SECTION 07 53 23
ADHERED EPDM ROOFING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY OF WORK

A. Patch the adjacent existing Carlisle EPDM roofing after the installation of the new roof curb

B. Furnish and install a weather and watertight fully adhered EPDM roof complete, in place, per the drawings and specifications.

C. The existing roof has a 20-year manufactures warranty in place.

D. To keep this warranty, the selected roofing company will need to go back over the existing roof where penetrations are made with Carlisle splice adhesive, Carlisle roof jacks, and Carlisle black lap sealant.

1.03 PRODUCT OPTIONS AND SUBSTITUTIONS

A. No requests for substitutions will be considered after the Bid Opening.

B. Contractors and/or suppliers may submit requests for approval of equal products or materials. Written requests shall be submitted to the A/E for review within the specified time BEFORE THE BID.

1.04 SUBMITTALS

A. Prior to starting work, submit the following and receive necessary approvals:

1. Most recent copy of manufacturer's literature applicable to products and specifications to be used.
2. Complete material list of all items proposed to be furnished and installed under this section.
3. Manufacturer's recommended methods of installation.

   a) When approved by the A/E, the manufacturer's recommended methods of installation, unless superseded by the specifications, will become the basis for inspecting and acceptance or rejection of the actual installation procedures used in this work.
   b) Where specified requirements and/or detail drawings are not warrantable by the manufacturer. The Contractor shall submit a request for approval of alternate requirements and/or details to the A/E prior to the bid. All modification of requirements will be issued by Addenda.

c) Submit manufacturer's storage and protection requirements for all roofing materials including membrane, adhesives, and accessory products.

4. Detail showing the proposed temporary water cutoff detail.
5. Copy of Contractor's warranty request to the roof membrane manufacturer, and manufacturer's written approval for the Contractor to proceed. Do not proceed with work until manufacturer's approval to proceed is reviewed by the A/E and CHERRY CREEK SCHOOL DISTRICT Project Manager.
6. Letter from membrane manufacturer stating that the Contractor is a certified applicator of the roof system and is eligible to receive the specified warranty upon completion of the work. Letter shall document date that current certification became effective is no less than two year prior to the bid date.
7. Letter from membrane manufacturer documenting past training provided to Contractor and their employees. Provide names of Trainee(s), Trainer, System(s), and Dates.

B. Any deviation from the Contract Documents shall be submitted to, and subsequently approved by the A/E and CHERRY CREEK SCHOOL DISTRICT Project Manager, prior to proceeding in the revised manner.

C. In conjunction with project finalization, provide the following closeout submittals to the A/E:

1. Warranties.
2. As-built drawings (red-line and annotated information submitted to the A/E)
3. Membrane manufacturer's maintenance directives.

D. Roof-related submittals as specified in Section 01780.

1.05 **QUALITY ASSURANCE**

A. Standards: Comply with standards specified in this section and as referenced below:

1. The NRCA Roofing and Waterproofing Manual, Fifth Edition, 2001 - National Roofing Contractors Association.
2. Membrane manufacturer's current published specifications, application instructions, and technical bulletins.
3. Annual Book of ASTM Standards, Latest Revision – American Society for Testing and Materials.

B. Qualifications of Contractor: Contractor shall be approved by the membrane manufacturer to install the specified roof system and shall be eligible to receive the specified warranty upon completion of the work. Such approval shall have been issued and in effect for not less than two years prior to the bid opening date.

C. Qualifications of Installers: Use adequate number of skilled workers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and methods needed for proper performance of the work in this section. In acceptance or rejection of the work, no allowance will be made for lack of skill on the part of the workers. Technicians working on the project shall have received training by the roof membrane manufacturer for the procedures necessary to perform the specified work.

D. Supervisor Qualifications: Supervisor shall be certified by the membrane manufacturer. Certification shall have been issued at least 2 years prior to bid date.

E. Manufacturer Qualifications: Membrane manufacturer shall have 10-years of consecutive history in the manufacture of roofing materials. Applicator certification program and training programs must be available from the manufacturer.

F. Manufacturer Representation: Membrane manufacturer shall be represented by a full time individual or firm based in Colorado. Products represented by part time or regional entity will not qualify.

