Type III (construction debris) landfill.

At the completion of each abatement activity, the Contractor must perform clearance testing in accordance with National Institute for Occupational Safety and Health (NIOSH) 582 "Sampling and Evaluating Airborne Asbestos Dust". All air samples shall indicate concentrations of less than 0.01 fibers/cc for clearance to be met. Clearance testing shall be performed by a third-party Asbestos Consultant. The Asbestos Consultant selected by the Contractor shall be experienced and knowledgeable about the methods for asbestos air sampling and be able to select representative numbers and locations of samples. It is mandatory that the Asbestos Consultant's on-site hygienist performing sampling and analysis have certification that he/she has passed a NIOSH 582 or equivalent course.

The NESHAP asbestos regulations, notification form, guidelines and fact sheets are available on EGLE's web site www.michigan.gov/egle under heading Air; then click on Compliance; then click on Asbestos NESHAP Program. For guidelines on submitting notifications pursuant to the Asbestos Contractors Licensing Act, contact the DLARA, Occupational Health Division, Asbestos Program at (517) 322-1320 or visit DLARA's web site www.michigan.gov/asbestos.

LEAD ABATEMENT PROJECT PROCEDURES

Should this Work require the renovation or demolition of a building or structure, the workers are assumed to be exposed to lead or materials containing lead above acceptable levels until proven otherwise through personal air sampling and analysis. The Contractor shall take all steps necessary to assure that his/her employees, are not exposed to lead at concentrations greater than the Permissible Exposure Limit as per the State of Michigan Department of Licensing and Regulatory Affairs Occupational Health Standards Part 603 “Lead Exposure in Construction”. In addition, the Contractor shall convey this same requirement to all subcontractors that may be under his/her control.

The employer shall comply with the Michigan Lead Abatement Act, as amended, and the Lead Hazard Control rules and must communicate information concerning lead hazards according to the requirements of Michigan Occupational Safety and Health Administration (MIOSHA) Part 603 and the Occupational Safety and Health Administration’s (OSHA's) Hazard Communication Standard for the construction industry, 29 CFR 1926.59, including but not limited to safety equipment (e.g. personal fit-tested and approved respirators and protective clothing), worker rotation (on a short-cycle and regular basis), working practices (e.g. sanding, cutting, grinding, abraded, burning and heat-gun stripping of lead based paint are not allowed), the requirements concerning warning signs and labels, Safety Data Sheets (SDS), and employee information and training. Employers shall comply with the requirements of 29 CFR 1926.62(l) - Employee Information and Training.

If lead or materials containing lead will be disturbed as a part of the work to be performed, the Contractor must remove, transport, and dispose of these materials at no additional cost to the Owner and prior to any other work taking place within the immediate vicinity of said material. The Contractor must provide the Owner a minimum 10 working day notification prior to the start of any lead abatement activities with abatement in occupied buildings being completed even if they will be conducted during off hours (nights, weekends, and state holidays). Abatement is defined as an activity specifically designed to permanently remove lead paint, lead-contaminated dust or other lead containing materials, the installation of a permanent enclosure or encapsulation of lead paint or other lead containing materials, the replacement of lead-painted surfaces or fixtures, the removal or covering of lead-contaminated soil, and any preparation, cleanup, disposal, and post-abatement clearance testing associated with these activities. Renovation, remodeling, landscaping, or other activity, that is not designed to permanently eliminate lead paint hazards, but is instead designed to repair, restore, or remodel a structure, or housing unit even though the activity may incidentally result in a reduction or elimination of a lead paint hazard is not considered abatement.

If abatement of lead or materials containing lead is required, abatement must be completed by a qualified Lead Abatement Contractor. In addition, Specifications for the Lead Abatement should be based upon a Lead Inspection/Risk Assessment report. The Lead Inspection/Risk Assessment report and clearance testing upon completion should be performed by a Certified Inspector or Risk Assessor. Lead abatement including clearance testing shall be performed in accordance with the State of Michigan, Lead Abatement Act, Part 54A Lead Abatement and with all other federal, state, and local Laws and Regulations that may apply.

For additional information about certifications, guidance, and regulations for lead hazard control activities, visit www.michigan.gov/lead.

APPENDIX IV

STATE OF MICHIGAN PREVAILING WAGE SCHEDULES

STATE OF MICHIGAN

Informational Sheet: Prevailing Wages on State Projects

General Information Regarding Fringe Benefits

Certain fringe benefits **may** be credited toward the payment of the Prevailing Wage Rate:

- If a fringe benefit is paid directly to a construction mechanic
- If a fringe benefit contribution or payment is made on behalf of a construction mechanic
- If a fringe benefit, which may be provided to a construction mechanic**,** is pursuant to a written contract or policy
- If a fringe benefit is paid into a fund, for a construction mechanic

When a fringe benefit is not paid by an hourly rate, the hourly credit will be calculated based on the annual value of the fringe benefit divided by 2080 hours per year (52 weeks @ 40 hours per week). The following is an example of the types of fringe benefits allowed and how an hourly credit is calculated:

Vacation	40 hours X $14.00 per hour = $560/2080 =	$.27
Dental insurance	$31.07 monthly premium X 12 mos. = $372.84 /2080 =	$.18
Vision insurance	$5.38 monthly premium X 12 mos. = $64.56/2080 =	$.03
Health insurance	$230.00 monthly premium X 12 mos. = $2,760.00/2080 =	$1.33
Life insurance	$27.04 monthly premium X 12 mos. = $324.48/2080 =	$.16
Tuition	$500.00 annual cost/2080 =	$.24
Bonus	4 quarterly bonus/year x $250 = $1000.00/2080 =	$.48
401k Employer Contribution	$2000.00 total annual contribution/2080 =	$.96
	Total Hourly Credit	$3.65

Other examples of the types of fringe benefits allowed:

- Sick pay
- Holiday pay
- Accidental Death & Dismemberment insurance premiums

The following are examples of items that **will not** be credited toward the payment of the Prevailing Wage Rate

- Legally required payments, such as:
  - Unemployment Insurance payments
  - Workers' Compensation Insurance payments
  - FICA (Social Security contributions, Medicare contributions)
- Reimbursable expenses, such as:
  - Clothing allowance or reimbursement
  - Uniform allowance or reimbursement
  - Gas allowance or reimbursement
  - Travel time or payment
  - Meals or lodging allowance or reimbursement
  - Per diem allowance or payment
- Other payments to or on behalf of a construction mechanic that are not wages or fringe benefits, such as:
  - Industry advancement funds
  - Financial or material loans

OVERTIME PROVISIONS for MICHIGAN PREVAILING WAGE RATE COMMERCIAL SCHEDULE

1. Overtime is represented as a nine character code. Each character represents a certain period of time after the first 8 hours Monday thru Friday.

	Monday thru Friday	Saturday	Sunday & Holidays	Four 10s
First 8 Hours		**4**	**8**	**9**
9th Hour	**1**	**5**		
10th Hour	**2**	**6**		
Over 10 hours	**3**	**7**		

Overtime for Monday thru Friday after 8 hours:
the 1st character is for time worked in the 9th hour *(8.1 - 9 hours)*
the 2nd character is for time worked in the 10th hour *(9.1 - 10 hours)*
the 3rd character is for time worked beyond the 10th hour *(10.1 and beyond)*

Overtime on Saturday:
the 4th character is for time worked in the first 8 hours on Saturday *(0 - 8 hours)*
the 5th character is for time worked in the 9th hour on Saturday *(8.1 - 9 hours)*
the 6th character is for time worked in the 10th hour *(9.1 - 10 hours)*
the 7th character is for time worked beyond the 10th hour *(10.01 and beyond)*

Overtime on Sundays & Holidays
The 8th character is for time worked on Sunday or on a holiday

Four Ten Hour Days
The 9th character indicates if an optional 4-day 10-hour per day workweek can be worked ***between Monday and Friday*** **without paying overtime after 8 hours worked, unless otherwise noted in the rate schedule. To *utilize a 4 ten workweek, notice is required from the employer to employee prior to the start of work on the project.***

2. Overtime Indicators Used in the Overtime Provision:
   H - means TIME AND ONE-HALF due
   X - means TIME AND ONE-HALF due after 40 HOURS worked
   D - means DOUBLE PAY due
   Y - means YES an optional 4-day 10-hour per day workweek can be worked without paying overtime after 8 hours worked
   N - means NO an optional 4-day 10-hour per day workweek *cannot* be worked without paying overtime after 8 hours worked

3. EXAMPLES:
   HHHHHHHDN - This example shows that the 1½ rate must be used for time worked after 8 hours Monday thru Friday *(characters 1 - 3);* for all hours worked on Saturday, 1½ rate is due *(characters 4 - 7).* Work done on Sundays or holidays must be paid double time *(character 8).* The N *(character 9)* indicates that 4 ten-hour days is not an acceptable workweek at regular pay.

   XXXHHHHDY - This example shows that the 1½ rate must be used for time worked after 40 hours are worked Monday thru Friday *(characters 1-3);* for hours worked on Saturday, 1½ rate is due *(characters 4 – 7)*. Work done on Sundays or holidays must be paid double time *(character 8).* The Y *(character 9)* indicates that 4 ten-hour days is an acceptable alternative workweek.

ENGINEERS - CLASSES OF EQUIPMENT LIST

UNDERGROUND ENGINEERS

CLASS I

Backfiller Tamper, Backhoe, Batch Plant Operator, Clam-Shell, Concrete Paver (2 drums or larger), Conveyor Loader (Euclid type), Crane (crawler, truck type or pile driving), Dozer, Dragline, Elevating Grader, End Loader, Gradall (and similar type machine), Grader, Power Shovel, Roller (asphalt), Scraper (self propelled or tractor drawn), Side Broom Tractor (type D-4 or larger), Slope Paver, Trencher (over 8' digging capacity), Well Drilling Rig, Mechanic, Slip Form Paver, Hydro Excavator.

CLASS II

Boom Truck (power swing type boom), Crusher, Hoist, Pump (1 or more 6" discharge or larger gas or diesel powered by generator of 300 amps or more, inclusive of generator), Side Boom Tractor (smaller than type D-4 or equivalent), Tractor (pneu-tired, other than backhoe or front end loader), Trencher (8' digging capacity and smaller), Vac Truck.

CLASS III

Air Compressors (600 cfm or larger), Air Compressors (2 or more less than 600 cfm), Boom Truck (non-swinging, non-powered type boom), Concrete Breaker (self-propelled or truck mounted, includes compressor), Concrete Paver (1 drum, ½ yard or larger), Elevator (other than passenger), Maintenance Man, Mechanic Helper, Pump (2 or more 4" up to 6" discharge, gas or diesel powered, excluding submersible pump), Pumpcrete Machine (and similar equipment), Wagon Drill Machine, Welding Machine or Generator (2 or more 300 amp or larger, gas or diesel powered).

CLASS IV

Boiler, Concrete Saw (40HP or over), Curing Machine (self-propelled), Farm Tractor (w/attachment), Finishing Machine (concrete), Firemen, Hydraulic Pipe Pushing Machine, Mulching Equipment, Oiler (2 or more up to 4", exclude submersible), Pumps (2 or more up to 4" discharge if used 3 hrs or more a day-gas or diesel powered, excluding submersible pumps), Roller (other than asphalt), Stump Remover, Vibrating Compaction Equipment (6' wide or over), Trencher (service) Sweeper (Wayne type and similar equipment), Water Wagon, Extend-a-Boom Forklift.

HAZARDOUS WASTE ABATEMENT ENGINEERS

CLASS I

Backhoe, Batch Plant Operator, Clamshell, Concrete Breaker when attached to hoe, Concrete Cleaning Decontamination Machine Operator, Concrete Pump, Concrete Paver, Crusher, Dozer,
Elevating Grader, Endloader, Farm Tractor (90 h.p. and higher),
Gradall, Grader, Heavy Equipment Robotics Operator, Hydro Excavator, Loader, Pug Mill, Pumpcrete Machines, Pump Trucks, Roller, Scraper (self-propelled or tractor drawn), Side Boom Tractor, Slip Form Paver, Slope Paver, Trencher, Ultra High Pressure Waterjet Cutting Tool System Operator, Vactors, Vacuum Blasting Machine Operator, Vertical Lifting Hoist, Vibrating Compaction Equipment (self-propelled), and Well Drilling Rig.

CLASS II

Air Compressor, Concrete Breaker when not attached to hoe, Elevator, End Dumps, Equipment Decontamination Operator, Farm Tractor (less than 90 h.p.), Forklift, Generator, Heater, Mulcher, Pigs (Portable Reagent Storage Tanks), Power Screens, Pumps (water), Stationary Compressed Air Plant, Sweeper, Water Wagon and Welding Machine.

CARPENTER CRAFT JURISDICTION

Michigan recognizes the Carpenters for any and all work related to weatherization that has historically been the work of the Carpenter. This work shall include, but not be limited to: all work defined under the Federal Weatherization Assistance Program.

The jurisdiction of Carpenters, as to all work that has historically and traditionally been performed consisting of the milling, fashioning, joining, assembling, erecting, fastening or dismantling of all materials of wood, plastic, metal, fiber, cork, or composition and all other substitute materials, as well as the handling, cleaning, erecting, installing and dismantling of all machinery, equipment and all materials used by Carpenters.

The jurisdiction, therefore, extends over the following divisions and subdivisions of the trade: Carpenters and Joiners, Millwrights, Pile Drivers, Bridge, Dock and Wharf Carpenters, Underpinners, Timbermen, and Core-drillers, Shipwrights, Boat Builders, Ship- hand, Stair-Builders, Millmen, Wood and Resilient Floor Decorators, Floor Finishers, Carpet-layers, Shinglers, Siders, Insulators, Acoustic and Drywall Applicators, Sharers and House Movers, Loggers, Lumber and Sawmill Workers, Reed and Rattan Workers, Shingle Weavers, Casket and Coffin Makers, Railroad Carpenters and Car Builders, regardless of material used and all those engaged in the operation of woodworking or other machinery required in fashioning, milling or manufacturing of products used in the trade, and the handling, erecting and installing materials on any of the above divisions or sub-divisions, burning, welding and rigging incidental to the trade. When the term "Carpenter and Joiner" is used, it shall mean all the subdivisions of the trade. The trade autonomy of Carpenters therefore extends over the divisions and subdivisions of the trade, which are set forth as follows:

(a) The framing, erecting and prefabrication of roofs, partitions, floors and other parts of buildings of wood, metal, plastic or other substitutes; application of all metal flashing used for hips, valleys and chimneys; the erection of Stran Steel section or its equal. The building and setting of all forms and centers for brick and masonry. The fabrication and erection of all forms for concrete and decking, the dismantling of same (as per International Agreement) when they are to be re-used on the job or stored for re-use. The cutting and handling of all falsework for fireproofing and slabs. Where power is used in the setting or dismantling of forms, all signaling and handling shall be done by carpenters. The setting of templates for anchor bolts for structural members and for machinery, and the placing, leveling and bracing of these bolts. All framing in connection with the setting or metal columns. The setting of all bulkheads, footing forms and the setting of and fabrication of, screeds and stakes for concrete and mastic floors where the screed is notched or fitted, or made up of more than one member. The making of forms for concrete block, bulkheads, figures, posts, rails, balusters and ornaments, etc.

(b) The handling and erecting of rough material and drywall, the handling, assembly, setting and leveling of all fixtures, display cases, all furniture such as tables, chairs, desks, coat racks, etc., all de-mountable or moveable partitions such as Von wall, E Wall, Steel Case, Herman Miller, Haworth, American Seating, Westinghouse, Lazy Boy, rosewood, etc. All rebuilding, remodeling and setting up of all kinds of partitions, finished lumber, metal and plastic trim to be erected by Carpenters shall be handled from the truck or vehicle delivering same to the job by Carpenters.

CARPENTER CRAFT JURISDICTION

(c) The building and moving of all scaffolding runways and staging where carpenters' tools are used, the building from the ground up of all scaffolds over fourteen (14) feet in height including metal and specially designed scaffolding. The building and construction of all hoists and derricks made of wood; the making of mortar boards, boxes, trestles, all shoring, razing and moving of buildings. Lift type trucks are to be considered a tool of the trade. Metal siding and metal roofing fall within the scope of jurisdiction for the carpenters.

(d) The cutting or framing and fireproofing of the openings for pipes, conduits, ducts, etc., where they pass through floors, partitions, walls, roofs or fixtures composed in whole or in part of wood. The laying out of making and installation of all inserts and sleeves for pipes, ducts, etc., where carpenters' tools and knowledge are required. The making and installing of all wooden meter boards, crippling and backing for fixtures. The welding of studs and other fastenings to receive material being applied by carpenters.

(e) The installation of all grounds, furring or stripping, ceilings and sidewalks, application of all types of shingling and siding, etc.

(f) The installation of all interior and exterior trim or finish of wood, aluminum, kalamein, hollow or extruded metal, plastic, doors, transoms, thresholds, mullions and windows. The setting of jambs, bucks, window frames of wood or metal where braces or wedges are used. The installation of all wood, metal or other substitutes of casing, molding, chair rail, wainscoting, china closets, base of mop boards, wardrobes, metal partitions as per National Decisions or specific agreements, etc. The complete laying out, fabrication and erection of stairs. The making and erecting of all fixtures, cabinets, shelving, racks, louvers, etc. The mortising and application of all hardware in connection with our work. The sanding and refinishing of all wood, cork or composition floors to be sanded or scraped, filled, sized and buffed, either by hand or power machines. The assembling and setting of all seats in theaters, halls, churches, schools, auditorium, grandstands and other buildings. All bowling alley work.

(g) The manufacture, fabrication and installation of all screens, storm sash, storm doors and garage doors; the installation of wood, canvas, plastic or metal awnings or eye shades, door shelters, jalousies, etc. The laying of wood, wood block and wood composition in floors.

(h) The installation of all materials used in drywall construction, such as plasterboard, all types of asbestos boards, transite and other composition board. The application of all material which serves as base for acoustic tile, except plaster. All acoustical applications as per National Agreement or specific agreement.

(i) The building and dismantling of all barricades, hand rails, guard rails, partitions and temporary partitions. The erection and dismantling of all temporary housing on construction projects.

(j) The installation of rock wool, cork and other insulation material used for sound or weatherproofing. The removal of caulking and placing of staff bead and brick mold and all Oakum caulking, substitutes, etc., and all caulking in connection with carpentry work.

(k) The installation of all chalk boards/marker boards.

CARPENTER CRAFT JURISDICTION

(l) The operation of all hand operated winches used to raise wooden structures.

(m) The erection of porcelain enameled panels and siding.

(n) The unloading and distribution of all furnished, prefabricated and built-up sections such as door bucks, window frames, cupboards, cabinets, store fixtures, counters and show cases or comparably finished or prefabricated materials, to the job sites or points of installation as used in the construction, alteration and remodeling industry.

(o) The handling of doors, metal, wood or composite, partitions and other finished bulk materials used for trim from the point of delivery.

(p) All processing of these materials and handling after processing.

(q) The making up of panels and fitting them into walls, all bracing and securing, all removal of panels from the casting including all braces, whalers, hairpins, etc.

(r) The handling and setting of all metal pans and sections from the stock piles of reasonable distance as required by job needs shall be performed by carpenters. The stripping of such metal pans, panels or sections is to be performed by carpenters.

(s) The sharpening of all carpenter hand or power tools, or those used by carpenters.

(t). The layout, fabrication, assembling of and erection and dismantling of all displays made of wood, metal, plastic, composition board or any substitute material; the covering of same with any type of material, the crating and un-crating, the handling from the point of unloading and back to the point of loading of all displays and other materials or components.

(u) The same shall apply to all other necessary component parts used for display purposes such as turntables, platforms, identification towers and fixtures, regardless of how constructed, assembled or erected or dismantled.

(v) The make-up, handling, cutting and sewing of all materials used in buntings, flags, banners, decorative paper, fabrics and similar materials used in the display decorative industry for draperies and back drops. The decorative framing of trucks, trailers and autos used as floats or moving displays. The slatting of walls to hand fabrics and other decorative materials, drilling of all holes to accommodate such installations. Setting up and removal of booths constructed of steel or aluminum tubing as stanchions, railings, etc., handling and placing of furniture, appliances, etc., which are being used to complete the booth at the request of the exhibitor. Fabricating and application of leather, plastic and other like materials used for covering of booths. The handling of all materials, fabricating of same. The loading and unloading, erecting and assembling at the exhibit of show area, also in or out of storage when used in booth decorations.

CARPENTER CRAFT JURISDICTION

(w) A display shall be construed as any exhibit or medium of advertising, open to private or public showing, which is constructed of wood, metal, plastic or any other substitute to accomplish the objectives of advertising or displaying.

(x) Handling, fitting, draping, measuring and installation of fixtures and other hardwares for draperies, all manner of making, measuring, repairing, sizing, hanging and installation of necessary fixtures and hardware for shades and Venetian blinds.

(y) Work consisting of cutting and/or forming of all materials in preparation for installing of floors, walls and ceilings; the installation of all resilient floor and base; wall and ceiling materials to include cork, linoleum, prefabricated, laminated, rubber, asphalt, vinyl, metal, plastic, seamless floors and all other similar materials in sheet, interlocking liquid or tile form; the installation of all artificial turf, the installation, cutting and/or fitting of carpets; installation of padding, matting, linen crash and all preformed resilient floor coverings; the fitting of all devices for the attachment of carpet and other floor, wall and ceiling coverings; track sewing of carpets, drilling of holes for sockets and pins, putting in dowels and slats; and all metal trimmings used; the installation of all underlayments, sealants in preparation of floors, walls and ceilings, the unloading and handling of all materials to be installed and the removal of all materials in preparing floors when contracted for by the employer, shall be done only by employees covered under this Agreement.

(z) The installation of all sink-tops and cabinets, to include all metal trim and covering for same. All cork, linoleum, congo-wall, linewall, veos tile, plexiglass, vinawall tile, composition tile, plastic tile, aluminum tile and rubber in sheets or tile form and the application thereof. All bolta-wall and bolta-wall tile and similar products.

(aa) The handling and placing of all pictures and frames and the assembly of bed frames and accessories. The hanging and placing of all signage.

(bb) The installation of all framework partitions and trim materials for toilets and bathrooms made of wood, metal, plastics or composition materials; fastening of all wooden, plastic or composition cleats to iron or any other material for accessories.

(cc) The erection of cooling towers and tanks.

(dd) The setting, lining, leveling and bracing of all embedded plates, rails and angles. The setting of all stay in place forms.

(ee) Environmental: Clean room, any type of environmental chamber, walk in refrigerated coolers and all refrigerated rooms or buildings.

CARPENTER CRAFT JURISDICTION

PILE DRIVING AND CAISSON DRILLING

(ff) All unloading, handling, signaling and driving of piles, whether wood, steel, pipe, beam pile, composite, concrete or molded in place, wood and steel sheeting, cofferdam work, trestle work, dock work, floating derricks, caisson work, foundation work, bridge work, whether old or new, crib work, pipe line work and submarine work. Cutting of all wood, steel or concrete pile, whether by machine or hand; welding and cutting, peeling, and heading of all wood pile, steel sheeting and wood sheeting. The erecting and dismantling of all pile driving rigs, also derricks whether on land or water; also the moving, shoring and underpinning of all buildings. The loading and unloading of all derricks, cranes and pile driving materials. The tending, maintenance and operation of all valves pertaining to the operation of driving of pile. All diving and tending essential to the completion of jurisdictional claims.

All work done in the established yards of the Company and all work not enumerated above, shall be handled and manned as the Employer decides.

The pile driver will unload all material shipped in by rail from the point that the rail car is spotted.

All cleaning and preparation of all piling prior to driving.

The welding and attachment of all boot plates, pile points, splice plates, connectors, rock crosses, driving crosses, driving rigs, point reinforcements and overboots.

The construction, reconstruction, repair, alteration, demolition and partial or complete removal of all marine work including, but not limited to, docks, piers, wharves, quays, jetties, cribs, causeways, breakwaters, lighthouses and permanent buoys, etc. (mixing and placing of concrete excepted).

The driving and pulling of all wood, steel and concrete foundation piles and sheet piling.

The heading, pointing, splicing, cutting and welding of all piles.

The placing of all wales, bolts, studs, lagging, rods and washers including the cutting, drilling, boring or breaking of all holes or openings thereof.

The removal of all materials and/or obstructions of any nature (rip-rap included) that retard or interfere with the driving of piles or with the placing of wales, bolts and rods.

CARPENTER CRAFT JURISDICTION

This is to be subject to the discretion of the contractor who may choose to use blasting specialists or other demolition specialists.

The handling on the job of all materials used in the work.

The manning of all floating equipment (towing equipment excepted) engaged in the work enumerated, including deck engines, except machinery manned by Operating Engineers.

The placing of all rip-rap, fill stone, bedding stone, cover stone and concrete blocks in connection with marine construction. Work normally performed by Employers, such as soil tests, shoring, underpinning of buildings, cribbing, driving of sheet piling, marine divers, tenders, underwater construction workers and similar operations shall continue to be included in the jurisdiction of this Agreement.

All burning, cutting, welding and fabrication of pipe, H-beams, sheet pile (metal or wood), done on the job site or in the yard of the Employer shall be done by pile drivers. The driving of bearing piles, sheet piling with heavy equipment, caissons, pile caps, auger drilling and boring, the setting up for load testing for any type of piling, all layout and spotting for piling, caisson and boring work, all earth retention, ditch boarding, installing tiebacks.

ASBESTOS ABATEMENT CARPENTERS

(gg) All erection and maintenance of barriers and partitions used in the removing of asbestos or any abatement work. The abatement of any materials previously installed by the carpenter such as transite, ceiling and floor tiles. All operating and maintaining of current equipment used in any abatement work.

ELECTRICIAN – SOUND AND COMMUNICATION / DATA/ VOICE JURISDICTION

The installation, testing, service and maintenance, of systems which utilize the transmission and/or transference of voice, sound, vision or digital for commercial, education, security and entertainment purposes for the following: TV monitoring and surveillance, CATV and CCTV, background-foreground music, intercom and telephone interconnect, inventory control systems, microwave transmission, multi-media, multiplex, radio page, school intercom and sound, burglar alarms, low voltage fire alarm systems, low voltage master clock systems, distributed antenna systems (DAS), IP data networks, and all surface-mounted (non-power) telecommunications wiremold. Shall additionally include the installation of all raceway systems of unlimited length in telecommunications rooms, entrance facilities, equipment rooms, and similar areas. Energy management systems. Security systems; perimeter, vibration, card access, access control and sonar/infrared monitoring equipment. Communications systems that transmit or receive information and/or control systems that are intrinsic to the above listed systems; SCADA (Supervisory Control and Data Acquisition), PCM (Pulse Code Modulation), Digital Data Systems, Broadband and Baseband and Carriers, POS (Point of Sale systems), VSAT Data Systems, RF and Remote Control Systems, Fiber Optic Data Systems and Voice and Data Infrastructure and Backbone.

STATE OF MICHIGAN

Wage and Hour Division
PO Box 30476
Lansing, MI 48909
517-284-7800

Informational Sheet: Prevailing Wages on State Funded Projects

REQUIREMENTS

Effective February 13, 2024

The purpose of establishing prevailing rates is to provide minimum rates of pay that must be paid to workers on construction projects that are financed or financially supported by the state Prevailing rates compiled from the rates contained in collectively bargained agreements which cover the locations of the state projects. While the prevailing wage rates are compiled through surveys of collectively bargained agreements, a collective bargaining agreement is not required for contractors to be on or be awarded state projects. The prevailing rate schedule provides an hourly rate which includes wage and fringe benefit totals for designated construction mechanic classifications. The overtime rates also include wage and fringe benefit totals. Please pay special attention to the overtime and premium pay requirements. The prevailing wage is satisfied when wages plus fringe benefits are equal to or greater than the required rate.

State of Michigan responsibilities:

- The department establishes the prevailing rate for each classification of construction mechanic requested by the contracting agents prior to contracts being let out for bid on a state project.

DTMB responsibilities

- If a contract is not awarded or construction does not start within 90 days of the date of the issuance of rates, a re- determination of rates must be requested by the contracting agents.
- Rates for classifications needed but not provided on the Prevailing Rate Schedule, ***must*** be obtained ***prior*** to contracts being let out for bid on a state project.

Contractor responsibilities:

- Every contractor and subcontractor shall keep posted on the construction site, in a conspicuous place, a copy of all prevailing rates prescribed in a contract.
- Every contractor and subcontractor shall keep an accurate record showing the name and occupation of and the actual wages and benefits paid to each construction mechanic. This record shall be available for reasonable inspection by DTMB or the department.
- Each contractor or subcontractor is liable for the payment of the prevailing rate to its employees.
- The prime contractor is responsible for advising all subcontractors of the requirement to pay the prevailing rate prior to commencement of work.
- A construction mechanic *shall only* be paid the apprentice rate if registered with the United States Department of Labor, Bureau of Apprenticeship and Training and the rate is included in the contract.

Enforcement:

A person who has information of an alleged prevailing wage violation on a prevailing wage project may file a complaint with the State of Michigan. The department will investigate and attempt to resolve the complaint informally. During the course of an investigation, if the requested records and posting certification are not made available in compliance with contractual requirements, the Contracting Agent may consider the Contractor to be in material breach of the contract and may terminate the contract for cause at the sole discretion. There are also civil penalties for failure to be in compliance with Act 10. View the entire text of Act 10 of 2023 at michigan.gov/wagehour.

GRETCHEN WHITMER
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF LABOR AND ECONOMIC OPPORTUNITY
WAGE AND HOUR DIVISION

SUSAN CORBIN
DIRECTOR

Prevailing Wage Rates for State Funded Projects
Official Rate Schedule

ORS#:	ORS-001315
Date Issued:	11/15/2024
Contract Award By Date:	02/13/2025
Contracting Agency:	DTMB Design & Construction Division (CA-0007)
Contracting Agency Representative:	Don Klein (KleinD4@michigan.gov)
Project Number:	472/17032.RWG
Project Name:	Kinross CF

Project Description: Wi-Fi Cabling Infrastructure

FOR ALL AWARDED CONTRACTS ONLY

- Every Contractor and Subcontractors shall keep Posted on the Construction Site, in a conspicuous place, a copy of all applicable prevailing wage rate schedules contained in a contract.
- The Prevailing rate schedule provides an hourly rate which includes wage and fringe benefit totals for designated classifications.
- Please refer to WHD-9917 & WHD 9918 for any additional information.

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Boilermaker	**Boilermaker**	**05/10/2024**

Classification Description: Boilermaker

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$72.47	$107.55	$142.63
Apprentice: 1st Period	$53.53	$79.15	$104.75
Apprentice: 2nd Period	$55.14	$81.56	$107.97
Apprentice: 3rd Period	$56.73	$83.94	$111.15
Apprentice: 4th Period	$58.31	$86.31	$114.31
Apprentice: 5th Period	$59.85	$88.62	$117.39
Apprentice: 6th Period	$63.03	$93.39	$123.75
Apprentice: 7th Period	$66.17	$98.10	$130.03
Apprentice: 8th Period	$69.32	$102.83	$136.33

Overtime Provisions	
Over 8-hour day/40-hour week	
9th hour	$90.82
10th hour	$90.82
Beyond 10 hours	$90.82
Saturday	
First 8 hours	$90.82
9th hour	$90.82
10th hour	$90.82
Beyond 10 hours	$90.82
Sunday/Holiday	$109.17

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Bricklayer-L2-UP	**Bricklayer**	**09/24/2024**

Classification Description: Regardless of new or different methods of installation, bricklayers, cement masons, marble masons, mosaic workers, plasterers, pointer-caulkers-cleaners, stone masons, terrazzo workers, tile layers, refractory specialists, plant masonry workers, and allied craftworkers. The operation of any robotic or mechanical device used to install and finish masonry products shall be the work of Bricklayers

Wage Rates

	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$54.15	$68.40	$82.65
Apprentice: Bricklayer Apprentice Level 3	$45.01	$55.69	$66.37
Apprentice: Bricklayer Apprentice Level 6	$49.84	$62.94	$76.03
Apprentice: Bricklayer Apprentice Level 7 & 8	$51.45	$65.35	$79.25
Apprentice: Bricklayers Apprentice Level 1	$41.79	$50.86	$59.93
Apprentice: Bricklayers Apprentice Level 2	$43.40	$53.28	$63.15
Apprentice: Bricklayers Apprentice Level 4	$46.62	$58.11	$69.59
Apprentice: Bricklayers Apprentice Level 5	$48.23	$60.52	$72.81

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$68.40
10th hour	$68.40
Beyond 10 hours	$68.40
Saturday	
First 8 hours	$68.40
9th hour	$68.40
10th hour	$68.40
Beyond 10 hours	$68.40
Sunday/Holiday	$82.65

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Base Rate Comment: Saturday shall be considered a make-up day for lost time Monday through Friday. If the makeup day is utilized, a full eight (8) hour work day must be scheduled for everyone that reports to work, with all hours in excess of forty (40) hours to be paid at the rate of time and one-half.

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Carpenter	**Carpenter**	**05/10/2024**

Classification Description: Carpenter
4 10s allowed M-Th

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$43.62	$55.35	$67.08
Apprentice: 1st year	$36.58	$44.79	$53.00
Apprentice: 2nd year	$37.76	$46.56	$55.36
Apprentice: 3rd year	$40.10	$50.07	$60.04
Apprentice: 4th year	$42.45	$53.60	$64.74

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$55.35
10th hour	$55.35
Beyond 10 hours	$55.35
Saturday	
First 8 hours	$55.35
9th hour	$55.35
10th hour	$55.35
Beyond 10 hours	$55.35
Sunday/Holiday	$67.08

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

Friday make up day for 4-10s
Saturday make up day for 5-8s for inclement weather

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Carpenter - FL	**Carpenter**	**05/10/2024**

Classification Description: Floor Layer

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$47.10	$60.69	$74.27
Apprentice: 1st Year	$38.95	$48.46	$57.97
Apprentice: 2nd year	$40.31	$50.50	$60.69
Apprentice: 3rd year	$43.02	$54.57	$66.11
Apprentice: 4th year	$45.74	$58.65	$71.55

Overtime Provisions	
Over 8-hour day/40-hour week	
9th hour	$60.69
10th hour	$60.69
Beyond 10 hours	$60.69
Saturday	
First 8 hours	$60.69
9th hour	$60.69
10th hour	$60.69
Beyond 10 hours	$60.69
Sunday/Holiday	$74.27

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Carpenter - PD	**Carpenter**	**05/10/2024**

Classification Description: Pile Driver
Four 10s allowed Monday-Thursday

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$44.27	$56.33	$68.38
Apprentice: 1st Year	$37.04	$45.48	$53.92
Apprentice: 2nd Year	$38.24	$47.28	$56.32
Apprentice: 3rd Year	$40.65	$50.90	$61.14
Apprentice: 4th Year	$43.06	$54.51	$65.96

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$56.33
10th hour	$56.33
Beyond 10 hours	$56.33
Saturday	
First 8 hours	$56.33
9th hour	$56.33
10th hour	$56.33
Beyond 10 hours	$56.33
Sunday/Holiday	$68.38

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

Friday make up day for 4-10s
Saturday make up day for 5-8s for inclement weather

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Carpenter - UP	**Carpenter**	**05/10/2024**

Classification Description: Carpenter and Floor layer

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$48.34	$61.91	$75.47
Apprentice: 0-6 months	$40.20	$49.69	$59.19
Apprentice: 12-18 months	$41.56	$51.73	$61.91
Apprentice: 18-24 months	$42.91	$53.76	$64.61
Apprentice: 24-30 months	$44.27	$55.80	$67.33
Apprentice: 30-36 months	$45.63	$57.84	$70.05
Apprentice: 36-42 months	$46.98	$59.87	$72.75
Apprentice: 42-48 months	$47.66	$60.89	$74.11
Apprentice: 6-12 months	$40.88	$50.71	$60.55

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$61.91
10th hour	$61.91
Beyond 10 hours	$61.91
Saturday	
First 8 hours	$61.91
9th hour	$61.91
10th hour	$61.91
Beyond 10 hours	$61.91
Sunday/Holiday	$75.47

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

Saturday for inclemen weather at straight time

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Carpenter-L1510	**Carpenter**	**09/17/2024**

Classification Description: Carpenter, Drywall Taper & Finisher, & Floor Layer

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$52.28	$68.29	$84.29
Apprentice: Apprentice 0-6 months	$42.68	$53.89	$65.09
Apprentice: Apprentice 13-18 months	$44.28	$56.29	$68.29
Apprentice: Apprentice 19-24 months	$45.88	$58.69	$71.49
Apprentice: Apprentice 25-30 months	$47.48	$61.09	$74.69
Apprentice: Apprentice 31-36 months	$49.08	$63.49	$77.89
Apprentice: Apprentice 37-42 months	$50.68	$65.89	$81.09
Apprentice: Apprentice 43-48 months	$51.48	$67.09	$82.69
Apprentice: Apprentice 7-12 months	$43.48	$55.09	$66.69

Overtime Provisions	
Over 8-hour day/40-hour week	
9th hour	$52.28
10th hour	$52.28
Beyond 10 hours	$68.28
Saturday	
First 8 hours	$68.28
9th hour	$68.28
10th hour	$68.28
Beyond 10 hours	$68.28
Sunday/Holiday	$84.29

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

Saturdays may be used as a makeup day on a voluntary basis, with a minimum of eight (8) hours scheduled.

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Diver-L1510	**Carpenter**	**09/18/2024**

Classification Description: Carpenter - Diver

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$71.09	$94.98	$118.86
Apprentice: 1st 6 months	$56.81	$73.53	$90.25
Apprentice: 2nd 6 months	$58.00	$75.32	$92.63
Apprentice: 3rd 6 months	$59.20	$77.12	$95.03
Apprentice: 4th 6 months	$61.59	$80.70	$99.81
Apprentice: 5th 6 months	$63.97	$84.27	$104.57
Apprentice: 6th 6 months	$66.36	$87.86	$109.35
Apprentice: 7th 6 months	$68.75	$91.44	$114.13
Apprentice: 8th 6 months	$69.95	$93.24	$116.53

Overtime Provisions	
Over 8-hour day/40-hour week	
9th hour	$71.09
10th hour	$71.09
Beyond 10 hours	$94.97
Saturday	
First 8 hours	$94.97
9th hour	$94.97
10th hour	$94.97
Beyond 10 hours	$94.97
Sunday/Holiday	$118.86

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

Saturdays may be used as a makeup day on a voluntary basis, with a minimum of eight (8) hours scheduled.

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Journeyman Carpenter	**Carpenter**	**05/10/2024**

Classification Description: Journeyman

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$45.17	$57.60	$70.02
Apprentice: 1st year	$37.72	$46.42	$55.12
Apprentice: 2nd year	$38.96	$48.28	$57.60
Apprentice: 3rd year	$41.44	$52.00	$62.56
Apprentice: 4th year	$43.93	$55.74	$67.54

Overtime Provisions	
Over 8-hour day/40-hour week	
9th hour	$57.60
10th hour	$57.60
Beyond 10 hours	$57.60
Saturday	
First 8 hours	$57.60
9th hour	$57.60
10th hour	$57.60
Beyond 10 hours	$57.60
Sunday/Holiday	$70.02

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Journeyman Carpenter	**Carpenter**	**05/10/2024**

Classification Description: Journeyman

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$45.82	$58.57	$71.32
Apprentice: 1st year	$37.72	$46.42	$55.12
Apprentice: 2nd year	$38.96	$48.28	$57.60
Apprentice: 3rd year	$41.44	$52.00	$62.56
Apprentice: 4th year	$43.93	$55.74	$67.54

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$58.57
10th hour	$58.57
Beyond 10 hours	$58.57
Saturday	
First 8 hours	$58.57
9th hour	$58.57
10th hour	$58.57
Beyond 10 hours	$58.57
Sunday/Holiday	$71.32

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Journeyman Resilient Floorlayer-L1510	**Carpenter**	**09/18/2024**

Classification Description: Journeyman Resilient Floorlayer

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$55.22	$72.52	$89.81
Apprentice: Apprentice 1st Year	$44.99	$57.17	$69.35
Apprentice: Apprentice 2nd Year	$46.70	$59.74	$72.77
Apprentice: Apprentice 3rd Year	$50.11	$64.85	$79.59
Apprentice: Apprentice 4th Year	$53.52	$69.97	$86.41

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$55.22
10th hour	$55.22
Beyond 10 hours	$72.52
Saturday	
First 8 hours	$72.52
9th hour	$72.52
10th hour	$72.52
Beyond 10 hours	$72.52
Sunday/Holiday	$89.81

Four 10-hour days allowed? - No

Make Up Day Allowed? - Yes

Saturdays may be used as a makeup day on a voluntary basis, with a minimum of eight (8) hours scheduled.

