SECTION 07 1900
WATER REPELLENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Water repellents applied to exterior masonry surfaces.

1.02 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene a meeting at least one week prior to starting work; require attendance of affected installers; invite Architect and Owner.

1.03 SUBMITTALS

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

B. Product Data: Provide product description.

C. Manufacturer's Installation Instructions: Indicate special procedures and conditions requiring special attention; cautionary procedures required during application.

D. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 01 6000 - Product Requirements, for additional provisions.
   2. Extra Water Repellent Material: Two gallons of the type installed.

1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.

B. Installer Qualifications: Company specializing in performing the work of this section with minimum three years experience.

1.05 MOCK-UP

A. Prepare a representative surface 36 by 36 inch in size using specified materials and preparation and application methods on surfaces identical to those to be coated; approved mock-up constitutes standard for workmanship.

B. Locate where directed.

1.06 FIELD CONDITIONS

A. Protect liquid materials from freezing.

B. Do not apply water repellent when ambient temperature is lower than 50 degrees F or higher than 100 degrees F.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Silane, Siloxane, Silane-Siloxane Blend, and Siliconate Water Repellents:
   1. Tnemec Company, Inc; Prime A Pell 200: www.tnemec.com.
   2. Substitutions: See Section 01 6000 - Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify joint sealants are installed and cured.

C. Verify surfaces to be coated are dry, clean, and free of efflorescence, oil, or other matter detrimental to application of water repellent.

3.02 PREPARATION

A. Protection of Adjacent Work:
   1. Protect adjacent landscaping, property, and vehicles from drips and overspray.

2. Protect adjacent surfaces not intended to receive water repellent.

B. Prepare surfaces to be coated as recommended by water repellent manufacturer for best results.

C. Do not start work until masonry mortar substrate is cured a minimum of 60 days.

D. Remove loose particles and foreign matter.

E. Remove oil and foreign substances with a chemical solvent that will not affect water repellent.

F. Scrub and rinse surfaces with water and let dry.

3.03 APPLICATION

A. Apply water repellent in accordance with manufacturer's instructions, using procedures and application methods recommended as producing the best results.

B. Apply at rate recommended by manufacturer, continuously over entire surface.

C. Remove water repellent from unintended surfaces immediately by a method instructed by water repellent manufacturer.

END OF SECTION

SECTION 07 2100
THERMAL INSULATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Board insulation and integral vapor retarder at exterior wall behind masonry, siding and metal panel wall finish.

B. Batt insulation in exterior wall construction.

C. Batt insulation for filling perimeter window and door shim spaces and exterior walls.

1.02 REFERENCE STANDARDS

A. ASTM C578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.

B. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.

C. ASTM C1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.

D. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

E. ASTM E136 - Standard Test Method for Behavior of Materials in a Vertical Tube Furnace At 750 Degrees C.

F. ASTM E2357 - Standard Test Method for Determining Air Leakage of Air Barrier Assemblies.

1.03 SUBMITTALS

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

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

C. Manufacturer's Installation Instructions: Include information on special environmental conditions required for installation and installation techniques.

1.04 FIELD CONDITIONS

A. Do not install insulation adhesives when temperature or weather conditions are detrimental to successful installation.

PART 2 PRODUCTS

2.01 MANUFACTURERS

2.02 APPLICATIONS

A. Insulation Inside Masonry Cavity Walls: Extruded polystyrene board.

B. Insulation in Metal Framed Walls: Batt insulation with integral vapor retarder.

C. Insulation Above Lay-In Acoustical Ceilings: Batt insulation with no vapor retarder.

2.03 FOAM BOARD INSULATION MATERIALS

A. Polyisocyanurate Board Insulation with Facers Both Sides: Rigid cellular foam, complying with ASTM C1289; Type I, aluminum foil both faces; Class 1, non-reinforced foam core.
   1. Flame Spread Index (FSI): Class A - 0 to 25, when tested in accordance with ASTM E84.
   2. Smoke Developed Index (SDI): 450 or less, when tested in accordance with ASTM E84.
   3. Compressive Strength: 16 psi
   4. Board Size: 48 by 96 inch.
   5. Board Thickness: 1 inch.
   6. Board Edges: Square.
   7. Manufacturers:
      a. Rmax Inc; ECOMAXci: www.rmax.com/#sle.
      b. Substitutions: See Section 01 6000 - Product Requirements.