G. Membrane manufacturer shall assign one technical representative to the project, who shall provide the following site visits at a minimum:

1. Pre-roofing conference.
2. Job start and training meeting.
3. Interim inspection.
4. Final inspection
5. Reinspection of punch list, until manufacturer’s acceptance of installation and issuance of warranty.
6. Provide additional site visits as deemed necessary, or if required by the manufacturer for issuance of the specified warranty.

H. U.L. Listing: Provide materials bearing Underwriters Laboratories (U.L.) marking on bundle, package or container indicating that materials have been produced under U.L.'s classification and follow-up service.

I. FM Listing: Provide roofing system and roof covering material that have been evaluated by Factory Mutual for fire spread, wind uplift and hail damage, and bearing FM Class 1 approval markings.

J. The Contractor shall not subcontract the installation of the roof system covered under this specification to an individual or a firm that is not a full-time employee of the Contractor's company. This includes but is not limited to:

1. Roof Membrane
2. Membrane Flashings

1.06 **REFERENCES**

A. References: Materials used in this section shall be listed in the latest edition of the following:

1. *Factory Mutual Research Approval Guide* – Factory Mutual Research Corporation, An FM Global Affiliate.
2. *Roofing Materials and Systems Directory and Fire Resistance Directory* – Underwriters Laboratories Inc.

1.07 **DELIVERY, STORAGE, AND HANDLING**

A. Deliver materials to job site in their original unopened containers. Package labels shall indicate material name, production date, lot number and/or product code.

B. Store materials in dry, raised, and protected areas in an upright position. Completely protect materials from exposure to the elements with weatherproof canvas tarpaulins that are securely anchored so as to resist wind blow-off. Do not exceed allowable live load of storage area.

C. Follow the manufacturer's recommendations for storage of temperature sensitive materials.

D. Use all necessary means to protect the materials in this section before, during, and after installation, and to protect the work and materials of all other trades.

E. In the event of damage, immediately make any and all necessary repairs and replacements subject to the approval of and at no additional cost to CHERRY CREEK SCHOOL DISTRICT .

F. Throughout the duration of the project, retain all stored materials and equipment in an orderly arrangement allowing maximum access and not impeding drainage or traffic.

G. Weekly, and more often if necessitated by job conditions, Contractor shall inspect all arrangements of materials stored on site and restack, tidy and resecure as required.

1.08 **SCHEDULING**

A. Work is to be performed on a daily basis with each section completed before progressing to the next section of roofing unless specifically directed otherwise by the A/E.

B. Completion of work will be defined as the installation of all specified roof preparation, insulation, field membrane, flashings, termination bars, and caulking.

1.09 **WARRANTY**

A. The Contractor shall warrant all materials and workmanship for a period of two years from the date of acceptance of the completed work by CHERRY CREEK SCHOOL DISTRICT . The Contractor shall make good any defects in materials or workmanship that may develop during the two-year period by repairing or replacing such defects at his own expense without cost to CHERRY CREEK SCHOOL DISTRICT . Contractor shall use the form provided in this section.

B. Upon completion of work and prior to final payment, Contractor shall pay all required fees, secure all required inspections, and complete all items necessary to secure and deliver to CHERRY CREEK SCHOOL DISTRICT the following items:

1. Copies of all manufacturer's punch lists and documentation of completion.
2. Membrane Manufacturer's 10-year, total installed cost, labor and material, total roof system warranty. The total system warranty shall include the following:

a) Roof membrane
b) Roof membrane adhesion
c) Roof membrane flashings
d) Roof insulation attachment
e) Roof system fasteners, termination bars, premanufactured metalwork, and other miscellaneous accessories supplied by the membrane manufacturer

C. Warranty shall cover defects in materials and workmanship, and shall become effective at the completion of the work. This warranty shall not include any buy-out clauses and shall not be prorated.

D. THE WARRANTY SHALL BE UNDERWRITTEN BY THE MEMBRANE MANUFACTURER.

E. Submit all items to the A/E or the designated representative within ten days of receipt from the manufacturer or within ten days of the final inspection.

PART 2 - PRODUCTS

2.01 **GENERAL**

A. Minimum product requirements have been listed. All of these components must be used and bid. Products not supplied by the membrane manufacturer are to be purchased from a manufacturer-approved source.

B. Manufacturer supplied V.O.C. compliant products shall be bid and used if V.O.C. regulations are in effect at the project location at the time of bidding.