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Pile Driver-L1510	**Carpenter**	**09/17/2024**

Classification Description: Pile driver

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$52.48	$68.59	$84.69
Apprentice: 2nd 6 months	$46.72	$58.40	$70.07
Apprentice: 3rd 6 months	$47.53	$59.61	$71.69
Apprentice: 4th 6 months	$49.14	$62.03	$74.91
Apprentice: 5th 6 months	$50.75	$64.44	$78.13
Apprentice: 6th 6 months	$52.36	$66.86	$81.35
Apprentice: 7th 6 months	$53.97	$69.27	$84.57
Apprentice: 8th 6 months	$54.77	$70.47	$86.17
Apprentice: Apprentice 1st 6 months	$45.92	$57.20	$68.47

Overtime Provisions	
Over 8-hour day/40-hour week	
9th hour	$52.48
10th hour	$52.48
Beyond 10 hours	$68.58
Saturday	
First 8 hours	$68.58
9th hour	$68.58
10th hour	$68.58
Beyond 10 hours	$68.58
Sunday/Holiday	$84.69

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

Saturday

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Cement Mason	**Cement Mason**	**05/10/2024**

Classification Description: Cement Mason

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$50.76	$72.40	$94.04
Apprentice: 1st Year	$39.26	$55.15	$71.04
Apprentice: 2nd year	$42.54	$60.07	$77.60
Apprentice: 3rd year	$45.83	$65.01	$84.18

Overtime Provisions	
Over 8-hour day/40-hour week	
9th hour	$67.19
10th hour	$67.19
Beyond 10 hours	$83.62
Saturday	
First 8 hours	$67.19
9th hour	$67.19
10th hour	$67.19
Beyond 10 hours	$67.19
Sunday/Holiday	$83.62

Four 10-hour days allowed? - No

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Cement Mason - B	**Cement Mason**	**05/10/2024**

Classification Description: Cement Mason

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$47.49	$62.61	$77.73
Apprentice: 1st Year	$36.91	$46.74	$56.57
Apprentice: 2nd Year	$39.93	$51.27	$62.61
Apprentice: 3rd Year	$42.95	$55.80	$68.65

Overtime Provisions	
Over 8-hour day/40-hour week	
9th hour	$62.61
10th hour	$62.61
Beyond 10 hours	$62.61
Saturday	
First 8 hours	$62.61
9th hour	$62.61
10th hour	$62.61
Beyond 10 hours	$62.61
Sunday/Holiday	$77.73

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Cement Mason - BR	**Cement Mason**	**05/10/2024**

Classification Description: Cement Mason

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$43.45	$56.64	$69.82
Apprentice: 1st Year	$34.22	$42.79	$51.36
Apprentice: 2nd Year	$36.86	$46.75	$56.64
Apprentice: 3rd Year	$39.49	$50.70	$61.90

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$56.64
10th hour	$56.64
Beyond 10 hours	$56.64
Saturday	
First 8 hours	$56.64
9th hour	$56.64
10th hour	$56.64
Beyond 10 hours	$56.64
Sunday/Holiday	$69.82

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Cement Mason - G	**Cement Mason**	**05/10/2024**

Classification Description: Cement Mason

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$48.21	$63.42	$78.63
Apprentice: 1st year	$37.56	$47.45	$57.33
Apprentice: 2nd Year	$40.61	$52.02	$63.43
Apprentice: 3rd Year	$43.65	$56.58	$69.51

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$63.42
10th hour	$63.42
Beyond 10 hours	$63.42
Saturday	
First 8 hours	$63.42
9th hour	$63.42
10th hour	$63.42
Beyond 10 hours	$63.42
Sunday/Holiday	$78.63

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Cement Mason - K	**Cement Mason**	**05/10/2024**

Classification Description: Cement Mason

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$44.49	$57.87	$71.25
Apprentice: 1st Year	$34.95	$43.64	$52.34
Apprentice: 2nd Year	$37.63	$47.66	$57.70
Apprentice: 3rd Year	$40.31	$51.68	$63.06

Overtime Provisions	
Over 8-hour day/40-hour week	
9th hour	$57.87
10th hour	$57.87
Beyond 10 hours	$57.87
Saturday	
First 8 hours	$57.87
9th hour	$57.87
10th hour	$57.87
Beyond 10 hours	$57.87
Sunday/Holiday	$71.25

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Cement Mason - L	**Cement Mason**	**05/10/2024**

Classification Description: Cement Mason

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$47.09	$61.77	$76.45
Apprentice: 1st Year	$36.81	$46.35	$55.89
Apprentice: 2nd Year	$39.75	$50.76	$61.77
Apprentice: 3rd Year	$42.69	$55.17	$67.65

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$61.77
10th hour	$61.77
Beyond 10 hours	$61.77
Saturday	
First 8 hours	$61.77
9th hour	$61.77
10th hour	$61.77
Beyond 10 hours	$61.77
Sunday/Holiday	$76.45

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Cement Mason - M	**Cement Mason**	**05/10/2024**

Classification Description: Cement Mason

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$42.88	$55.60	$68.32
Apprentice: 1st Year	$33.98	$42.25	$50.52
Apprentice: 2nd Year	$36.52	$46.06	$55.60
Apprentice: 3rd Year	$39.06	$49.87	$60.68

Overtime Provisions	
Over 8-hour day/40-hour week	
9th hour	$55.60
10th hour	$55.60
Beyond 10 hours	$55.60
Saturday	
First 8 hours	$55.60
9th hour	$55.60
10th hour	$55.60
Beyond 10 hours	$55.60
Sunday/Holiday	$68.32

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Cement Mason - s	**Cement Mason**	**05/10/2024**

Classification Description: Cement Mason

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$48.12	$67.83	$87.53
Apprentice: 1st 6 months	$31.72	$43.23	$54.73
Apprentice: 2nd 6 months	$33.60	$46.05	$58.49
Apprentice: 3rd 6 months	$35.49	$48.88	$62.27
Apprentice: 4th 6 months	$37.37	$51.70	$66.03
Apprentice: 5th 6 months	$39.25	$54.52	$69.79
Apprentice: 6th 6 months	$41.14	$57.36	$73.57

Overtime Provisions	
Over 8-hour day/40-hour week	
9th hour	$63.24
10th hour	$63.24
Beyond 10 hours	$78.35
Saturday	
First 8 hours	$63.24
9th hour	$63.24
10th hour	$63.24
Beyond 10 hours	$63.24
Sunday/Holiday	$78.35

Four 10-hour days allowed? - No

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Cement Mason - SJ	**Cement Mason**	**05/10/2024**

Classification Description: Cement Mason

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$47.08	$61.76	$76.43
Apprentice: 1st Year	$36.81	$46.35	$55.89
Apprentice: 2nd Year	$39.74	$50.75	$61.75
Apprentice: 3rd Year	$42.68	$55.15	$67.63

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$61.76
10th hour	$61.76
Beyond 10 hours	$61.76
Saturday	
First 8 hours	$61.76
9th hour	$61.76
10th hour	$61.76
Beyond 10 hours	$61.76
Sunday/Holiday	$76.43

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Cement Mason - TC	**Cement Mason**	**05/10/2024**

Classification Description: Cement Mason

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$44.72	$58.51	$72.30
Apprentice: 1st Year	$35.07	$44.04	$53.00
Apprentice: 2nd Year	$37.82	$48.16	$58.50
Apprentice: 2rd Year	$40.58	$52.30	$64.02

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$58.51
10th hour	$58.51
Beyond 10 hours	$58.51
Saturday	
First 8 hours	$58.51
9th hour	$58.51
10th hour	$58.51
Beyond 10 hours	$58.51
Sunday/Holiday	$72.30

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Cement Mason - UP	**Cement Mason**	**05/10/2024**

Classification Description: Cement Mason

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$38.67	$50.71	$62.74
Apprentice: 1st Year	$30.25	$38.08	$45.90
Apprentice: 2nd Year	$32.65	$41.68	$50.70
Apprentice: 3rd Year	$35.06	$45.29	$55.52

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$50.71
10th hour	$50.71
Beyond 10 hours	$50.71
Saturday	
First 8 hours	$50.71
9th hour	$50.71
10th hour	$50.71
Beyond 10 hours	$50.71
Sunday/Holiday	$62.74

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Cement Mason - W	**Cement Mason**	**05/10/2024**

Classification Description: Cement Mason

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$52.82	$74.60	$96.37
Apprentice: 1st 6 Months	$34.23	$46.71	$59.19
Apprentice: 2nd 6 Months	$36.30	$49.82	$63.33
Apprentice: 3rd 6 Months	$38.39	$52.95	$67.51
Apprentice: 4th 6 Months	$40.47	$56.07	$71.67
Apprentice: 5th 6 Months	$42.54	$59.18	$75.81
Apprentice: 6th 6 Months	$44.63	$62.31	$79.99

Overtime Provisions	
Over 8-hour day/40-hour week	
9th hour	$67.94
10th hour	$67.94
Beyond 10 hours	$83.05
Saturday	
First 8 hours	$67.94
9th hour	$67.94
10th hour	$67.94
Beyond 10 hours	$67.94
Sunday/Holiday	$83.05

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Communication Technician	**Communication Technician**	**05/13/2024**

Classification Description:

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$67.89	$98.24	$128.58

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$98.24
10th hour	$98.24
Beyond 10 hours	$98.24
Saturday	
First 8 hours	$98.24
9th hour	$98.24
10th hour	$98.24
Beyond 10 hours	$98.24
Sunday/Holiday	$128.58

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

ONLY due to inclement weather or customer requirements may Friday be used as a make up day if the normal scheduled work week was interrupted and time lost of five (5) hours or more was incurred by workmen covered under the terms of the 6-17-C/6-876-T agreement.

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Drywall - DF	**Drywall**	**05/10/2024**

Classification Description: Drywall Finishers

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$51.86	$67.66	$83.46
Apprentice: 1st period	$39.22	$48.70	$58.18
Apprentice: 2nd period	$40.80	$51.07	$61.34
Apprentice: 3rd period	$43.96	$55.81	$67.66
Apprentice: 4th period	$48.70	$62.92	$77.14

Overtime Provisions	
Over 8-hour day/40-hour week	
9th hour	$67.66
10th hour	$67.66
Beyond 10 hours	$67.66
Saturday	
First 8 hours	$67.66
9th hour	$67.66
10th hour	$67.66
Beyond 10 hours	$67.66
Sunday/Holiday	$83.46

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Drywall Finisher	**Drywall**	**05/10/2024**

Classification Description: Drywall Finisher, Soundproofing, & Plural Component Applicator

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$42.87	$57.12	$71.36
Apprentice: 1st 1,000 hours	$31.47	$40.02	$48.56
Apprentice: 2nd 1,000 hours	$32.90	$42.16	$51.42
Apprentice: 3rd 1,000 hours	$34.32	$44.29	$54.26
Apprentice: 4th 1,000 hours	$35.75	$46.44	$57.12
Apprentice: 5th 1,000 hours	$37.17	$48.56	$59.96
Apprentice: 6th 1,000 hours	$38.60	$50.71	$62.82
Apprentice: 7th 1,000 hours	$40.02	$52.84	$65.66
Apprentice: 8th 1,000 hours	$41.45	$54.98	$68.52

Overtime Provisions	
Over 8-hour day/40-hour week	
9th hour	$57.12
10th hour	$57.12
Beyond 10 hours	$57.12
Saturday	
First 8 hours	$57.12
9th hour	$57.12
10th hour	$57.12
Beyond 10 hours	$57.12
Sunday/Holiday	$71.36

Four 10-hour days allowed? - No

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Electrician - 906 H - Z1	**Electrician**	**05/10/2024**

Classification Description: Journeyman - Inside wireman for work above $160,000

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$61.03	$79.26	$97.48
Apprentice: 1st period	$30.57	$37.99	$45.40
Apprentice: 2nd period	$32.43	$40.78	$49.12
Apprentice: 3rd period	$36.13	$46.33	$56.52
Apprentice: 4th period	$39.84	$51.89	$63.94
Apprentice: 5th period	$45.56	$59.64	$73.72
Apprentice: 6th period	$49.31	$65.26	$81.22

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$79.26
10th hour	$79.26
Beyond 10 hours	$79.26
Saturday	
First 8 hours	$79.26
9th hour	$79.26
10th hour	$79.26
Beyond 10 hours	$79.26
Sunday/Holiday	$97.48

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

4 consecutive tens allowed M-Th
F makeup day for inclement weather and holidays

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Electrician - 906 L - Z1	**Electrician**	**05/10/2024**

Classification Description: Inside wireman for work below $160,000

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$57.57	$75.08	$92.59
Apprentice: 1st period	$29.75	$36.76	$43.76
Apprentice: 2nd period	$31.50	$39.38	$47.26
Apprentice: 3rd period	$35.00	$44.63	$54.26
Apprentice: 4th period	$38.50	$49.88	$61.26
Apprentice: 5th period	$42.00	$55.13	$68.26
Apprentice: 6th period	$45.51	$60.40	$75.28

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$74.57
10th hour	$74.57
Beyond 10 hours	$74.57
Saturday	
First 8 hours	$74.57
9th hour	$74.57
10th hour	$74.57
Beyond 10 hours	$74.57
Sunday/Holiday	$91.57

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Elevator Constructor Mechanic	**Elevator Constructor**	**05/10/2024**

Classification Description: Elevator Constructor Mechanic

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$96.72	$83.78	$152.57
Apprentice: 1st year	$68.96	$46.08	$99.68
Apprentice: 2nd year	$74.88	$54.45	$111.18
Apprentice: 3rd year	$77.85	$58.65	$116.95
Apprentice: 4th year	$84.65	$67.02	$129.33

Overtime Provisions	
Over 8-hour day/40-hour week	
9th hour	$152.57
10th hour	$152.57
Beyond 10 hours	$152.57
Saturday	
First 8 hours	$152.57
9th hour	$152.57
10th hour	$152.57
Beyond 10 hours	$152.57
Sunday/Holiday	$152.57

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Fiber Optic Splicer	**Fiber Optic Splicer**	**05/13/2024**

Classification Description:

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$67.89	$98.24	$128.58

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$98.24
10th hour	$98.24
Beyond 10 hours	$98.24
Saturday	
First 8 hours	$98.24
9th hour	$98.24
10th hour	$98.24
Beyond 10 hours	$98.24
Sunday/Holiday	$128.58

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

ONLY due to inclement weather or customer requirements may Friday be used as a make up day if the normal scheduled work week was interrupted and time lost of five (5) hours or more was incurred by workmen covered under the terms of the 6-17-C/6-876-T agreement.

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Foreman	**Foreman**	**05/10/2024**

Classification Description:

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$67.89	$98.24	$128.58

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$90.71
10th hour	$90.71
Beyond 10 hours	$90.71
Saturday	
First 8 hours	$90.71
9th hour	$90.71
10th hour	$90.71
Beyond 10 hours	$90.71
Sunday/Holiday	$113.52

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Foreman	**Foreman**	**05/10/2024**

Classification Description:

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$67.89	$98.24	$128.58

Overtime Provisions	
Over 8-hour day/40-hour week	
9th hour	$90.71
10th hour	$90.71
Beyond 10 hours	$90.71
Saturday	
First 8 hours	$90.71
9th hour	$90.71
10th hour	$90.71
Beyond 10 hours	$90.71
Sunday/Holiday	$113.52

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Foreman	**Foreman**	**05/10/2024**

Classification Description:

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$67.89	$98.24	$128.58

Overtime Provisions	
Over 8-hour day/40-hour week	
9th hour	$90.71
10th hour	$90.71
Beyond 10 hours	$90.71
Saturday	
First 8 hours	$90.71
9th hour	$90.71
10th hour	$90.71
Beyond 10 hours	$90.71
Sunday/Holiday	$113.52

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Foreman	**Foreman**	**05/10/2024**

Classification Description:

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$67.89	$98.24	$128.58

Overtime Provisions	
Over 8-hour day/40-hour week	
9th hour	$90.71
10th hour	$90.71
Beyond 10 hours	$90.71
Saturday	
First 8 hours	$90.71
9th hour	$90.71
10th hour	$90.71
Beyond 10 hours	$90.71
Sunday/Holiday	$113.52

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Foreman	**Foreman**	**05/10/2024**

Classification Description:

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$75.47	$109.62	$143.74

Overtime Provisions	
Over 8-hour day/40-hour week	
9th hour	$109.61
10th hour	$109.61
Beyond 10 hours	$109.61
Saturday	
First 8 hours	$109.61
9th hour	$109.61
10th hour	$109.61
Beyond 10 hours	$109.61
Sunday/Holiday	$143.74

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

ONLY due to inclement weather or customer requirements may Friday be used as a make up day if the normal scheduled work week was interrupted and time lost of five (5) hours or more was incurred by workmen covered under the terms of the 6-17-C/6-876-T agreement.

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Foreman	**Foreman**	**05/10/2024**

Classification Description:

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$75.47	$109.61	$143.74

Overtime Provisions	
Over 8-hour day/40-hour week	
9th hour	$101.14
10th hour	$101.14
Beyond 10 hours	$101.14
Saturday	
First 8 hours	$101.14
9th hour	$101.14
10th hour	$101.14
Beyond 10 hours	$101.14
Sunday/Holiday	$126.80

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Foreman	**Foreman**	**05/10/2024**

Classification Description:

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$76.98	$111.87	$146.76

Overtime Provisions	
Over 8-hour day/40-hour week	
9th hour	$103.22
10th hour	$103.22
Beyond 10 hours	$103.22
Saturday	
First 8 hours	$103.22
9th hour	$103.22
10th hour	$103.22
Beyond 10 hours	$103.22
Sunday/Holiday	$129.45

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Glazier	**Glazier**	**05/10/2024**

Classification Description: Glazier
4 tens allowed on consecutive days

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$49.84	$67.73	$85.62
Apprentice: 1st level	$31.62	$40.40	$49.18
Apprentice: 2nd level	$35.12	$45.66	$56.18
Apprentice: 3rd Level	$40.38	$53.54	$66.70
Apprentice: 4th level	$45.66	$61.46	$77.26

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$66.72
10th hour	$66.72
Beyond 10 hours	$66.72
Saturday	
First 8 hours	$66.72
9th hour	$66.72
10th hour	$66.72
Beyond 10 hours	$66.72
Sunday/Holiday	$83.59

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Heat & Frost Insulator	**Heat and Frost Insulator and Asbestos Worker**	**05/10/2024**

Classification Description: Heat and Frost Insulators and Asbestos Workers

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$52.00	$68.89	$85.77
Apprentice: 1st year	$26.38	$33.69	$40.99
Apprentice: 2nd year	$30.15	$38.92	$47.68
Apprentice: 3rd year	$33.92	$44.15	$54.37
Apprentice: 4th year	$37.70	$49.39	$61.08
Apprentice: 5th year	$41.48	$54.63	$67.78

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$68.89
10th hour	$68.89
Beyond 10 hours	$68.89
Saturday	
First 8 hours	$68.89
9th hour	$68.89
10th hour	$68.89
Beyond 10 hours	$68.89
Sunday/Holiday	$85.77

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

Friday for cancelled work in a 4 10 schedule

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Ironworker - A	**Ironworker**	**05/10/2024**

Classification Description: For work over $10 million: Structural, Ornamental, Machinery Rigger & Reinforcing Ironworker; installation of sheet metal siding

A 4-10 work week allowed Monday thru Thursday. Friday may be used as a make-up day. Hours in excess of 40 must be paid tim

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$50.07	$69.76	$89.45
Apprentice: 0 - 1,000 hours	$25.39	$37.75	$50.11
Apprentice: 1,001 - 2,000 hours	$37.71	$51.22	$64.73
Apprentice: 2,001 - 3,000 hours	$39.01	$53.17	$67.33
Apprentice: 3,001 - 4,000 hours	$40.31	$55.12	$69.93
Apprentice: 4,001 - 5,000 hours	$41.61	$57.07	$72.53
Apprentice: 5,001 - 6,000 hours	$42.92	$59.04	$75.15
Apprentice: 6,001 - 7,000 hours	$44.22	$60.98	$77.75

Overtime Provisions	
Over 8-hour day/40-hour week	
9th hour	$63.09
10th hour	$63.09
Beyond 10 hours	$76.10
Saturday	
First 8 hours	$63.09
9th hour	$76.10
10th hour	$76.10
Beyond 10 hours	$76.10
Sunday/Holiday	$76.10

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Ironworker - B	**Ironworker**	**05/10/2024**

Classification Description: For work under $10 Million: Structural, Ornamental, Machinery Rigger & Reinforcing Ironworker; pre-engineered metal buildings

A 4-10 work week allowed Monday thru Thursday. Friday may be used as a make-up day. Hours in excess of 40 must be paid time a

Wage Rates

	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$46.73	$64.76	$82.79
Apprentice: 0-1,000 hours	$25.39	$37.75	$50.11
Apprentice: 1,001 - 2,000 hours	$37.71	$51.22	$64.73
Apprentice: 2,001 - 3,000 hours	$39.01	$53.17	$67.33
Apprentice: 3,001 - 4,000 hours	$40.31	$55.12	$69.93
Apprentice: 4,001 - 5,000 hours	$41.61	$57.07	$72.53
Apprentice: 5,001 - 6,000 hours	$42.92	$59.04	$75.15
Apprentice: 6,001 - 7,000 hours	$44.22	$60.98	$77.75

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$58.09
10th hour	$58.09
Beyond 10 hours	$69.44
Saturday	
First 8 hours	$58.09
9th hour	$69.44
10th hour	$69.44
Beyond 10 hours	$69.44
Sunday/Holiday	$69.44

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Journeyman Signal Technician	**Journeyman Signal Technician**	**05/13/2024**

Classification Description:

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$67.89	$98.24	$128.58
Apprentice: Apprentice 1st 6 months	$43.61	$61.82	$80.02
Apprentice: Apprentice 2nd 6 months	$46.65	$66.38	$86.10
Apprentice: Apprentice 3rd 6 months	$49.68	$70.92	$92.16
Apprentice: Apprentice 4th 6 months	$52.71	$75.47	$98.22
Apprentice: Apprentice 5th 6 months	$55.75	$80.03	$104.30
Apprentice: Apprentice 6th 6months	$61.82	$89.13	$116.44

Overtime Provisions	
Over 8-hour day/40-hour week	
9th hour	$98.24
10th hour	$98.24
Beyond 10 hours	$98.24
Saturday	
First 8 hours	$98.24
9th hour	$98.24
10th hour	$98.24
Beyond 10 hours	$98.24
Sunday/Holiday	$128.58

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

ONLY due to inclement weather or customer requirements may Friday be used as a make up day if the normal scheduled work week was interrupted and time lost of five (5) hours or more was incurred by workmen covered under the terms of the 6-17-C/6-876-T agreement.

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Journeyman Specialist	**Journeyman Specialist**	**05/13/2024**

Classification Description:

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$76.98	$111.88	$146.76

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$111.87
10th hour	$111.87
Beyond 10 hours	$111.87
Saturday	
First 8 hours	$111.87
9th hour	$111.87
10th hour	$111.87
Beyond 10 hours	$111.87
Sunday/Holiday	$146.76

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

ONLY due to inclement weather or customer requirements may Friday be used as a make up day if the normal scheduled work week was interrupted and time lost of five (5) hours or more was incurred by workmen covered under the terms of the 6-17-C/6-876-T agreement.

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Labor Crew Foreman	**Labor Crew Foreman**	**05/13/2024**

Classification Description:

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$61.86	$89.19	$116.52

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$89.19
10th hour	$89.19
Beyond 10 hours	$89.19
Saturday	
First 8 hours	$89.19
9th hour	$89.19
10th hour	$89.19
Beyond 10 hours	$89.19
Sunday/Holiday	$116.52

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

ONLY due to inclement weather or customer requirements may Friday be used as a make up day if the normal scheduled work week was interrupted and time lost of five (5) hours or more was incurred by workmen covered under the terms of the 6-17-C/6-876-T agreement.

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Asbestos & Lead Abatement Laborer	**Laborer**	**05/10/2024**

Classification Description: Asbestos & Lead Abatement Laborer
4 ten hour days @ straight time allowed Monday-Saturday, must be consecutive calendar days

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$50.60	$65.37	$80.13
Apprentice: Trainee 600 hours +1 year	$34.07	$18.89	$20.54

Overtime Provisions	
Over 8-hour day/40-hour week	
9th hour	$65.37
10th hour	$65.37
Beyond 10 hours	$65.37
Saturday	
First 8 hours	$65.37
9th hour	$65.37
10th hour	$65.37
Beyond 10 hours	$65.37
Sunday/Holiday	$80.13

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Laborer - B-A	**Laborer**	**05/10/2024**

Classification Description: Class A Laborer - construction laborer on building and heavy construction work, storm, and sanitary sewers on all construction sites and streets which are not included in the road builder rates, tool crib attendant, civil engineer helper, rodman, oxi-gun

Wage Rates

	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$40.18	$53.15	$66.11
Apprentice: 0 - 1,000 hours	$31.69	$40.68	$49.67
Apprentice: 1,001 - 2,000 hours	$34.99	$45.37	$55.74
Apprentice: 2,001 - 3,000 hours	$36.29	$47.31	$58.33
Apprentice: 3,001 - 4,000 hours	$38.88	$51.20	$63.54

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$53.15
10th hour	$53.15
Beyond 10 hours	$66.11
Saturday	
First 8 hours	$53.15
9th hour	$66.11
10th hour	$66.11
Beyond 10 hours	$66.11
Sunday/Holiday	$66.11

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Laborer - B-B	**Laborer**	**05/10/2024**

Classification Description: Class B Laborer - Cement gun nozzleman, blasters, miners, drillers, buster operators, layers of all non-metallic pipe

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$42.41	$56.49	$70.57

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$56.49
10th hour	$56.49
Beyond 10 hours	$70.57
Saturday	
First 8 hours	$56.49
9th hour	$70.57
10th hour	$70.57
Beyond 10 hours	$70.57
Sunday/Holiday	$70.57

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Laborer - B-C	**Laborer**	**05/10/2024**

Classification Description: Class C Laborer - caisson worker & airtrack

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$37.68	$49.67	$61.66

Overtime Provisions	
Over 8-hour day/40-hour week	
9th hour	$49.67
10th hour	$49.67
Beyond 10 hours	$49.67
Saturday	
First 8 hours	$49.67
9th hour	$49.67
10th hour	$49.67
Beyond 10 hours	$49.67
Sunday/Holiday	$61.66

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Laborer - B-D	**Laborer**	**05/10/2024**

Classification Description: Class E Laborer - digester, tanks & kilns

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$43.23	$57.81	$72.39
Apprentice: Apprentice 1 (0-1,000 hours)	$34.27	$44.37	$54.47
Apprentice: Apprentice 2 (1,001-2,000 hours)	$35.61	$46.38	$57.15
Apprentice: Apprentice 3 (2,001-3,000 hours)	$36.96	$48.41	$59.85
Apprentice: Apprentice 4 (3,001-4000 hours)	$39.65	$52.44	$65.23

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$57.81
10th hour	$57.81
Beyond 10 hours	$72.39
Saturday	
First 8 hours	$43.23
9th hour	$72.39
10th hour	$72.39
Beyond 10 hours	$72.39
Sunday/Holiday	$72.39

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Laborer - Class 1 - RZ4	**Laborer**	**05/10/2024**

Classification Description: Laborer Road Class 1: asphalt shoveler or loader, yard man, fence erector tender, dumper, joint filling, form setting, form stripper, pavement reinforcing, waterproofing, seal coating, bridge painting, sandblasting, pressure grouting, RC equipment

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$46.14	$59.90	$73.66
Apprentice: 0-1,000 hours	$39.26	$49.58	$59.90
Apprentice: 1,001-2,000 hours	$40.64	$51.65	$62.66
Apprentice: 2,001-3,000 hours	$42.01	$53.71	$65.40
Apprentice: 3,001-4,000 hours	$44.76	$57.83	$70.90

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$59.90
10th hour	$59.90
Beyond 10 hours	$59.90
Saturday	
First 8 hours	$59.90
9th hour	$59.90
10th hour	$59.90
Beyond 10 hours	$59.90
Sunday/Holiday	$73.66

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Laborer - Class 2 - RZ4	**Laborer**	**05/10/2024**

Classification Description: Laborer Road Class 2: mixer operator, air or electric tool operator, spreader, boxman, concreter paddler, power chain saw operator, paving patch truck dumper, tunnel mucker, concrete saw operator, dry pack macine and roto-mill grounds person

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$46.35	$60.22	$74.08
Apprentice: 0-1,000 hours	$39.42	$49.82	$60.22
Apprentice: 1,001-2,000 hours	$40.80	$51.89	$62.98
Apprentice: 2,001-3,000 hours	$42.19	$53.98	$65.76
Apprentice: 3,001-4,000 hours	$44.96	$58.13	$71.30

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$60.22
10th hour	$60.22
Beyond 10 hours	$60.22
Saturday	
First 8 hours	$60.22
9th hour	$60.22
10th hour	$60.22
Beyond 10 hours	$60.22
Sunday/Holiday	$74.08

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Laborer - Class 3 - RZ4	**Laborer**	**05/10/2024**

Classification Description: Laborer Road Class 3: tunnel miner, finish tenders, guard rail builder, median barrier installer, earth retention barrier and wall installer, fence erector, bottom man, powder man, wagon drill and air track operator, curb and side rail setter

Wage Rates

	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$46.64	$60.65	$74.66
Apprentice: 0-1,000 hours	$39.64	$50.15	$60.66
Apprentice: 1,001-2,000 hours	$40.54	$51.75	$62.96
Apprentice: 2,001-3,000 hours	$42.44	$54.35	$66.26
Apprentice: 3,001-4,000 hours	$45.24	$58.55	$71.86

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$60.65
10th hour	$60.65
Beyond 10 hours	$60.65
Saturday	
First 8 hours	$60.65
9th hour	$60.65
10th hour	$60.65
Beyond 10 hours	$60.65
Sunday/Holiday	$74.66

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Laborer - Class 4 - RZ4	**Laborer**	**05/10/2024**

Classification Description: Laborer Road Class 4: asphalt raker

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$47.08	$61.31	$75.54
Apprentice: 0-1,000 hours	$39.96	$50.63	$61.30
Apprentice: 1,001-2,000 hours	$41.39	$52.78	$64.16
Apprentice: 2,001-3,000 hours	$42.81	$54.91	$67.00
Apprentice: 3,001-4,000 hours	$45.66	$59.18	$72.70

Overtime Provisions	
Over 8-hour day/40-hour week	
9th hour	$61.31
10th hour	$61.31
Beyond 10 hours	$61.31
Saturday	
First 8 hours	$61.31
9th hour	$61.31
10th hour	$61.31
Beyond 10 hours	$61.31
Sunday/Holiday	$75.54

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Laborer - Class 5- RZ4	**Laborer**	**05/10/2024**

Classification Description: Laborer Road Class 5: pipe layers, oxy-gun

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$46.70	$60.74	$74.78
Apprentice: 0-1,000 hours	$39.48	$50.01	$60.54
Apprentice: 1,001-2,000 hours	$40.88	$52.11	$63.34
Apprentice: 2,001-3,000 hours	$42.29	$54.23	$66.16
Apprentice: 3,001-4,000 hours	$45.10	$58.44	$71.78

Overtime Provisions	
Over 8-hour day/40-hour week	
9th hour	$60.74
10th hour	$60.74
Beyond 10 hours	$60.74
Saturday	
First 8 hours	$60.74
9th hour	$60.74
10th hour	$60.74
Beyond 10 hours	$60.74
Sunday/Holiday	$74.78

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Laborer - Class 6 - RZ4	**Laborer**	**05/10/2024**

Classification Description: Laborer Road Class 6: line form setter for curb or pavement, asphalt screed checker/screw man on asphalt paving machines

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$47.13	$61.39	$75.64
Apprentice: 0-1,000 hours	$39.80	$50.49	$61.18
Apprentice: 1,001-2,000 hours	$41.23	$52.64	$64.04
Apprentice: 2,001-3,000 hours	$42.65	$54.77	$66.88
Apprentice: 3,001-4,000 hours	$45.50	$59.04	$72.58

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$61.39
10th hour	$61.39
Beyond 10 hours	$61.39
Saturday	
First 8 hours	$61.39
9th hour	$61.39
10th hour	$61.39
Beyond 10 hours	$61.39
Sunday/Holiday	$75.64

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Laborer - Class 7 - RZ4	**Laborer**	**05/10/2024**

Classification Description: Laborer Road Class 7: concrete specialist - including finishing and trowling, cast in place or precast by any method

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$50.46	$66.38	$82.30
Apprentice: 0-1,000 hours	$42.30	$54.24	$66.18
Apprentice: 1,001-2,000 hours	$43.89	$56.63	$69.36
Apprentice: 2,001-3,000 hours	$45.48	$59.01	$72.54
Apprentice: 3,001-4,000 hours	$48.67	$63.80	$78.92

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$66.38
10th hour	$66.38
Beyond 10 hours	$66.38
Saturday	
First 8 hours	$66.38
9th hour	$66.38
10th hour	$66.38
Beyond 10 hours	$66.38
Sunday/Holiday	$82.30

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Laborer - Hazardous - Class A - Z11	**Laborer - Hazardous**	**05/10/2024**

Classification Description: Class A - performing work in conjunction with site preparation and other preliminary work prior to actual removal, handling, or containment of hazardous waste substances not requiring use of personal protective equipment required by state or federal reg

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$38.75	$51.34	$63.93
Apprentice: 0-1,000 work hours	$32.46	$41.91	$51.35
Apprentice: 1,001-2,000 work hours	$33.71	$43.78	$53.85
Apprentice: 2,001-3,000 work hours	$34.97	$45.67	$56.37
Apprentice: 3,001-4,000 work hours	$37.49	$49.45	$61.41

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$51.34
10th hour	$51.34
Beyond 10 hours	$51.34
Saturday	
First 8 hours	$51.34
9th hour	$51.34
10th hour	$51.34
Beyond 10 hours	$51.34
Sunday/Holiday	$63.93

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

4 10s allowed M-Th or T-F; inclement weather makeup day Friday

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Laborer - Hazardous - Class B - Z11	**Laborer - Hazardous**	**05/10/2024**

Classification Description: Class B - performing work in conjunction with the removal, handling, or containment of hazardous waste substances when the use of personal protective equipment levels "A", "B" or "C" is required.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$39.75	$52.64	$65.73
Apprentice: 0-1,000 work hours	$33.21	$42.83	$52.65
Apprentice: 1,001-2,000 work hours	$34.51	$44.78	$55.25
Apprentice: 2,001-3,000 work hours	$35.82	$46.75	$57.87
Apprentice: 3,001-4,000 work hours	$38.44	$50.67	$63.11

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$52.84
10th hour	$52.84
Beyond 10 hours	$52.84
Saturday	
First 8 hours	$52.84
9th hour	$52.84
10th hour	$52.84
Beyond 10 hours	$52.84
Sunday/Holiday	$65.93

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

4 10s allowed M-Th or T-F; inclement weather makeup day Friday

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Laborer - Landscape - Class B2 - Z2	**Laborer - Landscape**	**05/10/2024**

Classification Description: Class B2: Skilled Landscape Laborer: small power tool operator, lawn sprinkler installers' tender, irrigation installers' tender material mover

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$30.40	$39.93	$49.45

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$39.93
10th hour	$39.93
Beyond 10 hours	$39.93
Saturday	
First 8 hours	$39.93
9th hour	$39.93
10th hour	$39.93
Beyond 10 hours	$39.93
Sunday/Holiday	$49.45

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Laborer - Landscape - Class C - Z2	**Laborer - Landscape**	**05/10/2024**

Classification Description: Class C: landscape laborer with 90 or more calendar days worked

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$24.66	$33.27	$41.87

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$31.98
10th hour	$31.98
Beyond 10 hours	$31.98
Saturday	
First 8 hours	$31.98
9th hour	$31.98
10th hour	$31.98
Beyond 10 hours	$31.98
Sunday/Holiday	$39.30

Four 10-hour days allowed? - No

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Laborer - Landscape - Class D - Z2	**Laborer - Landscape**	**05/10/2024**

Classification Description: Class D: Inexperienced landscape laborer - individual who has worked less than 90 calendar days

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$15.54	$23.31	$31.08

Overtime Provisions	
Over 8-hour day/40-hour week	
9th hour	$22.03
10th hour	$22.03
Beyond 10 hours	$22.03
Saturday	
First 8 hours	$22.03
9th hour	$22.03
10th hour	$22.03
Beyond 10 hours	$22.03
Sunday/Holiday	$28.51

Four 10-hour days allowed? - No

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Laborer Underground - Tunnel, Shaft & Caisson - Class I - Z2	**Laborer Underground - Tunnel, Shaft & Caisson**	**05/10/2024**

Classification Description: Class I - Tunnel, shaft and caisson laborer, dump man, shanty man, hog house tender, testing man (on gas), and watchman.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$38.97	$50.26	$61.54
Apprentice: 0-1,000 work hours	$32.85	$42.64	$52.43
Apprentice: 1,001-2,000 work hours	$33.97	$44.32	$54.67
Apprentice: 2,001-3,000 work hours	$35.08	$45.99	$56.89
Apprentice: 3,001-4,000 work hours	$37.31	$49.33	$61.35

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$50.26
10th hour	$50.26
Beyond 10 hours	$50.26
Saturday	
First 8 hours	$50.26
9th hour	$50.26
10th hour	$50.26
Beyond 10 hours	$50.26
Sunday/Holiday	$61.54

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Laborer Underground - Tunnel, Shaft & Caisson - Class II - Z2	**Laborer Underground - Tunnel, Shaft & Caisson**	**05/10/2024**

Classification Description: Class II - Manhole, headwall, catch basin builder, bricklayer tender, mortar man, material mixer, fence erector, and guard rail builder

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$39.06	$50.39	$61.72
Apprentice: 0-1,000 work hours	$32.92	$42.75	$52.57
Apprentice: 1,001-2,000 work hours	$34.04	$44.43	$54.81
Apprentice: 2,001-3,000 work hours	$35.16	$46.11	$57.05
Apprentice: 3,001-4,000 work hours	$37.39	$49.45	$61.51

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$50.39
10th hour	$50.39
Beyond 10 hours	$50.39
Saturday	
First 8 hours	$50.39
9th hour	$50.39
10th hour	$50.39
Beyond 10 hours	$50.39
Sunday/Holiday	$61.72

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Laborer Underground - Tunnel, Shaft & Caisson - Class III -Z2	**Laborer Underground - Tunnel, Shaft & Caisson**	**05/10/2024**

Classification Description: Class III - Air tool operator (jack hammer man, bush hammer man and grinding man), first bottom man, second bottom man, cage tender, car pusher, carrier man, concrete man, concrete form man, concrete repair man, cement invert laborer, cement finisher, con

Wage Rates

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$39.16	$50.54	$61.92
Apprentice: 0-1,000 work hours	$32.99	$42.85	$52.71
Apprentice: 1,001-2,000 work hours	$34.12	$44.55	$54.97
Apprentice: 2,001-3,000 work hours	$35.24	$46.23	$57.21
Apprentice: 3,001-4,000 work hours	$37.49	$49.60	$61.71

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$50.54
10th hour	$50.54
Beyond 10 hours	$50.54
Saturday	
First 8 hours	$50.54
9th hour	$50.54
10th hour	$50.54
Beyond 10 hours	$50.54
Sunday/Holiday	$61.92

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Laborer Underground - Tunnel, Shaft & Caisson - Class IV -Z2	**Laborer Underground - Tunnel, Shaft & Caisson**	**05/10/2024**

Classification Description: Class IV - Tunnel, shaft and caisson mucker, bracer man, liner plate man, long haul dinky driver and well point man.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$39.58	$51.17	$62.76
Apprentice: 0-1,000 work hours	$33.11	$43.03	$52.95
Apprentice: 1,001-2,000 work hours	$34.25	$44.74	$55.23
Apprentice: 2,001-3,000 work hours	$35.38	$46.43	$57.49
Apprentice: 3,001-4,000 work hours	$37.64	$49.83	$62.01

Overtime Provisions	
Over 8-hour day/40-hour week	
9th hour	$51.17
10th hour	$51.17
Beyond 10 hours	$51.17
Saturday	
First 8 hours	$51.17
9th hour	$51.17
10th hour	$51.17
Beyond 10 hours	$51.17
Sunday/Holiday	$62.76

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Laborer Underground - Tunnel, Shaft & Caisson - Class V -Z2	**Laborer Underground - Tunnel, Shaft & Caisson**	**05/10/2024**

Classification Description: Class V - Tunnel, shaft and caisson miner, drill runner, keyboard operator, power knife operator, reinforced steel or mesh man (e.g. wire mesh, steel mats, dowel bars)

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$39.58	$51.17	$62.76
Apprentice: 0-1,000 work hours	$33.31	$43.33	$53.35
Apprentice: 1,001-2,000 work hours	$34.45	$45.04	$55.63
Apprentice: 2,001-3,000 work hours	$35.60	$46.77	$57.93
Apprentice: 3,001-4,000 work hours	$37.89	$50.20	$62.51

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$51.17
10th hour	$51.17
Beyond 10 hours	$51.17
Saturday	
First 8 hours	$51.17
9th hour	$51.17
10th hour	$51.17
Beyond 10 hours	$51.17
Sunday/Holiday	$62.76

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Laborer Underground - Tunnel, Shaft & Caisson - Class VI - Z2	**Laborer Underground - Tunnel, Shaft & Caisson**	**05/10/2024**

Classification Description: Class VI - Dynamite man and powder man.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$39.34	$52.38	$65.41
Apprentice: 0-1,000 work hours	$33.54	$43.67	$53.81
Apprentice: 1,001-2,000 work hours	$34.70	$45.41	$56.13
Apprentice: 2,001-3,000 work hours	$35.86	$47.15	$58.45
Apprentice: 3,001-4,000 work hours	$38.18	$50.63	$63.09

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$50.94
10th hour	$50.94
Beyond 10 hours	$50.94
Saturday	
First 8 hours	$50.94
9th hour	$50.94
10th hour	$50.94
Beyond 10 hours	$50.94
Sunday/Holiday	$62.53

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Laborer Underground - Tunnel, Shaft & Caisson - Class VII - Z2	**Laborer Underground - Tunnel, Shaft & Caisson**	**05/10/2024**

Classification Description: Class VII - Restoration laborer, seeding, sodding, planting, cutting, mulching and topsoil grading and the restoration of property such as replacing mail boxes, wood chips, planter boxes and flagstones.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$32.16	$40.04	$47.92
Apprentice: 0-1,000 work hours	$27.75	$34.99	$42.23
Apprentice: 1,001-2,000 work hours	$28.52	$36.15	$43.77
Apprentice: 2,001-3,000 work hours	$29.29	$37.30	$45.31
Apprentice: 3,001-4,000 work hours	$30.84	$39.63	$48.41

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$40.04
10th hour	$40.04
Beyond 10 hours	$40.04
Saturday	
First 8 hours	$40.04
9th hour	$40.04
10th hour	$40.04
Beyond 10 hours	$40.04
Sunday/Holiday	$47.92

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Laborer -Underground Open Cut - Class I - Z2	**Laborer -Underground Open Cut, Class I**	**05/10/2024**

Classification Description: Construction Laborer

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$38.17	$50.57	$62.97
Apprentice: 0-1,000 work hours	$32.74	$42.42	$52.11
Apprentice: 1,001-2,000 work hours	$33.83	$44.06	$54.29
Apprentice: 2,001-3,000 work hours	$34.91	$45.68	$56.45
Apprentice: 3,001-4,000 work hours	$37.09	$48.95	$60.81

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$49.02
10th hour	$49.02
Beyond 10 hours	$49.02
Saturday	
First 8 hours	$49.02
9th hour	$49.02
10th hour	$49.02
Beyond 10 hours	$49.02
Sunday/Holiday	$59.87

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Laborer -Underground Open Cut - Class I - Z5	**Laborer -Underground Open Cut, Class I**	**05/10/2024**

Classification Description: Construction Laborer

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$36.05	$47.37	$58.69
Apprentice: 0-1,000 work hours	$30.71	$39.41	$48.11
Apprentice: 1,001-2,000 work hours	$31.68	$40.86	$50.05
Apprentice: 2,001-3,000 work hours	$32.65	$42.32	$51.99
Apprentice: 3,001-4,000 work hours	$34.58	$45.22	$55.85

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$45.92
10th hour	$45.92
Beyond 10 hours	$45.92
Saturday	
First 8 hours	$45.92
9th hour	$45.92
10th hour	$45.92
Beyond 10 hours	$45.92
Sunday/Holiday	$55.79

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Laborer -Underground Open Cut - Class II - Z2	**Laborer -Underground Open Cut, Class II**	**05/10/2024**

Classification Description: Mortar and material mixer, concrete form man, signal man, well point man, manhole, headwall and catch basin builder, guard rail builders, headwall, seawall, breakwall, dock builder and fence erector.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$38.28	$50.74	$63.19
Apprentice: 0-1,000 work hours	$32.83	$42.56	$52.29
Apprentice: 1,001-2,000 work hours	$33.92	$44.20	$54.47
Apprentice: 2,001-3,000 work hours	$35.01	$45.83	$56.65
Apprentice: 3,001-4,000 work hours	$37.19	$49.10	$61.01

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$49.19
10th hour	$49.19
Beyond 10 hours	$49.19
Saturday	
First 8 hours	$49.19
9th hour	$49.19
10th hour	$49.19
Beyond 10 hours	$49.19
Sunday/Holiday	$60.09

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Laborer -Underground Open Cut - Class II - Z5	**Laborer -Underground Open Cut, Class II**	**05/10/2024**

Classification Description: Mortar and material mixer, concrete form man, signal man, well point man, manhole, headwall and catch basin builder, guard rail builders, headwall, seawall, breakwall, dock builder and fence erector.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$36.19	$47.58	$58.97
Apprentice: 0-1,000 work hours	$30.82	$39.58	$48.33
Apprentice: 1,001-2,000 work hours	$31.79	$41.03	$50.27
Apprentice: 2,001-3,000 work hours	$32.77	$42.50	$52.23
Apprentice: 3,001-4,000 work hours	$34.72	$45.42	$56.13

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$46.13
10th hour	$46.13
Beyond 10 hours	$46.13
Saturday	
First 8 hours	$46.13
9th hour	$46.13
10th hour	$46.13
Beyond 10 hours	$46.13
Sunday/Holiday	$56.07

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Laborer -Underground Open Cut - Class III - Z2	**Laborer -Underground Open Cut, Class III**	**05/10/2024**

Classification Description: Air, gasoline and electric tool operator, vibrator operator, drillers, pump man, tar kettle operator, bracers, rodder, reinforced steel or mesh man (e.g. wire mesh, steel mats, dowel bars, etc.), cement finisher, welder, pipe jacking and boring man, wagon

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$38.40	$50.92	$63.43
Apprentice: 0-1,000 work hours	$32.92	$42.70	$52.47
Apprentice: 1,001-2,000 work hours	$34.01	$44.33	$54.65
Apprentice: 2,001-3,000 work hours	$35.11	$45.98	$56.85
Apprentice: 3,001-4,000 work hours	$37.30	$49.26	$61.23

Overtime Provisions	
Over 8-hour day/40-hour week	
9th hour	$49.37
10th hour	$49.37
Beyond 10 hours	$49.37
Saturday	
First 8 hours	$49.37
9th hour	$49.37
10th hour	$49.37
Beyond 10 hours	$49.37
Sunday/Holiday	$60.33

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Laborer -Underground Open Cut - Class III - Z5	**Laborer -Underground Open Cut, Class III**	**05/10/2024**

Classification Description: Air, gasoline and electric tool operator, vibrator operator, drillers, pump man, tar kettle operator, bracers, rodder, reinforced steel or mesh man (e.g. wire mesh, steel mats, dowel bars, etc.), cement finisher, welder, pipe jacking and boring man, wagon

Wage Rates

	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$36.32	$47.78	$59.23
Apprentice: 0-1,000 work hours	$30.92	$39.72	$48.53
Apprentice: 1,001-2,000 work hours	$31.90	$41.20	$50.49
Apprentice: 2,001-3,000 work hours	$32.88	$42.66	$52.45
Apprentice: 3,001-4,000 work hours	$34.84	$45.60	$56.37

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$46.33
10th hour	$46.33
Beyond 10 hours	$46.33
Saturday	
First 8 hours	$46.33
9th hour	$46.33
10th hour	$46.33
Beyond 10 hours	$46.33
Sunday/Holiday	$56.33

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Laborer -Underground Open Cut - Class IV - Z2	**Laborer -Underground Open Cut, Class IV**	**05/10/2024**

Classification Description: Trench or excavating grade man.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$38.47	$51.02	$63.57
Apprentice: 0-1,000 work hours	$32.97	$42.77	$52.57
Apprentice: 1,001-2,000 work hours	$34.07	$44.42	$54.77
Apprentice: 2,001-3,000 work hours	$35.17	$46.07	$56.97
Apprentice: 3,001-4,000 work hours	$37.37	$49.37	$61.37

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$49.47
10th hour	$49.47
Beyond 10 hours	$49.47
Saturday	
First 8 hours	$49.47
9th hour	$49.47
10th hour	$49.47
Beyond 10 hours	$49.47
Sunday/Holiday	$60.47