2.04 BATT INSULATION MATERIALS

A. Where batt insulation is indicated, either glass fiber or mineral fiber batt insulation may be used, at Contractor's option.

B. Glass Fiber Batt Insulation: Flexible preformed batt or blanket, complying with ASTM C665; friction fit.
   1. Combustibility: Non-combustible, when tested in accordance with ASTM E136.
   2. Thermal Resistance: R-value of 13 minimum.
   3. Thickness: 6" inch.
   4. Facing: Aluminum foil, flame spread 25 rated; one side.
   5. Manufacturers:
      a. CertainTeed Corporation; _____: www.certainteed.com.
      b. Johns Manville; _____: www.jm.com.
      c. Owens Corning Corporation: www.ocbuildingspec.com.
   6. Substitutions: See Section 01 6000 - Product Requirements.

2.05 ACCESSORIES

A. Tape: Provide insulation manufacturer's recommended self-adhering type, for sealing joints, fasteners, seams, and minor face repair penetrations through the insulation layer. 4 inch wide.
   1. Required Product: Rmax R-SEAL 3000 aluminum foil tape.

B. Tape joints of rigid insulation in accordance with insulation manufacturers' instructions.

C. Insulation Fasteners: Provide self-tapping steel screws with minimum 2" diameter plastic plate/washers..
   1. Acceptable Products: Rodenhouse Inc. Plastic Grip CBW2 Low Profile Flat Plastic Washers and Grip Deck galvanized self-drilling screws or equivalent, as determined by component manufacturer.
   2. Length as required for thickness of insulation material and penetration of substrate.

D. Insulation Flashing: Provide insulation manufacturer's recommended flashing for sealing at corners, ceiling and floor transitions, windows, doors and other through wall penetrations.
   1. Required Product: Rmax R-SEAL 6000 flashing with a butyl rubber adhesive, 9 inch or 12 inch wide.

E. Insulation Caulk: Provide insulation manufacturer's recommended caulk for sealing small penetrations and anchors.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that substrate, adjacent materials, and insulation materials are dry and that substrates are ready to receive insulation.

3.02 BOARD INSTALLATION AT EXTERIOR WALLS

A. Install rigid insulation directly to steel studs or exterior grade sheathing at 16 inches on center with manufacturer recommended mechanical fasteners, and tape joints with manufacturer's minimum 4 inch wide sealant tape; comply with ASTM E2357.

B. Tape insulation board joints.

3.03 BATT INSTALLATION

A. Install insulation in accordance with manufacturer's instructions.

B. Install in exterior wall spaces without gaps or voids. Do not compress insulation.

C. Trim insulation neatly to fit spaces. Insulate miscellaneous gaps and voids.

D. Fit insulation tightly in cavities and tightly to exterior side of mechanical and electrical services within the plane of the insulation.

3.04 PROTECTION

A. Do not permit installed insulation to be damaged prior to its concealment.

END OF SECTION

SECTION 07 4213

METAL WALL PANELS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Manufactured metal panels for walls, with related flashings and accessory components.

1.02 SUBMITTALS

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

B. Shop Drawings: Indicate dimensions, layout, joints, construction details, _____, and methods of anchorage.

C. Samples: Submit two samples of wall panel, 12 inch by 12 inch in size illustrating finish color, sheen, and texture.

1.03 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.

B. Installer Qualifications: Company specializing in installing products of the type specified in this section with minimum three years of documented experience.

1.04 MOCK-UP

A. Construct mock-up, 6 feet long by 6 feet wide; include panel system, glazing, attachments to building frame, associated vapor retarder and air seal materials, weep drainage system, sealants and seals, related insulation in mock-up.