C. No product shall contain any asbestos or asbestos related products.

D. All materials used on this project shall be compatible with the

existing conditions and with each other.

2.02 **ACCEPTABLE MANUFACTURERS**

A. Products manufactured only by:

1. Carlisle SynTec Systems

2.03 **PRODUCTS SUPPLIED BY ROOF MEMBRANE MANUFACTURER**

A. Roofing Membrane

1. Nominal 60-mil, non-reinforced black EPDM sheet membrane. Membrane shall comply with ASTM D 4637 - 96 Type I and shall be labeled as such.
2. Fire Resistant for finished assembly to meet UL Class A

B. Where field membrane is not turned up to form base flashing, base flashing shall be constructed with nominal 60 mil cured EPDM membrane. Pre-cleaned membrane shall be used for all flashing construction.

C. For flashing edge metal, 7” (minimum) self-adhering, semi-cured EPDM shall be used.

D. For flashing vent pipes, scuppers, pitch pans and other unusually shaped penetrations shall be accomplished using self-adhering or cured EPDM flashing unless otherwise noted below or specifically accepted in writing by the CHERRY CREEK SCHOOL DISTRICT Project Manager.

E. For flashing inside and outside corners, pre-cut, self-adhering, uncured EPDM inside and outside corners shall be used.

F. For flashing pipes with open tops, pre-manufactured, self-adhering, EPDM pipe flashings shall be used.

G. For splicing membrane and flashing sheets seam cleaner, seam primer and 7” wide seam tape shall be used.

H. Where adhesive bonding of seams is required, seam primer, splicing adhesive and lap sealant shall be used. Provide in-seam sealant where required by the membrane manufacturer.

I. For bonding flashings to vertical and horizontal surfaces, substrate adhesive shall be used.

J. For sealing under drain flashings and top edges of base flashings, water cutoff sealant shall be

K. For base terminations at perimeters and curbs, concealed 6” strips of reinforced 45-mil EPDM shall be used. Strips with factory laminated integral 3” seam tape may be used at the Contractor’s option.

L. System Fasteners - Wood/Steel

1. Corrosion-resistant, self-tapping, self-drilling #14 screw with low profile head meeting Factory Mutual 4470 requirements.
2. Corrosion-resistant, factory-made metal batten strip, bar, or individual locking metal plates as indicated in details.
3. Fastening accessories shall be Factory Mutual approved for the specified system.
4. Approved Products

a) As supplied by membrane manufacturer

M. System Fasteners – Concrete / Masonry

1. Corrosion-resistant friction fit fastener with low profile head meeting Factory Mutual 4470 requirements.
2. Corrosion-resistant, factory-made metal batten strip, bar or individual locking metal plates as indicated in details.
3. Fastening accessories shall be Factory Mutual approved for the specified system.
4. Approved Products

a) As supplied by membrane manufacturer

N. Where batten strips are indicated, they shall be minimum 1” x .043” Galvalume steel strip.

O. Where termination bars are indicated, they shall be a minimum 1/8” x 1” extruded aluminum, with caulk lip as required.

2.04 **PRODUCTS SUPPLIED BY OTHER MANUFACTURERS**

A. Temporary water cutoff shall be constructed with hot asphalt or sprayed polyurethane foam sealant.

B. Exposed sealant joints at termination bars and roof related sheet metal shall be constructed with one part polyurethane sealant; NP-1 by Sonneborn or approved equal.

C. All other materials not specifically described but required for a complete and proper installation of the work in this section shall be as selected by the Contractor, approved by the manufacturer, and subject to the approval of the A/E.

2.05 **OTHER PRODUCTS**

A. If the A/E approves pitch pan installation at a particular penetration, a metal pitch pan as specified in Section 07620 shall be used. PRE-FABRICATED, SELF-ADHERING EPDM PITCH POCKETS ARE NOT APPROVED.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine the areas and conditions under which work in this section will be installed. Correct conditions detrimental to the proper and timely completion of the work. Do not proceed until such conditions have been corrected.

3.02 DEMOLITION (TIE-IN)

A. Where the new structure is to tie into the existing roof, remove the existing roofing material along a strip at the tie-in location down to the metal decking.

B. Spud back the existing gravel along the tie-in in area at the removed roofing 3’ back from the area removed.

C. Replace the insulation, roofing, flashing and surfacing at this tie-in area once construction allows for a completed repair.