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Laborer -Underground Open Cut - Class IV - Z5	**Laborer -Underground Open Cut, Class IV**	**05/10/2024**

Classification Description: Trench or excavating grade man.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$36.37	$47.85	$59.33
Apprentice: 0-1,000 work hours	$30.95	$39.77	$48.59
Apprentice: 1,001-2,000 work hours	$31.94	$41.26	$50.57
Apprentice: 2,001-3,000 work hours	$32.92	$42.72	$52.53
Apprentice: 3,001-4,000 work hours	$34.89	$45.68	$56.47

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$46.40
10th hour	$46.40
Beyond 10 hours	$46.40
Saturday	
First 8 hours	$46.40
9th hour	$46.40
10th hour	$46.40
Beyond 10 hours	$46.40
Sunday/Holiday	$56.43

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Laborer -Underground Open Cut - Class V - Z2	**Laborer -Underground Open Cut, Class V**	**05/10/2024**

Classification Description: Pipe Layer (including crock, metal pipe, multiplate or other conduits)

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$38.62	$51.25	$63.87
Apprentice: 0-1,000 work hours	$33.08	$42.94	$52.79
Apprentice: 1,001-2,000 work hours	$34.19	$44.60	$55.01
Apprentice: 2,001-3,000 work hours	$35.30	$46.26	$57.23
Apprentice: 3,001-4,000 work hours	$37.51	$49.58	$61.65

Overtime Provisions	
Over 8-hour day/40-hour week	
9th hour	$49.70
10th hour	$49.70
Beyond 10 hours	$49.70
Saturday	
First 8 hours	$49.70
9th hour	$49.70
10th hour	$49.70
Beyond 10 hours	$49.70
Sunday/Holiday	$60.77

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Laborer -Underground Open Cut - Class V - Z5	**Laborer -Underground Open Cut, Class V**	**05/10/2024**

Classification Description: Pipe Layer (including crock, metal pipe, multiplate or other conduits)

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$36.42	$47.93	$59.43
Apprentice: 0-1,000 work hours	$30.99	$39.83	$48.67
Apprentice: 1,001-2,000 work hours	$31.98	$41.32	$50.65
Apprentice: 2,001-3,000 work hours	$32.96	$42.78	$52.61
Apprentice: 3,001-4,000 work hours	$34.93	$45.74	$56.55

Overtime Provisions	
Over 8-hour day/40-hour week	
9th hour	$46.48
10th hour	$46.48
Beyond 10 hours	$46.48
Saturday	
First 8 hours	$46.48
9th hour	$46.48
10th hour	$46.48
Beyond 10 hours	$46.48
Sunday/Holiday	$56.53

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Laborer -Underground Open Cut - Class VI - Z2	**Laborer -Underground Open Cut, Class VI**	**05/10/2024**

Classification Description: Grouting man, top man assistant, audio visual television operations and all other operations in connection with closed circuit television inspection, pipe cleaning and pipe relining work and the installation and repair of water service pipe and appurtenan

Wage Rates

	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$35.92	$47.20	$58.47
Apprentice: 0-1,000 work hours	$31.06	$39.90	$48.75
Apprentice: 1,001-2,000 work hours	$32.03	$41.36	$50.69
Apprentice: 2,001-3,000 work hours	$33.00	$42.82	$52.63
Apprentice: 3,001-4,000 work hours	$34.95	$45.74	$56.53

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$45.65
10th hour	$45.65
Beyond 10 hours	$45.65
Saturday	
First 8 hours	$45.65
9th hour	$45.65
10th hour	$45.65
Beyond 10 hours	$45.65
Sunday/Holiday	$55.37

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Laborer -Underground Open Cut - Class VI - Z5	**Laborer -Underground Open Cut, Class VI**	**05/10/2024**

Classification Description: Grouting man, top man assistant, audio visual television operations and all other operations in connection with closed circuit television inspection, pipe cleaning and pipe relining work & the installation and repair of water service pipe and appurtenance

Wage Rates

	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$33.80	$44.00	$54.19
Apprentice: 0-1,000 work hours	$29.03	$36.89	$44.75
Apprentice: 1,001-2,000 work hours	$29.88	$38.16	$46.45
Apprentice: 2,001-3,000 work hours	$30.74	$39.46	$48.17
Apprentice: 3,001-4,000 work hours	$32.45	$42.02	$51.59

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$42.55
10th hour	$42.55
Beyond 10 hours	$42.55
Saturday	
First 8 hours	$42.55
9th hour	$42.55
10th hour	$42.55
Beyond 10 hours	$42.55
Sunday/Holiday	$51.29

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Laborer -Underground Open Cut - Class VII - Z2	**Laborer -Underground Open Cut, Class VII**	**05/10/2024**

Classification Description: Restoration laborer, seeding, sodding, planting, cutting, mulching and topsoil grading and the restoration of property such as replacing mail boxes, wood chips, planter boxes, flagstones etc.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$32.56	$42.16	$51.75
Apprentice: 0-1,000 work hours	$28.54	$36.12	$43.71
Apprentice: 1,001-2,000 work hours	$29.34	$37.32	$45.31
Apprentice: 2,001-3,000 work hours	$30.15	$38.54	$46.93
Apprentice: 3,001-4,000 work hours	$31.76	$40.96	$50.15

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$40.61
10th hour	$40.61
Beyond 10 hours	$40.61
Saturday	
First 8 hours	$40.61
9th hour	$40.61
10th hour	$40.61
Beyond 10 hours	$40.61
Sunday/Holiday	$48.65

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Laborer -Underground Open Cut - Class VII - Z5	**Laborer -Underground Open Cut, Class VII**	**05/10/2024**

Classification Description: Restoration laborer, seeding, sodding, planting, cutting, mulching and topsoil grading and the restoration of property such as replacing mail boxes, wood chips, planter boxes, flagstones etc.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$31.91	$41.16	$50.41
Apprentice: 0-1,000 work hours	$27.61	$34.76	$41.91
Apprentice: 1,001-2,000 work hours	$28.37	$35.90	$43.43
Apprentice: 2,001-3,000 work hours	$29.13	$37.04	$44.95
Apprentice: 3,001-4,000 work hours	$30.65	$39.32	$47.99

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$39.71
10th hour	$39.71
Beyond 10 hours	$39.71
Saturday	
First 8 hours	$39.71
9th hour	$39.71
10th hour	$39.71
Beyond 10 hours	$39.71
Sunday/Holiday	$47.51

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Laborer - Landscape - Class A - Z2	**Landscape Laborer**	**05/10/2024**

Classification Description: Class A: Irrigation Foremen and Construction Foremen.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$32.40	$42.96	$53.48

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$42.93
10th hour	$42.93
Beyond 10 hours	$42.93
Saturday	
First 8 hours	$42.93
9th hour	$42.93
10th hour	$42.93
Beyond 10 hours	$42.93
Sunday/Holiday	$53.45

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Laborer - Landscape - Class A - Z2	**Landscape Laborer**	**05/10/2024**

Classification Description: Class A: Irrigation Foremen and Construction Foremen.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$34.62	$46.26	$57.89

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$46.26
10th hour	$46.26
Beyond 10 hours	$46.26
Saturday	
First 8 hours	$46.26
9th hour	$46.26
10th hour	$46.26
Beyond 10 hours	$46.26
Sunday/Holiday	$57.89

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Class I	**Operating Engineer**	**05/10/2024**

Classification Description: Class I - diver/wet tender, engineer, blaster, leverman

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$82.82	$107.82	$132.82

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$32.82
10th hour	$107.82
Beyond 10 hours	$107.82
Saturday	
First 8 hours	$107.82
9th hour	$107.82
10th hour	$107.82
Beyond 10 hours	$107.82
Sunday/Holiday	$132.82

Four 10-hour days allowed? - No

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Class II (A)	**Operating Engineer**	**05/10/2024**

Classification Description: Class II (A) - Crane/backhoe operator, material handler, all self-propelled drill rigs, mechanic/welder, hydraulic dredge, diver tender

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$81.32	$105.57	$129.82

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$32.82
10th hour	$105.57
Beyond 10 hours	$105.57
Saturday	
First 8 hours	$105.57
9th hour	$105.57
10th hour	$105.57
Beyond 10 hours	$105.57
Sunday/Holiday	$129.82

Four 10-hour days allowed? - No

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Class II (B)	**Operating Engineer**	**05/10/2024**

Classification Description: Class II (B) - friction, lattice boom, tug or tug boat operator

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$84.32	$110.07	$135.82

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$110.07
10th hour	$110.07
Beyond 10 hours	$110.07
Saturday	
First 8 hours	$110.07
9th hour	$110.07
10th hour	$110.07
Beyond 10 hours	$110.07
Sunday/Holiday	$135.82

Four 10-hour days allowed? - No

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Class III	**Operating Engineer**	**05/10/2024**

Classification Description: Class III - Deck equip. operator, maintenance of crane or excavator, tug/launch operator, loader/dozer on barge/deck machinery, truck-able tug, lead surveyor, ROV operator, AB deckhand, welder

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$76.82	$98.82	$120.82

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$98.82
10th hour	$98.82
Beyond 10 hours	$98.82
Saturday	
First 8 hours	$98.82
9th hour	$98.82
10th hour	$98.82
Beyond 10 hours	$98.82
Sunday/Holiday	$120.82

Four 10-hour days allowed? - No

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Class IV	**Operating Engineer**	**05/10/2024**

Classification Description: Class IV - Deck equipment operator, machineryman/fireman, off road trucks, deck hand, tug engineer, assistant tug operator, blaster helper, deck hand, jet machine, subsea plow, trencher, tug engineer

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$72.32	$92.07	$111.82

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$32.82
10th hour	$92.07
Beyond 10 hours	$92.07
Saturday	
First 8 hours	$92.07
9th hour	$92.07
10th hour	$92.07
Beyond 10 hours	$92.07
Sunday/Holiday	$111.82

Four 10-hour days allowed? - No

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Journeyman - Class I	**Operating Engineer**	**05/17/2024**

Classification Description: Journeyman - Class I
Asphalt Transfer Machine (Shuttle Buggy)
Concrete/Asphalt Pavers
Excavators Installing Utilities over 20 feet in depth
GPS or Electronic Grade Equipment (employee must be able to set up and use it on machine themselves, and employee can install it and calibrate it on their own)
Hydraulic/Lattice Lifting Cranes over 25 tons
Mechanic
**On bridge construction projects when a Class I Crane Operator is erecting structural components as part of a composite crew with Structural Ironworkers, the Base Rate and Vacation and Holiday pay shall be at the Crane Operator rate as set forth in the current agreement between the Union and the Great Lakes Fabricators and Erectors Association.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$69.17	$88.16	$107.14
Apprentice: Apprentice Engineer 0-6 months	$56.03	$71.32	$86.60
Apprentice: Apprentice Engineer 13-18	$60.40	$77.87	$95.34
Apprentice: Apprentice Engineer 19-24 months	$62.21	$80.59	$98.96
Apprentice: Apprentice Engineer 25-30 months	$64.76	$84.42	$104.06
Apprentice: Apprentice Engineer 31-36 months	$67.08	$87.90	$108.70
Apprentice: Apprentice Engineer 7-12 months	$58.21	$74.58	$90.96

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$88.16
10th hour	$88.16
Beyond 10 hours	$88.16
Saturday	
First 8 hours	$88.16
9th hour	$88.16
10th hour	$88.16
Beyond 10 hours	$88.16
Sunday/Holiday	$107.14

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

In the event work is unable to be performed on account of weather, Monday through Thursday, the Friday work may be scheduled for ten (10) hours, at straight time, as a make-up day.

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Journeyman - Class II	**Operating Engineer**	**05/17/2024**

Classification Description: Journeyman - Class II
Air Compressors in Manifold with throttle valve +750 cfm
Asphalt Bituminous Compactor / Roller
Asphalt Planner self-propelled
Asphalt Plant on project including operating from on site or operating remotely
Asphalt Screed or Screw (per Employer Past Practice)
Auto Grade or similar type machine
Backhoe on Farm Type Tractor 45 H.P. & over
Ballast Jack Tamper
Ballast Regulator (R.R.)
Batch Plant (concrete-central mix)
Bituminous Paver (self-propelled)
Blade Grader
Bull Dozer
Caisson Drilling Machine
Cherry Picker – 15 ton or over
Chip Spreader
Concrete Batch or Drum Mix Plant on project including operating from on site or operating remotely
Concrete Belt Placer (Formless)
Concrete Cure / Finish Machine (burlap, tinning or grooving)
Concrete Mixer 21 cu. Ft. Or over
Concrete Pump (Truck Mount)
Concrete Pump (3 inch and over)
Concrete / Asphalt Saw Power Driven (3 yrs experience or more)
Conveyor Loader (Euclid type)
Core Drilling Machine
Curb-Barrier Wall Machine CMI type
Directional Drill / Boring Machine
Dredge Engineer
Dredge
Drilling Machine on which the drill is an integral part
Earth Mover – rubber tired – (paddle wheel, Cat 619, 631, TS-24 or similar type)
Earth Mover rubber tired-tandem

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$68.02	$86.51	$104.99

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$86.50
10th hour	$86.50
Beyond 10 hours	$86.50
Saturday	
First 8 hours	$86.50
9th hour	$86.50
10th hour	$86.50
Beyond 10 hours	$86.50
Sunday/Holiday	$104.99

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Journeyman - Class III	**Operating Engineer**	**05/17/2024**

Classification Description: Journeyman - Class III
Air Compressor with Throttle Valve or Clever Brooks type comb.
Backhoe less than 1 cyd. Including Farm Type
Bituminous Plant Engineer
Chemical / Grout Machine 21 cft. Or larger
Cherry Picker under 15 ton
Chip Spreader (self-propelled)
Crusher
Concrete Barrier Moving Machine (per Employer Past Practice)
Concrete Pump
Concrete Spreader--Power Driven
End Loader under 1-1/2 cu yd.
Grease Truck
Gunite Machine
Lowboy (per Employer Past Practice)
Mesh or Steel Placer (motorized)
Multiple Tamping Machine (R.R.)
Refrigerating Machine--Freezing operation
Roller-Waterbound Macadam, Bituminous Macadam, Brick
Ross Carrier
Self-propelled convey transfer devise.
Side Boom Tractor (smaller than D-4 type or equivalent)
Sweeper (Wayne type and similar equipment)
Macadam, Brick Surface
Trench Machine 24" and under
Tube Float (motorized)

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$61.29	$76.85	$92.41

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$30.17
10th hour	$76.85
Beyond 10 hours	$76.85
Saturday	
First 8 hours	$76.85
9th hour	$76.85
10th hour	$76.85
Beyond 10 hours	$76.85
Sunday/Holiday	$92.41

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Journeyman - Class IV	**Operating Engineer**	**05/17/2024**

Classification Description: Journeyman - Class IV
Air Compressor
All mulching equipment
All Walk Behind or Remote Control Powered Equipment (autonomous equipment)
Assistant to Engineer Automatic Dry Batch Plant Belt Spreader (motorized including transfer device by remote, wireless or cable)
Bituminous Distributor
Bituminous Patching Machine
Broom & Belt Machine
Chair Cart (self-propelled)
Concrete Pumps (under 3")
Concrete Breaker
Curb Machine
Curing Equipment (self-propelled)
Deck Hand
Digger Post Hole (power-driven)
Dump Truck
End Dumps (per Employer Past Practice)
End Loader (under ¾ yard capacity)
Farm Tractor-incl. farm tractor with all attachments except backhoe and incl. highlift end loaders of 1 cu. Yard capacity or less
Fireman (on boiler)
Fork Lift – under 10 ton
Form Grader (if motorized)
Georgia Buggy – Power wheel barrel ¾ yard with a seat
Generator (15 kw or greater)
Greaser Helper
Guard Post Driver (power driven)

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$60.73	$76.05	$91.36

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$76.05
10th hour	$76.05
Beyond 10 hours	$76.05
Saturday	
First 8 hours	$76.05
9th hour	$76.05
10th hour	$76.05
Beyond 10 hours	$76.05
Sunday/Holiday	$91.36

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Journeyman - Class V	**Operating Engineer**	**05/17/2024**

Classification Description: Journeyman - Class V
Concrete/Asphalt Saw - Power Driven (Less than 3 yrs. experience)
Density/Soil Engineer
Directional Boring Utility Man
Discharge Pumps 4" or less (1-4 units)
Dumper (Wagon, Truck, Etc.)-½ yard or less
Fence Erector/Power Driven
Light Plants (1 to 5 units)
Paving Batch Truck Dumper
Roto Mill Utility Grade Control
Sign Installer/Sign Installer with Remote Control Operated Equipment
Top Man, And Railroad Track and Trestle Engineer
Utility Engineer
Water Blasting Utility Engineer
1 to 4 pcs. of minor equip.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$42.35	$55.33	$68.31

Overtime Provisions	
Over 8-hour day/40-hour week	
9th hour	$55.33
10th hour	$55.33
Beyond 10 hours	$55.33
Saturday	
First 8 hours	$55.33
9th hour	$55.33
10th hour	$55.33
Beyond 10 hours	$55.33
Sunday/Holiday	$68.31

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Marine Construction and Dredging Class I	**Operating Engineer - Marine Construction**	**08/14/2024**

Classification Description: Craft Foreman, Diver/Wet Tender, Engineer, Engineer (hydraulic dredge), Blaster

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$84.30	$110.05	$135.80

Overtime Provisions	
Over 8-hour day/40-hour week	
9th hour	$110.05
10th hour	$110.05
Beyond 10 hours	$110.05
Saturday	
First 8 hours	$110.05
9th hour	$110.05
10th hour	$110.05
Beyond 10 hours	$110.05
Sunday/Holiday	$135.80

Four 10-hour days allowed? - No

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Marine Construction and Dredging Class II A	**Operating Engineer - Marine Construction**	**08/14/2024**

Classification Description: Crane, Backhoe, Material Handler, All Self-Propelled Drill Rigs, Mechanic/Welder, Asst. Engineer (hydraulic dredge), Leverman (hydraulic dredge), Diver Tender.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$82.80	$107.80	$132.80

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$107.80
10th hour	$107.80
Beyond 10 hours	$107.80
Saturday	
First 8 hours	$107.80
9th hour	$107.80
10th hour	$107.80
Beyond 10 hours	$107.80
Sunday/Holiday	$132.80

Four 10-hour days allowed? - No

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Marine Construction and Dredging Class II B	**Operating Engineer - Marine Construction**	**08/14/2024**

Classification Description: Friction, Lattice Boom, or Crane License Cert., Endorse Tug or Tow Boat Operator

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$85.80	$112.30	$138.80

Overtime Provisions	
Over 8-hour day/40-hour week	
9th hour	$112.30
10th hour	$112.30
Beyond 10 hours	$112.30
Saturday	
First 8 hours	$112.30
9th hour	$112.30
10th hour	$112.30
Beyond 10 hours	$112.30
Sunday/Holiday	$138.80

Four 10-hour days allowed? - No

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Marine Construction and Dredging Class III	**Operating Engineer - Marine Construction**	**08/14/2024**

Classification Description: Deck Equipment Operator, (Machineryman), Maintenance of Crane, Tug/Launch Operator, Loader/Dozer on Barge, Deck Machinery, etc.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$78.30	$101.05	$123.80

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$101.05
10th hour	$101.05
Beyond 10 hours	$101.05
Saturday	
First 8 hours	$101.05
9th hour	$101.05
10th hour	$101.05
Beyond 10 hours	$101.05
Sunday/Holiday	$123.80

Four 10-hour days allowed? - No

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Marine Construction and Dredging Class IV	**Operating Engineer - Marine Construction**	**08/14/2024**

Classification Description: Deck Equipment Operator, Machineryman/Fireman, (4 equipment units or more), Off Road Trucks, Deck
Hand, Tug/Engineer, Crane Maint. (50 ton and under/Backhoe 115,000 lbs. or less), Asst. Tug Operator, Blaster Helper.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$73.35	$93.85	$114.35

Overtime Provisions	
Over 8-hour day/40-hour week	
9th hour	$93.85
10th hour	$93.85
Beyond 10 hours	$93.85
Saturday	
First 8 hours	$93.85
9th hour	$93.85
10th hour	$93.85
Beyond 10 hours	$93.85
Sunday/Holiday	$114.35

Four 10-hour days allowed? - No

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Operating Engineer General Construction & Underground - 120GU	**Operating Engineer General Construction & Underground**	**05/10/2024**

Classification Description: Crane 120' boom & jib

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$66.45	$87.16	$107.86

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$84.45
10th hour	$84.45
Beyond 10 hours	$84.45
Saturday	
First 8 hours	$84.45
9th hour	$84.45
10th hour	$84.45
Beyond 10 hours	$84.45
Sunday/Holiday	$102.46

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

If Friday is scheduled as a makeup day, a minimum of eight (8) hours will be scheduled and worked, weather permitting. Straight-time is not to exceed ten (10) hours a day and forty (40) hours per week.

Overtime Rate Comment: Double time after 12 hours Mon-Sat

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Operating Engineer General Construction & Underground - 140GU	**Operating Engineer General Construction & Underground**	**05/10/2024**

Classification Description: Crane 140' boom & jib

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$67.27	$88.38	$109.50

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$85.64
10th hour	$85.64
Beyond 10 hours	$85.64
Saturday	
First 8 hours	$85.64
9th hour	$85.64
10th hour	$85.64
Beyond 10 hours	$85.64
Sunday/Holiday	$104.00

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

If Friday is scheduled as a makeup day, a minimum of eight (8) hours will be scheduled and worked, weather permitting. Straight-time is not to exceed ten (10) hours a day and forty (40) hours per week.

Overtime Rate Comment: Double time after 12 hours Mon-Sat

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Operating Engineer General Construction & Underground - 300	**Operating Engineer General Construction & Underground**	**05/10/2024**

Classification Description: Crane with 300' or longer main boom & jib

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$69.07	$91.09	$113.10

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$88.22
10th hour	$88.22
Beyond 10 hours	$88.22
Saturday	
First 8 hours	$88.22
9th hour	$88.22
10th hour	$88.22
Beyond 10 hours	$88.22
Sunday/Holiday	$107.36

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

If Friday is scheduled as a makeup day, a minimum of eight (8) hours will be scheduled and worked, weather permitting. Straight-time is not to exceed ten (10) hours a day and forty (40) hours per week.

Overtime Rate Comment: Double time after 12 hours Mon-Sat

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Operating Engineer General Construction & Underground - 400GU	**Operating Engineer General Construction & Underground**	**05/10/2024**

Classification Description: Crane with 400' or longer main boom & jib

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$70.57	$93.34	$116.10

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$90.37
10th hour	$90.37
Beyond 10 hours	$90.37
Saturday	
First 8 hours	$90.37
9th hour	$90.37
10th hour	$90.37
Beyond 10 hours	$90.37
Sunday/Holiday	$110.16

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

Due to weather conditions, Holiday or other conditions beyond the control of the Employer, then Friday may, at the option of the Employer, be worked as a makeup day at the straight-time rate.

Overtime Rate Comment: Double time after 12 hours Mon-Sat

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Operating Engineer General Construction & Underground - AGU	**Operating Engineer General Construction & Underground**	**05/10/2024**

Classification Description: Class A- Regular equipment operator, crane, dozer, front end loader, pumpcrete, squeeze crete, job mechanic, welder, concrete pump, excavator, milling & pulverizing machines, & scraper (self-propelled & tractor drawn).

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$63.15	$82.21	$101.26
Apprentice: Apprentice Engineer 0 - 999 hrs.	$50.47	$63.81	$77.15
Apprentice: Apprentice Engineer 1000 - 1999 hrs.	$52.36	$66.65	$80.93
Apprentice: Apprentice Engineer 2000 - 2999 hrs.	$54.29	$69.54	$84.79
Apprentice: Apprentice Engineer 3000-3999 hrs.	$56.20	$72.41	$88.61
Apprentice: Apprentice Engineer 31 - 36 Months	$60.00	$78.11	$96.21
Apprentice: Apprentice Engineer 4000-4999 hrs.	$58.10	$75.26	$92.41

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$79.72
10th hour	$79.72
Beyond 10 hours	$79.72
Saturday	
First 8 hours	$79.72
9th hour	$79.72
10th hour	$79.72
Beyond 10 hours	$79.72
Sunday/Holiday	$96.30

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

If Friday is scheduled as a makeup day, a minimum of eight (8) hours will be scheduled and worked, weather permitting. Straight-time is not to exceed ten (10) hours a day and forty (40) hours per week.

Base Rate Comment: Double time after 12 hours Mon-Sat

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Operating Engineer General Construction & Underground - BGU	**Operating Engineer General Construction & Underground**	**05/10/2024**

Classification Description: Class B- Air-Trac Drill, boom truck (non-swing), concrete mixers, material hoist and tugger, pumps 6" and over, beltcrete, sweeping machine, trencher, head grease man, winches, well points and freeze systems

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$59.90	$77.33	$94.76

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$75.06
10th hour	$75.06
Beyond 10 hours	$75.06
Saturday	
First 8 hours	$75.06
9th hour	$75.06
10th hour	$75.06
Beyond 10 hours	$75.06
Sunday/Holiday	$90.22

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

If Friday is scheduled as a makeup day, a minimum of eight (8) hours will be scheduled and worked, weather permitting. Straight-time is not to exceed ten (10) hours a day and forty (40) hours per week.

Base Rate Comment: Double time after 12 hours Mon-Sat

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Operating Engineer General Construction & Underground - CGU	**Operating Engineer General Construction & Underground**	**05/10/2024**

Classification Description: Class C- Fork Truck, air compressor, conveyer, concrete saw, farm tractor(without attachments), generator, guard post driver, mulching machines, pumps under 6", welding machines, grease man

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$57.72	$74.07	$90.40

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$72.37
10th hour	$72.37
Beyond 10 hours	$72.37
Saturday	
First 8 hours	$72.37
9th hour	$72.37
10th hour	$72.37
Beyond 10 hours	$72.37
Sunday/Holiday	$87.01

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

If Friday is scheduled as a makeup day, a minimum of eight (8) hours will be scheduled and worked, weather permitting. Straight-time is not to exceed ten (10) hours a day and forty (40) hours per week.

Base Rate Comment: Double time after 12 hours Mon-Sat

Overtime Rate Comment: Double time after 12 hours Mon-Sat

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Operating Engineer General Construction & Underground - DGU	**Operating Engineer General Construction & Underground**	**05/10/2024**

Classification Description: Class D- Oiler, fireman, heater operator, brock concrete breaker, elevators (other than passenger), end dump & skid steer

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$57.78	$74.15	$90.52

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$72.02
10th hour	$72.02
Beyond 10 hours	$72.02
Saturday	
First 8 hours	$72.02
9th hour	$72.02
10th hour	$72.02
Beyond 10 hours	$72.02
Sunday/Holiday	$86.25

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

If Friday is scheduled as a makeup day, a minimum of eight (8) hours will be scheduled and worked, weather permitting. Straight-time is not to exceed ten (10) hours a day and forty (40) hours per week.

Base Rate Comment: Double time after 12 hours Mon-Sat

Overtime Rate Comment: Double time after 12 hours Mon-Sat

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Operating Engineer General Construction & Underground - EGU	**Operating Engineer General Construction & Underground**	**05/10/2024**

Classification Description: Class E - Fire watch for work performed by a mamber of the Operating Engineers, fueling of all poer-driven equipment when operatoed by a member of the Operating Engineers, ground man, hole watch for work performed by a member of the Operating Engineers, l

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$46.05	$62.78	$79.51

Overtime Provisions	
Over 8-hour day/40-hour week	
9th hour	$60.60
10th hour	$60.60
Beyond 10 hours	$60.60
Saturday	
First 8 hours	$60.60
9th hour	$60.60
10th hour	$60.60
Beyond 10 hours	$60.60
Sunday/Holiday	$75.15

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

If Friday is scheduled as a makeup day, a minimum of eight (8) hours will be scheduled and worked, weather permitting. Straight-time is not to exceed ten (10) hours a day and forty (40) hours per week.

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Operating Engineer General Construction & Underground - GU	**Operating Engineer General Construction & Underground**	**05/10/2024**

Classification Description: Crane 220' boom & jib

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$67.56	$88.82	$110.08

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$86.05
10th hour	$86.05
Beyond 10 hours	$86.05
Saturday	
First 8 hours	$86.05
9th hour	$86.05
10th hour	$86.05
Beyond 10 hours	$86.05
Sunday/Holiday	$104.54

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

If Friday is scheduled as a makeup day, a minimum of eight (8) hours will be scheduled and worked, weather permitting. Straight-time is not to exceed ten (10) hours a day and forty (40) hours per week.

Overtime Rate Comment: Double time after 12 hours Mon-Sat

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Operating Engineer General Construction & Underground - MGU	**Operating Engineer General Construction & Underground**	**05/10/2024**

Classification Description: Mechanic w/ truck & tools

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$67.45	$81.99	$101.01

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$85.89
10th hour	$85.89
Beyond 10 hours	$85.89
Saturday	
First 8 hours	$85.89
9th hour	$85.89
10th hour	$85.89
Beyond 10 hours	$85.89
Sunday/Holiday	$104.33

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

If Friday is scheduled as a makeup day, a minimum of eight (8) hours will be scheduled and worked, weather permitting. Straight-time is not to exceed ten (10) hours a day and forty (40) hours per week.

Overtime Rate Comment: Double time after 12 hours Mon-Sat

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Operating Engineer Steel Work - 120S	**Operating Engineer Steel Work**	**05/10/2024**

Classification Description: Crane 120' boom & jib

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$72.46	$96.15	$119.83

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$93.06
10th hour	$93.06
Beyond 10 hours	$93.06
Saturday	
First 8 hours	$93.06
9th hour	$93.06
10th hour	$93.06
Beyond 10 hours	$93.06
Sunday/Holiday	$113.65

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

If Friday is scheduled as a makeup day, a minimum of eight (8) hours will be scheduled and worked, weather permitting. Straight-time is not to exceed ten (10) hours a day and forty (40) hours per week.

Overtime Rate Comment: Double time after 12 hours Mon-Sat

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Operating Engineer Steel Work - 140S	**Operating Engineer Steel Work**	**05/10/2024**

Classification Description: Crane 140' boom & jib

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$72.76	$96.60	$120.43

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$93.49
10th hour	$93.49
Beyond 10 hours	$93.49
Saturday	
First 8 hours	$93.49
9th hour	$93.49
10th hour	$93.49
Beyond 10 hours	$93.49
Sunday/Holiday	$114.22

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

If Friday is scheduled as a makeup day, a minimum of eight (8) hours will be scheduled and worked, weather permitting. Straight-time is not to exceed ten (10) hours a day and forty (40) hours per week.

Overtime Rate Comment: Double time after 12 hours Mon-Sat

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Operating Engineer Steel Work - 220S	**Operating Engineer Steel Work**	**05/10/2024**

Classification Description: Crane 220' boom & jib

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$73.35	$97.49	$121.61

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$94.34
10th hour	$94.34
Beyond 10 hours	$94.34
Saturday	
First 8 hours	$94.34
9th hour	$94.34
10th hour	$94.34
Beyond 10 hours	$94.34
Sunday/Holiday	$115.32

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

If Friday is scheduled as a makeup day, a minimum of eight (8) hours will be scheduled and worked, weather permitting. Straight-time is not to exceed ten (10) hours a day and forty (40) hours per week.

Overtime Rate Comment: Double time after 12 hours Mon-Sat

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Operating Engineer Steel Work - 300S	**Operating Engineer Steel Work**	**05/10/2024**

Classification Description: Crane with 300' boom & jib

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$75.70	$100.86	$126.16

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$97.70
10th hour	$97.70
Beyond 10 hours	$97.70
Saturday	
First 8 hours	$97.70
9th hour	$97.70
10th hour	$97.70
Beyond 10 hours	$97.70
Sunday/Holiday	$119.71

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

If Friday is scheduled as a makeup day, a minimum of eight (8) hours will be scheduled and worked, weather permitting. Straight-time is not to exceed ten (10) hours a day and forty (40) hours per week.

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Operating Engineer Steel Work - 400S	**Operating Engineer Steel Work**	**05/10/2024**

Classification Description: Crane with 400' boom & jib

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$77.48	$103.68	$129.87

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$100.26
10th hour	$100.26
Beyond 10 hours	$100.26
Saturday	
First 8 hours	$100.26
9th hour	$100.26
10th hour	$100.26
Beyond 10 hours	$100.26
Sunday/Holiday	$123.04

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

If Friday is scheduled as a makeup day, a minimum of eight (8) hours will be scheduled and worked, weather permitting. Straight-time is not to exceed ten (10) hours a day and forty (40) hours per week.

Overtime Rate Comment: Double time after 12 hours Mon-Sat

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Operating Engineer Steel Work - CWS	**Operating Engineer Steel Work**	**05/10/2024**

Classification Description: Compressor, Welder & Forklift

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$65.99	$86.45	$106.89

Overtime Provisions	
Over 8-hour day/40-hour week	
9th hour	$83.78
10th hour	$83.78
Beyond 10 hours	$83.78
Saturday	
First 8 hours	$83.78
9th hour	$83.78
10th hour	$83.78
Beyond 10 hours	$83.78
Sunday/Holiday	$101.56

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

If Friday is scheduled as a makeup day, a minimum of eight (8) hours will be scheduled and worked, weather permitting. Straight-time is not to exceed ten (10) hours a day and forty (40) hours per week.

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Operating Engineer Steel Work - MS	**Operating Engineer Steel Work**	**05/10/2024**

Classification Description: Mechanic w/ truck & tools

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$71.59	$94.84	$118.09

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$91.81
10th hour	$91.81
Beyond 10 hours	$91.81
Saturday	
First 8 hours	$91.81
9th hour	$91.81
10th hour	$91.81
Beyond 10 hours	$91.81
Sunday/Holiday	$112.03

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

If Friday is scheduled as a makeup day, a minimum of eight (8) hours will be scheduled and worked, weather permitting. Straight-time is not to exceed ten (10) hours a day and forty (40) hours per week.

Overtime Rate Comment: Double time after 12 hours Mon-Sat

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Operating Engineer Steel Work - OFS	**Operating Engineer Steel Work**	**05/15/2024**

Classification Description: Oiler

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$64.45	$84.13	$103.81

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$81.56
10th hour	$81.56
Beyond 10 hours	$81.56
Saturday	
First 8 hours	$81.56
9th hour	$81.56
10th hour	$81.56
Beyond 10 hours	$81.56
Sunday/Holiday	$98.68

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

If Friday is scheduled as a makeup day, a minimum of eight (8) hours will be scheduled and worked, weather permitting. Straight-time is not to exceed ten (10) hours a day and forty (40) hours per week.

Overtime Rate Comment: Double time after 12 hours Mon-Sat

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Operating Engineer Steel Work - OS	**Operating Engineer Steel Work**	**05/10/2024**

Classification Description: Operator

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$64.41	$84.27	$104.13
Apprentice: 1st 6 months	$54.05	$68.73	$83.41
Apprentice: 2nd 6 months	$55.77	$71.31	$86.85
Apprentice: 3rd 6 months	$57.50	$73.90	$90.31
Apprentice: 4th 6 months	$59.23	$76.50	$93.77
Apprentice: 5th 6 months	$60.96	$79.10	$97.23
Apprentice: 6th 6 months	$62.68	$81.68	$100.67

Overtime Provisions	
Over 8-hour day/40-hour week	
9th hour	$81.68
10th hour	$81.68
Beyond 10 hours	$81.68
Saturday	
First 8 hours	$81.68
9th hour	$81.68
10th hour	$81.68
Beyond 10 hours	$81.68
Sunday/Holiday	$98.95

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Operating Engineer Underground-324-Class I	**Operating Engineer Underground**	**10/31/2024**

Classification Description: Class I Equipment-Air Compressors in Manifold with throttle valve Auto Grade or similar type machine
Backfill Tamper Backhoe
Backhoe on Farm Type Tractor 45 H.P. & over. Ballast Regulator (R.R.)
Batch Plant (concrete - central mix) Batch Plant Operator (concrete) Blade Grader Operator
Bulldozer
Caisson Drilling Machine Cherry Picker--15 ton or over Clamshell
Concrete/Asphalt Saw Operator - Power Driven (3yrs experience or more) Concrete Belt Placer (Formless)
Concrete Cure/Finish Machine Operator
Concrete Mixer 21 cu. ft. or over Concrete Paver [two (2) drums or larger] Concrete Pump (Truck Mount)
Concrete Pump (3 inch and over) Concrete Pump with Boom Operator Conveyor Loader Operator (Euclid type) Core Drilling Machine
Crane (Crawler, truck type or pile driving)
Crane or De1Tick with any attachment incl. clamshell, dragline, shovel, backhoe, etc. Directional Drill/Boring Machine Operator
Dozer Dragline
Dredge Engineer Dredge Operator
Drilling Machine on which the drill is an integral part
Earth Mover--rubber tired--(paddle wheel, 619, 631, TS-24 or similar type) Earth Mover rubber tired--tandem ($.50 cents per hr. added for each bowl) Elevating
Grader Operator
End Loader
End Loader Operator (1½ yard capacity and over)
Excavator
Farm type tractor with attached pan
Finishing Machine Operator (Asphalt or Concrete) Foreman/Operating Engineer
Forklift (10 ton or over)
GPS or Electronic Grade on motorized equipment Gradall and similar type machine
Grader
Gravel Processing plant (portable) Operator of Guard Rail Post Driver Haul Units (off-highway) Helicopter crew
Highlift Shovel--1-1 /2 cu. yd. or over Hoisting Engineer
Horizontal Directional Drill Hydraulic Boom Truck
Hydro demolition equipment (water blaster) Hydro Excavator
Loader--Self-propelled (Belt-Chain- Wheel) (Holland or similar type) Locomotive and/or Dinkey Engine
Mechanic Milling Machine
Mucking Machine
Operator of Guard Rail Post Driver Paver Operator - Concrete
Pile Driver--Skid or Crawler Power Shovel
Rock Breaking Plant
Rock Crushing Plant (Portable)
Root Rake, Tractor Mounted Sand Blaster Vacuum Roto Mill
Scraper Self-Propelled or Tractor Drawn

Self-propelled Widener or Gravel distributing shoulder machine Shovel Operator
Side Boom Tractor (type D-4 or equivalent or larger) Slope Paver
Stump Remover Tractor Mounted Surface Heater & Planer
Surface Roller with Dozer Blade
Swinging Boom Truck (over 12-ton capacity) Tilling Machine or (Roto Grader)
Tractor Operator
Tractor--Boom, Winch or Hoe Head Tractor--Push
Tractor with Scoop Tractor Mounted Spreader Tree Mover
Trench Machine (ladder or wheel type) Trencher (over 8ft. digging capacity) Tugboat Operator
Tunnel Boring Machine Tunnel Shield
Vacuum Machine/Truck Operator Well Drilling Machine
Well Drilling Rig
Winch Truck with A Frame

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$68.12	$87.01	$105.89
Apprentice: Apprentice Engineer 0-999 hours	$54.36	$69.57	$84.77
Apprentice: Apprentice Engineer 1,000-1,999 hours	$56.53	$72.83	$89.11
Apprentice: Apprentice Engineer 2,000-2,999 hours	$58.69	$76.06	$93.43
Apprentice: Apprentice Engineer 3,000-3,999 hours	$60.87	$79.33	$97.79
Apprentice: Apprentice Engineer 4,000-4,999 hours	$64.22	$84.36	$104.49
Apprentice: Apprentice Engineer 5,000-5,999 hours	$65.06	$85.62	$106.17

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$87.00
10th hour	$87.00
Beyond 10 hours	$87.00
Saturday	
First 8 hours	$87.00
9th hour	$87.00
10th hour	$87.00
Beyond 10 hours	$87.00
Sunday/Holiday	$105.89

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

In the event work is unable to be performed on account of weather Monday through Thursday, then Friday work may be scheduled for the ten (10) hours, at straight-time.

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Operating Engineer Underground-324-Class II	**Operating Engineer Underground**	**10/31/2024**

Classification Description: Class II Equipment
Air Compressor with Throttle Valve or Clever Brooks type comb. Backhoe (with 3/8-yard bucket or less)
Backhoe on Farm Type Tractor under 45 H.P.
Batch Plant (concrete-dry batch)
Boom Truck (power swing type boom)
Cherry Picker under 15 ton
Crusher
Crusher Operator
Concrete Pump
Concrete Mesh Depressor--independently operated Concrete Spreader--Power Driven
End Dumps when operated by an Operating Engineer End Loader under 1-1/2 cu yd.
Gunite Machine
Head Greaser
Hoist
Lowboy Operator
Mesh or Steel Placer (motorized)
Multiple Tamping Machine (R.R.)
Power Curing Spraying Machine (Formless)
P.C.C. Concrete Belt Placer (form type)
Pull Grader--Power Control
Pump Operator (6" discharge or over, gas diesel, powered or generator of 300 amp or larger)
Refrigerating Machine--Freezing operation Ross Carrier
Self-propelled convey transfer devise. Sheepfoot Roller (self-propelled)
Side Boom Tractor (smaller than D-4 type or equivalent)
Sweeper (Wayne type and similar equipment)
Telescoping laser finish machine (laser screed)
Tractor (pneu-tired, other than backhoe or front-end loader)
Trencher (8ft. digging capacity and smaller)
Trench Machine 24" and under
Tube Float (motorized)
Vac Truck
Washing Plant Operator Welder

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$64.00	$83.38	$102.75

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$80.82
10th hour	$80.82
Beyond 10 hours	$80.82
Saturday	
First 8 hours	$80.82
9th hour	$80.82
10th hour	$80.82
Beyond 10 hours	$80.82
Sunday/Holiday	$97.65

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

In the event work is unable to be performed on account of weather Monday through Thursday, then Friday work may be scheduled for the ten (10) hours, at straight-time.

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Operating Engineer Underground-324-Class III	**Operating Engineer Underground**	**10/31/2024**

Classification Description: Class III Equipment
Air Compressor (600 CFM or larger)
Air Compressor [two (2) or more - less than 600 CFM] Base Paver (Jersey or similar type machine)
Boom Truck (Non swinging, Non powered type boom) Concrete Breaker
Concrete Finishing Machine
Concrete Paver (1 drum - ½ yard or larger) Curb Machine
Elevator (other than passenger) Hoist (one drum)
Jacks - Hydraulic Power-driven multiple jack system Maintenance Man
Mechanics Helper Paving Breaker
Power Broom Self-propelled
Pump [two (2) or more 4 inch up to 6-inch discharge gas or diesel powered-excluding submersible pumps)
Pumpcrete Machine and similar equipment Roller (Earth & Sub-base material) Screening Plant Operator
Spike Machine (R.R.)
Tamper-Multiple Vibrating-Earth and Sub-base material Tractor with Drill--50 H.P. or over Well Point System Wagon Drill (multiple)
Welding Machine or Generator [two (2) or more 300 amp. Or larger -gas or diesel powered]
Well Point System
Widener (Apsco or similar type)

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$63.27	$82.28	$101.29

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$79.78
10th hour	$79.78
Beyond 10 hours	$79.78
Saturday	
First 8 hours	$79.78
9th hour	$79.78
10th hour	$79.78
Beyond 10 hours	$79.78
Sunday/Holiday	$96.29

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

In the event work is unable to be performed on account of weather Monday through Thursday, then Friday work may be scheduled for the ten (10) hours, at straight-time.

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Operating Engineer Underground-324-Class IV	**Operating Engineer Underground**	**10/31/2024**

Classification Description: Class IV Equipment
Air Compressor Operator (over 250 CFM)
All Mulching Equipment
All Walk Behind or Remote-Control Powered Equipment (autonomous equipment)
Assistant to Engineer Automatic Dry Batch Plant
Belt Spreader (motorized including transfer device by remote, wireless or cable) Boiler
Boom or Winch truck operator
Broom & Belt Machine
Chair Cart (Self-propelled) Concrete Pumps (under 3")
Curing Equipment Operator (self-propelled)
Deck Hand
Digger Post Hole (Power-driven)
End loader Operator (under 3/4-yard capacity)
Extend A Boom Forklift--under 10 Ton
Farm Tractor with attachments Finishing Machine (concrete)
Forklift under 10 ton
Form Grader (if motorized)
Georgia Buggy -Power wheel barrel l ¾ yard with a seat Generator (15 kw or greater)
Greaser Helper
Hydraulic pipe pushing machine Mechanical Heater
Mechanics Helper
Outboard or Inboard Motorboat Power Bin Operator
Pug Mill
Pumps - [two (2) or more up to 4 in. discharge if used three (3) hours or more a day - gas or diesel powered- excluding submersible pumps]
Roller (other than asphalt)
Seaman Tiller
Skid Steer
Stump Remover (Grinder)
Sweeper (Wayne type and similar equipment) Tamper
Trencher (service)
Vibratory Compaction Equipment Operator (6 ft. wide or over)
Walk Behind Forklift
Water Wagon

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$62.70	$81.43	$100.15

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$78.96
10th hour	$78.96
Beyond 10 hours	$78.96
Saturday	
First 8 hours	$78.96
9th hour	$78.96
10th hour	$78.96
Beyond 10 hours	$78.96
Sunday/Holiday	$95.22

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

In the event work is unable to be performed on account of weather Monday through Thursday, then Friday work may be scheduled for the ten (10) hours, at straight-time.