B. Locate where directed by Architect.

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

1.05 DELIVERY, STORAGE, AND HANDLING

A. Protect panels from accelerated weathering by removing or venting sheet plastic shipping wrap.

B. Store prefinished material off the ground and protected from weather; prevent twisting, bending, or abrasion; provide ventilation; slope metal sheets to ensure proper drainage.

C. Prevent contact with materials that may cause discoloration or staining of products.

1.06 WARRANTY

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

B. Correct defective work within a twenty year period after Date of Substantial Completion for degradation of panel finish, including color fading caused by exposure to weather.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Metal Wall Panels - Concealed Fasteners:
   1. Berridge Manufacturing Company; HR-16 Panel: www.berridge.com/#sle.
   2. Substitutions: See Section 01 6000 - Product Requirements.

2.02 MANUFACTURED METAL PANELS

A. Wall Panel System: Factory fabricated prefinished metal panel system, site assembled.
   1. Provide exterior panels.
   2. Design and size components to support assembly dead loads, and to withstand live loads caused by positive and negative wind pressure acting normal to plane of wall.
   3. Maximum Allowable Deflection of Panel: L/180 for length(L) of span.
   4. Movement: Accommodate movement within system without damage to components or deterioration of seals, movement between system and perimeter components when

subject to seasonal temperature cycling; dynamic loading and release of loads; and deflection of structural support framing.

5. Drainage: Provide positive drainage to exterior for moisture entering or condensation occurring within panel system.
6. Fabrication: Formed true to shape, accurate in size, square, and free from distortion or defects; pieces of longest practical lengths.
7. Corners: Factory-fabricated in one continuous piece with minimum 2 inch returns.

B. Exterior Panels:
1. Profile: Horizontal; style as indicated.
2. Panel Width: 16 inches.
3. Color: As selected by Architect from manufacturer's standard line.

C. Internal and External Corners: Same material, thickness, and finish as exterior sheets; profile to suit system; shop cut and factory mitered to required angles.

D. Expansion Joints: Same material, thickness and finish as exterior sheets; ___ gage, ___ inch thick; manufacturer's standard brake formed type, of profile to suit system.

E. Trim: Same material, thickness and finish as exterior sheets; brake formed to required profiles.

F. Anchors: Galvanized steel.

2.03 FINISHES

A. Exposed Surface Finish: Panel manufacturer's standard polyvinylidene fluoride (PVDF) coating, top coat over _____ primer.

B. Panel Backside Finish: Panel manufacturer's standard siliconized polyester wash coat.

2.04 ACCESSORIES

A. Gaskets: Manufacturer's standard type suitable for use with system, permanently resilient; ultraviolet and ozone resistant.

B. Concealed Sealants: Non-curing butyl sealant or tape sealant.

C. Exposed Sealant: Elastomeric; silicone, polyurethane, or silyl-terminated polyether/polyurethane.

D. Fasteners: Manufacturer's standard type to suit application; stainless steel.
1. Metal-to-Metal Fasteners: Self-drilling, self-tapping screws.

E. Field Touch-up Paint: As recommended by panel manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that building framing members are ready to receive panels.

B. Verify that water-resistive barrier has been installed over substrate completely and correctly.

3.02 PREPARATION

A. Install subgirts perpendicular to panel length, securely fastened to substrates and shimmed and leveled to uniform plane. Space at intervals indicated.

3.03 INSTALLATION

A. Install panels on walls in accordance with manufacturer's instructions.

B. Protect surfaces in contact with cementitious materials and dissimilar metals with bituminous paint. Allow to dry prior to installation.

C. Fasten panels to structural supports; aligned, level, and plumb.

D. Locate joints over supports.

E. Lap panel ends minimum 2 inches.

F. Provide expansion and control joints where required by manufacturer.

G. Use concealed fasteners unless otherwise approved by Architect.

H. Seal and place gaskets to prevent weather penetration. Maintain neat appearance.

3.04 TOLERANCES

A. Maximum Offset From True Alignment Between Adjacent Members Butting or In Line: 1/16 inch.

B. Maximum Variation from Plane or Location Indicated on Drawings: 1/4 inch.

3.05 CLEANING

A. Remove site cuttings from finish surfaces.

B. Remove protective material from wall panel surfaces.

C. Clean and wash prefinished surfaces with mild soap and water; rinse with clean water.

END OF SECTION

SECTION 07 4646

FIBER CEMENT SIDING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Wood-fiber cement siding.