D. Lift and remove metal and metal accessories designated to remain, to aid in the installation of the new roofing system.

E. If conditions are uncovered that would be detrimental to the application of the specified work, immediately notify the project representative.

F. Remove all debris from the property and dispose of in a proper manner.

3.03 PRE-ROOFING CONFERENCE

A. Prior to the start of roof installation, an on-site pre-roofing meeting will be held with the A/E, Contractor, all necessary Contractors and crew foremen, Roof Consultant, Roof Membrane Manufacturer and the CHERRY CREEK SCHOOL DISTRICT Project Manager in attendance.
The purpose of the meeting will be to assist in coordination and scheduling; discuss access; review technical aspects (drawings, specifications, and submittals), and quality control issues.

B. Agenda of Pre-Roofing Conference

1. Review the contract documents, technical specifications, drawings, submittals and shop drawings.
2. Review all proposed variations from the Contract Documents.
3. Discuss site access, scheduling, communication, material delivery and storage, temporary protection, handling of fumes-air intakes, project safety, coordination issues, and construction procedures.
4. Walk the project site and inspect the deck penetrations and perimeter details.

C. The A/E shall prepare a written report of the proceedings, including any disagreements, intended modifications or unresolved issues. Report shall be distributed to the attending parties, representatives of the General Contractor, and entities identified elsewhere in contract documents.

3.04 **PREPARATION**

A. Prepare all surfaces according to applicable specification sections.

B. Perform any and all measures necessary to protect the work of other trades from damage due to performance of work specified under this section. Contractor shall restore to original condition any damage caused during performance of such work.

C. Surfaces scheduled to receive roofing are to be free of any standing water, frost, snow, or loose debris.

D. Substrate is to be smooth, free of sharp projections, and free of obvious depressions.

E. All metal fittings shall be in place before roofing.

F. All nailers shall be securely installed prior to roofing.

G. Do not proceed with the installation when surface temperatures are less than 40° F.

H. At start of each workday, drains located within daily work area shall be temporarily plugged to prevent debris from falling into the drain. Plugs to be removed at the end of each workday.

3.05 **APPLICATION/INSTALLATION - GENERAL**

A. The latest manufacturer specifications and installation techniques are to be followed along with the following requirements. These specific minimum requirements must be included in the bid and are not to be altered.

B. Perform all related work specified elsewhere necessary for the installation of the specified membrane system.

C. Ensure that fasteners do not penetrate conduit or other miscellaneous items located on the underside of the roof deck.

D. Do not apply roofing materials when water in any form (i.e. rain, dew, ice, frost, snow, etc.) is present.

E. Certain combinations of temperature and humidity may cause condensation on the surface of solvent-based products. If this condition occurs, do not mate the surfaces. When the ambient air conditions no longer cause condensation, apply additional material and proceed.

F. All surfaces scheduled to receive membrane or flashing must be free of physical contact with any bituminous surfaces, clean, and smooth.

3.06 **APPLICATION/INSTALLATION – ROOFING MEMBRANE**

A. Unroll and position roofing membrane, without stretching, over the approved substrate. Membrane laps shall be installed in a shingled manner in the direction of drainage. Allow roof membrane to relax a minimum of 30 minutes before seaming or attaching to substrate. As ambient air temperatures decrease, relaxation time shall increase.

B. When placing the membrane, ensure factory and field fabricated seams do not intersect drain sumps. Seams through drain sumps will not be approved.

C. Fold membrane back approximately in half so as to expose the underside. Sweep the mating surface and insulation to remove contaminants.

D. Apply bonding adhesive with roller to both the underside of the membrane and the insulation. Keep bonding adhesive out of seam area. Bonding adhesive shall be applied at rates directed by the manufacturer.

E. Allow bonding adhesive to flash off until tacky. Roll the coating portion of the sheet into the coated substrate slowly and evenly to avoid wrinkling.

F. Repeat the process on the remaining half sheet.

G. Overlap each successive sheet at side laps and all end laps 7" minimum. Sheets shall be spliced so that 6½” minimum splice tape seam results.