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Operating Engineer Underground-324-Class V	**Operating Engineer Underground**	**10/31/2024**

Classification Description: Class V Equipment
Concrete/Asphalt Saw Operator- Power Driven (Less than 3 yrs. experience) Density/Soil Engineer
Directional Boring Utility Man
Discharge Pumps 4" or less (1 - 4 units) Dump Truck Operator
Dumper (Wagon, T1uck, Etc.) - or trade Fence Erector /Power Driven
Guard Post Driver Operator (power driven) Hydra Seeder
Light Plants (1 to 5 units) Oiler Fireman
Operator of minor equip.
Roto Mill Utility Grade Control Operator
Scissor lifts and basket lifts where used for material hoisting
Sign Installer/Sign Installer with Remote Control Operated Equipment
Straw Blower or Brush Mulcher
Top Man, And Railroad Track and Trestle Engineer Utility Engineer
Water Blasting Utility Engineer

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$39.95	$53.88	$67.80

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$52.06
10th hour	$52.06
Beyond 10 hours	$52.06
Saturday	
First 8 hours	$52.06
9th hour	$52.06
10th hour	$52.06
Beyond 10 hours	$52.06
Sunday/Holiday	$64.17

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

In the event work is unable to be performed on account of weather Monday through Thursday, then Friday work may be scheduled for the ten (10) hours, at straight-time.

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Painter	**Painter**	**05/10/2024**

Classification Description: Painter

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$37.65	$49.29	$60.92
Apprentice: 1st 1000 hours	$28.34	$35.32	$42.30
Apprentice: 2nd 1000 hours	$29.51	$37.08	$44.64
Apprentice: 3rd 1000 hours	$30.67	$38.82	$46.96
Apprentice: 4th 1000 hours	$31.83	$40.56	$49.28
Apprentice: 5th 1000 hours	$33.00	$42.31	$51.62
Apprentice: 6th 1000 hours	$34.16	$44.05	$53.94
Apprentice: 7th 1000 hours	$35.32	$45.79	$56.26
Apprentice: 8th 1000 hours	$36.49	$47.54	$58.60

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$49.29
10th hour	$49.29
Beyond 10 hours	$49.29
Saturday	
First 8 hours	$49.29
9th hour	$49.29
10th hour	$49.29
Beyond 10 hours	$49.29
Sunday/Holiday	$60.92

Four 10-hour days allowed? - No

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Painter - PT	**Painter**	**05/10/2024**

Classification Description: Painter

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$50.12	$65.05	$79.98
Apprentice: 1st period	$35.19	$42.41	$49.87
Apprentice: 2nd period	$38.18	$46.89	$55.85
Apprentice: 3rd period	$41.16	$51.36	$61.81
Apprentice: 4th period	$45.64	$58.08	$70.77

Overtime Provisions	
Over 8-hour day/40-hour week	
9th hour	$65.05
10th hour	$65.05
Beyond 10 hours	$65.05
Saturday	
First 8 hours	$65.05
9th hour	$65.05
10th hour	$65.05
Beyond 10 hours	$65.05
Sunday/Holiday	$79.98

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Pipe and Manhole Rehab - 1	**Pipe and Manhole Rehab**	**05/10/2024**

Classification Description: General Laborer for rehab work or normal cleaning and cctv work-top man, scaffold man, CCTV assistant, jetter-vac assistant

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$28.20	$38.20	$48.19

Overtime Provisions	
Over 8-hour day/40-hour week	
9th hour	$38.20
10th hour	$38.20
Beyond 10 hours	$38.20
Saturday	
First 8 hours	$38.20
9th hour	$38.20
10th hour	$38.20
Beyond 10 hours	$38.20
Sunday/Holiday	$38.20

Four 10-hour days allowed? - No

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Pipe and Manhole Rehab - 2	**Pipe and Manhole Rehab**	**05/10/2024**

Classification Description: Tap cutter/CCTV Tech/Grout Equipment Operator: unit driver and operator of CCTV; grouting equipment and tap cutting equipment

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$32.70	$44.95	$57.19

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$44.95
10th hour	$44.95
Beyond 10 hours	$44.95
Saturday	
First 8 hours	$44.95
9th hour	$44.95
10th hour	$44.95
Beyond 10 hours	$44.95
Sunday/Holiday	$44.95

Four 10-hour days allowed? - No

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Pipe and Manhole Rehab - 3	**Pipe and Manhole Rehab**	**05/10/2024**

Classification Description: CCTV Technician/Combo Unit Operator: unit driver and operator of cctv unit or combo unit in connection with normal cleaning and televising work

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$31.45	$43.07	$54.69

Overtime Provisions	
Over 8-hour day/40-hour week	
9th hour	$43.07
10th hour	$43.07
Beyond 10 hours	$43.07
Saturday	
First 8 hours	$43.07
9th hour	$43.07
10th hour	$43.07
Beyond 10 hours	$43.07
Sunday/Holiday	$43.07

Four 10-hour days allowed? - No

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Pipe and Manhole Rehab - 4	**Pipe and Manhole Rehab**	**05/10/2024**

Classification Description: Boiler Operator: unit driver and operator of steam/water heater units and all ancillary equipment associated

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$33.20	$45.70	$58.19

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$45.70
10th hour	$45.70
Beyond 10 hours	$45.70
Saturday	
First 8 hours	$45.70
9th hour	$45.70
10th hour	$45.70
Beyond 10 hours	$45.70
Sunday/Holiday	$45.70

Four 10-hour days allowed? - No

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Pipe and Manhole Rehab - 5	**Pipe and Manhole Rehab**	**05/10/2024**

Classification Description: Combo Unit driver & Jetter-Vac Operator

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$33.20	$45.70	$58.19

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$45.70
10th hour	$45.70
Beyond 10 hours	$45.70
Saturday	
First 8 hours	$45.70
9th hour	$45.70
10th hour	$45.70
Beyond 10 hours	$45.70
Sunday/Holiday	$45.70

Four 10-hour days allowed? - No

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Pipe and Manhole Rehab - 6	**Pipe and Manhole Rehab**	**05/10/2024**

Classification Description: Pipe Bursting & Slip-lining Equipment Operator

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$34.20	$47.20	$60.19

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$47.20
10th hour	$47.20
Beyond 10 hours	$47.20
Saturday	
First 8 hours	$47.20
9th hour	$47.20
10th hour	$47.20
Beyond 10 hours	$47.20
Sunday/Holiday	$47.20

Four 10-hour days allowed? - No

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Plasterer - P-G	**Plasterer**	**05/10/2024**

Classification Description: Plasterer

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$42.99	$56.74	$70.48
Apprentice: 1st Year	$33.37	$42.30	$51.24
Apprentice: 2nd Year	$36.12	$46.43	$56.74
Apprentice: 3rd Year	$38.87	$50.56	$62.24

Overtime Provisions	
Over 8-hour day/40-hour week	
9th hour	$56.74
10th hour	$56.74
Beyond 10 hours	$56.74
Saturday	
First 8 hours	$56.74
9th hour	$56.74
10th hour	$56.74
Beyond 10 hours	$56.74
Sunday/Holiday	$70.48

Four 10-hour days allowed? - No

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Plasterer - P-S	**Plasterer**	**05/10/2024**

Classification Description: Plasterer

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$46.28	$61.67	$77.06
Apprentice: 1st Year	$35.51	$45.52	$55.52
Apprentice: 2nd Year	$38.58	$50.12	$61.66
Apprentice: 3rd Year	$41.66	$54.74	$67.82

Overtime Provisions	
Over 8-hour day/40-hour week	
9th hour	$61.67
10th hour	$61.67
Beyond 10 hours	$61.67
Saturday	
First 8 hours	$61.67
9th hour	$61.67
10th hour	$61.67
Beyond 10 hours	$61.67
Sunday/Holiday	$77.06

Four 10-hour days allowed? - No

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Plasterer - P-TC	**Plasterer**	**05/10/2024**

Classification Description: Plasterer

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$41.14	$54.19	$67.23
Apprentice: 1st Year	$32.01	$40.49	$48.97
Apprentice: 2nd Year	$34.62	$44.41	$54.19
Apprentice: 3rd Year	$37.23	$48.32	$59.41

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$54.19
10th hour	$54.19
Beyond 10 hours	$54.19
Saturday	
First 8 hours	$54.19
9th hour	$54.19
10th hour	$54.19
Beyond 10 hours	$54.19
Sunday/Holiday	$67.23

Four 10-hour days allowed? - No

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Plasterer - P-UP	**Plasterer**	**05/10/2024**

Classification Description: Plasterer

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$45.79	$60.94	$76.08
Apprentice: 1st Year	$35.19	$45.04	$54.88
Apprentice: 2nd Year	$38.22	$49.58	$60.94
Apprentice: 3rd Year	$41.25	$54.12	$67.00

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$60.94
10th hour	$60.94
Beyond 10 hours	$60.94
Saturday	
First 8 hours	$60.94
9th hour	$60.94
10th hour	$60.94
Beyond 10 hours	$60.94
Sunday/Holiday	$76.08

Four 10-hour days allowed? - No

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Plumber & Pipefitter	**Plumber & Pipefitter**	**05/10/2024**

Classification Description: Plumber & Pipefitter
4 ten hour days may be worked only Monday-Thursday

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$63.63	$94.76	$125.88
Apprentice: 1st 6 months	$31.81	$47.03	$62.24
Apprentice: 2nd 6 months	$33.66	$49.80	$65.94
Apprentice: 3rd 6 months	$48.86	$72.60	$96.34
Apprentice: 4th 6 months	$50.70	$75.36	$100.02
Apprentice: 5th 6 months	$52.55	$78.14	$103.72
Apprentice: 6th 6 months	$54.40	$80.91	$107.42
Apprentice: 7th 6 months	$56.24	$83.67	$111.10
Apprentice: 8th 6 months	$58.09	$86.44	$114.80
Apprentice: 9th 6 months	$59.94	$89.22	$118.50

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$82.10
10th hour	$82.10
Beyond 10 hours	$82.10
Saturday	
First 8 hours	$82.10
9th hour	$82.10
10th hour	$82.10
Beyond 10 hours	$82.10
Sunday/Holiday	$100.56

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Roofer - UP	**Roofer**	**05/10/2024**

Classification Description: Commercial Roofer

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$41.46	$53.86	$66.26
Apprentice: Apprentice 1	$31.62	$39.59	$47.56
Apprentice: Apprentice 2	$33.03	$41.66	$50.29
Apprentice: Apprentice 3	$34.39	$43.66	$52.92
Apprentice: Apprentice 4	$35.76	$45.67	$55.58
Apprentice: Apprentice 5	$37.12	$47.67	$58.21
Apprentice: Apprentice 6	$37.92	$48.82	$59.72

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$53.86
10th hour	$53.86
Beyond 10 hours	$53.86
Saturday	
First 8 hours	$53.86
9th hour	$53.86
10th hour	$53.86
Beyond 10 hours	$53.86
Sunday/Holiday	$66.26

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Sewer Relining Operator - Class I	**Sewer Relining**	**05/10/2024**

Classification Description: Class I-Operator of audio visual CCTV system including remote in-ground cutter and other equipment used in conjunction with CCTV system.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$52.84	$69.23	$85.62
Apprentice: 0-6 months	$41.58	$54.66	$67.74
Apprentice: 6-12 months	$45.31	$60.26	$75.20

Overtime Provisions	
Over 8-hour day/40-hour week	
9th hour	$69.23
10th hour	$69.23
Beyond 10 hours	$69.23
Saturday	
First 8 hours	$69.23
9th hour	$69.23
10th hour	$69.23
Beyond 10 hours	$69.23
Sunday/Holiday	$85.62

Four 10-hour days allowed? - No

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Sewer Relining Operator - Class II	**Sewer Relining**	**05/10/2024**

Classification Description: Class II-Operator of hot water heaters and circulation system; water jetters; and vacuum and mechanical debris removal systems and those assisting.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$50.80	$68.49	$86.18

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$66.30
10th hour	$66.30
Beyond 10 hours	$66.30
Saturday	
First 8 hours	$66.30
9th hour	$66.30
10th hour	$66.30
Beyond 10 hours	$66.30
Sunday/Holiday	$81.79

Four 10-hour days allowed? - No

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Sheet Metal Worker	**Sheet Metal Worker**	**05/10/2024**

Classification Description: Sheet Metal Worker
4 10s allowed as consecutive days, M-Th

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$61.69	$77.49	$93.28
Apprentice: 1st 6 months	$35.94	$43.84	$51.74
Apprentice: 2nd 6 months	$35.94	$43.84	$51.74
Apprentice: 3rd 6 months	$38.25	$46.94	$55.62
Apprentice: 4th 6 months	$40.57	$50.04	$59.52
Apprentice: 5th 6 months	$42.90	$53.17	$63.43
Apprentice: 6th 6 months	$45.23	$56.28	$67.34
Apprentice: 7th 6 months	$47.55	$59.40	$71.24
Apprentice: 8th 6 months	$49.88	$62.51	$75.15

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$77.49
10th hour	$77.49
Beyond 10 hours	$77.49
Saturday	
First 8 hours	$77.49
9th hour	$93.28
10th hour	$93.28
Beyond 10 hours	$93.28
Sunday/Holiday	$93.28

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

A make up day may be worked due to inclement weather, the make up hours shall be paid at the regular hourly rate of pay.

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Sprinkler Fitter	**Sprinkler Fitter**	**05/10/2024**

Classification Description: Sprinkler Fitter

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$60.34	$78.45	$96.56
Apprentice: Class 1	$24.57	$32.72	$40.87
Apprentice: Class 10	$52.07	$68.37	$84.67
Apprentice: Class 2	$26.38	$35.43	$44.49
Apprentice: Class 3	$39.14	$49.10	$59.06
Apprentice: Class 4	$40.95	$51.82	$62.68
Apprentice: Class 5	$43.01	$54.78	$66.55
Apprentice: Class 6	$44.82	$57.49	$70.17
Apprentice: Class 7	$46.63	$60.21	$73.79
Apprentice: Class 8	$48.45	$62.94	$77.43
Apprentice: Class 9	$50.26	$65.65	$81.05

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$78.45
10th hour	$78.45
Beyond 10 hours	$78.45
Saturday	
First 8 hours	$78.45
9th hour	$78.45
10th hour	$78.45
Beyond 10 hours	$78.45
Sunday/Holiday	$96.56

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Tower Technician	**Tower Technician**	**05/13/2024**

Classification Description:

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$67.89	$98.24	$128.58

Overtime Provisions	
Over 8-hour day/40-hour week	
9th hour	$98.24
10th hour	$98.24
Beyond 10 hours	$98.24
Saturday	
First 8 hours	$98.24
9th hour	$98.24
10th hour	$98.24
Beyond 10 hours	$98.24
Sunday/Holiday	$128.58

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

ONLY due to inclement weather or customer requirements may Friday be used as a make up day if the normal scheduled work week was interrupted and time lost of five (5) hours or more was incurred by workmen covered under the terms of the 6-17-C/6-876-T agreement.

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Truck Driver - RB1	**Truck Driver**	**05/10/2024**

Classification Description: on all trucks of 8 cubic yard capacity or less (except dump trucks of 8 cubic yard capacity or over, tandem axle trucks, transit mix and semis, euclid type equipment, double bottoms and low boys)

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$53.95	$70.30	$86.64

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$69.32
10th hour	$69.32
Beyond 10 hours	$69.32
Saturday	
First 8 hours	$69.32
9th hour	$69.32
10th hour	$69.32
Beyond 10 hours	$69.32
Sunday/Holiday	$84.69

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Truck Driver - RB1A	**Truck Driver**	**05/10/2024**

Classification Description: of all trucks of 8 cubic yard capacity or over semi, tractor trailer

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$54.10	$70.52	$86.94

Overtime Provisions	
Over 8-hour day/40-hour week	
9th hour	$69.55
10th hour	$69.55
Beyond 10 hours	$69.55
Saturday	
First 8 hours	$69.55
9th hour	$69.55
10th hour	$69.55
Beyond 10 hours	$69.55
Sunday/Holiday	$84.99

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Truck Driver - RB1B	**Truck Driver**	**05/10/2024**

Classification Description: on euclid type equipment, Pole drier, lowboy, doubles, fuel, bus, water

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$54.20	$69.70	$85.19

Overtime Provisions	
Over 8-hour day/40-hour week	
9th hour	$69.70
10th hour	$69.70
Beyond 10 hours	$69.70
Saturday	
First 8 hours	$69.70
9th hour	$69.70
10th hour	$69.70
Beyond 10 hours	$69.70
Sunday/Holiday	$85.19

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - Yes

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Truck Driver - RB2	**Truck Driver**	**05/10/2024**

Classification Description: of all trucks of 8 cubic yd capacity or over

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$44.10	$48.81	$49.80

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$56.55
10th hour	$56.55
Beyond 10 hours	$56.55
Saturday	
First 8 hours	$56.55
9th hour	$56.55
10th hour	$56.55
Beyond 10 hours	$56.55
Sunday/Holiday	$56.55

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Truck Driver - RB2A	**Truck Driver**	**05/10/2024**

Classification Description: of all trucks of 8 cubic yard capacity or less (except dump trucks of 8 cubic yard capacity or over, tandem axle trucks, transit mix and semis, euclid type equipment, double bottoms and low boys)

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$44.00	$48.66	$49.60

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$56.40
10th hour	$56.40
Beyond 10 hours	$56.40
Saturday	
First 8 hours	$56.40
9th hour	$56.40
10th hour	$56.40
Beyond 10 hours	$56.40
Sunday/Holiday	$56.40

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

Prevailing Wage Rates for State Funded Projects

Official Rate Schedule

Chippewa

Classification Name	Category	Last Updated
Truck Driver - RB2B	**Truck Driver**	**05/10/2024**

Classification Description: on euclid type equipment

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	$44.25	$49.04	$0.00

Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	$56.78
10th hour	$56.78
Beyond 10 hours	$56.78
Saturday	
First 8 hours	$56.78
9th hour	$56.78
10th hour	$56.78
Beyond 10 hours	$56.78
Sunday/Holiday	$56.78

Four 10-hour days allowed? - Yes

Make Up Day Allowed? - No

APPENDIX V

HAZARDOUS MATERIAL SURVEY

State of Michigan
Department of Technology, Management and Budget
Design and Construction Division
Funding Code: 472ElectronicComm
File No: 472/17032.RWG
Kinross Correctional Facility
Wi-Fi Cabling Infrastructure

SECTION 260010 - BASIC ELECTRICAL REQUIREMENTS

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

A. Work includes all electrical items and systems shown on the contract drawings and specified herein.

B. Unless specifically dimensioned, the work shown on the drawings is diagrammatic, and is intended only to show general arrangement.

C. Include in the work all accessories and devices necessary for the intended operation of any system, whether or not specifically shown or specified.

1.2 STANDARDS OF QUALITY

A. The specifications establish the standard of quality required, either by description of by references to brand name, name of manufacturers or manufacturer's model number.

B. Where one product only is specifically identified by name of manufacturer's model number, the Contractor shall base his bid on the use of the name product. Where multiple names are used, the Contractor shall base his bid on the use of any of those products named.

C. The Contractor may submit with his bid, the names of products which are proposed as substitutions for products named in specifications. Each proposed substitution shall be accompanied by a written sum of money to be added or deducted from his bid. The Owner reserves the sole right to accept or reject said substitutions with or without cause.

D. When equipment and/or materials are proposed to be purchased from a manufacturer other than those specified, the Contractor shall provide complete data adequate for the Engineer's evaluation of the proposed substitution.

E. When the equipment other than that specified is used, the Contractor shall be responsible for any extra cost of required revisions such as structural steel, concrete, electrical, piping, etc. Such additional costs shall be identified at the time such substitutions are proposed.

1.3 SUMMARY

A. This Section includes general administrative and procedural requirements for electrical installations.

1. Submittals
2. Maintenance Manuals
3. Rough ins
4. Electrical Installations

1.4 SUBMITTALS

A. The Contractor shall review, approve, and submit shop drawings, with promptness so as to cause no delay in his work or in that of others. No submissions will be accepted by the Engineer without the signed review and approval of the Contractor.

B. The Contractor shall check and verify pertinent field measurements, quantities of equipment and materials required.

C. Submittals shall be identified by reference to the drawings, sections of specifications, or equipment symbols to which they relate.

D. Shop drawings, when required, shall include:

1. Verification of information given in Contract Documents such as performance, dimensions, weight, materials, construction, types, models, manufacturer, etc.
2. Equipment layouts drawn to scale as may be required.
3. Wiring diagrams and schematics for equipment.
4. Any special construction conditions.
5. Other information/data as may be requested.

E. All submittals shall identify the specific details of the product or assembly. All optional features being proposed shall be so noted, or the submittal will be rejected.

F. Review is only for general conformance with the design concept of the project and general compliance with the information given in the contract documents. Any action shown is subject to the requirements of the plans and specification. Contractor is responsible for dimensions which shall be confirmed and correlated at the job site; fabrication processes and techniques of construction; coordination of his work with that of all other trades; and the satisfactory performance of his work.

G. For items being resubmitted, clearly identify changes made from the initial submittal requested by the Engineer. The Engineer will review only those changes requested and identified by the Contractor.

1.5 MAINTENANCE MANUALS

A. Prepare maintenance manuals including the following information for equipment items:

1. Description of function, normal operating characteristics and limitations, performance curves, engineering data and tests, and complete nomenclature and commercial numbers of replacement parts.
2. Manufacturer's printed operating procedures to include start-up, break-in, and routine and normal operating instructions; regulation, control, stopping, shutdown, and emergency instructions; and summer and winter operating instructions.
3. Maintenance procedures for routine preventative maintenance and troubleshooting; disassembly, repair, and reassembly; aligning and adjusting instructions.
4. Servicing instructions and lubrication charts and schedules.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to the project properly identified with names, model numbers, types, grades, compliance labels, and other information needed for identification.

1.7 PERMITS, FEES, AND CERTIFICATES OF APPROVAL

A. Contractor shall acquire all permits and certificates.

B. Contractor shall provide all labor and instruments required for tests and cleaning of systems.

C. Whenever tests are required, three (3) copies of the test reports shall be submitted to the Engineer.

D. Tests may be observed by the Engineer or his representative. Notify the Engineer a minimum of three weeks in advance of the test dates.

1.8 COMPLIANCE WITH CODES, STANDARDS AND REGULATIONS

A. In the absence of specific instruction in the technical specifications, equipment and installation shall conform to the following applicable codes, standards and regulations, latest editions:

1. American Society for Testing Materials (ASTM).
2. American National Standard Institute (ANSI).
3. Underwriter's Laboratories, Inc. (UL).
4. American Welding Society Code (AWSC).
5. Local Building, Electrical, and Fire Codes.
6. National Electrical Code (NEC).
7. Service Rules and Regulations of Local Electrical Utility Company.
8. National Electrical Manufacturer's Association (NEMA).
9. U.S. Department of Health & Human Services "HRS-M-HF" 84-1.
10. Occupational Safety and Health Act (OSHA).
11. National Fire Protection Association (NFPA).

12. Americans with Disabilities Act (ADA).

PART 2 - PRODUCTS - Not Used.

PART 3 - EXECUTION

3.1 ROUGH-IN

A. Verify final locations for rough-ins with field measurements and with requirements of the actual equipment to be connected.

3.2 ELECTRICAL INSTALLATIONS

A. General: Sequence, coordinate, and integrate the various elements of electrical systems, materials, and equipment. Comply with the following requirements:

1. Coordinate electrical systems, equipment, and materials installation with other building components.
2. Verify all dimensions by field measurements.
3. Sequence, coordinate, and integrate installations of electrical materials and equipment for efficient flow of the work. Give particular attention to large equipment requiring positioning prior to closing in the building.
4. Where mounting heights are not detailed or dimensioned, install systems, materials, and equipment to provide the maximum headroom possible.
5. Install systems, materials, and equipment to conform with approved submittal data, including coordination drawings, to greatest extent possible. Conform to arrangements indicated by the Contract Documents, recognizing that portions of the Work are shown only in diagrammatic form. Where coordination requirements conflict with individual system requirements, refer conflict to the Engineer.
6. Install systems, materials, and equipment level and plumb, parallel and perpendicular to other building systems and components, where installed exposed in finished spaces.
7. Install electrical equipment to facilitate servicing, maintenance, and repair or replacement of equipment components. As much as practical, connect equipment for ease of disconnecting, with minimum of interference with other installations.
8. Install access panel or doors where units are concealed behind finished surfaces.
9. Install systems, material, and equipment giving right-of-way priority to systems required to be installed at a specified slope.
10. Coordinate all electrical requirements with other trades and their shop drawings prior to installing conduit, wire, switches and breakers. Notify engineer of any discrepancies between document and actual supplied equipment.

3.3 CUTTING AND PATCHING

A. General: Performing cutting and patching in accordance with the following requirements:

1. Perform cutting, fitting, and patching of electrical equipment and materials required to:

a. Uncover work to provide for installation of ill-timed work.
b. Remove and replace defective work.
c. Remove and replace work not conforming to requirements of the contract documents.
d. Upon written instruction from the Engineer, uncover and restore work to provide for Engineer observation of concealed work.

END OF SECTION 260010

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SECTION 260500 - COMMON WORK RESULTS FOR ELECTRICAL

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Electrical equipment coordination and installation.
2. Common electrical installation requirements.

1.2 COORDINATION

A. Coordinate arrangement, mounting, and support of electrical equipment:

1. To allow maximum possible headroom unless specific mounting heights that reduce headroom are indicated.
2. To provide for ease of disconnecting the equipment with minimum interference to other installations.
3. To allow right of way for piping and conduit installed at required slope.
4. So that connecting raceways, cables, wireways, cable trays, and busways will be clear of obstructions and of the working and access space of other equipment.

B. Coordinate installation of required supporting devices and set sleeves in cast-in-place concrete, masonry walls, and other structural components as they are constructed.

C. Coordinate location of access panels and doors for electrical items that are behind finished surfaces or otherwise concealed.

PART 2 - PRODUCTS – Not Used.

PART 3 - EXECUTION

3.1 COMMON REQUIREMENTS FOR ELECTRICAL INSTALLATION

A. Comply with NECA 1.

B. Measure indicated mounting heights to bottom of unit for suspended items and to center of unit for wall-mounting items.

C. Headroom Maintenance: If mounting heights or other location criteria are not indicated, arrange and install components and equipment to provide maximum possible headroom consistent with these requirements.

D. Equipment: Install to facilitate service, maintenance, and repair or replacement of components of both electrical equipment and other nearby installations. Connect in such a way as to facilitate future disconnecting with minimum interference with other items in the vicinity.

E. Right of Way: Give to piping systems installed at a required slope.

END OF SECTION 260500

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SECTION 260519 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Building wires and cables rated 600 V and less.
2. Connectors, splices, and terminations rated 600 V and less.

PART 2 - PRODUCTS

2.1 CONDUCTORS AND CABLES

A. Copper Conductors: Comply with NEMA WC 70/ICEA S-95-658.

B. Conductor Insulation: Comply with NEMA WC 70/ICEA S-95-658 for Type THHN-2-THWN-2.

2.2 CONNECTORS AND SPLICES

A. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.

2.3 SYSTEM DESCRIPTION

A. 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.

B. Comply with NFPA 70.

PART 3 - EXECUTION

3.1 CONDUCTOR MATERIAL APPLICATIONS

A. Feeders: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.

B. Branch Circuits: Copper. Stranded for No. 12 AWG and larger, except VFC cable, which shall be extra flexible stranded.

3.2 CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS

A. Exposed Feeders: Type THHN-2-THWN-2, single conductors in raceway.

B. Feeders Concealed in Concrete, below Slabs-on-Grade, and Underground: Type THHN-2-THWN-2, single conductors in raceway.

C. Exposed Branch Circuits, Including in Crawlspaces: Type THHN-2-THWN-2, single conductors in raceway.

D. Branch Circuits Concealed in Ceilings, Walls, and Partitions: Type THHN-2-THWN-2, single conductors in raceway.

E. Branch Circuits Concealed in Concrete, below Slabs-on-Grade, and Underground: Type THHN-2-THWN-2, single conductors in raceway.

3.3 INSTALLATION OF CONDUCTORS AND CABLES

A. Conceal cables in finished walls, ceilings, and floors unless otherwise indicated.

B. Complete raceway installation between conductor and cable termination points according to Section 260533 "Raceways and Boxes for Electrical Systems" prior to pulling conductors and cables.

C. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.

D. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.

E. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.

F. Support cables according to Section 260529 "Hangers and Supports for Electrical Systems."

3.4 CONNECTIONS

A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A-486B.

B. Make splices, terminations, and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.

1. Use oxide inhibitor in each splice, termination, and tap for aluminum conductors.

C. Wiring at Outlets: Install conductor at each outlet, with at least 6 inches of slack.

3.5 IDENTIFICATION

A. Identify and color-code conductors and cables according to Section 260553 "Identification for Electrical Systems."

B. Identify each spare conductor at each end with identity number and location of other end of conductor, and identify as spare conductor.

3.6 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Section 260544 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

3.7 FIRESTOPPING

A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly.

3.8 FIELD QUALITY CONTROL

A. Perform the following tests and inspections with the assistance of a factory-authorized service representative:

1. After installing conductors and cables and before electrical circuitry has been energized, test for compliance with requirements.
2. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.

B. Test and Inspection Reports: Prepare a written report to record the following:

1. Procedures used.
2. Results that comply with requirements.
3. Results that do not comply with requirements and corrective action taken to achieve compliance with requirements.

C. Cables will be considered defective if they do not pass tests and inspections.

END OF SECTION 260519

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SECTION 260526 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes grounding and bonding systems and equipment.

1.2 INFORMATIONAL SUBMITTALS

A. As-Built Data: Plans showing dimensioned as-built locations of grounding features specified in "Field Quality Control" Article, including the following:

1. Ground rods.

B. Qualification Data: For testing agency and testing agency's field supervisor.

C. Field quality-control reports.

1.3 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For grounding to include in emergency, operation, and maintenance manuals.

1.4 QUALITY ASSURANCE

A. Testing Agency Qualifications: Member company of NETA or an NRTL.

1. Testing Agency's Field Supervisor: Certified by NETA to supervise on-site testing.

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.

C. Comply with UL 467 for grounding and bonding materials and equipment.

PART 2 - PRODUCTS

2.1 SYSTEM DESCRIPTION

A. 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.

B. Comply with UL 467 for grounding and bonding materials and equipment.

2.2 CONDUCTORS

A. Insulated Conductors: Copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.

B. Bare Copper Conductors:

1. Solid Conductors: ASTM B 3.
2. Stranded Conductors: ASTM B 8.
3. Tinned Conductors: ASTM B 33.
4. Bonding Cable: 28 kcmil, 14 strands of No. 17 AWG conductor, 1/4 inch in diameter.
5. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.
6. Bonding Jumper: Copper tape, braided conductors terminated with copper ferrules; 1-5/8 inches wide and 1/16 inch thick.
7. Tinned Bonding Jumper: Tinned-copper tape, braided conductors terminated with copper ferrules; 1-5/8 inches wide and 1/16 inch thick.

C. Grounding Bus: Predrilled rectangular bars of annealed copper, 1/4 by 4 inches in cross section, with 9/32-inch holes spaced 1-1/8 inches apart. Stand-off insulators for mounting shall comply with UL 891 for use in switchboards, 600 V and shall be Lexan or PVC, impulse tested at 5000 V.

2.3 CONNECTORS

A. Listed and labeled by an NRTL acceptable to authorities having jurisdiction for applications in which used and for specific types, sizes, and combinations of conductors and other items connected.

B. Bolted Connectors for Conductors and Pipes: Copper or copper alloy.

C. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.

D. Bus-Bar Connectors: Mechanical type, cast silicon bronze, solderless compression-type wire terminals, and long-barrel, two-bolt connection to ground bus bar.

2.4 GROUNDING ELECTRODES

A. Ground Rods: Copper-clad steel; 5/8 by 96 inches.

PART 3 - EXECUTION

3.1 APPLICATIONS

A. Conductors: Install stranded conductors for No. 8 AWG and larger unless otherwise indicated.

B. Grounding Bus: Install in cabinets.

1. Install bus horizontally, on insulated spacers 2 inches minimum from housing.

C. Conductor Terminations and Connections:

1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
2. Underground Connections: Welded connectors except at test wells and as otherwise indicated.
3. Connections to Ground Rods at Test Wells: Bolted connectors.

3.2 GROUNDING UNDERGROUND DISTRIBUTION SYSTEM COMPONENTS

A. Comply with IEEE C2 grounding requirements.

B. Grounding Manholes and Handholes: Install a driven ground rod through manhole or handhole floor, close to wall, and set rod depth so 4 inches will extend above finished floor. If necessary, install ground rod before manhole is placed and provide No. 1/0 AWG bare, tinned-copper conductor from ground rod into manhole through a waterproof sleeve in manhole wall. Protect ground rods passing through concrete floor with a double wrapping of pressure-sensitive insulating tape or heat-shrunk insulating sleeve from 2 inches above to 6 inches below concrete. Seal floor opening with waterproof, non-shrink grout.

C. Grounding Connections to Manhole Components: Bond exposed-metal parts such as inserts, cable racks, pulling irons, ladders, and cable shields within each manhole or handhole, to ground rod or grounding conductor. Make connections with No. 4 AWG minimum, stranded, hard-drawn copper bonding conductor. Train conductors level or plumb around corners and fasten to manhole walls. Connect to cable armor and cable shields according to written instructions by manufacturer of splicing and termination kits.

D. Pad-Mounted Cabinets: Install two ground rods and ground ring around the pad. Ground pad-mounted equipment and noncurrent-carrying metal items associated with substations by connecting them to underground cable and grounding electrodes. Install tinned-copper conductor not less than No. 2 AWG for ground ring and for taps to equipment grounding terminals. Bury ground ring not less than 6 inches from the foundation.

3.3 EQUIPMENT GROUNDING

A. Install insulated equipment grounding conductors with all feeders and branch circuits.

B. Install insulated equipment grounding conductors with the following items, in addition to those required by NFPA 70:

1. Feeders and branch circuits.
2. Lighting circuits.
3. Receptacle circuits.
4. Flexible raceway runs.

C. Poles Supporting Outdoor Lighting Fixtures: Install grounding electrode and a separate insulated equipment grounding conductor in addition to grounding conductor installed with branch-circuit conductors.

3.4 INSTALLATION

A. Grounding Conductors: Route along shortest and straightest paths possible unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.

B. Ground Rods: Drive rods until tops are 2 inches below finished floor or final grade unless otherwise indicated.

1. Interconnect ground rods with grounding electrode conductor below grade and as otherwise indicated. Make connections without exposing steel or damaging coating if any.

C. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance except where routed through short lengths of conduit.

1. Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate any adjacent parts.
2. Bonding to Equipment Mounted on Vibration Isolation Hangers and Supports: Install bonding so vibration is not transmitted to rigidly mounted equipment.
3. Use exothermic-welded connectors for outdoor locations; if a disconnect-type connection is required, use a bolted clamp.

3.5 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.

B. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections.

C. Perform tests and inspections.

1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.

D. Tests and Inspections:

1. After installing grounding system but before permanent electrical circuits have been energized, test for compliance with requirements.
2. Inspect physical and mechanical condition. Verify tightness of accessible, bolted, electrical connections with a calibrated torque wrench according to manufacturer's written instructions.
3. Test completed grounding system at each location where a maximum ground-resistance level is specified at individual ground rods. Make tests at ground rods before any conductors are connected.

    a. Measure ground resistance no fewer than two full days after last trace of precipitation and without soil being moistened by any means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance.
    b. Perform tests by fall-of-potential method according to IEEE 81.

4. Prepare dimensioned Drawings locating each ground rod and other grounding electrodes. Identify each by letter in alphabetical order, and key to the record of tests and observations. Include the number of rods driven and their depth at each location, and include observations of weather and other phenomena that may affect test results. Describe measures taken to improve test results.

E. Grounding system will be considered defective if it does not pass tests and inspections.

F. Prepare test and inspection reports.

G. Report measured ground resistances that exceed the following values:

1. Power and Lighting Equipment or System with Capacity of 500 kVA and Less: 10 ohms.
2. Power Distribution Units or Panelboards Serving Electronic Equipment: 1 ohm(s).
3. Manhole Grounds: 10 ohms.

H. Excessive Ground Resistance: If resistance to ground exceeds specified values, notify Architect promptly and include recommendations to reduce ground resistance.

END OF SECTION 260526

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SECTION 260529 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Hangers and supports for electrical equipment and systems.

2. Prison guidelines.

1.2 PERFORMANCE REQUIREMENTS

A. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.

B. Rated Strength: Adequate in tension, shear, and pullout force to resist maximum loads calculated or imposed for this Project, with a minimum structural safety factor of five times the applied force.

1.3 QUALITY ASSURANCE

A. Welding: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."

B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

A. Steel Slotted Support Systems: Comply with MFMA-4, factory-fabricated components for field assembly.

1. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-4.
2. Painted Coatings: Manufacturer's standard painted coating applied according to MFMA-4.
3. Channel Dimensions: Selected for applicable load criteria.

B. Raceway and Cable Supports: As described in NECA 1 and NECA 101.

C. Conduit and Cable Support Devices: Steel hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.

D. Structural Steel for Fabricated Supports and Restraints: ASTM A 36/A 36M, steel plates, shapes, and bars; black and galvanized.

2.2 ASSEMBLIES

A. Description: Welded or bolted, structural-steel shapes, shop or field fabricated to fit dimensions of supported equipment.

PART 3 - EXECUTION

3.1 APPLICATION

A. Comply with NECA 1 and NECA 101 for application of hangers and supports for electrical equipment and systems except if requirements in this Section are stricter.

B. Maximum Support Spacing and Minimum Hanger Rod Size for Raceway: Space supports for EMT, IMC, and RMC as required by NFPA 70. Minimum rod size shall be 3/8 inch in diameter.

C. Spring-steel clamps designed for supporting single conduits without bolts may be used for 1-1/2-inch and smaller raceways serving branch circuits and communication systems above suspended ceilings and for fastening raceways to trapeze supports.

3.2 SUPPORT INSTALLATION IN ALL AREAS (UNLESS NOTED OTHERWISE)

A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this Article.

B. Raceway Support Methods: In addition to methods described in NECA 1, EMT, IMC, and RMC may be supported by openings through structure members, as permitted in NFPA 70.

C. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb.

D. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods using tamper resistant hardware unless otherwise indicated by code:

1. To Wood: Fasten with lag screws or through bolts.
2. To New Concrete: Bolt to concrete inserts.
3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
4. To Existing Concrete: Expansion anchor fasteners.
5. Instead of expansion anchors, powder-actuated driven threaded studs provided with lock washers and nuts may be used in existing standard-weight concrete 4 inches thick or greater. Do not use for anchorage to lightweight-aggregate concrete or for slabs less than 4 inches thick.
   a. Powder-actuated driven tools may not be used in secured areas.
6. To Steel: Welded threaded studs complying with AWS D1.1/D1.1M, with lock washers and nuts.
7. To Light Steel: Sheet metal screws.
8. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate.

E. Drill holes for expansion anchors in concrete at locations and to depths that avoid reinforcing bars.

3.3 PRISON GUIDELINES

1. All conduit above 10 foot shall meet the following requirements:
   a. Strap distance: 5 feet.
   b. Secure conduit within 12-inches of boxes and enclosure.

2. All conduit 10 foot and below shall meet the following requirements.
   a. Strap distance: 3 feet.
   b. Fasteners: 2 hole with security screws.
   c. Secure conduit within 12-inches of boxes and enclosure.

3.4 INSTALLATION OF FABRICATED METAL SUPPORTS

A. Comply with installation requirements.

B. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor electrical materials and equipment.

C. Field Welding: Comply with AWS D1.1/D1.1M.

END OF SECTION 260529

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SECTION 260533 - RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Metal conduits, tubing, and fittings.
2. Nonmetal conduits, tubing, and fittings.
3. Metal wireways and auxiliary gutters.
4. Boxes, enclosures, and cabinets.
5. Handholes and boxes for exterior underground cabling.
6. Prison guidelines.

1.2 ACTION SUBMITTALS

A. Product Data: For fittings, floor boxes, hinged-cover enclosures, and cabinets.

B. Shop Drawings: For custom enclosures and cabinets. Include plans, elevations, sections, and attachment details.

PART 2 - PRODUCTS

2.1 METAL CONDUITS, TUBING, AND FITTINGS

A. Listing and Labeling: Metal conduits, tubing, and fittings shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. GRC: Comply with ANSI C80.1 and UL 6.

C. ARC: Comply with ANSI C80.5 and UL 6A.

D. IMC: Comply with ANSI C80.6 and UL 1242.

E. EMT: Comply with ANSI C80.3 and UL 797.

F. FMC: Comply with UL 1; zinc-coated steel.

G. LFMC: Flexible steel conduit with PVC jacket and complying with UL 360.

H. Fittings for Metal Conduit: Comply with NEMA FB 1 and UL 514B.

1. Fittings for EMT:

a. Material: Steel.
b. Type: Compression.

I. Joint Compound for IMC, GRC, or ARC: Approved, as defined in NFPA 70, by authorities having jurisdiction for use in conduit assemblies, and compounded for use to lubricate and protect threaded conduit joints from corrosion and to enhance their conductivity.

2.2 NONMETALLIC CONDUITS, TUBING, AND FITTINGS

A. Listing and Labeling: Nonmetallic conduits, tubing, and fittings shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. ENT: Comply with NEMA TC 13 and UL 1653.

C. RNC: Type EPC-40-PVC, complying with NEMA TC 2 and UL 651 unless otherwise indicated.

D. LFNC: Comply with UL 1660.

E. Rigid HDPE: Comply with UL 651A.

F. Continuous HDPE: Comply with UL 651B.

G. Coilable HDPE: Preassembled with conductors or cables, and complying with ASTM D 3485.

H. RTRC: Comply with UL 1684A and NEMA TC 14.

I. Fittings for ENT and RNC: Comply with NEMA TC 3; match to conduit or tubing type and material.

J. Fittings for LFNC: Comply with UL 514B.

K. Solvent cements and adhesive primers shall have a VOC content of 510 and 550 g/L or less, respectively, when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

L. Solvent cements and adhesive primers 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."

2.3 METAL WIREWAYS AND AUXILIARY GUTTERS

A. Description: Sheet metal, complying with UL 870 and NEMA 250, Type 3R unless otherwise indicated, and sized according to NFPA 70.

1. Metal wireways installed outdoors shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Fittings and Accessories: Include covers, couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.

C. Wireway Covers: Flanged-and-gasketed type unless otherwise indicated.

D. Finish: Manufacturer's standard enamel finish.

2.4 BOXES, ENCLOSURES, AND CABINETS

A. General Requirements for Boxes, Enclosures, and Cabinets: Boxes, enclosures, and cabinets installed in wet locations shall be listed for use in wet locations.

B. Sheet Metal Outlet and Device Boxes: Comply with NEMA OS 1 and UL 514A.

C. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.

D. Box extensions used to accommodate new building finishes shall be of same material as recessed box.

E. Device Box Dimensions: 4 inches square by 2-1/8 inches deep.

F. Gangable boxes are prohibited.

G. Cabinets:

1. NEMA 250, Type 3R galvanized-steel box with removable interior panel and removable front, finished inside and out with manufacturer's standard enamel.
2. Hinged door in front cover with flush latch and concealed hinge.
3. Key latch to match panelboards.
4. Metal barriers to separate wiring of different systems and voltage.
5. Accessory feet where required for freestanding equipment.

2.5 HANDHOLES AND BOXES FOR EXTERIOR UNDERGROUND WIRING

A. General Requirements for Boxes:

1. Boxes and handholes for use in underground systems shall be designed and identified as defined in NFPA 70, for intended location and application.
2. Boxes installed in wet areas shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
3. Bell Type with threaded knock outs installed in a way to prevent being backed out.

2.6 SOURCE QUALITY CONTROL FOR UNDERGROUND ENCLOSURES

A. Pull-Box Prototype Test: Test prototypes boxes for compliance with SCTE 77. Strength tests shall be for specified tier ratings of products supplied.

1. Tests of materials shall be performed by an independent testing agency.
2. Strength tests of complete boxes and covers shall be by either an independent testing agency or manufacturer. A qualified registered professional engineer shall certify tests by manufacturer.
3. Testing machine pressure gages shall have current calibration certification complying with ISO 9000 and ISO 10012 and traceable to NIST standards.
4. Where direct-buried conductors, raceway, or cables are subject to movement by settlement or frost, direct-buried conductors, raceway, or cables shall be arranged so as to prevent damage to the enclosed conductors or to equipment connected to raceways.