1.02 REFERENCE STANDARDS

A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

B. ASTM C1186 - Standard Specification for Flat Fiber Cement Sheets.

1.03 SUBMITTALS

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

B. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Manufacturer's requirements for related materials to be installed by others.
   2. Preparation instructions and recommendations.
   3. Storage and handling requirements and recommendations.
   4. Installation methods, including nail patterns.

C. Test Report: Applicable model code authority evaluation report (e.g. ICC-ES).

D. Maintenance Instructions: Periodic inspection recommendations and maintenance procedures.

E. Warranty: Submit copy of manufacturer’s warranty, made out in Owner’s name, showing that it has been registered with manufacturer.

1.04 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing work of the type specified in this section with minimum 3 years of experience.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Store products under waterproof cover and elevated above grade, on a flat surface.

PART 2 PRODUCTS

2.01 SIDING

A. Panel Siding: Horizontally oriented panels made of cement and cellulose fiber formed under high pressure with integral surface texture, complying with ASTM C1186 Type A Grade II; with machined edges, for nail attachment.
   1. Texture: Smooth.
   2. Length (Height): 72" inches, nominal.
   3. Width: 18 inches.
   4. Thickness: 5/8 inch, nominal.
   5. Finish: Factory applied finish.
   6. Color: Various colors of "red". Exact colors TBD by Architect.
   7. Warranty: 50 year limited; transferable.
   8. Panel Siding Manufacturers:
      a. Nichiha USA, Inc; Illumination Series: www.nichiha.com.

2.02 ACCESSORIES

A. Furring Strips: Galvanized metal channels.

B. Trim: Same material and texture as siding.

C. Fasteners: Galvanized or corrosion resistant; length as required to penetrate minimum 1-1/4 inch.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine substrate and clean and repair as required to eliminate conditions that would be detrimental to proper installation.

B. Do not begin until unacceptable conditions have been corrected.

C. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.02 PREPARATION

A. Install sheet metal flashing:
   1. Above door and window trim and casings.
   2. Above horizontal trim in field of siding.

3.03 INSTALLATION

A. Install in accordance with manufacturer's instructions and recommendations.
   1. Read warranty and comply with all terms necessary to maintain warranty coverage.
   2. Install in accordance with conditions stated in model code evaluation report applicable to location of project.
   3. Use trim details indicated on drawings.
   4. Touch up all field cut edges before installing.
   5. Pre-drill nail holes if necessary to prevent breakage.

B. Over Masonry Walls: Install furring strips of adequate thickness to accept full length of nails and spaced at 16 inches on center. Leave space at top and bottom open; top may be behind soffit; at bottom install insect screen over opening by wrapping a strip of screen over bottom ends of vertical furring strips.

C. Over Steel Studs: Use hot-dipped galvanized self-tapping screws, with the points of at least 3 screws penetrating each stud the panel crosses and at panel ends.

D. Allow space for thermal movement between both ends of siding panels that butt against trim; seal joint between panel and trim with specified sealant.

E. Joints in Horizontal Siding: Avoid joints in lap siding except at corners; where joints are inevitable stagger joints between successive courses.

F. Do not install siding less than 6 inches from surface of ground nor closer than 1 inch to roofs, patios, porches, and other surfaces where water may collect.

G. After installation, seal all joints except lap joints of lap siding. Seal around all penetrations. Paint all exposed cut edges.

3.04 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

SECTION 07 5423

THERMOPLASTIC-POLYOLEFIN ROOFING (TPO)

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Thermoplastic membrane roofing system, including all components specified.

B. Comply with the published recommendations and instructions of the roofing membrane manufacturer, at http://manual.fsbp.com.

C. Commencement of work by Contractor shall constitute acknowledgement by Contractor that this specification can be satisfactorily executed, under the project conditions and with all necessary prerequisites for warranty acceptance by roofing membrane manufacturer. No modification of the Contract Sum will be made for failure to adequately examine the Contract Documents or the project conditions.