H. All seams shall be cleaned prior to seaming. Change cleaning pads and membrane cleaner often.

I. After required seam cleaning, apply seam primer and allow to dry.

J. After primer has dried, apply splice tape and press onto lower sheet. Peel release paper and allow upper sheet to fall onto splice tape. Immediately roll seam with 2” silicon roller.

K. On a daily basis, seams shall be checked for voids or other deficiencies, repairs made and lap seam sealant applied where required.

L. All T-joints at factory seams and field formed seams shall be covered with 6” diameter, self-adhering, semi-cured EPDM patches.

M. Repair all cuts, punctures, wrinkles within 18” of seams, wrinkles running toward seams, or wrinkles that can be pinched and folded over. Wrinkles requiring repair shall be cut out and patched. Seam cleaner, seam primer, splice adhesive and lap sealant shall be used for all repairs. All cuts and punctures shall be repaired the same day they are discovered.

3.07 **APPLICATION/INSTALLATION – ROOFING MEMBRANE ATTACHMENT**

A. Securement shall be provided at all roof perimeters, curbs, pipes, changes in plane greater than 15° and other locations as indicated.

B. Securement shall be achieved as follows:

1. Concealed Reinforced Membrane Strips

a) Install 6" wide reinforced membrane strip along base of flashing substrate and fasten with seam plates and the appropriate fasteners to the deck or vertically into the wall. Horizontal or vertical fastener placement shall be as indicated on the detail drawings. Spacing of the fasteners shall be 12" o.c. maximum.
b) For horizontal attachment, the reinforced strip must be positioned a minimum 1/8" to a maximum of 1" away from the angle change.
c) For vertical attachment, the reinforced strip must be attached to the vertical wall and must extend a minimum of 3" onto the horizontal substrate.
d) Adjacent sections of the reinforced strip shall not be overlapped. Gaps between adjacent sections shall not exceed 1".
e) If membrane will be adhesive spliced to the strip, clean the top surface of the strip and the underside of the membrane.
f) If the strip has integral splice tape, clean and prime the underside of the membrane prior to removing release paper from strip.
g) To splice the membrane to the reinforced strip, follow standard splicing procedures.
h) At the base of the angle change, all upturned membrane seams shall be covered with a 12" x 12" self-adhering, semi-cured EPDM patch.

2. Plates, Batten Strips or Batten Bars with Fasteners

a) Where the use of concealed reinforced stripping is not feasible, membrane plates, batten strips or batten bars with appropriate fasteners shall be used in a manufacturer-approved manner.
b) Fasteners shall be installed vertically into the structural deck or horizontally into walls or curbs.
c) Fastener spacing shall be 12" o.c. maximum starting 6" minimum from inside and outside corners.

3. At metal fascia edges, membrane shall be turned down over the roof edge and onto the wall 2" minimum below the bottom nailer. The membrane shall be secured with the continuous cleat on the vertical and the metal fascia flange on the horizontal. After sheet metal is installed, trim off all membrane which is exposed beyond edge of sheet metal.

4. At prefabricated fascia details, the membrane shall be turned down over the roof edge and onto the wall 2" minimum below the bottom

nailer. The membrane shall be secured with the anchor bar component.

3.08 **APPLICATION/INSTALLATION – MEMBRANE FLASHINGS**

A. Flashings shall be constructed and terminated as indicated. Care shall be taken when drilling into brick or terra cotta surfaces. The specified water cutoff sealant shall be applied behind the top edges of the flashings. All base flashing details that are terminated to surfaces of walls shall be detailed using a termination bar and a subsequent sheet metal counterflashing. Termination bars shall be fastened at all prepunched holes using appropriate fasteners. All fasteners heads and top edges of termination bars shall be sealed using a one part, polyurethane sealant.

B. All flashings shall be 8” minimum in height above the field membrane.

C. Uncured EPDM flashing usage shall be limited to scuppers, pitch pans, vent pipes and other unusually shaped penetrations. Otherwise, cured EPDM or self-adhering, semi-cured EPDM shall be used.

D. Pre-manufactured, self-adhering EPDM pipe boots shall be used in lieu of field wrapping of pipes.

E. All base flashings shall be totally bonded to the substrate. Loose, wrinkled or poorly bonded flashings will not be accepted.

F. Flashing seams shall be constructed by cleaning and priming the seam areas and installing 7” splice tape.

G. If splice adhesive bonding of seams is required, all splices shall be 6” minimum width. All splice-bonded seams shall be stripped-in with self-adhering, semi-cured EPDM flashing.