PART 3 - EXECUTION

3.1 RACEWAY APPLICATION

A. Outdoors: Apply raceway products as specified below unless otherwise indicated:

1. Exposed Conduit: GRC.
2. Concealed Conduit, Aboveground: GRC.
3. Underground Conduit: RNC, Type EPC-40-PVC,.
4. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC or LFNC.
5. Boxes and Enclosures, Aboveground: NEMA 250, Type 3R.

B. Indoors: Apply raceway products as specified below unless otherwise indicated:

1. Exposed, Not Subject to Physical Damage: EMT.
2. Concealed in Ceilings and Interior Walls and Partitions: EMT.
3. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC, except use LFMC in damp or wet locations.
4. Damp or Wet Locations: GRC.

5. Boxes and Enclosures: NEMA 250, Type 1, except use NEMA 250, Type 4 stainless steel in institutional and commercial kitchens and damp or wet locations.

C. Minimum Raceway Size: 3/4-inch trade size.

D. Raceway Fittings: Compatible with raceways and suitable for use and location.

1. Rigid and Intermediate Steel Conduit: Use threaded rigid steel conduit fittings unless otherwise indicated. Comply with NEMA FB 2.10.
2. EMT: Use Compression fittings. Comply with NEMA FB 2.10.
3. Flexible Conduit: Use only fittings listed for use with flexible conduit. Comply with NEMA FB 2.20.

E. Install nonferrous conduit or tubing for circuits operating above 60 Hz. Where aluminum raceways are installed for such circuits and pass through concrete, install in nonmetallic sleeve.

F. Do not install aluminum conduits, boxes, or fittings in contact with concrete or earth.

G. Do not install nonmetallic conduit where ambient temperature exceeds 120 deg F.

3.2 INSTALLATION

A. Comply with NECA 1 and NECA 101 for installation requirements except where requirements on Drawings or in this article are stricter. Comply with NECA 102 for aluminum conduits. Comply with NFPA 70 limitations for types of raceways allowed in specific occupancies and number of floors.

B. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.

C. Complete raceway installation before starting conductor installation.

D. Comply with requirements in Section 260529 "Hangers and Supports for Electrical Systems" for hangers and supports.

E. Arrange stub-ups so curved portions of bends are not visible above finished slab.

F. Install no more than the equivalent of three 90-degree bends in any conduit run except for control wiring conduits, for which fewer bends are allowed. Support within 12 inches of changes in direction.

G. Conceal conduit and EMT within finished walls, ceilings, and floors unless otherwise indicated. Install conduits parallel or perpendicular to building lines.

H. Support conduit within 12 inches of enclosures to which attached.

I. Stub-ups to Above Recessed Ceilings:

1. Use EMT, IMC, or RMC for raceways.
2. Use a conduit bushing or insulated fitting to terminate stub-ups not terminated in hubs or in an enclosure.

J. Threaded Conduit Joints, Exposed to Wet, Damp, Corrosive, or Outdoor Conditions: Apply listed compound to threads of raceway and fittings before making up joints. Follow compound manufacturer's written instructions.

K. Coat field-cut threads on PVC-coated raceway with a corrosion-preventing conductive compound prior to assembly.

L. Raceway Terminations at Locations Subject to Moisture or Vibration: Use insulating bushings to protect conductors including conductors smaller than No. 4 AWG.

M. Terminate threaded conduits into threaded hubs or with locknuts on inside and outside of boxes or cabinets. Install bushings on conduits up to 1-1/4-inch trade size and insulated throat metal bushings on 1-1/2-inch trade size and larger conduits terminated with locknuts. Install insulated throat metal grounding bushings on service conduits.

N. Install raceways square to the enclosure and terminate at enclosures with locknuts. Install locknuts hand tight plus 1/4 turn more.

O. Do not rely on locknuts to penetrate nonconductive coatings on enclosures. Remove coatings in the locknut area prior to assembling conduit to enclosure to assure a continuous ground path.

P. Cut conduit perpendicular to the length. For conduits 2-inch trade size and larger, use roll cutter or a guide to make cut straight and perpendicular to the length.

Q. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 12 inches of slack at each end of pull wire. Cap underground raceways designated as spare above grade alongside raceways in use.

R. Surface Raceways:

1. Install surface raceway with a minimum 2-inchradius control at bend points.
2. Secure surface raceway with screws or other anchor-type devices at intervals not exceeding 48 inches and with no less than two supports per straight raceway section. Support surface raceway according to manufacturer's written instructions. Tape and glue are not acceptable support methods.
3. Conduit shall be surface mounted within 12” of boxes, cameras, and enclosures
4. Conduit installed below 10 feet after finish floor shall be secured with two-hole clamps, spaced at 36 inches maximum.
5. Tamper proof security hardware, and two-hole clamps are required were raceway is below 10 feet in secured areas.

S. Install raceway sealing fittings at accessible locations according to NFPA 70 and fill them with listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings according to NFPA 70.

T. Install devices to seal raceway interiors at accessible locations. Locate seals so no fittings or boxes are between the seal and the following changes of environments. Seal the interior of all raceways at the following points:

1. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.
2. Where an underground service raceway enters a building or structure.
3. Where otherwise required by NFPA 70.

U. Comply with manufacturer's written instructions for solvent welding RNC and fittings.

V. Expansion-Joint Fittings:

1. Install in each run of aboveground RNC that is located where environmental temperature change may exceed 30 deg F and that has straight-run length that exceeds 25 feet. Install in each run of aboveground RMC and EMT conduit that is located where environmental temperature change may exceed 100 deg F and that has straight-run length that exceeds 100 feet.
2. Install type and quantity of fittings that accommodate temperature change listed for each of the following locations:

    a. Outdoor Locations Not Exposed to Direct Sunlight: 125 deg F temperature change.
    b. Outdoor Locations Exposed to Direct Sunlight: 155 deg F temperature change.
    c. Indoor Spaces Connected with Outdoors without Physical Separation: 125 deg F temperature change.
    d. Attics: 135 deg F temperature change.

3. Install fitting(s) that provide expansion and contraction for at least 0.00041 inch per foot of length of straight run per deg F of temperature change for PVC conduits. Install fitting(s) that provide expansion and contraction for at least 0.000078 inch per foot of length of straight run per deg F of temperature change for metal conduits.
4. Install expansion fittings at all locations where conduits cross building or structure expansion joints.
5. Install each expansion-joint fitting with position, mounting, and piston setting selected according to manufacturer's written instructions for conditions at specific location at time of installation. Install conduit supports to allow for expansion movement.

W. Flexible Conduit Connections: Comply with NEMA RV 3. Use a maximum of 72 inches of flexible conduit for equipment subject to vibration, noise transmission, or movement; and for transformers and motors.

1. Use LFMC in damp or wet locations subject to severe physical damage.
2. Use LFMC or LFNC in damp or wet locations not subject to severe physical damage.

X. Support boxes of three gangs or more from more than one side by spanning two framing members or mounting on brackets specifically designed for the purpose.

Y. Fasten junction and pull boxes to or support from building structure. Do not support boxes by conduits.

3.3 PRISON GUIDELINES

1. All conduit above 10 foot shall meet the following requirements:
   a. Strap distance: 5 feet.
   ~~b. Strap type: 2-Hole.~~
   ~~c. Security hardware:~~
      ~~1) TORX T-25 with center rejection pin.~~
      ~~2) Hex head concrete screw with no screwdriver slot.~~
      ~~3) Expansion pound-in anchors with no screwdriver slot that do not require to be explosively driven.~~
      ~~4) Or pre-approved hardware.~~
   d. Conduit: Interior EMT, Exterior exposed/ concealed-GRC.
   e. Fittings: Compression.
   ~~f. Boxes:~~
      ~~1) Surface mounted:~~
         ~~a) Bell box: FS Type, with square head KO seal.~~
         ~~b) No knockouts, drilled as required.~~
   g. Secure conduit within 12-inches of boxes and enclosure.

2. All conduit 10 foot and below shall meet the following requirements.
   a. Strap distance: 3 feet.
   b. Strap type: 2-Hole.
   c. Security hardware:
      1) TORX T-25 with center rejection pin.
      2) Hex head concrete screw with no screwdriver slot.
      3) Expansion pound-in anchors with no screwdriver slot that do not require to be explosively driven.
      4) Or pre-approved hardware.
   ~~d. Fasteners: 2 hole with security screws.~~
   e. Conduit: Interior EMT, Exterior exposed/ concealed-GRC.
   f. Fittings: Compression.
   g. Boxes:
      1) Surface mounted:
         a) Bell box: FS Type, with square head KO seal.
         b) No knockouts, drilled as required.
   ~~h. Bell Boxes: FS type.~~
   ~~i. No Knockouts.~~

j. Secure conduit within 12-inches of boxes and enclosure.

3.4 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Section 260544 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

3.5 PROTECTION

A. Protect coatings, finishes, and cabinets from damage and deterioration.

1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
2. Repair damage to PVC coatings or paint finishes with matching touchup coating recommended by manufacturer.

END OF SECTION 260533

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Wi-Fi Cabling Infrastructure

SECTION 260544 - SLEEVES AND SLEEVE SEALS FOR ELECTRICAL RACEWAYS AND CABLING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Sleeves for raceway and cable penetration of non-fire-rated construction walls and floors.
2. Sleeve-seal systems.
3. Sleeve-seal fittings.
4. Grout.
5. Silicone sealants.

PART 2 - PRODUCTS

2.1 SLEEVES

A. Wall Sleeves:

1. Steel Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, zinc coated, plain ends.
2. Cast-Iron Pipe Sleeves: Cast or fabricated "wall pipe," equivalent to ductile-iron pressure pipe, with plain ends and integral water stop unless otherwise indicated.

B. Sleeves for Conduits Penetrating Non-Fire-Rated Gypsum Board Assemblies: Galvanized-steel sheet; 0.0239-inch minimum thickness; round tube closed with welded longitudinal joint, with tabs for screw-fastening the sleeve to the board.

C. PVC-Pipe Sleeves: ASTM D 1785, Schedule 40.

D. Molded-PVC Sleeves: With nailing flange for attaching to wooden forms.

E. Molded-PE or -PP Sleeves: Removable, tapered-cup shaped, and smooth outer surface with nailing flange for attaching to wooden forms.

2.2 SLEEVE-SEAL SYSTEMS

A. Description: Modular sealing device, designed for field assembly, to fill annular space between sleeve and raceway or cable.

1. Sealing Elements: EPDM rubber interlocking links shaped to fit surface of pipe. Include type and number required for pipe material and size of pipe.
2. Pressure Plates: Carbon steel.
3. Connecting Bolts and Nuts: Carbon steel, with corrosion-resistant coating, of length required to secure pressure plates to sealing elements.

2.3 SLEEVE-SEAL FITTINGS

A. Description: Manufactured plastic, sleeve-type, waterstop assembly made for embedding in concrete slab or wall. Unit shall have plastic or rubber waterstop collar with center opening to match piping OD.

1. Manufacturers: Subject to compliance with requirements, provide products by the following:

a. Presealed Systems.

2.4 GROUT

A. Description: Nonshrink; recommended for interior and exterior sealing openings in non-fire-rated walls or floors.

B. Standard: ASTM C 1107/C 1107M, Grade B, post-hardening and volume-adjusting, dry, hydraulic-cement grout.

C. Design Mix: 5000-psi, 28-day compressive strength.

D. Packaging: Premixed and factory packaged.

2.5 SILICONE SEALANTS

A. Silicone Sealants: Single-component, silicone-based, neutral-curing elastomeric sealants of grade indicated below.

1. Grade: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces that are not fire rated.
2. Sealant 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. Silicone Foams: Multicomponent, silicone-based liquid elastomers that, when mixed, expand and cure in place to produce a flexible, nonshrinking foam.

PART 3 - EXECUTION

3.1 SLEEVE INSTALLATION FOR NON-FIRE-RATED ELECTRICAL PENETRATIONS

A. Comply with NECA 1.

B. Comply with NEMA VE 2 for cable tray and cable penetrations.

C. Sleeves for Conduits Penetrating Above-Grade Non-Fire-Rated Concrete and Masonry-Unit Floors and Walls:

1. Interior Penetrations of Non-Fire-Rated Walls and Floors:

a. Seal annular space between sleeve and raceway or cable, using joint sealant appropriate for size, depth, and location of joint.
b. Seal space outside of sleeves with mortar or grout. Pack sealing material solidly between sleeve and wall so no voids remain. Tool exposed surfaces smooth; protect material while curing.

2. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.
3. Size pipe sleeves to provide 1/4-inch annular clear space between sleeve and raceway or cable unless sleeve seal is to be installed.
4. Install sleeves for wall penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of walls. Cut sleeves to length for mounting flush with both surfaces of walls. Deburr after cutting.
5. Install sleeves for floor penetrations. Extend sleeves installed in floors 2 inches above finished floor level. Install sleeves during erection of floors.

D. Sleeves for Conduits Penetrating Non-Fire-Rated Gypsum Board Assemblies:

1. Use circular metal sleeves unless penetration arrangement requires rectangular sleeved opening.
2. Seal space outside of sleeves with approved joint compound for gypsum board assemblies.

E. Aboveground, Exterior-Wall Penetrations: Seal penetrations using steel pipe sleeves and mechanical sleeve seals. Select sleeve size to allow for 1-inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.

F. Underground, Exterior-Wall and Floor Penetrations: Install cast-iron pipe sleeves. Size sleeves to allow for 1-inch annular clear space between raceway or cable and sleeve for installing sleeve-seal system.

3.2 SLEEVE-SEAL-SYSTEM INSTALLATION

A. Install sleeve-seal systems in sleeves in exterior concrete walls and slabs-on-grade at raceway entries into building.

B. Install type and number of sealing elements recommended by manufacturer for raceway or cable material and size. Position raceway or cable in center of sleeve. Assemble mechanical sleeve seals and install in annular space between raceway or cable and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

3.3 SLEEVE-SEAL-FITTING INSTALLATION

A. Install sleeve-seal fittings in new walls and slabs as they are constructed.

B. Assemble fitting components of length to be flush with both surfaces of concrete slabs and walls. Position waterstop flange to be centered in concrete slab or wall.

C. Secure nailing flanges to concrete forms.

D. Using grout, seal the space around outside of sleeve-seal fittings.

END OF SECTION 260544

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Wi-Fi Cabling Infrastructure

SECTION 260553 - IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Identification for raceways.
2. Identification of power and control cables.
3. Identification for conductors.
4. Pole identification and labeling.
5. Identification of wiring devices
6. Underground-line detectable warning tape.
7. Non-metallic low-voltage conduit tracer wire.
8. Warning labels and signs.
9. Instruction signs.
10. Equipment identification labels.
11. Miscellaneous identification products.

1.2 QUALITY ASSURANCE

A. Comply with ANSI A13.1 and IEEE C2.

B. Comply with NFPA 70.

C. Comply with 29 CFR 1910.144 and 29 CFR 1910.145.

D. Comply with ANSI Z535.4 for safety signs and labels.

E. Adhesive-attached labeling materials, including label stocks, laminating adhesives, and inks used by label printers, shall comply with UL 969.

1.3 COORDINATION

A. Coordinate identification names, abbreviations, colors, and other features with requirements in other Sections requiring identification applications, Drawings, Shop Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual; and with those required by codes, standards, and 29 CFR 1910.145. Use consistent designations throughout Project.

B. Coordinate installation of identifying devices with completion of covering and painting of surfaces where devices are to be applied.

C. Coordinate installation of identifying devices with location of access panels and doors.

D. Install identifying devices before installing acoustical ceilings and similar concealment.

PART 2 - PRODUCTS

2.1 POWER AND CONTROL RACEWAY IDENTIFICATION MATERIALS

A. Comply with ANSI A13.1 for minimum size of letters for legend and for minimum length of color field for each raceway size.

B. Colors for Raceways Carrying Circuits at 600 V or Less:

1. Black letters on an orange field.
2. Legend: Indicate voltage.

C. Vinyl Labels for Raceways Carrying Circuits at 600 V or Less: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound clear adhesive tape for securing ends of legend label.

D. Snap-Around, Color-Coding Bands for Raceways Carrying Circuits at 600 V or Less: Slit, pre-tensioned, flexible, solid-colored acrylic sleeve, 2 inches long, with diameter sized to suit diameter of raceway or cable it identifies and to stay in place by gripping action.

E. Write-On Tags: Polyester tag, 0.015 inch thick, with corrosion-resistant grommet and cable tie for attachment to conductor or cable.

1. Marker for Tags: Machine-printed, permanent, waterproof, black ink marker recommended by printer manufacturer.

2.2 POWER AND CONTROL CABLE IDENTIFICATION MATERIALS

A. Comply with ANSI A13.1 for minimum size of letters for legend and for minimum length of color field for each cable size.

B. Vinyl Labels: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound clear adhesive tape for securing ends of legend label.

C. Self-Adhesive, Self-Laminating Polyester Labels: Preprinted, 3-mil- thick flexible label with acrylic pressure-sensitive adhesive that provides a clear, weather- and chemical-resistant, self-

laminating, protective shield over the legend. Labels sized to fit the cable diameter such that the clear shield overlaps the entire printed legend.

D. Write-On Tags: Polyester tag, 0.015 inch thick, with corrosion-resistant grommet and cable tie for attachment to conductor or cable.

1. Marker for Tags: Machine-printed, permanent, waterproof, black ink marker recommended by printer manufacturer.

E. Snap-Around, Color-Coding Bands: Slit, pre-tensioned, flexible, solid-colored acrylic sleeve, 2 inches long, with diameter sized to suit diameter of cable it identifies and to stay in place by gripping action.

2.3 CONDUCTOR IDENTIFICATION MATERIALS

A. Color-Coding Conductor Tape: Colored, self-adhesive vinyl tape not less than 3 mils thick by 1 to 2 inches wide.

B. Self-Adhesive, Self-Laminating Polyester Labels: Preprinted, 3-mil- thick flexible label with acrylic pressure-sensitive adhesive that provides a clear, weather- and chemical-resistant, self-laminating, protective shield over the legend. Labels sized to fit the conductor diameter such that the clear shield overlaps the entire printed legend.

C. Snap-Around, Color-Coding Bands: Slit, pre-tensioned, flexible, solid-colored acrylic sleeve with diameter sized to suit diameter of conductor it identifies and to stay in place by gripping action.

D. Write-On Tags: Polyester tag, 0.015 inch thick, with corrosion-resistant grommet and cable tie for attachment to conductor or cable.

1. Labels for Tags: Self-adhesive label, machine-printed with permanent, waterproof, black ink recommended by printer manufacturer, sized for attachment to tag.

2.4 POLE IDENTIFICATION AND LABELING

A. All new exterior steel and wood poles shall be permanently labeled sequentially, using the Owner’s existing numerology or as indicated on the drawings. Letter height and style shall closely match existing.

1. Paint shall contrast with pole color. Black on galvanized poles. White on bronze and wood poles.
2. Paint shall be exterior grade, permanent, chemically inert and not subject to degrading when exposed to weather.

3. Wood poles shall be labeled with attachable labels, matching the Owner's labels, where required.

2.5 IDENTIFICATION OF WIRING DEVICES

A. All devices shall be identified by a permanently installed label. Comply with Section 262726 – Wiring Devices.

2.6 UNDERGROUND-LINE DETECTABLE WARNING TAPE

A. Tape:
1. Red detectable warning tape. Aluminum foil backed. Printed warning message "CAUTION BURIED ELECTRIC LINE BELOW".
2. 3" wide x 5 mil thick. Nominal 1000' rolls.
3. Temperature range of 9 to 120 degrees F (0 to 49 degrees C).
4. APWA Approved and RoHS 2011/65/EU Compliant.
5. Recommended by manufacturer for the method of installation and suitable to identify and locate underground electrical and communications utility lines.
6. Printing on tape shall be permanent and shall not be damaged by burial operations.
7. Tape material and ink shall be chemically inert, and not subject to degrading when exposed to acids, alkalis, and other destructive substances commonly found in soils.
8. Scotch 406 or equal.

2.7 NON-METALLIC LOW-VOLTAGE CONDUIT TRACER WIRE.

A. All directionally-bored or direct-buried PVC or HDPE non-metallic low voltage conduit installations, shall contain a tracer wire to allow detection from grade by a standard metal detector.

B. Tracer wire may be solid or stranded copper, with black insulation. Direct buried wires shall be #12AWG, type USE or UF. Internal tracer wires shall be THHN or THWN.

C. Tracer wire may be an integral component in HDPE conduit, or separately installed when pulling the conduit through the bore hole or installing direct-buried conduit.

D. Tracer wire may be internally or externally installed.

2.8 WARNING LABELS AND SIGNS

A. Comply with NFPA 70 and 29 CFR 1910.145.

B. Self-Adhesive Warning Labels: Factory-printed, multicolor, pressure-sensitive adhesive labels, configured for display on front cover, door, or other access to equipment unless otherwise indicated.

C. Baked-Enamel Warning Signs:

1. Preprinted aluminum signs, punched or drilled for fasteners, with colors, legend, and size required for application.
2. 1/4-inch grommets in corners for mounting.
3. Nominal size, 7 by 10 inches.

D. Metal-Backed, Butyrate Warning Signs:

1. Weather-resistant, nonfading, preprinted, cellulose-acetate butyrate signs with 0.0396-inch galvanized-steel backing; and with colors, legend, and size required for application.
2. 1/4-inch grommets in corners for mounting.
3. Nominal size, 10 by 14 inches.

E. Warning label and sign shall include, but are not limited to, the following legends:

1. Workspace Clearance Warning: "WARNING - OSHA REGULATION - AREA IN FRONT OF ELECTRICAL EQUIPMENT MUST BE KEPT CLEAR FOR 36 INCHES."

2.9 INSTRUCTION SIGNS

A. Engraved, laminated acrylic or melamine plastic, minimum 1/16 inch thick for signs up to 20 sq. inches and 1/8 inch thick for larger sizes.

1. Engraved legend with black letters on white face.
2. Punched or drilled for mechanical fasteners.
3. Framed with mitered acrylic molding and arranged for attachment at applicable equipment.

2.10 EQUIPMENT IDENTIFICATION LABELS

A. Adhesive Film Label: Machine printed, in black, by thermal transfer or equivalent process. Minimum letter height shall be 3/8 inch.

B. Adhesive Film Label with Clear Protective Overlay: Machine printed, in black, by thermal transfer or equivalent process. Minimum letter height shall be 3/8 inch. Overlay shall provide a weatherproof and UV-resistant seal for label.

C. Self-Adhesive, Engraved, Laminated Acrylic or Melamine Label: Adhesive backed, with white letters on a dark-gray background. Minimum letter height shall be 3/8 inch.

D. Engraved, Laminated Acrylic or Melamine Label: Punched or drilled for screw mounting. White letters on a dark-gray background. Minimum letter height shall be 3/8 inch.

E. Stenciled Legend: In nonfading, waterproof, black ink or paint. Minimum letter height shall be 1 inch.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Verify identity of each item before installing identification products.

B. Location: Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment.

C. Apply identification devices to surfaces that require finish after completing finish work.

D. Self-Adhesive Identification Products: Clean surfaces before application, using materials and methods recommended by manufacturer of identification device.

E. Attach signs and plastic labels that are not self-adhesive type with mechanical fasteners appropriate to the location and substrate.

F. Attach plastic raceway and cable labels that are not self-adhesive type with clear vinyl tape with adhesive appropriate to the location and substrate.

G. System Identification Color-Coding Bands for Raceways and Cables: Each color-coding band shall completely encircle cable or conduit. Place adjacent bands of two-color markings in contact, side by side. Locate bands at changes in direction, at penetrations of walls and floors, at 50-foot maximum intervals in straight runs, and at 25-foot maximum intervals in congested areas.

H. Aluminum Wraparound Marker Labels and Metal Tags: Secure tight to surface of conductor or cable at a location with high visibility and accessibility.

I. Underground-Line Warning Tape: During backfilling of trenches install continuous underground-line warning tape directly above line at 6 to 8 inches below finished grade. Use multiple tapes where width of multiple lines installed in a common trench exceeds 16 inches overall.

J. Install tracer wire with all low-voltage, non-metallic conduit.

K. Painted Identification: Comply with requirements in painting Sections for surface preparation and paint application.

3.2 IDENTIFICATION SCHEDULE

A. Accessible Raceways and Metal-Clad Cables, 600 V or Less, for Service, Feeder, and Branch Circuits More Than 30 A, and 120 V to ground: Identify with self-adhesive vinyl label. Install labels at 30-foot maximum intervals.

B. Accessible Raceways and Cables within Buildings: Identify the covers of each junction and pull box of the following systems with self-adhesive vinyl labels with the wiring system legend and system voltage. System legends shall be as follows:

1. Power.

C. Power-Circuit Conductor Identification, 600 V or Less: For conductors in vaults, pull and junction boxes, manholes, and handholes, use color-coding conductor tape to identify the phase.

1. Color-Coding for Phase and Voltage Level Identification, 600 V or Less: Use colors listed below for ungrounded feeder and branch-circuit conductors.

a. Color shall be factory applied or field applied for sizes larger than No. 8 AWG, if authorities having jurisdiction permit.
b. Colors for 208/120-V Circuits:

1) Phase A: Black.
2) Phase B: Red.
3) Phase C: Blue.

c. Colors for 480/277-V Circuits:

1) Phase A: Brown.
2) Phase B: Orange.
3) Phase C: Yellow.

d. Field-Applied, Color-Coding Conductor Tape: Apply in half-lapped turns for a minimum distance of 6 inches from terminal points and in boxes where splices or taps are made. Apply last two turns of tape with no tension to prevent possible unwinding. Locate bands to avoid obscuring factory cable markings.

D. Install instructional sign including the color-code for grounded and ungrounded conductors using adhesive-film-type labels.

E. Control-Circuit Conductor Identification: For conductors and cables in pull and junction boxes, manholes, and handholes, use self-adhesive, self-laminating polyester labels with the conductor or cable designation, origin, and destination.

F. Control-Circuit Conductor Termination Identification: For identification at terminations provide self-adhesive, self-laminating polyester labels with the conductor designation.

G. Conductors to Be Extended in the Future: Attach write-on tags to conductors and list source.

H. Auxiliary Electrical Systems Conductor Identification: Identify field-installed alarm, control, and signal connections.

1. Identify conductors, cables, and terminals in enclosures and at junctions, terminals, and pull points. Identify by system and circuit designation.
2. Use system of marker tape designations that is uniform and consistent with system used by manufacturer for factory-installed connections.
3. Coordinate identification with Project Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual.

I. Locations of Underground Lines: Identify with underground-line warning tape for power, lighting, communication, and control wiring and optical fiber cable.

1. Install underground-line warning tape for both direct-buried cables and cables in raceway.

J. Warning Labels for Indoor Cabinets, Boxes, and Enclosures for Power and Lighting: Self-adhesive warning labels.

1. Comply with 29 CFR 1910.145.
2. Identify system voltage with black letters on an orange background.
3. Apply to exterior of door, cover, or other access.

K. Operating Instruction Signs: Install instruction signs to facilitate proper operation and maintenance of electrical systems and items to which they connect. Install instruction signs with approved legend where instructions are needed for system or equipment operation.

L. Equipment Identification Labels: On each unit of equipment, install unique designation label that is consistent with wiring diagrams, schedules, and the Operation and Maintenance Manual. Apply labels to disconnect switches and protection equipment, central or master units, control panels, control stations, terminal cabinets, and racks of each system. Systems include power, lighting, control, communication, signal, monitoring, and alarm systems unless equipment is provided with its own identification.

1. Labeling Instructions:

a. Indoor Equipment: Self-adhesive, engraved, laminated acrylic or melamine label. Unless otherwise indicated, provide a single line of text with 1/2-inch- high letters on 1-1/2-inch- high label; where two lines of text are required, use labels 2 inches high.
b. Outdoor Equipment: Engraved, laminated acrylic or melamine label Stenciled legend 4 inches high.
c. Elevated Components: Increase sizes of labels and letters to those appropriate for viewing from the floor.

d. Unless provided with self-adhesive means of attachment, fasten labels with appropriate mechanical fasteners that do not change the NEMA or NRTL rating of the enclosure.

2. Equipment to Be Labeled:

a. Panelboards: Typewritten directory of circuits in the location provided by panelboard manufacturer. Panelboard identification shall be self-adhesive, engraved, laminated acrylic or melamine label.
b. Enclosures and electrical cabinets.
c. Access doors and panels for concealed electrical items.
d. Transformers: Label that includes tag designation shown on Drawings for the transformer, feeder, and panelboards or equipment supplied by the secondary.
e. Enclosed controllers.
f. Push-button stations.
g. Contactors.
h. Receptacles.

END OF SECTION 260553

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Department of Technology, Management and Budget
Design and Construction Division
Funding Code: 472ElectronicComm
File No: 472/17032.RWG
Kinross Correctional Facility
Wi-Fi Cabling Infrastructure

SECTION 262726 - WIRING DEVICES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for wiring devices:

1. Receptacles, receptacles with integral GFCI, and associated device plates.
2. Action Submittals.
3. Informational Submittals.
4. Closeout Submittals.
5. Straight-Blade Receptacles.
6. Wall Plates.
7. Finishes.
8. Installation.
9. Identification.
10. Field Quality.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: List of legends and description of materials and process used for pre-marking wall plates.

1.3 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

1.4 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For wiring devices to include in all manufacturers' packing-label warnings and instruction manuals that include labeling conditions.

PART 2 - PRODUCTS

A. Wiring Devices, Components, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NFPA 70.

C. Devices that are manufactured for use with modular plug-in connectors may be substituted under the following conditions:

1. Connectors shall comply with UL 2459 and shall be made with stranding building wire.
2. Devices shall comply with the requirements in this Section.

2.2 STRAIGHT-BLADE RECEPTACLES

A. Convenience Receptacles, 125 V, 20 A: Comply with NEMA WD 1, NEMA WD 6 Configuration 5-20R, UL 498, and FS W-C-596.

1. Products: Subject to compliance with requirements, provide one of the following:

a. Cooper; 5351 (single), CR5362 (duplex).
b. Hubbell; HBL5351 (single), HBL5352 (duplex).
c. Leviton; 5891 (single), 5352 (duplex).
d. Pass & Seymour; 5361 (single), 5362 (duplex).

2.3 WALL PLATES

A. Single and combination types shall match corresponding wiring devices.

1. Plate-Securing Screws: Metal with head color to match plate finish.
2. Material for Unfinished Spaces: Galvanized steel.

2.4 FINISHES

A. Device Color:

1. Wiring Devices: Match existing unless otherwise indicated or required by NFPA 70 or device listing.

B. Wall Plate Color: stainless steel or standard 4 Square metal cover.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with NECA 1, including mounting heights listed in that standard, unless otherwise indicated.

B. Coordination with Other Trades:

1. Protect installed devices and their boxes.

C. Conductors:

1. Do not strip insulation from conductors until right before they are spliced or terminated on devices.
2. Strip insulation evenly around the conductor using tools designed for the purpose. Avoid scoring or nicking of solid wire or cutting strands from stranded wire.
3. The length of free conductors at outlets for devices shall meet provisions of NFPA 70, Article 300, without pigtails.

D. Device Installation:

1. Replace devices that have been in temporary use during construction and that were installed before building finishing operations were complete.
2. Keep each wiring device in its package or otherwise protected until it is time to connect conductors.
3. Do not remove surface protection, such as plastic film and smudge covers, until the last possible moment.
4. Connect devices to branch circuits using pigtails that are not less than 6 inches in length.
5. When there is a choice, use side wiring with binding-head screw terminals. Wrap solid conductor tightly clockwise, two-thirds to three-fourths of the way around terminal screw.
6. Use a torque screwdriver when a torque is recommended or required by manufacturer.
7. When conductors larger than No. 12 AWG are installed on 15- or 20-A circuits, splice No. 12 AWG pigtails for device connections.
8. Tighten unused terminal screws on the device.
9. When mounting into metal boxes, remove the fiber or plastic washers used to hold device-mounting screws in yokes, allowing metal-to-metal contact.
10. Install tamper resistant devices in areas accessible to inmates.

E. Receptacle Orientation:

1. Install ground pin of vertically mounted receptacles down, and on horizontally mounted receptacles to the right.

F. Device Plates: Do not use oversized or extra-deep plates. Repair wall finishes and remount outlet boxes when standard device plates do not fit flush or do not cover rough wall opening.

3.2 IDENTIFICATION

A. Comply with Section 260553 - Identification for Electrical Systems.

B. Identify each receptacle with panelboard identification and circuit number. Use hot, stamped, or engraved machine printing with black-filled lettering centered at bottom of face of plate, and durable wire markers or tags inside outlet boxes.

3.3 FIELD QUALITY CONTROL

A. Perform the following tests and inspections with the assistance of a factory-authorized service representative:

1. Test Instruments: Use instruments that comply with UL 1436.
2. Test Instrument for Convenience Receptacles: Digital wiring analyzer with digital readout or illuminated digital-display indicators of measurement.

B. Tests for Convenience Receptacles:

1. Line Voltage: Acceptable range is 105 to 132 V.
2. Percent Voltage Drop under 15-A Load: A value of 6 percent or higher is unacceptable.
3. Ground Impedance: Values of up to 2 ohms are acceptable.
4. Using the test plug, verify that the device and its outlet box are securely mounted.
5. Tests shall be diagnostic, indicating damaged conductors, high resistance at the circuit breaker, poor connections, inadequate fault current path, defective devices, or similar problems. Correct circuit conditions, remove malfunctioning units and replace with new ones, and retest as specified above.

C. Wiring device will be considered defective if it does not pass tests and inspections.

D. Prepare test and inspection reports.

END OF SECTION 262726

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SECTION 281000 – TECHNOLOGY OVERVIEW

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. This section provides a project overview and general project and Contractor requirements for technology work.

B. The “Contractor” as referred to in these specifications, shall be the bidder whose bid is eventually chosen as the winner.

C. The “Engineer” as referred to in these specifications, shall be Commtech Design and its representative on this project.

D. The “Owner” as referred to in these specifications, shall be Michigan Department of Corrections and its representatives.

E. In the detailed specifications and on the contract drawings, the phrases “or equivalent,” “approved equivalent,” “approved equal,” “or equal” and “engineer approved equivalent” shall be used interchangeably and shall mean the same thing.

F. All equals, equivalents, or alternates shall be approved by the Engineer prior to ordering or installation. Without approval, deviation from the products listed in the specifications and on the drawings, shall be presumed to be nonconforming and shall be removed and replaced at the direction of the Engineer and at the Contractor’s expense.

1.02 DESCRIPTION OF PROJECT

A. Cabling and communications infrastructure for Wireless Network system (WIFI network)

1. The communications portion of the project encompasses communications cabling and termination equipment. The work shall include but not be limited to:
    a. Communications room racks and cabinets.
    b. Communications Cabling and Termination Equipment:
    a. User UTP Plenum rated CAT-6A cabling
    b. Raceways for cables.
    c. Grounding and Bonding
2. All cables shall be labeled according to the drawings and the specifications.
3. All cables shall be terminated and tested as per the specifications.
2. All cables shall be supported by J-hooks or cable tray/ladder or in conduits.
3. Label all cables and patch panels.
4. Test all cables.
5. The extent of the work shall be as shown on the drawing and detailed in these specifications

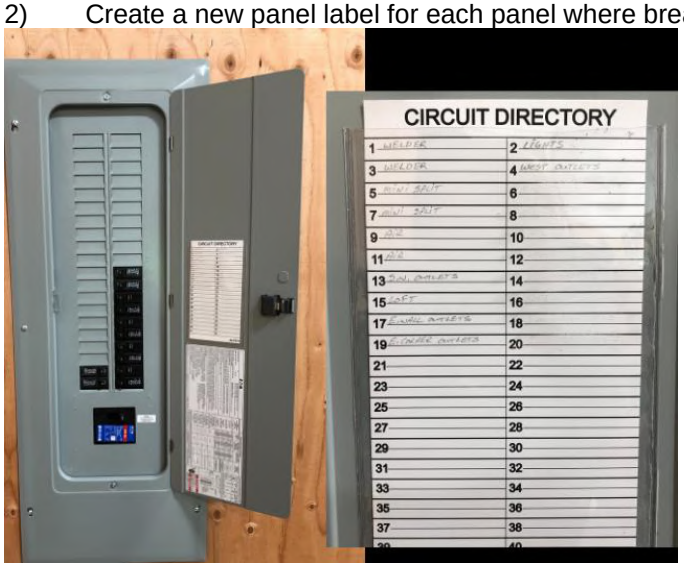
B. Wireless Access Point (WAP) installation.

1. The owner is purchasing all WAPS and Network Switches directly and the contractor will be required to install the WAPS.
2. The Contractor shall install the Wireless Access Points (WAPS) and their mounts.
    a. WAPS shall be installed at the end of the CAT-6A cable location.
3. Provide and install all CAT-6A patch cords at the WAP.
    a. Verify connectivity of WAPS and Switches with link lights once the owner installs the Ethernet Switches.
    b. Generate as-built drawings showing the locations of all WAPS and WAP numbers. Shall include the WAP number.
4. Ethernet switches shall be installed and configured by the owner.

5. Work with the owner as they are onsite to confirm WAP connectivity. Troubleshoot any WAPS that are not connecting via the cables installed as part of this project.

C. Raceways
   1. Installing all raceways to support new cabling and WAPS and electrical circuits.
   2. This shall include all underground raceway where required.

D. Electrical systems
   1. Contractor shall provide and install power circuits at the locations noted on the E series drawings
      a. Provide and install all breakers, cabling, raceway and termination equipment for power circuits.
      b. Apply for and obtain all permits required for the work.
      c. Update all panel labels showing all current and new circuit details.
         1) Gather information and size of panel label from the field
         2) Create a new panel label for each panel where breakers are installed.
      d.



1.03 STORAGE OF MATERIALS

A. All materials shall be secured when not in use by the Contractor.

B. It shall be the Contractor's responsibility to secure all equipment including all material to be installed as part of the contract. No changes shall be made to the contract due to loss or theft of equipment and materials not officially accepted by the Owner.

C. Provide Conex box onsite during installation for use by the owner. Owner will populate this box with their equipment during project.
   1. Remove Conex from the site after project completion

1.04 PERMITS

A. The State of Michigan requires that the Contractor apply for and obtain permits for data telecommunication installation.

B. This is required under State of Michigan Public Act 230. The inspector at the State of Michigan states that the code never exempted data telecommunications from permits and previous rules had overstepped their bounds. Only exemptions to the permit requirements are found in Public Act 230 MCL125.1528a.
   1. There is not a license required to apply for a permit per Public Act 407 MCL339.5737(3)(o).

C. The Permit is required under Public Act 230. The permit is under 2017 Michigan Electrical Code rules Part 8.
D. People who can obtain the permit include the Owner of the building or a company representing the owner. See Public Act 230 MCL125.1510.
   1. Contractor shall be required to apply for and obtain the permit
   2. Contractor shall be required to install the data telecommunications system to fully meet all code requirements and requirements of the Inspector and Authority Having Jurisdiction (AHJ)
E. State inspector has noted that the inspection process for data telecommunications is the same as any other inspection.
   1. Do not cover or conceal any wiring without approval.
   2. Electrical Inspectors will be conducting the inspections.
   3. Contractor shall be responsible for scheduling the inspections and attending the inspections with the inspector
F. State inspector has noted that the inspectors will be inspecting for code compliance including manufacture's installation instructions for the cables and terminations.
G. An installation may not pass inspection if there is any Non-compliance with the code.

1.05 REFERENCE SPECIFICATIONS-CABLING
A. All work applicable shall conform to the following standards:
B. ANSI/TIA-568-C.0, "*Generic Telecommunications* Cabling *for Customer Premises*",
C. ANSI/TIA-568-C.1, "*Commercial Building Telecommunications Cabling Standard*",
D. ANSI/TIA-568-C.2, "*Balanced Twisted-Pair Telecommunication Cabling and Components Standard*", ANSI/TIA-568-C.3, "*Optical Fiber Cabling Components Standard*",
E. ANSI/TIA-568-C.4, "*Broadband Coaxial Cabling and Components Standard*",
F. ANSI/TIA/EIA-569-B Commercial Building Standard for Telecommunications Pathways and Spaces
G. IA-606-B: Administration Standard for the Telecommunications Infrastructure of Commercial Buildings including all Updates and Addenda.
H. TIA-607-C: Generic Telecommunications Bonding and Grounding (Earthing) for Customer Premises.
I. EIA-472 General Specification for Fiber Optic Cable
J. EIA-472A Sectional Specification for Fiber Optic Communication Cables for Outside Aerial
K. EIA-472B Sectional Specification for Fiber Optic Communication Cables for Underground and Buried Use
L. EIA-472C Sectional Specification for Fiber Optic Communication Cables for Indoor Use
M. EIA-472D Sectional Specification for Fiber Optic Communication Cables for Outside Telephone Plant Use
N. NEC, 2015, or latest edition available
O. IEEE 802.3af PoE • Ratified in 2003 • 15.4W at the PSE, with min of 12.95W available to the PD
P. IEEE 802.3at PoE+ • Ratified in 2009 • 34.2W at the PSE, with min of 25.5W available to the PD
Q. IEEE 802.3bt-2018 - IEEE Standard for Ethernet Amendment 2: Physical Layer and Management Parameters for Power over Ethernet over 4 pairs

1.06 CONTRACTOR-ALL
A. Each contractor shall be responsible for inspecting their own work and ensuring it meets the project requirements.

B. Contractor shall have a project manager who will be responsible for all work, workers, equipment, cabling and project management for their work. The project manager shall have the authority to make decisions for the contractor and schedule all workers.
C. Contractor shall attend all project meetings throughout the project.
D. All work on the project shall meet all applicable state, federal, local and industry codes and be installed according to the requirements of he Authority Having Jurisdiction (AHJ).

1.07 CONTRACTOR -CABLING
A. The Contractor shall show proof of an existing contractual relationship with the approved equipment manufacturer of the horizontal cabling system and shall pass through the manufacturer's certification and warranty to purchaser.
B. All faceplates and termination hardware shall be sourced from the certifying manufacturer to assure quality control and validity of the manufacturer's warranty.
C. The Contractor shall accept complete responsibility for the installation, certification, and support of the cabling system. Contractor must show proof that he has the certifying manufacturer's support on all of these issues.
D. All work shall be performed and supervised by Telecommunications Technicians and Project Managers who are qualified to install voice, data, and image cabling systems, and to perform related tests as required by the manufacturer in accordance with the manufacturer's methods.
E. The Telecommunications Technicians employed shall be fully trained and qualified by the manufacturer on the installation and testing of the equipment to be installed. Evidence that the vendor is a current Certified Installer of the manufacturer must be provided in writing prior to work commencing on the structured cabling for the building.
F. The Contractor (including Subcontractor(s) if any) shall have a proven track record in cabling projects. This must be shown by the inclusion of details of at least 3 projects involving Category 6 or better cabling and optical fiber, which have been completed by the vendor in the last 2 years. Names, addresses, and phone numbers of references for the 3 projects shall be included.

PART 2 - PRODUCTS

2.01 FIRESTOPPING
A. Each contractor shall be responsible for firestopping around their cables and the raceways.
B. Shall be completed inside and around all conduits after cable installation.
C. Firestop for the area between the cable and the edge of the conduit shall be Nelson No. FSP, CLK or LBS+. Contractor shall install the best firestop for each individual installation.
    1. Firestop shall be installed with regard to local and national building codes.
    2. The firestop shall be a putty like substance that expands under heat and will not allow flame to pass for a designated period of time.
    3. Firestop shall conform to all NEC, NFPA, and UL requirements.
    4. Some wall pass-thru’s are shown on the drawings. The Contractor shall utilize these where possible.
    5. Where the contractor must install cables through a wall where there is no pass-thru already provided, the Contractor shall be responsible for installing a fire-rated pass-thru and fire-stopping the conduit after cable installation.
D. Firestopping is required at all riser conduits and all pass thru’s.
    1. Each cable tray penetration of a wall shall be firestopped after cable installation. Use pillow type firestop to allow additional cables to be installed in the future.
    2. Where riser conduits pass through floors, the area between the concrete and the conduit shall be firestopped. This shall be completed with a putty or liquid firestop

product. Fill in the space with mineral wool, and then install the firestop on top. All firestop shall be of sufficient thickness to secure the rating required by code.

3. After final cable installation, install a putty firestop around all cables where they enter and exit conduit pass thru's and conduit risers.
4. All firestop shall be installed to provide the fire rating as described by local fire code.
5. It shall be the responsibility of the Contractor to verify that all conduits, walls, and raceways required to be firestopped have been firestopped.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Contractor shall be familiar with the location(s) where the work will be done. No additional compensation will be made for items the Contractor claims he was not aware of during bidding.