1.02 DEFINITIONS

A. Roofing Terminology: Refer to ASTM D1079 for definition of terms related to roofing work not otherwise defined in the section.

B. LTTR: Long Term Thermal Resistance, as defined by CAN-ULC-S770.

1.03 REFERENCE STANDARDS

A. ASTM C1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.

B. ASTM D638 - Standard Test Method for Tensile Properties of Plastics.

C. ASTM D1004 - Standard Test Method for Tear Resistance (Graves Tear) of Plastic Film and Sheeting.

D. ASTM D1079 - Standard Terminology Relating to Roofing and Waterproofing.

E. ASTM D6878/D6878M - Standard Specification for Thermoplastic Polyolefin Based Sheet Roofing.

F. CAN-ULC-S770 - Standard Test Method Determination of L-Term Thermal Resistance Of Closed-Cell Thermal Insulating Foams.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Pre-Installation Conference: Before start of roofing work, Contractor shall hold a meeting to discuss the proper installation of materials and requirements to achieve the warranty.
   1. Require attendance with all parties directly influencing the quality of roofing work or affected by the performance of roofing work.
   2. Notify Architect well in advance of meeting.

1.05 SUBMITTALS

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

B. Product Data:
   1. Provide membrane manufacturer's printed data sufficient to show that all components of roofing system, including insulation and fasteners, comply with the specified requirements and with the membrane manufacturer's requirements and recommendations for the system type specified; include data for each product used in conjunction with roofing membrane.
   2. Installation Instructions: Provide manufacturer's instructions to installer, marked up to show exactly how all components will be installed; where instructions allow installation options, clearly indicate which option will be used.

C. Samples: Submit samples of each product to be used.

D. Shop Drawings: Provide:

1. The roof membrane manufacturer's standard details customized for this project for all relevant conditions, including flashings, base tie-ins, roof edges, terminations, expansion joints, penetrations, and drains.

E. Specimen Warranty: Submit prior to starting work.

F. Installer Qualifications: Letter from manufacturer attesting that the roofing installer meets the specified qualifications.

G. Pre-Installation Notice: Copy to show that manufacturer's required Pre Installation Notice (PIN) has been accepted and approved by the manufacturer.

H. Executed Warranty.

1.06 QUALITY ASSURANCE

1.07 DELIVERY, STORAGE AND HANDLING

A. Deliver products in manufacturer's original containers, dry and undamaged, with seals and labels intact and legible.

B. Store materials clear of ground and moisture with weather protective covering.

C. Keep combustible materials away from ignition sources.

1.08 WARRANTY

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

B. Comply with all warranty procedures required by manufacturer, including notifications, scheduling, and inspections.

C. Warranty: Firestone Limited Warranty covering membrane, roof insulation, and other indicated components of the system, for the term indicated.
   1. Limit of Liability: No dollar limitation.
   2. Scope of Coverage: Repair leaks in the roofing system caused by:
      a. Ordinary wear and tear of the elements.
      b. Manufacturing defect in Firestone brand materials.
      c. Defective workmanship used to install these materials.
      d. Damage due to winds up to 55 mph.
   3. Not Covered:
      a. Damage due to winds in excess of 55 mph.
      b. Damage due hurricanes or tornadoes.
      c. Hail.
      d. Intentional damage.
      e. Unintentional damage due to normal rooftop inspections, maintenance, or service.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Acceptable Manufacturer - Roofing System: Firestone Building Products LLC, Carmel, IN: www.firestonebpco.com.
   1. Roofing systems manufactured by others are acceptable provided the roofing system is completely equivalent in materials and warranty conditions and the manufacturer meets the following qualifications:
      a. Specializing in manufacturing the roofing system to be provided.
      b. Minimum ten years of experience manufacturing the roofing system to be provided.
      c. Able to provide a no dollar limit, single source roof system warranty that is backed by corporate assets in excess of one billion dollars.

B. Manufacturer of Insulation and Cover Boards: Same manufacturer as roof membrane.

C. Manufacturer of Metal Roof Edging: Same manufacturer as roof membrane.
   1. Metal roof edging products by other manufacturers are not acceptable.
   2. Field- or shop-fabricated metal roof edgings are not acceptable.