H. At equipment curbs, base flashings shall be installed up and over top of curb prior to setting mechanical equipment.

3.09 **APPLICATION/INSTALLATION – ROOF DRAIN DETAILING**

A. Install tapered insulation drain sump.

B. Position the membrane over the drain ensuring no factory or field fabricated seams are located within the sump.

C. Cut hole with ½” - ¾” membrane extending past drain bolt locations. Drain holes shall be no smaller than the drain pipe size.

D. Cut holes in the membrane for the bolts to penetrate through. **DO NOT CUT NOTCHES BACK TO THE BOLT LOCATIONS.**

E. Apply water cutoff sealant over the drain bowl flange.

F. Install the clamping ring and tighten all bolts to achieve complete compression. All bolt locations shall be functional.

G. Set drain strainer.

3.10 **TEMPORARY WATER CUTOFF**

A. Temporary water cutoffs are to be constructed at the end of each working day to protect the insulation, roofing, building, and building interior from damage due to wind, snow, and rain.

B. Temporary water cutoffs are to be constructed with hot asphalt or sprayed polyurethane foam adhesive unless otherwise specifically approved by the A/E.

C. Temporary water cutoffs are to be detailed by the Contractor and detail shall be approved by the manufacturer and the A/E.

D. All temporary water cutoffs and contaminated membrane shall be removed at the commencement of work the next working day.

3.11 **CLEANING**

A. Provide routine cleanup of excess materials, equipment, tools, construction debris, etc., as required to maintain the project site in a neat and orderly condition.

B. Provide for the proper disposal of all construction debris. Remove all debris from the roof on a daily basis. Keep roof surface clean of any debris that might prevent proper drainage.

C. Daily and more often if necessitated by job conditions, Contractor shall inspect the site and pick up all scrap, debris and waste material. Contractor shall remove such items promptly, leaving the construction area and site clean daily.

D. Contractor shall provide for the removal of all his construction debris from the project site. Contractor shall not allow the accumulation of scrap, debris, waste material and other items not required for construction of this work. Contractor shall provide storage of all items awaiting removal from the project site as directed by the Contractor.

E. At the completion of the contract, Contractor shall remove from the project site all equipment, tools, excess materials, etc., related to his contract.

3.12 **PROTECTION**

A. Perform any and all measures necessary to protect all persons present at the project site from harm due to the work of this section.

B. Perform any and all measures necessary to protect finished work from damage or contact with incompatible materials.

C. Contractor shall restore to original condition any and all damage caused during performance of work specified under this section.

D. Contractor shall provide all temporary barricades, tie offs and other safety measures required by regulatory authorities having

jurisdiction.

END OF SECTION 07 53 23

SECTION 07 84 00
FIRESTOPPING

PART 1 – GENERAL

1.1 SECTION INCLUDES

A. Firestopping systems.

B. Firestopping of all joints and penetrations in fire-resistance rated and smoke-resistant assemblies, whether indicated on drawings or not, and other openings indicated.

1.2 REFERENCE STANDARDS

A. FM 4991 - Approval of Firestop Contractors; Factory Mutual Research Corporation; 2001.

1.3 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on product characteristics, performance ratings, and limitations.

C. Manufacturer's Installation Instructions: Indicate preparation and installation instructions.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing the work of this section and:
   1. Approved by Factory Mutual Research under FM Standard 4991, Approval of Firestop Contractors, or meeting any two of the following requirements:.
   2. With minimum 3 years documented experience installing work of this type.
   3. Able to show at least 5 satisfactorily completed projects of comparable size and type.
   4. Licensed by authority having jurisdiction.

1.5 MOCK-UP

A. Install one firestopping assembly representative of each fire rating design required on project.
   1. Where one design may be used for different penetrating items or in different wall constructions, install one assembly for each different combination.

B. If accepted, mock-up will represent minimum standard for the Work.

C. If accepted, mock-up may remain as part of the Work. Remove and replace mock-ups not accepted.

PART 2 - PRODUCTS

2.1 FIRESTOPPING - GENERAL REQUIREMENTS

A. Manufacturers:
   1. A/D Fire Protection Systems Inc: www.adfire.com.
   2. 3M Fire Protection Products: www.3m.com/firestop.
   3. Hilti, Inc: www.us.hilti.com.
   4. Nelson FireStop Products: www.nelsonfirestop.com.
   5. Specified Technologies, Inc: www.stifirestop.com.
   6. Substitutions: See Section 01 6000 - Product Requirements.