B. Work Area:
   1. All work areas shall be cleaned at the end of each day. All debris shall be cleaned and removed from the site and disposed of in the approved container for the site.
   2. All equipment shall be moved out of common areas and stored in the Contractor's lay down area, or in other approved storage locations on site.
   3. Any work that is low hanging or may otherwise impede the general use of the space, and cannot be removed, shall be flagged and cordoned off by the Contractor.

C. All equipment and parts shall be installed in a neat and workmanlike manner. Good installation principles shall be used throughout the project.

D. All cables routed above the drop ceiling or in the ceiling area shall be installed square to the building. Diagonal cable runs are not permissible.

E. All cut edges of conduits, boxes, raceway, etc., shall be trimmed and filed so that no burrs or rough edges will damage cable as it is installed.

F. All surface raceways, including conduits in exposed areas shall be painted to match the existing colors of the surrounding area.

G. If, in the course of the work, the Contractor damages, marks, or misplaces any ceiling tiles, the Contractor shall repair, and/or replace the ceiling tile to the original condition.
   1. The Engineer shall decide if ceiling tiles have been damaged. Based on the Contractors proposed fixes, the Engineer shall decide the best course of action to repair any damage done by the Contractor to the ceiling tiles.

H. It shall be the responsibility of the Contractor to repair any damage done to the structure or finishes in the building by the Contractor. The building shall be returned to its original condition prior to final sign off of the project.

I. Firestop shall be installed to meet national and local codes.

3.02 DOCUMENTS

A. The Contractor shall fully read the contract documents including the detailed specifications, and the detailed drawings.

B. No additional compensation shall be made for any portion of the project which the Contractor did not know of or understand prior to providing the bid response.

C. In the case of any discrepancies between the detailed drawings and the detailed specifications, the Contractor shall provide the higher quality or more stringent requirement.

3.03 WORK PLAN-POST BID (CHOSEN CONTRACTOR ONLY)

A. Along with the submittals the Contractor shall provide a work plan for the implementation of the system they are installing. The plan shall include scheduled dates for major milestones, and all phases required for completion prior to final cutover.
B. The work plan shall list all items that must be completed by the Contractor or Owner to provide a smooth install of the system. The Contractor shall be responsible for all costs associated with the planning and cutover. The Owners only responsibility is to act as a liaison between the Contractor and the users.
C. The work plans shall include a timeline and a cutover date for the systems within each building. Contractor shall be responsible for all aspects of scheduling the work, including notification of the users, the administration, and the telephone service provider.
D. The work shall commence within 10 days of award of the contract. The Contractor shall be responsible for attending weekly project meetings at the Owner's site to report on progress and keep the project team informed of the work being done
E. The work plan will be reviewed at each project meeting for compliance and updates.
F. Work shall immediately begin on site surveys to determine the existing infrastructure, conduit and raceway placement and determining placement of new system equipment. The Contractor shall be responsible for moving, relocating, and reconnecting any and all existing equipment required for the installation of the new systems.
G. After work plan and system approval by the Engineer the Contractor can begin work on infrastructure work that does not impede users.
H. The Contractor shall be responsible for working with the Owner's Information Technology staff and administrators.

END OF SECTION 281000

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SECTION 281100 – COMMUNICATIONS ROOM

PART 1 - GENERAL

1.01 SECTION INCLUDES
- A. Parts and equipment required for equipment in the communications room (Comm Room)

1.02 SYSTEM DESCRIPTION
- A. All equipment in the communications room shall be installed so that access is provided to all components, mechanical and electrical.
- B. All components of the communications room shall work together to form a cohesive and complete communications infrastructure.

1.03 COORDINATION
- A. Coordinate rack/cabinet work with the Electrical Contractor for placement of electrical connections.

PART 2 - PRODUCTS

2.01 MANUFACTURERS
- A. Approved Equals for Racks and Cable Ladder Hardware:
  1. Hubbell.
  2. Ortronics
  3. Panduit.
  4. Great Lakes Case and Cabinet.
  5. Middle Atlantic.
  6. Hoffman

2.02 COMMUNICATIONS RACKS -FLOOR MOUNTED
- A. Two Post Communications rack, 19 inches wide, 84 inches high. Black in color with 45 rack mounting units (1.75 inches per RU), self-supporting.
  1. Rack shall have holes to attach 6 inch wide vertical organizers.
  2. Base shall have holes for attaching to the floor.
  3. The rack shall be Hubbell #HWP84RR19 or approved equal.
  4. Equip with 6” wide vertical organizers between each rack
  5. Vertical Organizers for installation between and on each side of a rack shall be RLX #3326-BK06 or equal

2.03 POWER STRIPS:
- A. 20 AMP Rack mount horizontal power strip
  1. Single circuit 120 Volt, 20 AMP
  2. Local Metered single phase 16A 120V PDU with ISOBAR Surge Suppression
  3. 1U Horizontal rackmount
  4. Digital current meter with Diagnostic LEDs
  5. Shall have a 3840 Joule suppression rating,
  6. Shall be NEMA L5-20P input. Equip with 5-20P adapter;
  7. Cord shall be 15-ft. 4.57 m line cord
  8. Shall be equipped with
     a. 12 NEMA 5-20R outlets (rear),
     b. 2 5-15R outlets (front)

9. Shall have Reversible housing; 4.5in /11.4cm depth
10. Shall have a 2-year limited warranty
11. Coordinate with electrician to verify plug and outlet in the wall connectivity.
12. Install and test all outlets prior to project completion.
13. Shall be Tripp Lite PDUMH20-ISO or equal

2.04 VERTICAL ORGANIZERS FOR RACKS

A. Provide and install vertical organizers for new and existing racks as shown on the drawings
B. Shall be front and back organizer. Front shall have a cover. Rear shall have cabler containment gates
C. Shall be 7' tall. 6" wide and single sided. No back organizing is required.
D. Vertical organizer shall be able to be mounted to side of existing racks. Custom fit this. If rack is smaller than 7/ then cleanly cut the organizer to fit.
E. Move cables and route the cables into the organizer to neatly route cables. Remove all items from the side of existing racks and install into the organizer.
F. Vertical organizer shall be RLX #3326-BK06.
G. Where there is not 6" of space available, the vertical organizer shall be 4" wide, RLX # 3326-BK04. Confirm onsite at each rack prior to ordering.

2.05 CABLE LADDER

A. Equip communication racks with cable ladder system for cable support and routing. Refer to Figure 28 110-A below.
   1. All cable ladders shall be custom cut to fit.
   2. Install cable ladder vertically behind each vertical organizer.
   3. Center the cable ladder on the vertical organizer so that when additional racks are added, the cable ladder can be used to serve both racks, and will not interfere with the components mounted in the rack.
   4. Install cable ladder from top of rack or cabinet to the ceiling or wall to allow smooth transition of cabling to the rack or cabinet.
   5. Provide all parts required to extend cable ladder and route cables smoothly to the termination point.
B. Cable Ladder - Black and cut to length.
   1. 12" wide, 10' long cable ladder with channels. Hubbell #HSLS1012B or equal.
   2. Equip with the following as required for a full installation as per the details and specifications:
      a. Relay Rack Mounting Kit, Hubbell #HLMPK19 or equal
      b. Wall support angle bracket, Hubbell #HLTSB12B or equal
      c. Corner clamp for connecting horizontal ladder on the top to the cable ladder that attaches to the wall. Hubbell #HLTK or equal.
      d. Wall saddle for attaching horizontal cable ladder section to the wall. Equipped with "J" bolts. Hubbell #HLX0612 or equal
      e. Cable Radius Drop for dropping cables down to vertical cable ladder between and to the side of each rack, Hubbell #HLCD12 or equal
      f. Foot Kit for Cable ladder at back of rack, Hubbell #HLRF or equal
      g. Butt Splice Kit, Hubbell #HSBSK or equal
      h. Swivel Splice kit, Hubbell #HLSSK or equal
      i. When mounting cable ladder along the wall, install supports to the wall, Hubbell #HLVWBK or equal
      j. Attach all cable ladders to the rack with unistrut and unistruts "L" and "T" connectors.
      k. Approved equals, Newton and Hubbell.

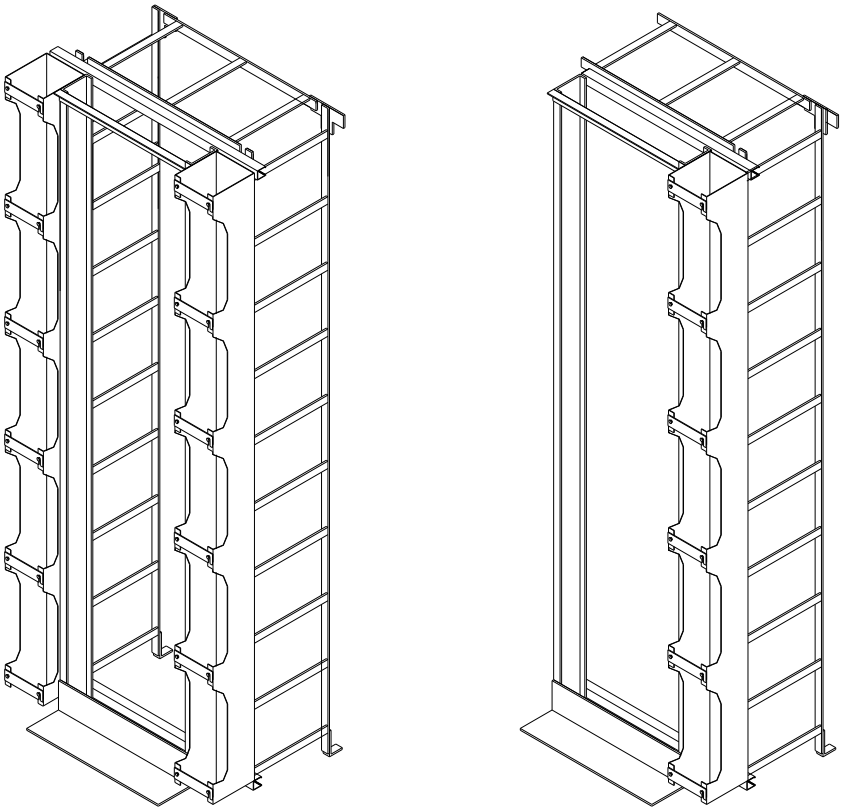

Figure 28 1100-A – Isometric View of Communications Racks

2.06 COMMUNICATIONS ROOM EQUIPMENT

A. Patch Cord Organizers:
   1. Patch cords organizers shall be steel and shall allow routing of patch cables from electronics to the patch panels.
   2. Single rack unit organizer shall be Hubbell #HC119ME3N with cover, Hubbell #HC119C. Refer to PCO-1 on detailed drawings.
   3. Two rack unit organizer shall be Hubbell #HC219ME3N with cover, Hubbell #HC219C. Refer to PCO-2 on detailed drawings.
   4. Approved equals, Ortronics and Great Lakes Case and Cabinet.

B. Tie Wraps:
   1. Tie wraps shall be used on exterior cables only.
   2. Tie wraps should not be used above the drop ceiling or in cable tray. The pathway shall support the cables without the use of extra tie wraps.
   3. Tie wraps shall never be used to support cables from building structure, electrical conduits, or lighting systems.
   4. Panduit No. PLT2S-C or equal standard tie wrap. For use in general locations that are not plenum rated.
   5. Panduit No. PLT2S-C702 or equal plenum rated tie wrap. Use only this type of tie wrap in plenum rated areas.
   6. Panduit No. PLT2H-L00 or equal ultraviolet rated outside plant tie wrap. Use only this type of tie wrap for outside uses.

C. Hook and Loop Wraps:
   1. Hook and Loop wraps shall be used on the cable ladder of the rack systems to bundle the cables as they pass along the cable ladder. Cables shall be bundled in groups of no more than 24 cables.
   2. Hook and Loop wraps should not be used above the drop ceiling or in cable tray except in limited circumstances. The pathway shall support the cables without the use of extra tie wraps.
   3. Wraps shall never be used to support cables from building structure, electrical conduits, or lighting systems.
   4. Panduit HLT2I or equal.

D. Grounding and bonding of racks and cable ladder
   1. Bond each rack and all parts of the cable ladder as 1 ground system.
   2. Use Erico Eriflex woven copper grounding braids to attach racks and ladder.
   3. Erico # 556700 or other lengths as required.

E. Rack Mounted shelf
   1. Install shelves where equipment needs to be installed but is not rack mountable.
   2. Identify equipment and depth of equipment and order shelf to match
   3. Cantilevered shelves:
      a. 3.5” high, 14” depth with weight up to 50 lbs. Hubbell #MCCCS1
      b. 7” High, 20” depth with weight up to 200 lbs. Hubbell #MCCCWS19HD

2.07 WALLFIELD EQUIPMENT

A. Plywood for Wallfields:
   1. Plywood shall be American Plywood Association (APA), Grade A-C at minimum. Meaning that the “A” side is smooth and paintable, neat repairs are permissible. “C” side allows knotholes to 1 inch and limited splits are permitted. “A” side is used for mounting; “C” side is installed towards the wall.
   2. Plywood shall be 3/4-inch-thick and shall come in 4 foot x 8 foot sheets with a quantity of sheets installed as per the detailed drawings.
   3. All plywood used for wallfields shall be fire-retardant plywood and shall be stamped as such.
      a. Shall have a Flame-spread rating of 25 or less,
   4. Each piece of plywood with one coat of white paint. Paint all edges.
      a. Do not paint over one of the Fireproof stamps on the plywood. Leave this so that the owner can identify that the plywood installed is fire-retardant.

B. Existing Cable splices:
   1. When splicing existing cabling to extend to a new patch panel provide 110 style blocks for splicing
   2. Provide the wall-mount block and C-4 style couplers required to terminate and extend sixteen (16) Category cables to a new cable and eventual patch panel.
   3. Sixteen (16) Category cable termination 110 style block with C-4 Clips shall be Hubbell #6110FTK64WL or equal.
   4. All 110 blocks shall be equipped with plastic strip holders for labels and C-4 connectors. Refer to drawings for details.
   5. Equip with Label Strips and Category 6 rated C-4 clips.
      a. C-4 clips shall be Hubbell #6110CB4PR13
      b. Label strip shall be Hubbell #XPL11010W
   6. All 110 blocks shall be labeled with the appropriate cable label. Labels shall be laser printed, and shall be included in the overall labeling scheme for the entire communications system. Refer to the detailed drawings.
   7. 4 pair, 110 connectors shall be Hubbell # 110 CB4 PR10.

8. All 110 blocks shall be CAT-6 rated at a minimum.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Location of the communications infrastructure shall be finalized in the communications room prior to installation.
B. Locate all equipment to be installed and make certain that space is available for maintenance and service during the life of the system.
C. If any changes from the drawings are required, the Contractor shall submit a proposed layout of the communications room to the Engineer for approval prior to installation.

3.02 PREPARATION

A. Clean floor prior to installation of the communications racks.
B. Coordinate with all other Contractors and ensure that the locations of all cable ladder and conduits are correct and will feed the rack system adequately.
C. Identify existing rack and cable routing. Plan on how to transition to updated rack location or rack style. Coordinate with designer

3.03 INSTALLATION OF RACKS

A. All racks shall be square to the walls and installed in a straight line.
    1. Use only 3/8 inch bolts and connectors when constructing the racks and associated cable ladder.
    2. Install vertical cable ladder to the back of each vertical organizer of each rack. When multiple racks are side by side, 1 section of vertical cable ladder can serve both racks.
    3. Install the vertical cable ladder in the center of the vertical organizer. This allows cables to be routed down each side for use by both racks.
    4. Install horizontal sections of cable ladder along the top of the rack. Attach the horizontal sections to the vertical sections as well as the horizontal section of the next rack.
    5. Contact the Engineer prior to final placement of the racks.
    6. After approval of the placement of the racks, secure racks to the floor with anchors. Racks shall be secure after installation.
    7. Use 6 inch vertical organizers as spacers for racks. Attach racks to both sides of the vertical organizer, where multiple racks are required.
    8. Install unistrut “L” brackets to the bottom of the vertical cable ladder to secure the cable ladder to the floor.
    9. Each rack shall have an engraved phenolic label. The label shall be self-adhesive, black with white letters. The label shall be affixed to the front and top of the rack so it is visible while standing in front of the racks. Label shall correspond with the designated rack label as shown in the detailed drawings.
    10. Install woven ground braids between racks and cable ladder for eventual connection to the Telecommunications Ground Bar (TGB).
    11. Remove paint from rack where ground braid is attached to the rack or cable ladder. Use star washers for all ground connections.

3.04 INSTALLATION OF COMM ROOM EQUIPMENT

A. Patch cord organizers shall be installed between all patch panels and electronics.
    1. Horizontal organizers shall be used for routing fiber and copper patch cords between patch panels and electronics.
    2. Refer to Rack layouts on detailed drawings for quantity of organizers to provide.
    3. Organizers shall be installed side by side where multiple racks are installed.

4. If changes in the rack layout are required, contact the Engineer and get changes approved prior to installation.

B. Tie wraps shall be used sparingly in the overall installation.
   1. Tie wraps shall not be used in the cable tray or above the drop ceiling for support of cables. All cables shall utilize J-hooks, conduits, cable ladder, or cable tray for support in the ceiling area.
   2. Tie wraps can be used to group cables on the cable ladder of the rack systems. Group cables in bundles of no more than 24 cables.
   3. Trim all tie wraps so that the cut edge is smooth.

C. Hook and Loop shall be used sparingly in the overall installation.
   1. Hook and Loop should not be used in the cable tray or above the drop ceiling for support of cables. All cables shall utilize J-hooks, conduits, cable ladder, or cable tray for support in the ceiling area.
   2. Hook and Loop can be used to group cables on the cable ladder of the rack systems. Group cables in bundles of no more than 24 cables.

D. Power strips shall be installed so that they do not interfere with the cable routing, or the installation of components into the rack.
   1. Modular plug for the outlet strip shall be installed at the bottom of the outlet strip.
   2. The outlet strip shall plug into 1 of 2 duplex receptacles installed at the bottom of the rack. Refer to the detailed drawings for receptacle locations.
   3. Coil any extra cord from the outlet strip and tie wrap it to the bottom of the vertical cable ladder.
   4. Securely attach the outlet strips to the back edge of the vertical cable ladder.
   5. Electrical outlets are installed by others. Communications Contractor shall be responsible for connecting power strip to the outlets.

E. Shelves and blank panels
   1. Install in the rack where required and/or where shown on the drawings.

3.05 WALLFIELD EQUIPMENT

A. Size plywood as shown on the drawings or as required to fit onto the wall.
   1. Plywood shall be located so that the cables reach for termination and work can be don on the cables
   2. Mount plywood to the wall with screws attached to studs in the wall. Contractor is responsible for securely mounting the plywood to the wall.
   3. Grade “A” side of the plywood shall be used for mounting all communications components.
   4. If the plywood will cover an electrical receptacle, the Contractor shall cut the plywood to allow access to the receptacle.

B. Splicing cables
   1. At some locations the contractor shall terminate, extend and connect existing cables and transition those spliced cables to a new patch panel in the rack.
   2. See floorplans and details for existing and spliced cable quantity.
   3. Identify all cables that are terminated on the wall. Identify existing labels. Mark which port in the ethernet switch they are connected to currently.
   4. Coordinate cutover with the designer and DTMB.
      a. Unterminated existing cables from wall mount patch panel
      b. Remove existing patch panel. Install 110 style block or blocks on the wall. Provide quantity of 110 blocks as required to terminate all existing cables.
      c. Terminate existing cables on the 110 block. Install C-4 connectors on top of the cables
      d. Install new CAT-6 cables from 110 block to new patch panel in rack.

e. Terminate new CAT-6 cables at each end.
f. Provide and install patch cables from new patch panel to Ethernet switch.
g. Verify connectivity of each port. For ports that were connected but are not now operational the contractor shall test the cable and work to get each end user device that was connected, connected again.

5. When 110 splice blocks are used, they shall be mounted neatly and squarely on the plywood.
6. Cables shall be routed behind the 110 blocks and through the holes provided prior to being terminated. See manufacturer for details on cable routing.
7. Provide adequate room between the 110 blocks for routing cross connect wire.
8. Install C-4 clips for all cables. 4 pair circuits require C-4 clips.
9. Each Category cable or each 4-pair circuit shall be labeled and shall have a unique identifying label. The labels shall be inserted into plastic label holders. All labels shall be laser-printed. Handwritten labels are not acceptable.
10. Match label at the rack on new patch panel.

C. Vertical organizers shall match the height of the 110-tower installed.
1. Organizers shall be installed on each side of each 110 blocks.

END OF SECTION 281100

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SECTION 281150 – COMMUNICATIONS GROUNDING

PART 1 - GENERAL

1.01 SECTION INCLUDES
- A. This section includes parts and equipment required for a communications grounding system installation.

1.02 SYSTEM DESCRIPTION
- A. The grounding system from the ground bar in each communications room to the electrical ground shall be installed as part of this project by the contractor.
  - 1. This shall include connection of the ground bar in each communications room to the electrical ground. Shall also include:
    - a. Connection of ground cables to the cable ladder
    - b. Connection of ground cables to the racks and cabinets.
    - c. Ground connections to electrical panels,
- B. Telecommunications grounding systems shall be connected to the electrical ground at the Main Distribution panel.

1.03 INSTALL BASED ON STANDARDS INCLUDING:
- A. NFPA 70-99,
- B. National Electrical Code (latest edition adopted by AHJ)
- C. TIA-607-C Generic Telecommunications Bonding and Grounding

1.04 COORDINATION
- A. Coordinate the location of ground bars in the communications room with the designer prior to installation.

PART 2 - PRODUCTS

2.01 MANUFACTURERS
- A. Approved equals for ground components are:
  - 1. Newton.
  - 2. Erico
  - 3. Hubbell

2.02 MATERIALS
- A. Ground Bar shall be Hubbell #HBBB14210A or equal
- B. Compression (crimp) type ground lugs for connection of ground cables shall be Burndy No. YCA series or equivalent.
  - 1. Use only manufacturer approved crimp tools with all crimp lugs.
- C. Ground wire shall be No. 6 AWG for all ground connections from the equipment to the ground bar. Ground wire in plenum areas shall be bare with no insulation. All other ground wires shall have green insulation.
  - 1. Approved ground cable vendors are Southwire, The Okonite Company, and Pirelli or equal.

PART 3 - EXECUTION

3.01 EXAMINATION
- A. Location of the ground bar shall be finalized in the communications room prior to installation.
- B. Locate and note all equipment to be connected to the ground system. Routes for ground cables shall be planned prior to final location of the ground bar.

C. Identify location of racks, cabinets, and cable ladder. Connections from the ground bar to these are required for a complete ground system.
D. Connect the cable ladder to the ground bar in each communications room. Connect with a #6 AWG ground cable.

3.02 PREPARATION
A. Plan routes of all ground cables.
B. For components that are to be connected to the ground system, remove paint from the connecting point and attach to the ground cable with a star washer.
C. Ground cables shall be connected from the ground bar in each communications room with a No. 6 AWG ground cable. Items to be connected by the Communications contractor include, but are not limited to:
    1. Each individual rack and cabinet
    2. Cable ladder.
    3. Cable tray.
    4. Existing ground bar
    5. Electrical ground in the electrical panel.

3.03 INSTALLATION
A. Cabling Contractor shall Install the ground bar to the wallfield.
    1. Coordinate location with other systems.
    2. Connect the ground bar to the electrical service panel.
B. Ground connections shall meet all applicable codes and shall be located such that they are accessible for maintenance.
    1. All grounding conductors shall be continuous without splice.
    2. Metal boxes, cabinets and fittings, or noncurrent carrying metal parts of other fixed equipment, if metallically connected to grounded cable armor or metal raceway, are considered to be grounded by such connection. If not connected, they shall be grounded in 1 of the following ways:
        a. By a grounding conductor run with circuit conductors, this conductor may be uninsulated. But if it is provided with an individual covering, the covering should be finished to show a green color.
        b. By a separate grounding conductor installed the same as grounding conductor for conduit and the like.
    3. Metal raceways, cable armor, cable sheath, enclosures, frames, fittings, and other metal noncurrent carrying parts that are to serve as grounding conductors shall be effectively bonded where necessary to assure electrical continuity and the capacity to conduct safely any fault current likely to be imposed on them.
        a. Any nonconductive paint, enamel, or similar coating shall be removed at threads, contact points, and contact surfaces or be connected by means of fittings so designed as to make such removal unnecessary.
    4. Continuity of metal raceway or metallic sheathed cable shall be assured throughout the system.
    5. National electrical code shall be used as guide for grounding in hazardous areas.
C. Ground cables shall be installed in a neat and workmanlike manner.
    1. All cables shall be supported or routed against a wall and attached to the wall. No free-floating cables between components will be allowed.
    2. Fully support ground cable so that it does not sag between connections.
    3. There shall be no sharp bends in the ground cables.
D. Terminate and connect all ground cables with crimp type connectors.

1. Use star washers on all connections of ground cables to ground bars and racks and equipment.

E. Ground systems shall be tested after installation to ensure proper installation and connectivity.
   1. Test procedures shall be fully spelled out. They shall minimally include, the time and date of the test, name of tester, device used to test ground potential, and test results.
   2. The Contractor shall provide test results, to the Engineer for final approval and sign off.
   3. Ground connections shall be tested at each rack in each communications room. The system shall not be considered complete until the ground tests have been completed and acceptable results are provided.

END OF SECTION 281150

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SECTION 281500 – FIBER CABLING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. This section includes parts and equipment required for installation, termination and testing of a fiber optic cable backbone.

1.02 SYSTEM DESCRIPTION

A. The fiber optic backbone shall include all components of the system from the patch panels to the backbone fiber and everything in between.

1.03 CONTRACTOR

A. Contractor company shall have a minimum of 3 years' experience installing and testing fiber optic cabling systems.
   1. Unless otherwise specified, multimode and single mode fiber cable must meet the transmission performance parameters as specified in ANSI/TIA/EIA-568-B.3.
   2. Test equipment used under this contract shall be from manufacturers that have a minimum of 5 years' experience in producing field test equipment. Manufacturers must be ISO 9001 certified.
   3. Test equipment shall be capable of measuring relative or absolute optical power in accordance with TIA/EIA-526-14A, "Optical Power Loss Measurement of Installed Multimode Fiber Cable Plant," and TIA/EIA-526-7 Method A, "Measurement of Optical Power Loss of Installed Single Mode Fiber Cable Plant, Insertion Loss Using An Optical Power Meter."
   4. Traces and records shall be provided to the Engineer and Owner in hard (paper) and soft (disk) copy.

1.04 COORDINATION

A. Coordinate work under provisions in Division 1 of these specifications.
B. All fiber cables shall be coordinated with the installation of the telecommunications raceways.
C. Coordinate location of the spare coiled fiber cables with Engineer prior to installation.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Approved vendors for fiber cable are:
   1. Optical Cable Corporation.
   2. General Cable.
   3. Berk-Tek.
   4. Corning
   5. Hubbell
B. Approved vendors for fiber termination equipment are:
   1. Hubbell.
   2. Panduit.
   3. Optical Cable Corporation
   4. Corning

2.02 FIBER CABLE

A. All fiber cables shall be of tight buffered construction. A tight buffered optical fiber shall consist of a central glass optical fiber surrounded by a primary polymer buffer and an optional tight fitting secondary buffer.

1. The outer jacket of each fiber strand shall be colored according to the fiber color code in TIA 598-B.
2. Individual multimode fiber strands shall be 50/125μm for the core/cladding measurements.
3. Individual singlemode fiber strands shall be 9/125μm for the core/cladding measurements.
4. All fiber strands shall be surrounded by synthetic yarn for added strength and crush resistance.
5. All fiber installed in plenum rated areas shall be UL listed OFNP.
6. The outer jacket of the cable shall be surface printed with the manufacturer's identification and required UL markings.
7. All fibers shall be subjected to a minimum fireproof stress of 0.7 GPa (100 kpsi).
8. The minimum bend radius of the cable under full rated tensile load shall be no larger than 15 times the outside diameter of the cable and no more than 10 times the outside diameter of the cable with no load on the cable.
9. Optical and mechanical performance shall not be degraded and the cable shall not be damaged in any way by immersion in ground water.
10. The fiber optic cable shall meet or exceed the requirements of this specification when measured in accordance with the methods of the individual requirements or the following methods as defined in EIA-STD-RS-455.
    a. Fiber dimensions.
    b. Attenuation.
    c. Bandwidth.
    d. Numerical aperture.
    e. Fiber proof test.
    f. Cable bending.
    g. Tensile load
    h. Impact resistance.
    i. Crush resistance.
    j. Attenuation vs. temperature.
11. Manufacturer shall provide ISO 9001 certification.
12. The cable shall withstand an impact force 1500 times per ANSI/TIA/EIA-RS-455 (FOTP-25A).
13. The cable shall withstand compression load of 1800 N/cm per ANSI/TIA/EIA-RS-455 (FOTP-41A).
14. Fiber shall be indoor/outdoor rated based on the areas in which the fibers will be installed. Do not install riser rated fiber through a plenum rated area unless the fiber is inside an EMT conduit.

B. Indoor or outdoor Armored fiber cable.
1. The multi-fiber sub-cables shall consist of tight buffered optical fibers surrounded by a synthetic yarn strength member and a color-coded flame-retardant elastomeric polymer jacket. The strength member shall be composed of individually and precisely tensioned elements such that tensile loads are equally shared by each element.
2. Single-mode indoor/outdoor fiber cable
    a. Wavelength: 1310/1550nm
    b. Industry Standard: ITU-T G.652.D
    c. 1 Gigabit Ethernet Distance: 5 km
    d. 10 Gigabit Ethernet Distance: 10 km
    e. Max Attenuation: .5/.5 dB/km
    f. Plenum Rated Armored
        A) 12-strand Singlemode, OCC # DZ012TSLX9YP18

2.03 RACK MOUNT FIBER PATCH PANELS

A. 12-36 port, rack mount fiber patch panels.
   1. Rack mount fiber patch panels shall be modular in design. Mounting brackets shall be provided for 12 pack adapters. Adapter packs shall sit horizontally in the panel.
   2. Panels shall mount into standard 19-inch relay racks.
   3. Panels shall be no more than 1-3/4 inch or 1 rack unit high.
   4. Provide splice tray and splice shelf or splice cassettes for termination of all fiber strands.
   5. Fiber panel shall be Hubbell #FPR3SP or equal
      a. Equip with Splice trays as required. Hubbell #Stray12F or Stray24F
      b. Equip with Label Kit, Hubbell #LBLKTFCR1U12
   6. Provide Hubbell Fiber Splice cassettes or pigtails and panels for splicing and termination of all fiber strands. See Below:

2.04 FIBER PIGTAIL SPLICE CONNECTORS

A. All fiber cables shall be terminated with spliced pigtails matching the fiber cable that was installed.
B. LC Style Connectors pigtails
   1. Singlemode connectors shall be LC style.
   2. Provide 1-meter, pre-connectorized pigtails for fusion splicing to each fiber strand.
   3. Singlemode Pigtails shall be Yellow in color
   4. All spicing shall be Fusion splicing. Mechanical splicing is not allowed.
   5. Match the size of the glass in the pigtail to the size of the glass in the fiber.
   6. Work with fiber cable manufacturer on specifying pigtails that exactly match the fiber cable being terminated.
   7. Singlemode LC terminated single strand, fiber pigtails shall be Hubbell #FPBKR12LC6S or equal.
C. Provide Hubbell FSP panels as required for termination of all fiber strands
   1. 12 port LC for Singlemode shall be Yellow, Hubbell # FSPNLCDS6Y or equal

2.05 FIBER CASSETTES

A. Provide fiber optic termination cassettes for all fiber cables
B. Provide blank panels for openings in fiber panels that are not used.
C. Cassettes shall fit into each fiber panel
D. All fiber cables shall be terminated with splices matching the fiber cable that was installed.
E. LC Style Connector Cassettes
   1. Singlemode connectors shall be LC style.
   2. Provide 1-meter, pre-connectorized pigtails for fusion splicing to each fiber strand.
   3. All spicing shall be Fusion splicing. Mechanical splicing is not allowed.
   4. Match the size of the glass in the pigtail to the size of the glass in the fiber.
   5. Work with fiber cable manufacturer on specifying pigtails and cassettes that exactly match the fiber cable being terminated.
   6. LC Singlemode cassettes:
      a. Singlemode OS2, LC terminated, 12 strand, fiber pigtails shall be Hubbell # OCSPLCD12S2 or equal. Blue in color

2.06 FIBER PATCH PANEL ACCESSORIES

A. Fiber stowage ring
   1. Install a ring on the wall near the racks for stowage of 30’ of spare fiber or as noted on the drawings.
   2. Fiber stowage ring shall be Leviton # 48900-OFR.

3. Label the fiber at the stowage ring with both termination points. Install label Panduit PST-FO or equal

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine all pathways prior to installation of fiber cable.
B. Identify location of racks, and position of fiber patch panels prior to fiber installation.
C. Inspect fiber cable prior to installation for damage during shipping. The Contractor shall be responsible for all damaged or nonfunctional fiber cables. If any strands of a fiber cable are not working, the Engineer has the right to order the complete replacement of the entire fiber cable.

3.02 PREPARATION

A. Contractor shall designate the location of the spare coil of fiber at each end of the run prior to installation.

3.03 INSTALLATION

A. Installation of fiber cable shall be by a trained installer.
    1. All fiber, if not installed inside cable tray, shall be attached to the building structure with conduit clamps or supports a minimum of every 5 feet.
    2. Fiber shall be continuous from end to end, no splices are allowed unless specifically noted.
    3. At each termination point of the fiber, the Contractor shall provide a service coil consisting of a minimum of 30 feet of fiber cable.
    4. Contractor shall adhere to all manufacturer's recommended pull tensions during installation.
    5. As part of the as-built drawings, provide the actual footage of each fiber cable installed. Mark this on the drawings.
    6. Any fiber strands that do not pass a sufficient signal light signal will be identified as noncompliant, and the Engineer has the right to order the complete replacement of the fiber cable by the Contractor.
    7. Where fiber cable passes vertically through a building, the fiber cable shall be supported against the wall or from the ceiling a minimum of every 5 feet.
    8. Do not exceed recommended bend radius of fiber cable during or after installation.
B. Fiber patch panels shall be located at the top of the relay rack or cabinet at which they are installed. Install on wall or inside cabinet where shown for wall mounted fiber panels.
    1. Provide patch panels as described on the contract drawings or additional panels as required to terminate all fiber strands of all fiber cables.
    2. Install fiber panels in the top of the rack where possible
    3. If a splice shelf is required for splicing of fibers, install the shelf directly below the associated patch panel.
        a. Provide and install splice panels as required for splicing of all pigtails to terminate the fiber strands.
    4. Route fiber cable into side of the panel. Provide a wrap-around label at this location to identify the fiber cable as it enters the fiber panel.
        a. Label the fiber cable just outside of the fiber panel with a yellow fiber optic cable label, Panduit No. PST-FO.

5. The sheath of the fiber cable shall extend to the side of the panel. Individual fibers or subgroups shall not be seen outside of the panel, except for the single mode bundles.
6. Fibers shall be installed in the adapter packs in color code order. For vertical mounted 12 pack adapters, top to bottom then left to right. In panels where the couplers are horizontally mounted, left to right for each 12 pack, then top to bottom. Contact the Engineer with any questions.
7. All individual fiber strands shall be neatly installed in the back of the panel after termination. Provide a minimum of 4 feet of spare fiber in the back of each panel. This spare shall be coiled in a Figure 8.
8. Secure the fiber to the entrance of the patch panel with tie wraps.
9. After installation and termination of the fiber cable, install labels on the patch panel showing what strand each connector is connected to, and where the overall fiber cable is terminated at the other end.
10. Attach a self-adhesive clear plastic sleeve to the inside of the Plexiglass cover of the rack mount panel. Slide in a laser printed label showing all information about the fiber cable.
11. Label door of wall mount panels to detail the fiber cable type, strand count and termination locations

C. Fiber cables shall be terminated with fusion spliced Pigtails.
1. All Singlemode and multimode fiber cables shall be terminated with a pre-terminated fiber optic pigtail which matches the diameter and type of fiber being installed.
2. Fusion splice all pigtails to the fiber cables. Terminate each strand of the fiber cable.
3. Each strand shall be thoroughly cleaned and all coverings shall be removed prior to splicing
4. To cleave the fiber, use the method and equipment recommended by the manufacturer of the fusion splicer that will be used.
5. Fibers shall be properly aligned prior to splicing.
6. The splicer used shall be able to inject light directly into the fiber just after it is spliced, and provide an estimate of the loss through the splice.
7. After splicing, a heat shrink tube with a rigid skeleton shall be used to protect the splice. Coordinate this heat shrink tube with the splice tray to be installed in the splice shelf. Heat shrink tubes shall fit into the grooves in the splice tray.
8. Loss through the splice shall be no more than .15dB.
9. Fiber pigtails shall be labeled with a self-laminating, laser printed, wrap around label at the connector. The label shall detail the strand count of the fiber cable, the buildings and rooms in which the fiber is terminated and the color and strand number the pigtail is spliced to.

24MM/12SM
WRT#234-OLS #021
Brown Fiber # 16

END OF SECTION 281500

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SECTION 281600 – CAT-6A CABLING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. This section includes parts and equipment required for installation, termination, and testing of user communications cables.

1.02 SYSTEM DESCRIPTION

A. The horizontal cabling consists of all systems from the user faceplate, to the patch panel in the communications room, and all connections in between.

B. Products and installation detailed in this section shall comply with all applicable requirements.

1. ANSI/TIA-568-C.0, "*Generic Telecommunications* Cabling *for Customer Premises*",
2. ANSI/TIA-568-C.1, "*Commercial Building Telecommunications Cabling Standard*",
3. ANSI/TIA-568-C.2, "*Balanced Twisted-Pair Telecommunication Cabling and Components Standard*", ANSI/TIA-568-C.3, "*Optical Fiber Cabling Components Standard*",
4. ANSI/TIA-568-C.4, "*Broadband Coaxial Cabling and Components Standard*",
5. ANSI/TIA/EIA-569-B Commercial Building Standard for Telecommunications Pathways and Spaces
6. IA-606-B: Administration Standard for the Telecommunications Infrastructure of Commercial Buildings including all Updates and Addenda.
7. TIA-607-C: Generic Telecommunications Bonding and Grounding (Earthing) for Customer Premises.
8. IEEE 802.3af PoE • Ratified in 2003 • 15.4W at the PSE, with min of 12.95W available to the PD
9. IEEE 802.3at PoE+ • Ratified in 2009 • 34.2W at the PSE, with min of 25.5W available to the PD
10. IEEE 802.3af PoE • Ratified in 2003 • 15.4W at the PSE, with min of 12.95W available to the PD
11. IEEE 802.3at PoE+ • Ratified in 2009 • 34.2W at the PSE, with min of 25.5W available to the PD
12. IEEE 802.3bt -Amendment 2. Ratified in 2018 PoE standards powering all 4 pairs:

1.03 COORDINATION

A. All cables shall be coordinated with the installation of the telecommunications raceways.

B. Coordinate all user cables with the furniture to be installed in the building. Make any adjustments prior to cable being installed.

C. Contractor shall walk the site during construction and shall verify all raceways are being installed as required to install the user data cables. Walk the site prior to drywall being installed or floors being installed when Floor boxes are being installed.

1.04 STANDARDS

A. Cabling shall be installed in accordance with NEC code for grouping/bundling of cables in relation to Type 3 and Type 4 PoE

B. Install as per NEC 840.160 in reference to bundling cables:

AWG	Numberof 4-Pair Cables in a Bundle																				
	1			2-7			8-19			20-37			38-61			62-91			92-192		
	Temp Rating			Temp Rating			Temp Rating			Temp Rating			Temp Rating			Temp Rating			Temp Rating		
	60°C	75°C	90°C	60°C	75°C	90°C	60°C	75°C	90°C	60°C	75°C	90°C	60°C	75°C	90°C	60°C	75°C	90°C	60°C	75°C	90°C
26	1.0	1.0	1.0	1.0	1.0	1.0	0.7	0.8	1.0	0.5	0.6	0.7	0.4	0.5	0.6	0.4	0.5	0.6	NA	NA	NA
24	2.0	2.0	2.0	1.0	1.4	1.6	0.8	1.0	1.1	0.6	0.7	0.9	0.5	0.6	0.7	0.4	0.5	0.6	0.3	0.4	0.5
23	2.5	2.5	2.5	1.2	1.5	1.7	0.8	1.1	1.2	0.6	0.8	0.9	0.5	0.7	0.8	0.5	0.7	0.8	0.4	0.5	0.6
22	3.0	3.0	3.0	1.4	1.8	2.1	1.0	1.2	1.4	0.7	0.9	1.1	0.6	0.8	0.9	0.6	0.7	0.8	0.5	0.6	0.7

C. Cables shall be installed with no more than 24 cables in a single J-hook. Install additional J-hooks as required.
D. If cables are to be bundled/grouped in larger bundles then the cable shall be LP listed per UL.
E. All cables shall be no smaller than 23 AWG.

PART 2 - PRODUCTS

2.01 MANUFACTURERS
- A. Approved vendors for copper user cables are:
  1. Panduit
  2. Hubbell
  3. Belden
  4. CommScope
  5. Mohawk
  6. Superior Essex
- B. Approved vendors for CAT-6 termination equipment are:
  1. Hubbell.
  2. Panduit (Net Key not allowed)
  3. Belden
  4. CommScope

2.02 CAT-6A CABLE -SMALL DIAMETER
- A. Unshielded Twisted Pair (UTP) CAT-6A cable
- B. Shall meet standards:
  1. ANSI/TIA-568-C.2 AND ISO/IEC 11801:2002 CATEGORY 6A ELECTRICAL CHARACTERISTICS.
- C. Cable shall consist of:
  1. 23 AWG solid bare copper insulated conductors, assembled into 4 pairs cabled together with a assembly: flexweb core separator
  2. Jacket shall include footage markers
     a. Outer diameter shall be .25”
  3. The cable shall be plenum rated for use in air handling ducts and spaces in accordance with article 800 of the National electrical code (NEC).
  4. Shall be US Listed C(UL)US OR C(ETL)US TYPE CMP UL OR ETL VERIFIED CAT 6A
  5. Supported Applications
     a. IEEE 802.3 10BASE-T (ETHERNET),
     b. 100BASE-T (FAST ETHERNET),
     c. 1000BASE-T (GIGABIT ETHERNET),

d. ANSI.X3.263 FDDI
e. TP-PMD, IEEE 802.5 4 AND 16 Mbps TOKEN RING,
f. 550 MHz BROADBAND
g. VIDEO AND ATM UP TO 4.8 Gbps.
h. IEEE 802.3an 10gbase-t (10 gigabit Ethernet),
i. Access points and PoE / PoE+.

D. Physical Characteristics
1. Bending radius: 1” (25 mm) min)
2. Pulling tension: 25 lbf (110 n) max
3. Operating temp.: -20°c to +75°c (-4°f to +194°f)
4. Storage temp.: -20°c to +75°c (-4°f to +194°f)
5. Installation temp.: 0°c to +50°c (+41°f to +122°f)

E. Shall meet or exceed following testing parameters.

REFERENCE ELECTRICAL CHARACTERISTICS

FREQ (MHz)	INSERTION LOSS (dB/100m)	NEXT (dB/100m)	PS NEXT (dB/100m)	ACRF (dB/100m)	PS ACRF (dB/100m)	RETURN LOSS (dB)	PROP. DELAY (ns/100m)	ALIEN CROSSTALK	
								PS ANEXT (dB/100m)	PS AACRF (dB/100m)
	max	min	min	min	min	min	max	min	min
1.0	2.1	74.3	72.3	67.8	64.8	20.0	575.0	67.0	67.0
4.0	3.8	65.3	63.3	55.8	52.8	23.0	557.0	67.0	66.2
8.0	5.3	60.8	58.8	49.7	46.7	24.5	551.7	67.0	60.1
10.0	5.9	59.3	57.3	47.8	44.8	25.0	550.4	67.0	58.2
16.0	7.5	56.2	54.2	43.7	40.7	25.0	548.0	67.0	54.1
20.0	8.4	54.8	52.8	41.8	38.8	25.0	547.0	67.0	52.2
25.0	9.4	53.3	51.3	39.8	36.8	24.3	546.2	67.0	50.2
31.25	10.5	51.9	49.9	37.9	34.9	23.6	545.4	67.0	48.3
62.5	15.0	47.4	45.4	31.9	28.9	21.5	543.6	65.6	42.3
100.0	19.1	44.3	42.3	27.8	24.8	20.1	542.6	62.5	38.2
155.0	24.1	41.4	39.4	24.0	21.0	18.8	542.1	59.6	34.4
200.0	27.6	39.8	37.8	21.8	18.8	18.0	541.5	58.0	32.2
250.0	31.1	38.3	36.3	19.8	16.8	17.3	541.3	56.5	30.2
300.0	34.3	37.1	35.1	18.3	15.3	16.8	541.1	55.3	28.7
350.0	37.2	36.1	34.1	16.9	13.9	16.3	540.9	54.3	27.3
400.0	40.1	35.3	33.3	15.8	12.8	15.9	540.8	53.5	26.2
500.0	45.3	33.8	31.8	13.8	10.8	15.2	540.6	52.0	24.2

SWEEP TESTED TO 500 MHz

F. CAT-6A, 4 pair cabling shall be plenum rated unless specifically noted.

Cable Use		Manufacturer	Color	Part number	Rating
Wireless AP-CAT-6A		Mohawk	Yellow	M59230	Plenum
Wireless AP-Underground		Mohawk	Black	M59199	Underground

G. Ensure that cable passes all CAT-6A tests after installation.

2.03 LONG DISTANCE UTP CABLE.

A. At locations inside and outside a building where the CAT-6A cable will be longer than 300ft the contractor shall supply and install an “Extended Distance” UTP, 4-pair Ethernet Cable.