B. Materials: Use any material meeting requirements.

C. Materials: Do not use materials containing asbestos.

D. Primers, Sleeves, Forms, Insulation, Packing, Stuffing, and Accessories: Type required for tested assembly design.

E. Fire Ratings: See Drawings for required systems and ratings.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify openings are ready to receive the work of this section.

3.2 PREPARATION

A. Clean substrate surfaces of dirt, dust, grease, oil, loose material, or other matter that could adversely affect bond of firestopping material.

B. Remove incompatible materials that could adversely affect bond.

3.3 INSTALLATION

A. Install materials in manner described in fire test report and in accordance with manufacturer's instructions, completely closing openings.

B. Do not cover installed firestopping until inspected by authority having jurisdiction.

3.4 CLEANING

A. Clean adjacent surfaces of firestopping materials.

END OF SECTION 07 84 00

SECTION 07 90 05
JOINT SEALERS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Sealants and joint backing.

1.2 REFERENCE STANDARDS

A. ASTM C834 - Standard Specification for Latex Sealants; 2010.

B. ASTM C919 - Standard Practice for Use of Sealants in Acoustical Applications; 2012.

C. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2014.

D. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2013.

1.3 ADMINISTRATIVE REQUIREMENTS

A. Coordinate the work with other sections.

1.4 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data indicating sealant chemical characteristics, performance criteria, limitations, and color availability.

C. Samples: Submit three samples, 6 inch in size illustrating sealant colors for selection.

D. Manufacturer's Installation Instructions: Indicate special procedures.

1.5 QUALITY ASSURANCE

A. Applicator Qualifications: Company specializing in performing the work of this section with minimum three years documented experience and approved by manufacturer.

1.6 MOCK-UP

A. Provide mock-up of sealant joints in conjunction with window and wall under provisions of Section 01 4000.

B. Construct mock-up with specified sealant types and with other components noted.

C. Locate where directed.

D. Mock-up may remain as part of the Work.

1.7 FIELD CONDITIONS

A. Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.

1.8 WARRANTY

A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

B. Correct defective work within a five year period after Date of Substantial Completion.

C. Warranty: Include coverage for installed sealants and accessories which fail to achieve airtight seal, exhibit loss of adhesion or cohesion, or do not cure.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Silicone Sealants:
1. Momentive Performance Materials, Inc (formerly GE Silicones): www.momentive.com.
2. Pecora Corporation: www.pecora.com.
3. Dow Corning : www.dowcorning.com.
4. Substitutions: See Section 01 6000 - Product Requirements.

B. Polyurethane Sealants:
1. Bostik Inc: www.bostik-us.com.
2. Pecora Corporation: www.pecora.com.
3. BASF Construction Chemicals-Building Systems; Product Sonneborn: www.buildingsystems.basf.com.
4. Sika Construction: www.sikaconstruction.com
5. Substitutions: See Section 01 6000 - Product Requirements.

C. Acrylic Emulsion Latex Sealants:
1. Pecora Corporation: www.pecora.com.
2. BASF Construction Chemicals-Building Systems; Product Sonneborn: www.buildingsystems.basf.com.
3. Substitutions: See Section 01 6000 - Product Requirements.

2.2 SEALANTS

A. Sealants and Primers - General: Provide products having volatile organic compound (VOC) content as specified in Section 01 6116.

B. Type B-NS - Exterior Metal Lap Joint Sealant: Butyl or polyisobutylene, nondrying, nonskinning, noncuring.
1. Product: BA-98 manufactured by Pecora Corporation.
2. Product: Chem-Calk 300 manufactured by Bostik
3. Applications: Use for:
a. Concealed sealant bead in sheet metal work.
b. Concealed sealant bead in siding overlaps.
c. acoustical treatment at tops and bottoms of walls.

C. Type AL-NS - Acrylic Emulsion Latex: ASTM C834, single component, non-staining, non-bleeding, non-sagging.
1. Color: To be selected by Architect from manufacturer's full range.
2. Product: AC-20+Silicone manufactured by Pecora Corporation.
3. Product: Sonolac manufactured by Sonneborn.
4. Applications: Use for:
a. interior at Fiber Reinforced Panel wainscot.
b. interior at door and window frames to gypsum board.

D. Type P-NS - Nonsag Polyurethane Sealant: ASTM C 920, Grade NS, Class

25, Uses NT, M, A ; multi component, chemical curing, non-staining, non bleeding, non-sagging type.

1. Color: To be selected by Architect from manufacturer's full range.
2. Product: Sikaflex 2C-NS manufactured by Sika Construction.
3. Product: Chem-Calk 500 manufactured by Bostik.
4. Product: DynaTrol II manufactured by Pecora Corporation.
5. Product: Sonolastic NP2 manufactured by Sonneborn.
6. Movement Capability: Plus and minus 25 percent.
7. Service Temperature Range: -40 to 180 degrees F.
8. Shore A Hardness Range: 20 to 35.
9. Applications: Use for:
   a. interior and exterior doors at concrete masonry.
   b. interior and exterior windows and doors at concrete.
   c. interior and exterior windows and doors at stone veneer.
   d. windows and doors at stucco.

E. Type P-SL - Self-Leveling Polyurethane Sealant: ASTM C 920, Grade P, Class 25, Uses NT, T, M, A; two- component, chemical curing, non staining, non bleeding, self-leveling type.

1. Color: Color as selected.
2. Product: Sikaflex 2C-SL manufactured by Sika Construction.
3. Product: Chem-Calk 550 manufactured by Bostik.
4. Product: Sonolastic SL2 manufactured by Sonneborn.
5. Movement Capability: Plus and minus 25 percent.
6. Service Temperature Range: -20 to 150 degrees F.
7. Shore A Hardness Range: 35-40.
8. Applications: Use for:
   a. exterior concrete slabs at building exterior concrete.
   b. exterior concrete slab joints.

F. Type S-NS - Silicone Sealant: ASTM C920, Grade NS, Class 25, Uses NT, A, G, M, O; single component, , non-sagging, non-staining, non-bleeding.

1. Color: To be selected by Architect from manufacturer's full range.
2. Product: SCS2000 manufactured by Momentive.
3. Product: 864NST manufactured by Pecora.
4. Movement Capability: Plus and minus 25 percent.
5. Service Temperature Range: -55 to 250 degrees F.
6. Shore A Hardness Range: 15 to 35.
7. Applications: Use for:
   a. exterior and interior doors and windows at metal panel.
   b. various accessory fasteners that penetrate metal panel exterior.

G. Type S-MR - Mildew Resistant Silicone Sealant: ASTM C 920, Grade NS, Class 25, Uses NT, A, G, O; single component, , non-sagging, non-staining, non-bleeding.

1. Color: To be selected by Architect from manufacturer's full range.
2. Product: SCS1700 manufactured by Momentive.
3. Product: 898 manufactured by Pecora.
4. Product: 786 manufactured by Dow Corning.
5. Movement Capability: Plus and minus 25 percent.

6. Applications: Use for:
   a. plumbing fixtures at all adjacent materials.
   b. wet countertops at adjacent surfaces.

2.3 ACCESSORIES

A. Primer: Non-staining type, recommended by sealant manufacturer to suit application.

B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.

C. Joint Backing: Round foam rod compatible with sealant; ASTM D 1667, closed cell PVC; oversized 30 to 50 percent larger than joint width.

D. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that substrate surfaces and joint openings are ready to receive work.

B. Verify that joint backing and release tapes are compatible with sealant.

3.2 PREPARATION

A. Remove loose materials and foreign matter that could impair adhesion of sealant.

B. Clean and prime joints in accordance with manufacturer's instructions.

C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.

D. Protect elements surrounding the work of this section from damage or disfigurement.

3.3 INSTALLATION

A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.

B. Perform installation in accordance with ASTM C1193.

C. Perform acoustical sealant application work in accordance with ASTM C919.

D. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer, except where specific dimensions are indicated.

E. Mask adjacent surfaces.

F. Install bond breaker where joint backing is not used.

G. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.

H. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.

I. Tool joints concave.

3.4 CLEANING

A. Clean adjacent soiled surfaces.

3.5 PROTECTION

A. Protect sealants until cured.

END OF SECTION 07 90 05