B. Cable must be constructed with 4-pair copper conductors and can be unshielded or shielded with designated jacketing compounds to meet the installed environments — indoor or outdoor —as specified in the accompanying documentation. Performance requirements must meet or exceed the values listed on the data sheets in Section 2.4

C. Cable shall meet the following requirements:
   1. Shall extend 1 Gig Ethernet up to 200 Meters
   2. Shall provide for Type 4 PoE up to 200 Meters
   3. IEEE 802.3bt Compliant for Type 1 to Type 8 PoE
   4. Shall meet 90 Degree temperature rise requirements
   5. UL listed
   6. 22AWG solid copper conductors
   7. Shall be available in Riser, Plenum and outdoor ratings
   8. Use with CAT-6 terminations

D. Shall be Superior Essex PowerWise
   1. Provide cables as per this table below:
   2. Shall provide 60 Watts of PoE power at 100

		PowerWise® 1G		PowerWise® 10G	
Direct Attach Application	Transmission/ Standard	BER @ Ambient 20°C Type 1 & 2	BER @ Max 70.1°C Type 3 & 4	BER @ Ambient 20°C Type 1 & 2	BER @ Max 70.1°C Type 3 & 4
Data & Power (Bandwidth & Speed)	Max Distance @ 100 Mb/s	200 m	140 m	195 m	190 m
Data & Power (Bandwidth & Speed)	Max Distance @ 1 Gb/s	160 m	140 m	155 m	145 m
Data & Power (Bandwidth & Speed)	Max Distance @ 10 Gb/s	120 m	105 m	110 m	105 m

				PowerWise® 1G
Direct Attach[1] Camera Type	PoE	Bandwidth	Latency	Max Distance
Any IP Security Camera	15 W	2 Mbps	100%	305 m
Any IP Security Camera	30 W	< 10 Mbps	100%	244 m
Any IP Security and Any PTZ Camera	60 W	100 Mbps	100%	200 m

SIB 1G SIB 10G

   3. Part numbers:
      a. Indoor Plenum Cable, long distance. PW6H-H72-6B yellow in color
         1) Use this when the cable will be more than 100 Meters long
      b. Underground/outdoor, unshielded, long distance. PW-04-401-58 -black in color

E. 8-position modular jacks for termination at user and at the patch panel. Match cable color except where noted on drawings.
   1. Each jack shall be an individually constructed unit and shall snap mount in an industry standard keystone opening (.760 inches x .580 inches).
   2. Jack housings shall be high impact 94 V-0 rated thermoplastic.
   3. Jack housings shall fully encase and protect printed circuit boards and IDC fields.
   4. Modular jack contacts shall accept a minimum of 1000 mating cycles with 5.0 milliohm (maximum) increase over initial with the use of an FCC compliant plug.
   5. Modular jack contact wires shall be formed flat for increased surface contact with mated plugs.
   6. Modular jack contacts shall be constructed of beryllium copper for maximum spring force and resilience.
   7. Contact plating shall be a minimum of 50 micro inches of hard gold in the contact area over 50 micro inches of nickel.
   8. Jack termination shall follow the industry standard 110 IDC.
   9. Jacks shall have a designation indicating CAT-6 or CAT-6A as required.
   10. Jacks shall utilize a paired punch down sequence. Cable pair twist shall be maintained up to the IDC, terminating all conductors adjacent to its pair mate to better maintain pair characteristics designed by the cable manufacturer.
   11. Jacks shall terminate 22-26 AWG stranded or solid conductors.

12. Jacks shall terminate insulated conductors with outside diameters up to .050 inches.
13. Jacks shall be compatible with single conductor, 110 impact termination tools.
14. Jacks shall include translucent wire retention stuffer cap that holds terminated wires in place and allows the conductors to be visually inspected in the IDC housing.
15. Jacks shall be compatible with EIA/TIA 606A color code labeling.
16. Jacks shall accept snap on icons for identification or designation of applications.
17. Jacks shall be marked for T568A and T568B wiring schemes. TIA 568B wiring shall be used in all terminations throughout the communications system.
18. CAT-6A, 8-pin modular jacks shall be:
    a. Data jacks for Wireless Access Points shall be Hubbell #HJU6AY-Yellow
19. CAT-6A coupler
    a. Where connecting one type of CAT-6A cable to another type of CAT-6A cable the contractor can provide and install the CAT-6A coupler, Hubbell #SC6A

F. Exterior cable boot
1. Where installing an exterior WAP the contractor shall install the WAP cable coupler to connect the cable into the WAP with no possibility of water intrusion.
2. Install as per the drawings and mounts provided
3. Install the Cisco Coupler onto the outdoor rated cable that connects directly to the WAP.
4. Coupler is provided as part of the WAP. This is a CAT-5E rated coupler.
5. Test all exterior cables to CAT-5E standards.

2.04 FACEPLATES

A. Some locations will require custom stainless steel plates. These shall be configured with the correct connectors and pass thru's to support all the data, audio and video.
1. All shall be silk-screened to detail what each connector is for.
2. Submit a product sheet for approval prior to purchase of the plates.
3. UTP Jacks shall be flush with the front of the plate

B. In addition to flush faceplates and surface housings, some installations call for integrated furniture outlets, GFI style outlets, and standard 106 style frames. These may be required at some surface raceway location. Field verify prior to ordering.
1. The Contractors shall identify which type of outlet or frame is required at each location throughout the system.
2. Match the outlet with the faceplate required.
3. GFI, more commonly referred to as style line outlets, are rectangular and fit in a rectangular plate used for GFI receptacles.
4. Each type of modular furniture has certain requirements for its voice and data modules. The Contractor shall coordinate with the furniture installer and provide the correct faceplate and outlets to match the color and style of the furniture.
5. The 106 style frame fits in a common duplex electrical receptacle faceplate. The frame holds 2 or 4 modular jacks.
6. For all connections that do not have a faceplate with a location for a laser printed paper label, the Contractor shall provide an engraved lamacoid label detailing the location number of each cable.
7. GFI/Style line Plates shall be:
    a. Two port, Hubbell # NS612W
    b. Three port, Hubbell # NS613W,
    c. Four port, Hubbell # NS614W
    d. Six port, Hubbell # NS616W.
    e. Blank, Hubbell #NS620W

2.05 SURFACE MOUNT BOXES

A. Provide surface mount boxes for termination of cables as shown on the drawings.
   1. Install a surface mount box at location for termination of the modular jacks.
   2. One port surface box shall be Hubbell #HSB1OW.
   3. Two port surface box shall be Hubbell #HSB2OW

2.06 CABLE SUPPORTS

A. Bridal Rings are not allowed.

B. All cables shall be supported in the ceiling a minimum of every 5 feet. Support can be provided by installing cable inside cable tray or conduit, or by installing J-hooks every 5 feet.
   1. J-hooks shall provide a smooth steel or plenum rated plastic, support for cables as they route through the ceiling. Shall be rated for the ceiling area where they are being installed. Verify any plenum rated areas and only install plenum rated supports
      a. J-hooks supports shall have a galvanized finish.
      b. J-Hooks shall be Blue in color


      c.
      d. Shall be UL listed, ultimate static load limit 50 pounds rated to support Category 5e and higher cables, and optical fiber cables.
   2. If required, assemble to manufacturer recommended specialty fasteners, including beam clips and flange clips.
   3. Acceptable products shall be:
      a. CADDY #CAT HP series with retainer hooks or Panduit J-Pro series supports
         1) Minimum square inch size of support for cables on the J-hook shall be 2.25”
         2) Caddy HP21xxxx series or
         3) Panduit JP2Wxxxx series or equal
   4. Provide with interfaces and clamps required to support J-Hooks from the building structure.

C. Ceiling supports
   1. J-Hooks shall be supported from the building structure. This includes connections to the walls, concrete ceiling, building steel and contractor installed vertical supports that are attached to the building structure.
   2. Contractor can install threaded rod or other supports such as Unistrut or Drop ceiling tiles to support the J-hooks and subsequently the cables.
   3. Supports shall be installed every 5 feet and shall be installed to keep cables from resting on pipes, ducts, structural steel, lights, ceiling grid, electrical conduits and any other structure that cable could possibly rest against.
   4. Provide threaded rod and associated hardware required to support all J-Hooks
      a. Paint threaded rod Yellow prior to installation
      b.
   5. Above Drop ceilings, or accessible hard ceilings, the contractor can install support wire to support the J-Hooks.

a. Drop ceiling support wire shall be 12 AWG minimum
b. Attach to building structure.
c. Attach to drop ceiling grid.

d.
e. Paint support wire Yellow prior to installation.
f. Provide associated hardware required to support all J-Hooks.

g.
6. No more than 24 data cables in each J-hook. Provide additional hooks as required.

2.07 RACK MOUNTED PATCH PANELS

A. Patch panels for termination of UTP cabling shall be provided to terminate all cables installed in the building.
B. All patch panels shall be installed into 19” racks and/or cabinets as shown on the drawings.
C. Provide panels to terminate all cables even if the panels are not specifically shown on the rack layout drawings.
   1. Provide the quantity and color of Modular jacks to match the color and quantity of all cables installed.
D. Panels shall be steel and shall allow mounting of all CAT-6 and CAT-6A jacks. Panels shall be blank panels that accept all modular jacks.
E. CAT-6 and CAT-6A patch panels for mounting in a 19-inch rack or cabinet. Shall be;
   1. Panels shall be made of black anodized aluminum, in 24 port configurations.
   2. Panels shall accommodate 24 ports for each rack mount space or "U" (1U = 44.5 mm [1.75 inch]).
   3. Panels shall be manufactured with a rolled edge at the top and bottom for stiffness.
F. 24 port empty patch panels shall be Hubbell #HPJ24 or equal
   1. Panels shall have rear cable support bar for strain relief which shall clip to the rear of the patch panel or to the rear of the rack rail.
   2. Each 24-port patch panel shall be equipped with one (1) rear cable organizer. Organizer shall be Hubbell #HPRCMB or equal.

3. Ports shall be marked 1-24 on top of the openings by factory.
4. Label all Panels for the panel, communications room and rack with a large laser-printed label.
5. Completely fill each patch panel with modular connectors corresponding to their cable type.
    a. Fill CAT-6A Wireless Access point patch panels with Yellow CAT-6A modular connectors
    b. Fill CAT-6 DTMB data cable patch panels with Blue CAT-6 modular connectors.

2.08 CAT-6A PATCH CORDS AT WAP

A. Contractor shall provide one patch cord for each data cable installed. Provide and install the cord at the WAP.
    1. Provide a patch cord for each WAP/CAT-6A cable installed.
    2. Patch cords shall consist of individual 24 or 23 AWG wires
B. Patch cords shall be 6” or 18” long and shall match the color of the cable/jack they are being plugged into.
    1. Provide Yellow Patch Cords for Wireless Access Points
    2. All patch cords shall be verified to pass 30 Watts of PoE power.
    3. At WAPS installed directly to the drop or drywall ceiling the patch cables shall be 6’ long or as long as required to connect WAP to Cable.
    4. At WAPS in enclosures the patch cables shall be 12” to 18” long
    5. At Exterior mounted WAPS the patch cables shall be exterior rated. Size as required.
C. Approved manufacturers for CAT-6A patch cables are:
    1. Panduit # UTP6AX0.5MYL or equal
    2. Hubbell # HC6AY01 or equal
    3. Others as approved prior to bid

2.09 CAT-6 PATCH CABLES FOR EXTENDED DATA CABLERS

A. Where the contractor is relocating, re-terminating or splicing existing DTMB cables and extending them to the new patch panel the contractor shall provide new 24” long, CAT-6 patch cables that are to be blue in color
B. Install and connect extended cable to the Ethernet switch. Verify connectivity.

2.10 110 BLOCK WITH LEGS, CAT-6 RATED. FOR EXTENSION OF EXISTING DATA CABLES.

A. When extending existing data cables from a wall or previous termination and the cables are not long enough to extend to the rack the contractor shall provide and install wall-mounted 110 style termination blocks.
B. Wall mount 110 block with legs shall be CAT-6 rated.
C. Connecting blocks shall accept a minimum of 200 re-terminations without degradation to the electrical or mechanical performance.
D. Block shall be Hubbell # 6110FTK64WL or equal. Equip with
    1. Connector blocks, 4-pair, CAT-6 rated. Hubbell #6110CB4PR13 or equal
    2. Label strips, Hubbell # XPL1101OW or equal
E. Terminate existing cables onto the 110 style block
F. Install 4-pair connectors on top of the cables
G. Install new CAT-6 cables from the block to a patch panel in the rack.
H. Terminate new cables onto CAT-6 modular jacks at the patch panel.
I. All 110 blocks shall be equipped with plastic strip holders for labels and C-4 or C-5 connectors. Refer to drawings for details.
J. All 110 blocks shall be labeled with the appropriate cable label. Labels shall be laser printed, and shall be included in the overall labeling scheme for the entire communications system. Refer to the detailed drawings.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine all pathways prior to installation of all cables.
B. Identify locations of all user conduits and backboxes prior to cable installation.
C. The Engineer or the Owner has the right to make adjustments to the location of any outlet to a new location within 7 wall-feet of the original location. If the change is made prior to final cable termination, and prior to any raceway being installed, then the changes shall be a no cost change to the contract.

3.02 PREPARATION

A. Locate main path for all cables and install J-hooks where raceway is not required.
B. Plan installation of cables along cable ladder of rack system in communications room. All cable shall be neatly routed in groups of no more than 24 cables.

3.03 INSTALLATION

A. CAT-6A cabling shall be installed according to TIA/EIA 568 standards, including all updates and addenda.
    1. When installing CAT-X cables, care shall be taken to avoid crimping or bending the cable past the manufacturer's recommended bend radius.
    2. During installation, the cables shall not be pulled across the ceiling tiles or the structure of the building. This may cause damage to the cable jacket.
    3. Adhere to all pulling tensions and bend radii during installation. Excessive pulling or bending can cause the cable to fail tests after installation. Any cable that does not pass the certification tests after installation shall be fixed or replaced at the Contractor's expense.
    4. All cables shall route neatly in the ceiling. Whether they route in cable tray or J-hooks, the cables shall be neat and orderly.
    5. Provide a short coil of extra cable where the cable enters the vertical conduit. The coil shall consist of no less than 1-1/2 feet.
    6. Provide enough slack in the backbox to fully remove the faceplate and jack and allow work to be done on the cable.
B. Cable Supports
    1. Provide and install cable supports to support all cables as per the specification snad drawings.
    2. Cables shall be installed and supported with J-hooks and associated hangers to support the J-hooks.
    3. There shall be no cables resting on:
        a. Drop ceiling tile or grid
        b. Structural steel
        c. Water Pipes
        d. Electrical conduits
        e. HVAC ducts
        f. Hard ceiling such as drywall etc.
    4. Install J-hooks and cable supports a minimum of every 5 feet.
    5. J-hooks can be attached to the wall.
        a. When installed against the wall, provide the J-hooks in sufficient quantity and location to keep cabling from resting on the drop or hard ceiling
    6. J-hooks can be supported below the building structure from Threaded rod or by drop ceiling support wires.

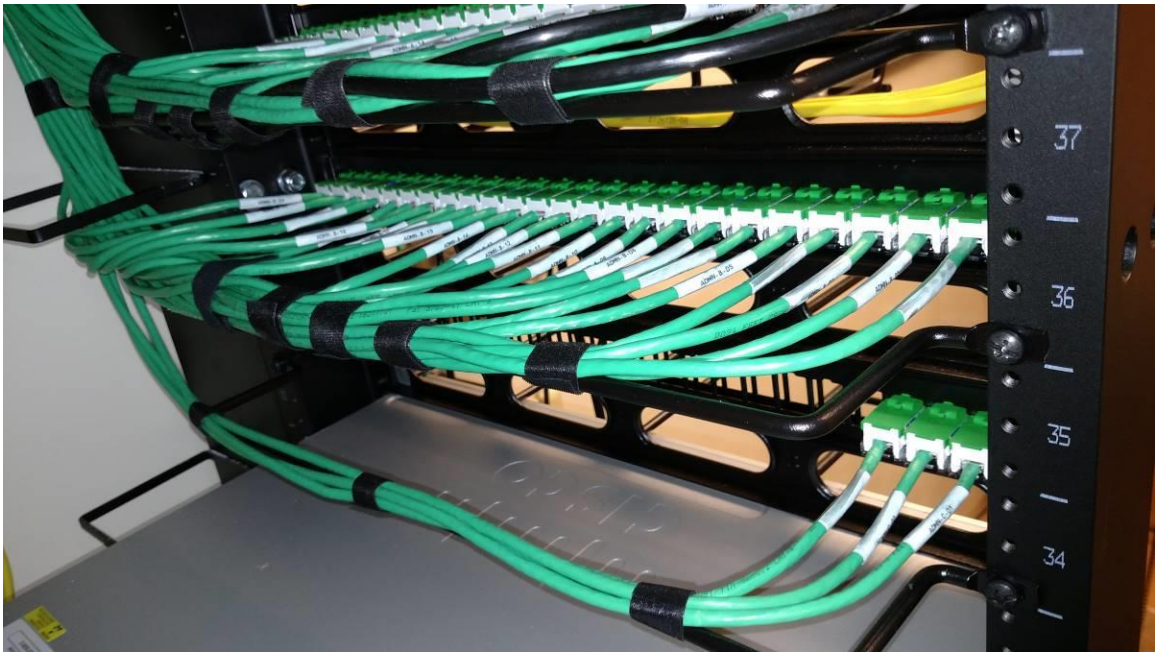
a. All threaded rod or drop ceiling support wires shall be connected to building structure.
b. When using drop ceiling support wires the contractor shall provide all wires and shall paint them yellow prior to installation.
c. Install drop ceiling support wires from building structure and attach them to the drop ceiling grid.
d. Provide Z-style clips to connect J-hooks.

7. There shall be no more than 24 cables in each J-hook. Provide additional J-hooks as required.
8. Support all cables at a minimum of every 5 feet.

C. Cable in the comm rooms.
1. When installing cables in the communications room, all cable shall route neatly through the cable tray and cable ladder.
2. When transitioning from the ceiling area to the rack system, all cable shall route through conduits or be attached to vertical section of cable ladder. The Contractor shall provide the conduits shown and any additional conduits or cable ladder required to neatly transition cables from the ceiling to the rack.
   a. No cable shall be free floating vertically for more than 24”
3. Bundle cables in groups of no more than 24 cables as it routes along the cable ladder.
   a. All bundles shall be loosely connected with Velcro straps.
   b. Do not attach new cables to any existing cables.
4. Cables shall route down each side of a rack for termination. Split each panel into 2 sides. The first 12 positions on a panel are on the left, and positions 13 through 24 are on the right. Route the cables for panel positions 1 through 12 down the left cable ladder and route the cables for positions 13 through 24 down the right cable ladder.
5. Each patch panel shall utilize a rear organizer for holding the cables as they route to the punchdown field.
6. Cables shall be bundled in groups of 4 as they route through the rear cable organizer.
7. When terminating cables, ensure that the smallest amount of jacket is removed from the final termination point of the cables.
8. Pair twists shall be maintained up to the IDC jack for all the cables.
9. Provide a service loop of the cables on the vertical cable ladder. The loop shall extend no less than 1 foot below the termination point on the patch panel. Route the cables 1 foot below the patch panel, and then back up to the panel. This will provide room for future moves and additions to the rack.
10. Each cable shall have a self-adhesive, self-laminating, laser printed label at each end. The label shall show the location identifier of that cable. Labels shall be installed no more than 4 inches from the termination point of the cable.

D. All work on the project shall meet all applicable state, federal, local and industry codes and be installed according to the requirements of he Authority Having Jurisdiction (AHJ).

E. CAT-6A SHEILDED cable and connectors shall be grounded as per the manufacturer’s recommendations



Detail 01. Proper routing and support of cables on rear organizer. Where possible route 12 cables from right side and 12 cables from left side. This rack in picture did not have right side organizer.

F. CAT-6A data jacks shall be installed at the user end of each UTP cable installed in the system.
   1. Jacks shall be installed to provide minimal signal impairment by preserving wire pair twists as close as possible to the point of mechanical termination.
   2. Jacks shall be installed per manufacturer's instructions and properly mounted in plates, frames, housings, or other appropriate mounting devices.
   3. Jacks shall be installed such that cables terminated to the jacks maintain minimum bend radius of at least 4 times the cable diameter into the workstation outlet. Cables shall be terminated on jacks such that there is no tension on the conductors in the termination contacts.
   4. See drawings for the color requirements of all modular jacks.

G. Faceplates shall be mounted straight and level with the floor and walls of the building.
   1. Jacks and/or connectors shall be terminated to the appropriate cable and inserted in the correct orientation into the faceplate prior to the mounting of the faceplate.
   2. Jacks shall be inserted into the faceplate left to right, then top to bottom. 2 gang plates shall be labeled left to right, then top to bottom for each gang.
   3. Cable slack shall be stored behind the faceplate in such a way that allows the minimum bend radius of the cables to be maintained as per the following:
   4. Care shall be taken when mounting the faceplate to avoid crimping or kinking the cables.
   5. Faceplates shall be securely mounted to a surface mounted housing, a recessed box, or box eliminator bracket.
   6. Each faceplate shall be labeled with laser printed paper inserted behind the clear plastic label strips.
   7. The label shall show the location identifier of the faceplate and the letter designation for each cable. The label shall be as large a font as possible and easily readable.
   8. Each faceplate comes with a label strip at the top and the bottom.

H. When utilizing 106 style or GFI/Style-Line brackets, the Contractor shall provide self adhesive labels detailing which cable is at each position.
   1. 106 plates and GFI plates will primarily be located in floorboxes or surface raceway.
   2. The contractor shall coordinate the faceplates required with the actual floorboxes installed by the electrical contractor.
   3. Provide the quantity of GFI and 106 style plates required.

I. Surface Mount boxes
   1. Modular Jacks and/or connectors shall be terminated to the appropriate cable and inserted in the correct orientation into the surface mount box.
   2. When the surface mount jack is mounted above the ceiling the cable shall be coiled and the cable and surface mount box shall be kept off of the ceiling grid
   3. Attach the coil to the building structure with a plenum rated tie-wrap.
   4. Label each surface mount box for the cable number. Also, install a wrap-around label on each cable.
   5. When attaching a surface mount box to a piece of furniture or to a power pole the contractor shall drill a hole in the furniture/pole that is larger than the hole on the back of the surface box.
   6. Screw the surface box to the furniture or to the pole. Adhesive only solutions are not adequate.

J. Proper support of cables is of paramount importance when installing a cable infrastructure. All cables not in conduit or cable tray shall be supported via J-hooks a minimum of every 5 feet.
   1. Routes of cables shall be parallel or perpendicular to the walls of the building.
   2. Install the J-hooks to minimize changes in the level of the cables as they route through the J-hooks.
   3. Do not install more than 50 cables in any 1 J-hook. Provide additional hooks where more than 50 cables route along a main route.
   4. All communications shall route as high in the ceiling as possible while still being accessible and staying away from other utilities.
   5. When installing the cable through the J-hooks, they shall all have relatively the same droop between hooks. All cables shall be installed neatly and squarely.
   6. Secure the J-hooks to the building structure with beam clamps and threaded rod as required to support the cables.
   7. J-hooks shall never be attached to drop ceiling support wires. Cables shall never be supported by drop ceiling wires.

K. CAT-6 and CAT-6A patch panels shall be installed in the racks.
   1. Panels shall be installed to provide minimal signal impairment by preserving wire pair twists as closely as possible to the point of mechanical termination. The amount of untwisting in a pair as a result of termination to the modular jack at the patch panel shall be no greater than a 1/2 inch (13 mm).
   2. Panels shall be installed per manufacturer’s instructions and properly mounted to a rack, cabinet, bracket, or other appropriate mounting device.
   3. Panels shall be installed such that cables terminated to the panel can maintain minimum bend radius of at least 4 times the cable diameter into the IDC contacts. Cables shall be terminated on the panels such that there is no tension on the conductors in the termination contacts.
   4. Each patch panel shall have a rear cable organizer for routing cable from the vertical cable ladder to the patch panel. 1 organizer for each row of 24 cables.
   5. The label for each outlet on the panel shall be the same as the wraparound label on each end of the cable.

6. Each label shall line up directly below or above the outlet on the panel. Misaligned labels will not be permitted.

L. Patch Cords
   1. WAP patch cables
      a. Provide and install all patch cords for connectivity of all WAPS to the CAT-6A cable.
      b. Do not install overly long patch cords at the WAP.
      c. Connect cable to the WAP. After switch installation confirm the WAP is connected by reviewing the light on the WAP. Confirm it is green or report back that is not lit.
   2. Relocated or spliced cables.
      a. Install patch cables and connect to the owners Ethernet switch from the patch panel to Ethernet Switch
   3. Neatly install all patch cords.
   4. Patch cords for connection of the patch panels to the Ethernet switches for the WAPS are to be provided and installed by the owner

M. 110 blocks, they shall be mounted neatly and squarely on the plywood.
   1. Cables shall be routed behind the 110 blocks and through the holes provided prior to being terminated. See manufacturer for details on cable routing.
   2. Provide adequate room between the 110 blocks for routing cross connect wire.
   3. Install C-4 clips for all cables. 4 pair circuits require C-4 clips.
   4. Each pair of cables or each 4-pair circuit shall be labeled and shall have a unique identifying label. The labels shall be inserted into plastic label holders. All labels shall be laser-printed. Handwritten labels are not acceptable.
   5. Install new data cables from the 110 block to the patch panel and terminate the cable with a CAT-6 modular connector. Blue in color.
   6. Label the patch panel with the cables starting at 01 thru 24
   7. An example label on the patch panel will be D-01. Label the cable on the 110 block to match.

END OF SECTION 281600

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Kinross Correctional Facility
Wi-Fi Cabling Infrastructure

SECTION 282110 – INTERIOR AND EXTERIOR RACEWAYS

PART 1 - GENERAL

1.01 SECTION INCLUDES
- A. This section includes metal raceway parts and equipment associated with communications pathways interior to a building and exterior to a building but does not include underground raceways.

1.02 SYSTEM DESCRIPTION
- A. Interior/exterior pathways shall follow all common installation practices for voice and data communications cabling and local, state and national electrical codes.
- B. All pathways shall be installed squarely to the building.
- C. Refer to EIA/TIA 569-A and all updates and addenda.

1.03 INSTALL CONDUIT RACEWAY AT THE FOLLOWING LOCATIONS:
- A. On all walls below 10’ AFF and extend to above the drop ceiling or hard ceiling.
- B. On all walls below 10’ AFF and extend to above the bottom of the ceiling truss. An example would be a gym. Install backbox and extend conduit to bottom of ceiling truss even though bottom of truss is at 19’, well above 10’
- C. Exterior to all buildings.
- D. Do not install below ground or within 18” of grade exterior to a building.
- E. See specification 28 2150 MDOC Standards for additional requirements.

1.04 COORDINATION
- A. All pathways shall be coordinated with other trades and all other components of the system.

PART 2 - PRODUCTS

2.01 MANUFACTURERS
- A. Appleton
- B. Crouse-Hinds
- C. Allied
- D. Red-Dot
- E. Others that provide equal equipment.

2.02 METAL CONDUITS/RACEWAY
- A. All above ground raceways shall be EMT type conduit.
  1. An unthreaded thin-wall raceway of circular cross section designed for the physical protection and routing of conductors and cables and for use as an equipment grounding conductor when installed utilizing appropriate fittings.
- B. No metal raceway (such as Wiremold) is allowed.
- C. Metal conduits, tubing, and fittings:
  1. Listing and Labeling: Metal conduits, tubing, and fittings shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
  2. EMT: Comply with ANSI C80.3 and UL 797.

2.03 CONDUIT FITTINGS
- A. Fittings for EMT Conduit: Comply with ANSI/NEMA FB 1 and UL 514B.
  1. Fittings for EMT:
     a. Material: Steel.
     b. Type: Compression

c. Where the conduit is exterior to the building provide and install exterior rated (rainwater-rated) compression couplers

2.04 BACKBOXES

A. Backboxes shall not have any punchout holes. All backboxes and junction boxes shall be either:
   1. Cast with no hubs/holes. Drill out the holes to size to conduit or:
   2. Pre-cast with screw type blanks that use a square plug and do not allow a standard screwdriver to remove the blank

   3.

B. Fill all un-used holes in a cast box with a Recessed Square plug. No screwdriver type plugs will be allowed
   1. Square plug shall be as shown above. see: https://www.platt.com/platt-electric-supply/Weatherproof-Box-AccessoriesClosure-Plugs/Thomas-Betts/PLG8-TB/product.aspx?zpid=862571
   2. Size the plug to match hole size in the backbox

C. Size the backboxes to match the requirements of the plate and incoming conduits.
   1. Single-gang backbox shall be:
      a. 3/4” knockouts Crouse-Hinds # TP7078 or equal
      b. 1” knockouts Crouse-Hinds # TP7082 or equal
      c. Fill all unused holes with a plug as noted above
   2. Double-gang backbox shall be:
      a. 3/4” knockouts Crouse-Hinds # TP7090 or equal
      b. 1” knockouts Crouse-Hinds # TP7093 or equal
      c. Fill all unused holes with a plug as noted above

2.05 FLEXIBLE CONDUIT/ RACEWAY

A. Install flexible, non-metallic conduit where transitioning from devices to EMT type conduit where the metallic conduit is not easily installed. Locations may include:
   1. Backbox to camera mount exterior to a building
   2. Conduit to backbox on a pole for low voltage equipment.
   3. Backbox for a PPD antenna where EMT conduit is not possible to be installed
   4. Never install flexible non-metallic conduit in a plenum area
   5. Others as decided upon installation
   6. Flexible Conduit shall not be longer than 36”.

B. Flexible Conduit
   1. Shall be UL and CSA Listed
   2. Shall meet Article 356 of the NEC (ANSI/NFPA-70) for Flexible Liquidtight Nonmetallic Conduit (LFNC-B or FNMC-B).
   3. Shall be a a helically wound integral Type B construction. Containing a spiral of rigid PVC reinforcement imbedded within the PVC wall.

4. Flexible metal conduit shall be covered in a PVC coating.
5. All connectors shall provide the same liquidtight connections.
6. Flexible Conduit shall be Electri-flex Liquatite NM type or equal

C. Flexible conduit fittings
1. Fittings shall be UL and cUL listed and shall include:
a. “O” Ring and steel locknuts
b. Standard NPT Threads
c. Suitable for indoor/outdoor use
d. NEMA 4X – IP66 requirements
2. Flexible Conduit fittings shall be Electri-flex Liquatite NMLT type or equal
3. Provide as per conduit size and connection requirements.

2.06 PASS-THRU ’S

A. Pass-thru ’s shall be by the Contractor.
1. All Pass-thrus of all walls shall be the responsibility of the Contractor.
2. All Pass-thrus of all floors/ceilings shall be the responsibility of the Contractor.
3. If cables are required to be routed through a wall, the Contractor shall provide a pass-thru . The pass-thru shall consist of conduit and bushings. All conduits shall be equipped with bushings. EMT conduit shall be used unless otherwise noted.
4. Contractor shall identify locations that require pass-thru’s and the number of cables that will pass through the wall. Install a conduit that provides 50 percent growth in the number of cables that can be routed through the Pass-thru after the initial installation.
5. Anchor the Pass-thru ’s to the wall with conduit clamps and Unistrut assemblies. Pass-thru ’s shall not be allowed to move once installed through the wall.
6. Firestop around and inside all Pass-thru ’s after cable installation. Firestop shall match the fire rating of the wall.
7. Pass-thru ’s will not be shown on the drawings, the Contractor shall be responsible for providing and installing all Pass-thru ’s for the entire installation.
8. Metal pipe thru Gypsum wall shall be firestopped per UL System #W-L-1054
9. Metal pipe thru concrete or block wall shall be firestoppee per UL System #C-AJ-6017.
10. Use Hilti #FS-ONE type firestop and fireproof wool
11. See Firestop requirements in spec section 28 1000

PART 3 - EXECUTION

3.01 EXAMINATION

A. Contractor shall examine site and identify all locations where pathways are required. The Contractors shall be responsible for providing all pathways shown as well as those required to route cables from user location to the rack/cabinet.
B. Identify all ceiling types and provide appropriate ceiling fittings for all raceway.
C. Mark all conduit/raceway routes on the red-line drawings. Submit as part of the closeout documents..

3.02 RACEWAY APPLICATION -CONDUITS

A. Conduits and conduit boxes and fittings
1. Outdoors: Apply raceway products as specified below unless otherwise indicated:
a. EMT Type conduit with rainproof rated couplers at all boxes and conduit couplers.
b. Boxes and Enclosures, Aboveground: NEMA 250, Type 3R unless otherwise noted.
2. Indoors: Apply raceway products as specified below unless otherwise indicated:
a. Exposed, Not Subject to Physical Damage: EMT.

b. Concealed in Ceilings and Interior Walls and Partitions: EMT.

3. Minimum conduit/raceway Size: 3/4-inch trade size.
   a. Only use this size conduit for three or fewer data cables
   b. For vertical boxes inside a wall or more than three data cables install trade size 1" conduit
4. Raceway Fittings: Compatible with raceways and suitable for use and location.
   a. Compression type only
   b. Exterior to a building use compression and rainwater rated fittings.

B. Conduit installation
1. Comply with NECA 1 and NECA 101 for installation requirements except where requirements on Drawings or in this article are stricter.
2. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping where possible.
3. Install no more than the equivalent of three 90-degree bends in any conduit run except for control wiring conduits, for which fewer bends are allowed. Support within 12 inches of changes in direction.
4. Conceal conduit and EMT within finished walls, ceilings, and floors where there is new construction. Install conduits parallel or perpendicular to building lines.
   a. Do this for new walls. Surface mount on existing walls and ceilings
5. Support conduit within 12 inches of enclosures to which attached.
6. Support conduit every 8' minimum
7. Use only two-hole conduit straps for attachment of conduits to a wall.
8. Use only MDOC approved security screws for conduit installation below 12' AFF
9. Use a conduit bushing or insulated fitting to terminate stubs not terminated in hubs or in an enclosure.
10. Terminate threaded conduits into threaded hubs or with locknuts on inside and outside of boxes or cabinets. Install bushings on conduits up to 1-1/4-inch trade size and insulated throat metal bushings on 1-1/2-inch trade size and larger conduits terminated with locknuts. Install insulated throat metal grounding bushings on service conduits.
11. Install raceways square to the enclosure and terminate at enclosures with locknuts. Install locknuts hand tight plus 1/4 turn more.
12. Do not rely on locknuts to penetrate nonconductive coatings on enclosures. Remove coatings in the locknut area prior to assembling conduit to enclosure to assure a continuous ground path.

C. Flexible conduit/raceway shall be used to transition communications cables from power poles, wallboxes, and poke thru's to backboxes and pullboxes when fixed metal conduit is not possible to use.
1. Provide conduit with all connectors recommended by the manufacturer.
2. When attaching the flexible conduit to a box in the wall, provide a stainless-steel faceplate with a cutout to accept the Sealtite connector. Size the hole to the size of the Sealtite.
3. All flexible conduits shall be longer than required to allow for movement of the systems it is attached to. Provide approximately 2 feet – 3 feet of extra slack on each conduit.

D. Pass-thru's shall be installed in every wall or ceiling/floor that has cable passing through it.
1. Pass-thru 's are not required where cable tray passes through a wall. However, the cable tray shall be firestopped after cable installation.
2. Install Pass-thru 's for all cables that pass through a wall. Cables shall not pass through an existing or new wall opening without being installed through a conduit.
3. Attach the conduit to the wall with straps and unistrut to make certain the Pass-thru is securely mounted.

4. Patch around the conduit after installation.
    a. Firestop or drywall mud around conduit between drywall
    b. Firestop or concrete patch round conduit between block or concrete wall for interior walls
    c. Silicone seal around the conduit to weatherproof the opening when extending conduit thru a wall to exterior.
5. Firestop inside the conduit after cable installation.
6. Firestop and overall installation shall meet UL Listed firestop standards
7. Each Pass-thru conduit shall have bushings at each end.

END OF SECTION 282110

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SECTION 282150 – TECHNOLOGY AND INSTALLATION STANDARDS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. This section includes parts, equipment, and installation standards for the State of Michigan Department of Corrections

1.02 SYSTEM DESCRIPTION

A. When conducting infrastructure and technology / security projects the Michigan Department of Corrections has certain standards for types of equipment and installation standards that must be met for all contractor
B. This document details the current standards for equipment and installation.

1.03 STANDARDS TO BE MET

A. Reference to codes, standards, specifications and recommendations of technical societies, trade organizations and governmental agencies shall mean that latest edition of such publications adopted and published prior to submittal of the bid. Consider such codes or standards a part of this Specification as though fully repeated herein.
B. Codes: Perform Work executed under this Section in accordance with applicable requirements of the latest edition of governing codes, rules and regulations including but not limited to the following minimum standards, whether statutory or not:
    1. United States Department Of Labor (DOL) Regulations (Standards - 29 CFR)
        a. Part 1910, “Occupational Safety and Health Standards”
    2. National Fire Protection Agency (NFPA)
        a. NFPA 70, “National Electrical Code” (NEC).
        b. NFPA 75, “Protection Of Information Technology Equipment”
    3. Uniform Building Code (UBC).
    4. Uniform Fire Code (UFC).
    5. Uniform Mechanical Code (UMC).
    6. National, State, Local and any other binding building and fire codes.
    7. FCC Regulations:
        a. Part 15 – Radio Frequency Devices & Radiation Limits
        b. Part 68 – Connection of Terminal Equipment to the Telephone Network
C. Standards: Equipment and materials furnished under this Section shall conform to the following standards where applicable:
    1. Underwriter's Laboratories (UL): Applicable listing and ratings, including but not limited to the following standards:
        a. UL 444: Communications Cables
        b. UL 497: Protectors for Paired-Conductor Communication Circuits.
        c. UL 1690: Data-Processing Cable
        d. UL 1963: Communications-Circuit Accessories
    2. TIA/EIA-526-7 Measurement of Optical Power Loss of Installed Single-Mode Fiber Cable Plant.
    3. TIA/EIA-526-14-A Optical Power Loss Measurements of Installed Multimode Fiber Cable Plant.
    4. ANSI/TIA/EIA-568-C.0 Generic Telecommunications Cabling for Customer Premises.
    5. ANSI/TIA/EIA-568-C.1 Commercial Building Telecommunications Cabling Standard

6. ANSI/TIA/EIA-568-C.2 Balanced Twisted-Pair Telecommunication Cabling and Components Standard
7. ANSI/TIA/EIA-569-A Commercial Building Standard for Telecommunications Pathways and Spaces, including the following addenda:
    a. TIA/EIA-569-A-1 Surface Raceways
    b. TIA/EIA-569-A-2 Furniture Pathways and Spaces
    c. TIA/EIA-569-A-3 Access Floors
    d. TIA/EIA-569-A-4 Poke-Thru Fittings
    e. TIA/EIA-569-A-6 Multi-Tenant Pathways and Spaces
    f. TIA/EIA-569-A-7 Cable Trays and Wirelines
8. EIA/TIA-570-A: Residential and Light Commercial Telecommunication Wiring Standard
9. ANSI/TIA/EIA-606-A Administration Standard for the Telecommunications Infrastructure of Commercial Buildings.
10. ANSI/J-STD-607-A Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications.
11. ANSI/TIA/EIA-758 Customer-Owner Outside Plant Telecommunications Cabling Standard.
    a. TIA/EIA-758-1 Addendum No. 1
12. EIA testing standards.
13. Insulated Cable Engineers Association (ICEA):
    a. ANSI/ICEA S-80-576-2002 Category 1 & 2 Individually Unshielded Twisted Pair Indoor Cables for Use in Communications Wiring Systems
    b. ANSI/ICEA S-83-596-1994 Fiber Optic Premises Distribution Cable
    c. ANSI/ICEA S-87-640-1999 Fiber Optic Outside Plant Communications Cable
    d. ANSI/ICEA S-90-661-2002 Category 3, 5, & 5e Individually Unshielded Twisted Pair Indoor Cable for Use In General Purpose and LAN Communication Wiring Systems
    e. ICEA S-104-696-2001 Standard For Indoor-Outdoor Optical Cable
14. IEEE 802.3-1990: (also known as ANSI/IEEE Standard 802.3-1990) or ISO 8802-3 - 1990 (E), Carrier Sense Multiple Access with Collision Detection (CSMA/CD) Access Method and Physical Layer Specifications.
15. Building Industry Consulting Services International (BICSI):
    a. Telecommunications Distribution Methods Manual (TDMM)
    b. Customer-Owner Outside Plant Design Manual

D. All work and materials shall conform in every detail to the rules and requirements of the National Fire Protection Association, the local Electrical Code and present manufacturing standards.

E. All materials shall be UL Listed and shall be marked as such. If UL has no published standards for a particular item, then other national independent testing standards shall apply and such items shall bear those labels. Where UL has an applicable system listing and label, the entire system shall be so labeled.

F. If this document and any of the documents listed above are in conflict, then the more stringent requirement shall apply. All documents listed are believed to be the most current releases of the documents. The Contractor has the responsibility to determine and adhere to the most recent release when developing the proposal for installation.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Approved manufacturers for Cat 6 copper horizontal distribution cables are:

1. Belden.
2. Berk Tek
3. General Cable
4. Mohawk

B. For locations where the IP connection will be longer than 300' but less than 650' the contractor shall install long-distance rated Unshielded Twister Pair cable. Approved manufacturers:
   1. Paige Telecom
   2. Superior Essex
   3. Belden
   4. Hubbell
   5. Panduit

C. Approved Manufacturers for Fiber Cable are
   1. OCC Fiber
   2. Corning
   3. Belden
   4. Commscope
   5. Others as approved

D. Approved manufacturer for CAT-6 termination equipment are:
   1. Belden
   2. Hubbell.
   3. Berk-TEK
   4. Panduit

E. Approved manufacturers for Video Security Management Software:
   1. Genetec

F. Approved manufacturers for Access Control Software:
   1. Genetec

G. Approved manufacturers for Security Cameras are:
   1. I-Pro/Pananic
   2. Axis
   3. Hanwha
   4. Pelco

H. Approved manufacturers for Ethernet Switches:
   1. Cisco for standard indoor
   2. Comnet for outdoor or high/low temperature areas

2.02 MATERIALS

A. When installing CAT-6 cables the following are the MDOC Standard colors

B. I
   1

Green CAT-6	Cameras and Fence Detection
Orange CAT-6	PELS / PPD System
Yellow CAT-6A	Wireless Access Points -WAP
Blue CAT-6	Standard color for State of Michigan CAT-6 cabling
Red CAT-6	Fire Alarm
Gray CAT-6	Telephone Systems
Purple CAT-6	Control Systems such as HVAC
Black CAT-6	Wired Educational System
Pink CAT-6	Access Control system

C. IP Address standards
   1. When working on the secure network the following standards shall be met for the different systems.

2. See Commtech Design at bret@commtechdesign.com for a full listing of all IP addressing and VLAN requirements.

Site	VLAN ID	VLAN Name	Begin Address	Subnet mask	# IPs	Building Network Usable Range
Alger	1600	Management	172.16.0.0	255.255.252.0	1020	172.16.0.1 - 172.16.15.254
Alger	1604	Surveillance	172.16.4.0	255.255.252.0	1020	
Alger	1608	Fence	172.16.8.0	255.255.252.0	1020	
Alger	1612	Rounding	172.16.12.0	255.255.252.0	1020	
Alger	3000	HVAC	172.30.0.0	255.255.252.0	1020	172.30.0.1 - 172.30.7.254
Alger	3004	Fire	172.30.4.0	255.255.252.0	1020	
Alger	3272	Audio	172.32.72.0	255.255.252.0	1020	

D. Fiber Cable Standards
1. All fiber cable that is installed shall be Singlemode fiber
2. Indoor singlemode fiber cable shall be Yellow in color
3. Outdoor singlemode fiber cable shall be Yellow or Black in color
4. When installing fiber able between buildings or between comm rooms the fiber shall be no less than 24 strands.
5. Terminate all fiber cable with fusion spliced, pre-connectorized pigtails. No field polish connectors are allowed.

2.03 INSTALLATION STANDARDS
A. Each contractor shall ensure that the following standards are met during installation..
B. All installations shall meet NEC 2023 code book and follow the guidelines for NFPA 70.
C. All CAT-6A cabling shall be installed as per the color code above
1. All CAT-6A cabling shall be terminated in a patch panel in the rack/cabinet in each comm room.

2. 

D. Shall be terminated with an 8-Pin modular connector at each end: Match color of the cable.

E. For State of Michigan cables that are to be used for the SOM (State of Michigan) network than fully loaded CAT-6 patch panels shall be used. Those look like this:

1. 

2. 
J-hook

F. Bridal Rings are not allowed.

G. All cables shall be supported in the ceiling a minimum of every 5 feet. Support can be provided by installing cable inside cable tray or conduit, or by installing J-hooks every 5 feet.
   1. J-hooks shall provide a smooth steel or plenum rated plastic, support for cables as they route through the ceiling. Shall be rated for the ceiling area where they are being installed. Verify any plenum rated areas and only install plenum rated supports
      a. J-hooks supports shall have a galvanized finish.
      b. J-Hooks shall be Blue in color
      c. 

      d. Shall be UL listed, ultimate static load limit 50 pounds rated to support Category 5e and higher cables, and optical fiber cables.
   2. If required, assemble to manufacturer recommended specialty fasteners, including beam clips and flange clips.
   3. Acceptable products shall be:
      a. CADDY #CAT HP series with retainer hooks or Panduit J-Pro series supports
         1) Minimum square inch size of support for cables on the J-hook shall be 2.25”
         2) Caddy HP21xxxx series or
         3) Panduit JP2Wxxxx series or equal
   4. Provide with interfaces and clamps required to support J-Hooks from the building structure.
   5. No ty wraps are to be used at all. Only use Velcro cable straps
      a. Velcro straps are not to be used to support cables when routing horizontally in the ceiling
      b. Velcro straps shall not be used to support cables to conduit or building structures.
      c. Attach cables to cable tray or cable ladder with Velcro straps. Do not use ty wraps.

H. Screws and Fasteners

1. Security screws shall be used. No standard or Philips head screws shall be allowed
2. 2-pin “Snake Eye” type security screws are not allowed
3. Approved include”
   a. Torx type

   b.
   c. Hex head concrete screws that do not have a screwdriver slot
   d. Expansion pound-in anchors that do not have a screwdriver slot

5.

2.04 RACEWAYS

A. Underground conduit:
   1. All underground conduit shall be PVC or HDPE
   2. Trenched conduits shall be HDPE or PVC
   3. Directional bore conduits shall be HDPE type. 1” minimum
   4. When installing multiple HDPE conduits along same route the conduits shall be different colors.
   5. When transitioning from underground conduit to above ground the contractor shall transition to IMC/RGC type conduit a minimum of 12” below grade to 36” Above grade.
   6. When transitioning from below grade to a cabinet or to the side of a building, transition from HDPE/PVC to IMC/RGS conduit below grade and up to the cabinet or to 36” AFG.
   7. This applies to external camera cabinets, the side of a building and light poles etc.
   8. Conduits along a pole or outside on a building can be EMT above 36” AFG

B. Raceway inside a building:
   1. Install conduit and backboxes for low voltage cabling along walls from outlet location to the above ceiling or open ceiling area above 10” AFF
   2. Cables installed in an open ceiling are not required to be in conduit when installed above 10’ AFF or above fixed or drop ceilings.
   3. Install low voltage cabling inside conduit vertically along all walls up to bottom of ceiling structure. (Such as in a Gym where the bottom of the building structure is higher than 10’).
   4. No PVC conduit or metal Wiremold type surface mount raceway is allowed inside of buildings.
   5. All metal and flexible conduits must follow NEC code requirements and MUST be approved by PSC and MDOC Project Manager.
   6. EMT Conduit shall meet the following requirements:
      a. ¾” minimum trade size

b. Use only compression fittings. No set screw type fitting shall be allowed.
c. When conduit is installed to the exterior of a building use Rainproof EMT connectors.

7. Conduit supports
   a. Conduits shall be attached with two-hole straps on interior walls, wood poles or ceilings below 10' AFF. Single hole straps are not allowed.

   b.
   c. Conduits shall be attached to the wall or ceiling every 36" when installed below 10 feet AFF.
   d. Conduits on exterior metal poles and along a ceiling (above 10' AFF) can be supported with "Minerallac" type conduit straps.

   e.
   f. Install only Torx T25 type screws for all conduit straps

C. RGS (RIGID) and IMC Conduit shall meet the following requirements:
   1. ¾" minimum trade size
   2. Install RGS or IMC conduit as transitions from below grade to cabinet or pullboxes on a building or on a pole
   3. Conduits shall be attached with two-hole straps. Single hole straps are not allowed.
   4. Conduits shall be attached to the wall or ceiling every 36" when installed below 12 feet AFF.

D. Flexible Conduit
   1. Where there is a difficult transition or metal conduit absolutely cannot be used on the exterior of a building or on a pole, the contractor may use Seal-tite raceway with compression couplers.

   2.
   3. When installing an exterior corner mount camera or camera on a pole the contractor can install flexible conduit from camera to a pullbox.
   4. Attach flexible conduit to the structure every 24" minimum

2.05 BACKBOXES

A. Backboxes shall not have any concentric knock-out holes. All backboxes and junction boxes shall be either:
   1. Cast with no hubs/holes. Drill out the holes to size to conduit or:
   2. Pre-cast with screw type blanks that use a square plug and do not allow a standard screwdriver to remove the blank

   3.

B. Recessed Square plug: https://www.platt.com/platt-electric-supply/Weatherproof-Box-AccessoriesClosure-Plugs/Thomas-Betts/PLG8-TB/product.aspx?zpid=862571
   1. Size the plug to match hole size in the backbox

C. Size the backboxes to match the requirements of the plate and incoming conduits.

D. Single-gang backbox shall be:
   1. 3/4” knockouts Crouse-Hinds # TP7078 or equal
   2. 1” knockouts Crouse-Hinds # TP7082 or equal
   3. Fill all unused holes with a plug as noted above

E. Double-gang backbox shall be:
   1. 3/4” knockouts Crouse-Hinds # TP7090 or equal
   2. 1” knockouts Crouse-Hinds # TP7093 or equal
   3. Fill all unused holes with a plug as noted above

2.06 FIRESTOP PRODUCTS

A. Each contractor shall be responsible for firestopping around their cables and the raceways.

B. Shall be completed inside and around all conduits after cable installation.

C. Firestop for the area between the cable and the edge of the conduit shall be Nelson No. FSP, CLK or LBS+. Contractor shall install the best firestop for each individual installation.
   1. Firestop shall be installed with regard to local and national building codes.
   2. The firestop shall be a putty like substance that expands under heat and will not allow flame to pass for a designated period of time.
   3. Firestop shall conform to all NEC, NFPA, and UL requirements.
   4. Some wall pass-thru’ s are shown on the drawings. The Contractor shall utilize these where possible.
   5. Where the contractor must install cables through a wall where there is no pass-thru already provided, the Contractor shall be responsible for installing a fire-rated pass-thru and fire-stopping the conduit after cable installation.

D. Firestopping is required at all riser conduits and all pass thru’s.
   1. Each cable tray penetration of a wall shall be firestopped after cable installation. Use pillow type firestop to allow additional cables to be installed in the future.
   2. Where riser conduits pass through floors, the area between the concrete and the conduit shall be firestopped. This shall be completed with a putty or liquid firestop product. Fill in the space with mineral wool, and then install the firestop on top. All firestop shall be of sufficient thickness to secure the rating required by code.

3. After final cable installation, install a putty firestop around all cables where they enter and exit conduit pass thru's and conduit risers.
4. All firestop shall be installed to provide the fire rating as described by local fire code.
5. It shall be the responsibility of the Contractor to verify that all conduits, walls, and raceways required to be firestopped have been firestopped.

2.07 SLEEVES AND PASS-THRUS

A. Install conduit sleeves thru walls and thru floors to meet local and national codes.
B. Round sleeves
   1. Wall Sleeves, Steel: EMT type:
   2. Equip with nylon grommets on each end
   3. No set screw couplers are allowed
C. Pass thru and sleeve seal systems
   1. Description: Modular sealing device, designed for field assembly, to fill annular space between sleeve and pathway or cable or between pathway and cable.
      a. Sealing Elements: EPDM or Nitrile (Buna N) rubber interlocking links shaped to fit surface of pipe. Include type and number required for pipe material and size of pipe.
      b. Pressure Plates: Carbon steel or Fiber-reinforced plastic.
      c. Connecting Bolts and Nuts: Carbon steel, with corrosion-resistant coating of length required to secure pressure plates to sealing elements.
D. Grout. Use when
   1. Description: Non-shrink; recommended for interior and exterior sealing openings in non-fire-rated walls or floors.
      a. Standard: ASTM C1107/C1107M, Grade B, post-hardening and volume-adjusting, dry, hydraulic-cement grout.
      b. Design Mix: 5000-psi, 28-day compressive strength.
      c. Packaging: Premixed and factory packaged.
E. Pourable sealants
   1. Description: Single-component, neutral-curing elastomeric sealants of grade indicated below.
      a. Grade: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces that are not fire rated.
F. Foam sealants
   1. Description: Multi-component, liquid elastomers that, when mixed, expand and cure in place to produce a flexible, non-shrinking foam. Foam expansion must not damage cables or crack penetrated structure.

END OF SECTION 282150

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SECTION 286250 – WIRELESS NETWORK INSTALL

PART 1 - GENERAL

1.01 SECTION INCLUDES
- A. Requirements for the Installation and connection required for wireless network and associated Ethernet network electronics.
- B. Requirements for storage container to be located onsite during the project.

1.02 SYSTEM DESCRIPTION
- A. The Michigan Department of Corrections will be installing a Wireless data network in all their facilities.
- B. Each facility will have an internet connection for the WIFI that is shared with the State of Michigan (SOM) network.
- C. This MDOC and their Partner, TRACE 3, will provide the equipment to the contractor and the contractor will install and connect WAPS.
  1. The owner will install and connect Ethernet Switches.
- D. Contractor shall provide and install all CAT-6A, CAT-6 patch cables for connection of the WAPS as part of this project.
  1. The owner will provide and install patch cables at the Ethernet switches
- E. Contractor shall install all WAPS.
- F. Complete the following work as part of this project:
  1. Installing raceways and CAT-6A cabling from the comm room to each WAP location.
  2. Installing each WAP and providing a patch cable at the WAP and connecting to the CAT-6A cable.

1.03 SYSTEM OBJECTIVES.
- A. Install and connect all owner provided WAPS to have an operational wireless network at the site.

PART 2 - GENERAL

2.01 STORAGE ONSITE
- A. Provide a Connex type storage box at the site for owner's storage during this project.
- B. Locate the Conex at the owner's specified location.
- C. Conex box shall be 40' long.
  1. Dimensions: 40FT Long x 8FT Wide x 8FT 6IN Talla approximately.
  2. Dual doors at one end
  3. Shall be equipped to support a padlock for security. Owner will provide padlock
- D. Provide the Conex storage box onsite during the entire project.

2.02 WAP INSTALL RESPONSIBILITY
- A. Owner will provide Wireless Access Points (WAPS) with their enclosures.
  1. See drawings and attached spreadsheet detailing the type of enclosure the WAP is to be installed with.
- B. Owner will provide and install all Ethernet Switches.
  1. WAPS and enclosures will be
- C. Contractor shall be at the site when WAPS and Ethernet Switches are delivered to the site and shall verify the delivery and quantity of WAPS, enclosures and Ethernet Switches.

D. Document the delivery and quantity of devices and provide to the PSC at the next progress meeting.
E. Provide and install Torx type safety screws for covers and mounting hardware for all WAPS. Assume four screws for all interior WAPS.

2.03 EQUIPMENT STORED AT THE OWNERS NETWORK PROVIDER
A. Wireless Access Points
B. Ethernet Switches

2.04 PATCH CORDS
A. Provide and install all CAT-6A at the WAP connection of all WAPS.
B. Owner will provide and install all CAT-6A patch cables at the Ethernet switch for connectivity of the WAPS
C. Provide and install new CAT-6 patch cables at the Ethernet switch where existing data cables are being extended or moved to a rack. See details on the drawings for these locations.
D. See specification 28 1600 for patch cord standards

PART 3 - EXECUTION

3.01 OBTAINING AND STORAGE OF WAP NETWORK EQUIPMENT
A. Provide a Connex type storage box at the site to store all owner provided equipment.
B. All WAPS and Enclosures will be delivered to the site. They shall be stored in the owners designated storage location.
C. The contractor shall take the WAPS and enclosures and install them at the locations shown on the drawings.
D. Discard of all cardboard and pallet offsite. Take note of the Cardboard and recycle the cardboard. Note the Weight of recycling to the PSC during progress meetings.
E. All boxes for Switches and WAPS will be labeled by the network supplier with the WAP number or building where the Switch shall be installed.

3.02 ETHERNET NETWORK SWITCH INSTALLATION
A. Identify location of Ethernet switches in each comm room.
B. Owner will provide and install Ethernet switches.
C. When installing patch panels leave space for the new Ethernet switch

3.03 WIRELESS ACCESS POINT (WAP) INSTALLATION
A. Identify location of WAP in each building.
B. Each WAP and the box the WAP comes with will be labeled with the WAP number
C. Unbox the WAP and discard all packaging offsite
D. Unbox all WAP mounts and install them to the appropriate location.
E. Provide miscellaneous hardware such as screws and beam clamp to mount WAPS to the wall or steel
F. Mounts for the Drop ceiling will be provided with the WAPs.
G. Mount WAP to the backbox, ceiling or building structure.
H. Install patch cable from CAT-6A modular jack to the WAP and verify connectivity lights.

3.04 NETWORK CONNECTIVITY
A. The owner will provide and install the Ethernet switches.
B. After Switch installation the contractor shall walk the site and verify each WAP is connected. Note the LED light of the WAPS.
C. Document testing for network connectivity. Any that are not connected shall be troublshot and connected.
D. Provide verification in a spreadsheet.

3.05 POST INSTALLATION

A. Generate and provide updated PDF Floorplans showing the location of each WAP in each building and its name/number and IP address.

1. Owner will provide blank PDF Floorplans of each building.

END OF SECTION 286250

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SECTION 287100 – TECHNOLOGY PASS-THRU AND FIRESTOP

PART 1 - GENERAL

1.01 RELATED DOCUMENTS
- A. 28 2150 MDOC Standards
- B. 28 2110 Interior Raceways

1.02 SUMMARY
- A. Section Includes:
  1. Conduit Sleeves
  2. Sleeve seal systems.
  3. Grout.
  4. Pourable sealants.
- B. All penetrations for cable routing thru walls shall be done thru the installation of a pass-thru that is rated for the low voltage cabling and one that maintains the fire rating of the wall or floor.
- C. All pass thrus shall be fire stopped and sealed.
- D. Exterior pass thrus shall be sealed with weatherproof sealant.

PART 2 - PRODUCTS

2.01 PASS THRU / SLEEVE TYPES
- A. Conduit sleeves
  1. Conduit Size: In accordance with the NEC, but not less than ¾ unless otherwise shown.
  2. Conduit type Wall Sleeves, Steel EMT type:
     a. Shall conform to UL 797 and NEMA C80.3.
     b. Maximum size not to exceed 4 inches)and shall be permitted only with cable rated 600 V or less.
  3. Conduit Sleeves, Galvanized Steel, Round:
  4. Description: Galvanized-steel sheet; thickness not less than 0.0239-inch; round tube closed with welded longitudinal joint, with tabs for screw-fastening the sleeve to the board.
- B. Electrical Metallic Tubing Fittings:
  1. Compression Couplings and Connectors are only type allowed. Set screw couplers are not allowed
  2. At building exterior locations utilize outdoor rated couplers.
- C. Conduit Bushings
  1. Each pass thru where conduit route thru shall be equipped with nlyon bushings to keep cables from being snagged on edge of conduit.

2.02 SLEEVE SEAL SYSTEMS
- A. Description: Modular sealing device, designed for field assembly, to fill annular space between sleeve and pathway or cable or between pathway and cable.
- B. Sealing Elements: EPDM or Nitrile (Buna N) rubber interlocking links shaped to fit surface of pipe. Include type and number required for pipe material and size of pipe.
  1. Pressure Plates: Carbon steel or Fiber-reinforced plastic.
  2. Connecting Bolts and Nuts: Carbon steel, with corrosion-resistant coating of length required to secure pressure plates to sealing elements.

2.03 SEALANTS

A. GROUT.
   1. Install between conduit pass-thru and concrete block walls or concrete walls hwere the conduit opening is more than 3/4” around the outside of the conduit
   2. Description: Non-shrink; recommended for interior and exterior sealing openings in non-fire-rated walls or floors.
      a. Standard: ASTM C1107/C1107M, Grade B, post-hardening and volume-adjusting, dry, hydraulic-cement grout.
      b. Design Mix: 5000-psi, 28-day compressive strength.
      c. Packaging: Premixed and factory packaged.

B. Firestop
   1. See FIRESTOP PRODUCT section below.

C. POURABLE SEALANTS for use between floor and riser conduit.
   1. Description: Single-component, neutral-curing elastomeric sealants of grade indicated below.
      a. Grade: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces that are not fire rated.

D. FOAM SEALANTS
   1. Description: Multi-component, liquid elastomers that, when mixed, expand and cure in place to produce a flexible, non-shrinking foam. Foam expansion must not damage cables or crack penetrated structure.
   2. Use of these is allowed for non-fire rated walls.
   3. Cut foam flush with wall after installation between conduit and wall
   4. Foam sealants are not allowed inside conduits

2.04 FIRESTOP PRODUCTS

A. The contractor shall be responsible for firestopping around their cables and the raceways.

B. Shall be completed inside and around all conduits after cable installation.

C. Firestop for the area between the cable and the edge of the conduit shall be Nelson No. FSP, CLK or LBS+. Contractor shall install the best firestop for each individual installation.
   1. Firestop shall be installed with regard to local and national building codes.
   2. The firestop shall be a putty like substance that expands under heat and will not allow flame to pass for a designated period of time.
   3. Firestop shall conform to all NEC, NFPA, and UL requirements.
   4. Some wall pass-thru’ s are shown on the drawings. The Contractor shall utilize these where possible.
   5. Where the contractor must install cables through a wall where there is no pass-thru already provided, the Contractor shall be responsible for installing a fire-rated pass-thru and fire-stopping the conduit after cable installation.

D. Firestopping is required at all riser conduits and all pass thru’s.
   1. Each cable tray penetration of a wall shall be firestopped after cable installation. Use pillow type firestop to allow additional cables to be installed in the future.
   2. Where riser conduits pass through floors, the area between the concrete and the conduit shall be firestopped. This shall be completed with a putty or liquid firestop product. Fill in the space with mineral wool, and then install the firestop on top. All firestop shall be of sufficient thickness to secure the rating required by code.
   3. After final cable installation, install a putty firestop around all cables where they enter and exit conduit pass thru’s and conduit risers.
   4. All firestop shall be installed to provide the fire rating as described by local fire code.
   5. It shall be the responsibility of the Contractor to verify that all conduits, walls, and raceways required to be firestopped have been firestopped.

PART 3 - EXECUTION

3.01 CUTTING OF HOLES FOR PASS-THRUS.

A. Cut holes in advance where they should be placed in the walls and structural elements, such as ribs or beams. Obtain the approval of the PSC and or owner prior to drilling through structural elements.

B. Cut holes through concrete and masonry in new and existing structures with a diamond core drill or concrete saw when conduit is more than 1” in size.

C. Pneumatic hammers, impact electric, hand, or manual hammer-type drills are only allowed for conduits 1” size and smaller.

D. If there is a blowout of the block or concrete on one side of the block or concrete wall then repair the wall with Concrete grout.

3.02 CONDUIT PASS THRU REQUIREMENTS

A. Install conduit as follows:

1. Cut conduits square, ream, remove burrs, and draw up tight.
2. Independently support conduit pass thru’s to the structure/wall
3. Do not use suspended ceilings, suspended ceiling supporting members, lighting fixtures, other conduits, cable tray, boxes, piping, or ducts to support conduits and conduit runs.
4. Close ends of empty conduits with plugs or caps at the rough in stage until wires are pulled in, to prevent entry of debris.

B. Sleeves for conduits penetrating above-grade, non-fire-rated, concrete and masonry-unit floors and walls:

1. Interior penetrations of non-fire-rated walls and floors:
   a. Seal space outside of sleeves with mortar or grout. Pack sealing material solidly between sleeve and wall or floor so no voids remain. Tool exposed surfaces smooth; protect material while curing.
   b. Seal annular space between sleeve and pathway or cable, using joint sealant appropriate for size, depth, and location of joint.
2. Install sleeves for wall penetrations unless core-drilled holes or formed openings are used. Cut sleeves to length for mounting a minimum of 2” beyond flush with both surfaces of walls. Deburr after cutting.
3. Install nylon grommets on all pass-thru conduits.
4. Sleeves shall be supported from the wall with a fastener. Shall not be free floating.
5. Install sleeves for floor penetrations. Extend sleeves installed in floors 12 inches above finished floor level.

C. Installation of sleeve seal systems

1. Install sleeve seal systems in sleeves in exterior concrete walls and slabs-on-grade at pathway entries into building where multiple individual cables or conduits are extending from exterior to interior.
2. Install type and number of sealing elements recommended by manufacturer for pathway or cable material and size. Position pathway or cable in center of sleeve. Assemble mechanical sleeve seals and install in annular space between pathway or cable and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

3.03 FIRESTOP:

A. Where conduits, wireways, and other electrical raceways pass through fire partitions, fire walls, smoke partitions, or floors, install a fire stop that provides an effective barrier against the spread of fire, smoke and gases, FIRESTOPPING.

B. Install firestop between cables and conduit interior to conduit after cable installation.

C. Install firestop between conduit and wall where gap is ¾" or less. For larger gaps the contractor shall install drywall mud or concrete grout to fill in the hole around the conduit.
D. Install all Firestop in UL approved standards.

3.04 WATERPROOFING:
A. At floor, exterior wall, and roof conduit penetrations, completely seal the gap around conduit to render it watertight.

END OF SECTION 287100

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SECTION 287200 – TECHNOLOGY SUBMITTALS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. This section provides the Contractor with requirements regarding Product Data Sheets, Shop Drawings and Product Samples collectively referred to as “Submittals”.

B. This section provides the Contractor requirements regarding As-Built Documentation after installation and prior to Final Completion and Final Payment

C. The requirements of this section deal only with those submittals that are required to be provided by the chosen contractor after bid award. No submittals in this section are required to be provided with the Bid Response.

D. The requirements contained herein should be considered bound and apply to all technology and security specification sections per this contract.

1.02 PRE-INSTALLATION SUBMITTALS

A. The contractor shall provide material submittals to the Construction Manager or directly to the designer, whichever is managing the project.

B. Prior to beginning work, the chosen Contractor shall provide PDF files of all material submittals.

1. Highlight the part number of each item specifically. Submittals that are not highlighted will be rejected and sent back immediately.
2. Provide the PDF with the following file names
   a. Site - Spec Section - Description
   b. In Example: K**ent City 28 1600: Data Cabling submittal**

1.03 AS-BUILT DOCUMENTATION

A. The contractor shall provide As-Built documentation to the Construction Manager or directly to the designer, whichever is managing the project.

B. Provide the As-Builts in hard and soft copy

1. Hard Copy shall include all Red-lined Drawings showing what was actually installed and where it was installed.

PART 2 - PRE-INSTALLATION SUBMITTALS

2.01 PRODUCT DATA SHEETS

A. Product data sheets shall consist of the manufacturers detailed specification sheets or “cut-sheets” for each product that is to be installed by the contractor or any subcontractors.

B. Product data sheets shall minimally include, but shall not be limited to:

1. Part Number
2. Manufacturer
3. Description of the product
4. Physical dimensions and characteristics of the product
5. Picture or manufacturers drawing of the item, where applicable
6. Electrical characteristics of the product including heat-load for active electronics.
7. Optical characteristics of the product for Fiber-Optic equipment and cable.

C. Provide product data sheets for all equipment and cabling that is to be installed by the contractor

D. Provide a PDF of all the Equipment being submitted. Each actual part number shall be highlighted on the PDF in yellow.

1. Group Product Data Sheets by:
    a. Data/fiber Cabling and termination equipment
    b. Cable testing equipment
    c. Conduit pass thru's
    d. Firestopping and sealants
    e. Underground raceway and handholes if required as part of the building.

2.02 SHOP DRAWINGS

A. Shop Drawings shall consist of detailed drawings showing actual connectivity, equipment to be installed and cable types for the systems noted below:
    1. None
B. Shop drawings shall be provided for systems that the contractor intends to connect differently than what is shown on the contract drawings or where no connectivity is shown.

2.03 PRODUCT SAMPLES

A. Product Samples shall consist of a sample of the actual product that is to be installed.
B. Samples shall be tagged with the part number and specification section to which it pertains.
C. Product Samples shall be provided for the following:
    1. None at this time.

2.04 SUBMITTAL DOCUMENTS

A. The Contractor shall provide all Submittals to the Construction Manager or the designer
B. The Contractor shall provide PDF Files for all Product Data Sheets.
    1. All Product Data sheets shall be PDF files grouped as shown in 2.01/D
    2. The Contractor shall highlight the actual part number on the sheet of the component that they are submitting.
    3. If no part number is highlighted or marked with an arrow, then the entire submittal package will be rejected and sent back for re-submission.
C. The Contractor shall provide 1 set of PDF of Shop Drawings.
    1. Shop drawings shall be marked for the specification section of the bid documents to which they pertain. Mark the Detail (TCXXX/Y) to which the Shop Drawing refers.
    2. All shop drawings that are required to be drawn on the building background shall be provided on full-size drawings the same scale as those in the bid documents.
    3. All lines on the shop drawings shall be highlighted or completed in ink that is not the same color as that provided in the bid documents.
    4. The contractor shall provide a drawing legend detailing all symbols used in creation of the shop drawings.
D. The Contractor shall provide one of each product sample required to be submitted.
    1. Provide a cutsheet with each product sample detailing the specifics of the product and what it is proposed to be used for.

2.05 SUBMITTAL REQUIREMENTS

A. Submittals shall be provided for approval prior to installation of the work.
B. Any equipment installed that does not have an approved submittal associated with it can and will be removed from the project and replaced with other equipment as defined by the Designer. All replacement costs shall be the responsibility of the Contractor.
C. It shall be the responsibility of the Contractor to provide the submittals for review in sufficient time to not delay the installation. Work with the Construction manager on the schedule.
D. It shall be the responsibility of the contractor to ensure they have provided and have on hand "Reviewed" or "Furnish as Corrected" submittals for all equipment they install.
E. When reviewing submittals marked "Furnish as Corrected" take into account the comments and incorporate the comments into the products and installation of the systems.

PART 3 - AS-BUILT DOCUMENTATION

3.01 MATERIALS

A. The Contractor shall provide the following to the Designer prior to the issuance of the final payment.
   1. Approved submittals and equipment user manuals.
   2. As-Built Documentation as detailed below.
   3. All spare parts and cover plates for all components of the systems
   4. Manufacturer warranty cards for all components.

3.02 AS-BUILT PROCESS

A. The Contractor shall provide all project as-builts to the designer at substantial completion.
   1. Provide them to the designer for review
   2. Make any required changes the designer requests
   3. Re-submit at the time of Final Completion / final payment. Final Payment is not possible without a complete post installation deliverable package

3.03 PREPARATION

A. All documents for As-Builts and test results shall be neat and clearly labeled with listing of the project and documents included in each binder.
B. Quantity:
   1. Submit Red Lined, As-Built floorplans for the Systems detailed in 3.04/D.
      a. Provide one set of physical documents, full size,
      b. Provide PDF Scans of the As Built Floorplans.
   2. Submit Electronic files for As-Built Documentation
      a. Provide PDF Files. Provide a Coversheet that details:
         A) Client name.
         B) Project name.
         C) Manual title (e.g., “Project Close-out Manual for security system upgrade”).
         D) Date; date format: <month> <day>, <year> (e.g., “January 1, 20xx”).
         E) Installer and General Contractor names and contact information
         F) Warranty contacts for all systems.
      b. Submit Electronic files to Owner, Designer and Construction Manager via email or dropbox or directly through USB Drives.

3.04 PROJECT DELIVERABLES

A. Provide a copy of all submittals and manuals and pamphlets.
B. Provide a copy of all Warranty documents and contact numbers for Warranty requests.
C. The contractor shall provide one set of full sized as-built prints. Provide a PDF of the as-built prints on the USB drives or via Email or Dropbox.
   1. Provide a clean set of the latest drawings with red lines marked for all field changes or bulletins. See above for systems to be included on the As-Built prints
D. The As-Built drawings shall include:
   1. Changes to be reflected on the drawings for Video Security Systems shall include:
      a. Cabling Paths
      b. Conduit paths
      c. WAP locations
      d. WAP numbers
      e. Power circuit numbers if power is installed.

E. Documentation for the specific systems shall include. Provide the following for each system:
   1. Contractor warranty dates based on Substantial completion date and contact information for warranty work.
   2. Data cabling
      a. Testing Documentation for copper and fiber cabling
         A) Include software to read the test results.
         B) Testing Documentation; This shall include actual cable test results. Tabbed Sections in the binder:
            1) Telecommunication Horizontal Cabling Detailed cable test reports
            2) Telecommunications Fiber backbone cabling
            3) Summary report
      b. Signed Cabling Warranty from manufacturer
   3. Network Systems
      a. Create a floorplan based diagram showing all wireless access point location and names

END OF SECTION 287200

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SECTION 287600 – TECHNOLOGY LABELING

PART 1 - GENERAL

1.01 WORK INCLUDED
- A. This section provides direction on labeling of cables and devices.

PART 2 - PRODUCTS

2.01 CABLE LABELING PRODUCTS INTERIOR
- A. CAT-6/CAT- 6A cabling
  1. Laser-printed, self-adhesive wrap around shall be Brady LAT-18-361 or equivalent.
  2. Label shall be 1.00-inch width x 1.33 inch high.
  3. Labels shall come on a sheet with 7 labels per row with a white and transparent matte finish.
  4. Sheet size shall be 8-1/2 inch x 11 inch.
  5. Printable area shall be a minimum of 1.00-inch width x 0.50 inch high.
  6. All labels shall be printed through a laser printer using labeling software.
- B. Faceplate Labels
  1. Laser-printed, paper labels shall be used to label user faceplates.
  2. Individual paper labels shall be installed behind the clear plastic strips of all user faceplates and surface mount housings.
     a. The labels shall show the location identifier number and letter of each individual cable.
  3. Where a faceplate or surface mount box does not have a clear plastic strip the contractor shall install an adhesive label on the plate or surface mount box showing the cable number of each cable in the plate.
- C. CAT-6/CAT- 6A patch panels in comm rooms
  1. Laser-printed, labels shall be used to label Patch panels
  2. For WAP panels: see below
  3. Label the patch panel with the WAP number.

PART 3 - EXECUTION

3.01 PREPARATION
- A. Terminate all cables in proper color code sequence.
- B. Clean any surfaces where an adhesive label is to be installed.
- C. Prior to beginning the work, the contractor shall submit to the engineer a plan for labeling all the cables. This shall take into account to what components each cable is connected.

3.02 GENERAL LABELING
- A. Everything shall be labeled as per the specs and drawings.
- B. All labels shall be installed to more easily identify the cables and ports on all panels. If there are any questions regarding labeling, contact the Engineer prior to installation.

3.03 DATA CABLING LABELING EXECUTION
- A. Cable labels for CAT-6A cables from the faceplate to the patch panel shall be installed within 4 inches of the end of the cable sheath.
  1. The location identifier is made up of multiple fields, and a sample might look like this:

XX-YY-APZZ
XX = COMM ROOM NUMBER. SEE FLOORPLANS
YY = FLOOR DESIGNATION
BB=BASEMENT.
LL=LOWER LEVEL.
UL= UPPER LEVEL
EX = EXTERIOR
AP = WAP
ZZ = AP NUMBER. SEE FLOORPLANS AND SITE PLAN

This system of identification provides the Owner with an easy way to keep track of cables, and where they are located or terminated.

2. The cable label shall be similar to the label below:

XX-YY-APZZ
XX-YY-APZZ
XX-YY-APZZ

3. Provide a sample label to the Engineer for approval prior to installation of all labels.
4. Labels shall be installed at each end of each cable. Shall be within 4" of the termination.
5. Shall be at a uniform distance from termination on the patch panels. See pic below:

B. CAT-6 Patch panels shall be labeled for the panel they are numbered in the comm room and for the cameras (1-24 or 1-48)
1. See below diagram:
a. Install labels at each end detailing the panel number.

	001	002	003	004	005	006	007	008	009	010	011	

C. CAT-6A Patch panels for Wireless Access Points shall be labeled for the WAP number
   1. See below diagram:
      a. Install labels below each outlet on the patch panel detailing the WAP number
      b. Meet with the owner and obtain the WAP number and label the panel with that WAP number. Install .laser printed label
      c. Example below shows WAP number of LL (for Lower Level)-0XX etc.

BLDG /ROOM	001	002	003	004	005	006	007	008	009	010	011	BLDG /ROOM
	LL-AP21	LL-AP22	LL-AP23	LL-24	LL-AP25	LL-AP26	LL-AP27	LL-AP28	LL-AP29	LL-AP30	LL-AP31	

TYPICAL PANEL LABELING

END OF SECTION 287600

State of Michigan
Department of Technology, Management and Budget
Design and Construction Division
Funding Code: 472ElectronicComm
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Kinross Correctional Facility
Wi-Fi Cabling Infrastructure

SECTION 287700 – TECHNOLOGY TESTING

PART 1 - GENERAL

1.01 WORK INCLUDED
- A. This section provides direction on
  1. Testing of copper and fiber cable,
  2. Testing and commissioning of the technology systems

PART 2 - PRODUCTS

2.01 MANUFACTURERS
- A. Approved vendors for cable testers are:
  1. Fluke or equal

2.02 TESTING PRODUCTS
- A. Category 6A cable shall be tested.
  1. Cable tester shall support Cat 6A channel and permanent link certification.
  2. Tester shall provide accuracy beyond TIA level III requirements traceable to laboratory reference standards.
  3. Through add on fiber optic probes, the tester shall be able to test multimode and single mode fiber cable.
  4. Test results shall be able to be stored on internal or removable compact flash memory cards.
  5. Tester shall have optional talk set for discussions over the cable being tested.
  6. Tester shall support a frequency range of 1-350 MHz with accuracy to the current proposed TIA Level III.
  7. Tester shall support the following tests:
     a. Near end crosstalk (NEXT).
     b. Attenuation.
     c. Equal level far end crosstalk (ELFEXT).
     d. Return loss.
     e. Ambiant noise.
     f. Wire map shall identify miswires, shorts, opens, reversals, and split pairs.
     g. Shall measure cable length and distance to faults (if any).
     h. Propagation delay.
     i. Loop resistance.
  8. Tester shall support the following test standards:
     a. TIA Cat 6 and ISO Class E.
     b. TIA Cat 5.
     c. TIA TSB-95.
     d. TIA Cat 3, 4 and 5 per TIA TSB-67.
     e. UTP, STP, SCTP coaxial and twinax cabling.
     f. IEEE: all Ethernet 802.3UTP and fiber PMD interfaces including 1000BASE-T; other 802.x PMD interfaces including token ring and demand priority.
     g. ATM: All UTP and fiber PMD interfaces.
  9. Tester shall have all required probes and accessories required to perform CAT-6 tests and “Network Tests.”

10. Tester shall have been recently calibrated (within 4 months), and shall be utilizing the latest software.

B. Fiber Optic Tester:
   1. Fiber cable shall be tested with a light power meter.
      a. Multimode at 850nm and 1300nm, and single mode at 1310nm and 1550nm shall be tested by the light meter.
      b. Power meter testing shall have a range of +20 dBm.
      c. Testing at both wavelengths shall appear on the readout at one time for both multimode and single mode.
      d. All connector types shall be available for testing.
      e. Resolution of testing shall be to 1 foot.
   2. All fibers shall be tested prior to any splice (other than pigtails) being closed and secured.

2.03 PUNCHLIST PROCESS
   A. The contractor shall be required to go through a punchlist process prior to substantial completion and final completion/payment of each project
   B. Contractor shall be responsible for reviewing their own work and checking to ensure it has met the project requirements.
   C. The contractor shall:
      1. Review your work in each room
      2. Review the specifications and drawings and review their work to ensure it meets requirements
      3. Create a punchlist document showing what work is not yet done and what as-builts are yet to be completed. Send document to designer.
         a. Provide a date when contractor punchlist work will be completed.
      4. Schedule a punchlist and substantial completion meeting with designer.
      5. Present updated punchlist document to the owner
      6. Walk the site with the contractor and demonstrate all systems and review the work completed. Demonstrate how all work is completed
   D. Designer will create an “Owner Punchlist” document
      1. This will be provided to the contractor
      2. Contractor shall review the list, fix/upgrade/replace all equipment and cabling and finish work on the punchlist
      3. Return punchlist to the designer showing when the work was fixed/completed and a signature on the sheet showing that the contractor has reviewed each item.
   E. Meet onsite with the designer to review the finished work.

PART 3 - EXECUTION

3.01 EXAMINATION
   A. Testing shall be completed after fiber is installed inside the fiber patch panel and the fiber panel has been put together.
   B. All cables and panels where cables terminate shall be labeled with the cable label or name of each individual cable. Identify how each cable and panel will be labeled.

3.02 CATEGORY UTP/STP CABLE TESTING
   A. Cable tests for CAT 6A cables shall be provided for each user CAT-6A cable.

1. Prior to beginning the testing, the Contractor shall provide the Engineer with a notice that testing will begin. Written notice shall be given at least 3 business days prior to testing beginning.
2. Tester shall be calibrated each day with manufacturer provided calibration cable.
3. Tests shall be saved under each cables unique location identifier.
4. Contractor shall provide the correct cables and probes specifically for the cable and modular jacks that are being tested.
5. During the test the tester shall be set to check all “Network Tests.”
6. Test results shall be provided in hard copy and soft copy. Along with the soft copy, provide a copy of the software required to read the test results.
7. Contractor shall supply 2 copies of the paper results and 2 copies of the file results.
8. Provide all paper results in 3-ring binders. Binders shall have a cover that shows the job name, job number, building and closet where the cables were tested, and the range in the location identifiers of the cables tests provided.
9. Tester shall be set to match the cable being tested.
10. Contractor is responsible for ensuring that all cables pass the tests. Any cable found not to pass shall be removed and replaced at the Contractor’s expense.

3.03 FIBER CABLE TESTING

A. Fiber cable shall be tested with a light meter for end-to-end tests.
   1. Prior to beginning the testing, the Contractor shall provide the Engineer with a notice that testing will begin. Written notice shall be given at least 1 week prior to testing beginning.
   2. Light meter tester shall be calibrated at the beginning of each day.
   3. Light meter test results shall be provided in a spreadsheet format.
   4. Contractor shall supply 2 copies of the paper results and 2 copies of the file results.
   5. Provide all paper results in 3-ring binders. Binders shall have a cover that shows the job name, job number, building and closet where the cables were tested, and the range in the location identifiers of the cables tests provided. Test reports shall include the following information for each cabling element tested:
      a. Actual measured and maximum allowable attenuation (loss) at the specified wavelengths per Part 2, Section 3 and the margin. An individual test that fails the link criteria shall be marked as FAIL.
      b. Reference method.
      c. Number of mated connectors and number of splices (if any).
      d. Actual length and maximum allowable length per Part 2, Section 3. Any individual test that fails the link length criteria shall be marked as FAIL.
      e. Group refractive index (GRI) for the type of fiber tested, if length was optically measured.
      f. Tester manufacturer, model, serial number, and software version.
      g. Circuit ID number and project/job name.
      h. Link criteria (autotest) used.
      i. Overall pass/fail indication.
      j. Date and time of test.
   6. Contractor shall test all user fiber cables to the following limits:
      a. Link attenuation shall be tested in accordance with ANSI/TIA/EIA-526-14A. Reference measurements shall be made in accordance with Method B or equivalent
      b. Multimode loss shall be no more than .6dB per mated connector and shall be no more than 3dB/km at 850nm and 1dB/km at 1300 nm.

c. Singlemode loss shall be no more than .6dB per mated connector and shall be no more than .5dB/km at 1310 nm and .4dB at 1550 nm.
d. If the measured loss is above the limits, the Contractor shall take action to fix the cables and get the tests to be below the loss limits.

7. Contractor is responsible for ensuring that all cables pass the tests. Any cable found not to pass shall be removed and replaced at the Contractor's expense.
8. Testing shall be of the optical link. An optical fiber link is defined as the passive cabling network between 2 optical cross connects (patch panels or outlets). This includes cable, connectors, and splices but does not include active components. The link test contains the representative connector loss at the patch panel associated with the mating of patch cords but does not include the performance of the connector at the equipment interface.

END OF SECTION 287700

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SECTION 287800 – TECHNOLOGY WARRANTY

PART 1 - GENERAL

1.01 SECTION INCLUDES
- A. This section includes directions for the Contractor regarding system and equipment warranties.

1.02 SYSTEM DESCRIPTION
- A. The project is not complete until all paperwork has been provided.

1.03 COORDINATION
- A. Coordinate as-built drawings and records with the Engineer and Owner.

PART 2 - PRODUCTS

2.01 MANUFACTURERS
- A. Provide manufacturer's warranty for all equipment installed
- B. Provide contractor warranty for workmanship and equipment
- C. Provide software upgrade protection (SUP) warranty as detailed in the specifications.

2.02 MATERIALS
- A. The Contractor shall provide the following to the owner/designer at Substantial Completion and any updates prior to the issuance of the final payment
  1. Manuals and pamphlets on all electronic equipment.
  2. All spare parts and cover plates for all components of the network.
  3. Red lined set of as-built drawings for the entire project.
- B. Updated hard copy and soft copy of the As-Built Documentation. See associated spec section.

PART 3 - EXECUTION

3.01 EXAMINATION
- A. Contractor shall fully examine all components of the system to make sure that all manuals and paperwork are included in the final submittal.
- B. Examine all equipment and cabling to ensure that it is labeled as per the drawings and specifications.

3.02 GENERAL WARRANTY
- A. Warranty Period shall be 1 year after a signed copy of Substantial Completion. This shall be the Warranty Period.
- B. See further specifications for additional warranty requirements that may be longer for certain systems.

1. Contractor shall be responsible for generating and submitting the Substantial Completion document to the designer for review and signature.

C. Warranty shall include each and every part, cable or software system provided as part of this project. This includes cabling.
   1. Does not include WAPS or Ethernet switches.
   2. During the Warranty Period:
      a. If any part is broken due to a manufacturing defect or installation defect, the Contractor shall fix and/or replace the broken item at their own expense.
      b. If any equipment loses connectivity or fails for any reason the contractor shall be onsite to diagnose and fix or replace equipment and upgrades software.
      c. The Contractor shall also supply all configuration and programming necessary to keep all electronic equipment to the latest revision of software during the warranty period.
      d. If the “system” goes down, and needs configuration to be brought back up, the Contractor shall be liable for any programming or reconfiguration.
      e. During the warranty period, the Contractor shall make the Owner aware of any software upgrades that are available.
      f. Contractor shall install all software upgrades for that warranty period or as detailed below for specific systems.
      g. If the system does not run well during the warranty period the contractor shall be onsite to diagnose and fix the system.

D. The contractor shall be onsite within 24 hours after a call from the owner or designer regarding system or equipment issues.

3.03 EXTENDED CABLING WARRANTY

A. The Contractor shall provide to the Owner a “Link Warranty” on all the components of the voice/data cabling system. This includes all components from the faceplate, through the jacks, cable, and back to the patch panels, not including patch cords. This does include Fiber Optic cabling and termination equipment.

B. Cable shall be installed that is covered as part of the complete warranty on the data cabling system. Cable that cannot be covered under the warranty shall not be installed.

C. The warranty shall be provided through the manufacturer of the faceplate, jacks, and patch panels. All components shall be by the same manufacturer.

D. The warranty shall guarantee that if any part or piece of the “Link” is found to be defective for a period of no less than 15 years, then that part or piece shall be replaced or fixed at no cost to the Owner.

E. The Contractor shall be responsible for installing the system in such a manner that the manufacturer will provide this warranty to the Owner.

F. The Contractor is responsible for compiling and submitting all the paperwork required to receive the warranty. This includes gathering all the information, completing any required forms, and submitting these forms and any other records to the manufacturer as required.

G. It shall be the Contractor’s responsibility to receive the approved warranty notification from the manufacturer and provide that and all the associated paperwork to the Owner.

H. The installation shall not be considered finally complete until the Owner has received notification, from the manufacturer, that the entire cabling system is covered by their warranty

END OF SECTION 287800