D. Substitutions: See Section 01 6000 - Product Requirements.
   1. Submit evidence that the proposed substitution complies with the specified requirements.

2.02 ROOFING SYSTEM DESCRIPTION

A. Roofing System: Thermoplastic polyolefin (TPO) single-ply membrane.
   1. Membrane Attachment: Fully adhered.
   2. Warranty: Full system warranty; Firestone 15 year Red Shield Limited Warranty covering membrane, roof insulation, and membrane accessories.
   3. Comply with applicable local building code requirements.

B. Roofing System Components: Listed in order from the top of the roof down:
   1. Membrane: Thickness as specified.
   2. Base Sheet Over Insulation: Cold adhesive and mechanically attached.
   3. Insulation:
      a. Tapered: Slope as indicated; provide minimum R-value at thinnest point; place tapered layer on bottom.
      b. Total R-value of 25, minimum.
      c. Top Layer: Polyisocyanurate foam board, non-composite; mechanically fastened.
      d. Crickets: Tapered insulation of same type as specified for top layer; slope as indicated.

2.03 MEMBRANE MATERIALS

A. Membrane: Flexible, heat weldable sheet composed of thermoplastic polyolefin polymer and ethylene propylene rubber; complying with ASTM D6878/D6878M, with polyester weft inserted reinforcement and the following additional characteristics:
   1. Thickness: 0.060 inch plus/minus 10 percent, with coating thickness over reinforcement of 0.024 inch plus/minus 10 percent.
   2. Sheet Width: Provide the widest available sheets to minimize field seaming.
   3. Puncture Resistance: 265 lbf, minimum, when tested in accordance FTM 101C Method 2031.
   4. Color: White.
   5. Acceptable Product: UltraPly TPO by Firestone.

B. Membrane Fasteners: Type and size as required by roof membrane manufacturer for roofing system and warranty to be provided; use only fasteners furnished by roof membrane manufacturer.

C. Curb and Parapet Flashing: Same material as membrane, with encapsulated edge which eliminates need for seam sealing the flashing-to-roof splice; precut to 18 inches wide.

D. Formable Flashing: Non-reinforced, flexible, heat weldable sheet, composed of thermoplastic polyolefin polymer and ethylene propylene rubber.
   1. Thickness: 0.060 inch plus/minus 10 percent.
   2. Tensile Strength: 1550 psi, minimum, when tested in accordance with ASTM D638 after heat aging.
   3. Elongation at Break: 650 percent, minimum, when tested in accordance with ASTM D638 after heat aging.
   4. Tearing Strength: 12 lbf, minimum, when tested in accordance with ASTM D1004 after heat aging.
   5. Color: White.
   6. Acceptable Product: UltraPly TPO Flashing by Firestone.

E. Tape Flashing: 5-1/2 inch nominal wide TPO membrane laminated to cured rubber polymer seaming tape, overall thickness 0.065 inch nominal; TPO QuickSeam Flashing by Firestone.

F. Bonding Adhesive: Neoprene and SBR rubber blend, formulated for compatibility with the membrane other substrate materials, including masonry, wood, and insulation facings; UltraPly Bonding Adhesive by Firestone.

G. Pourable Sealer: Two-part polyurethane, two-color for reliable mixing; Pourable Sealer by Firestone.

H. Seam Plates: Steel with barbs and Galvalume coating; corrosion-resistance complying with FM 4470.

I. Termination Bars: Aluminum bars with integral caulk ledge; 1.3 inches wide by 0.10 inch thick; Firestone Termination Bar by Firestone.

J. Cut Edge Sealant: Synthetic rubber-based, for use where membrane reinforcement is exposed; UltraPly TPO Cut Edge Sealant by Firestone.

K. General Purpose Sealant: EPDM-based, one part, white general purpose sealant; UltraPly TPO General Purpose Sealant by Firestone.

L. Molded Flashing Accessories: Unreinforced TPO membrane pre-molded to suit a variety of flashing details, including pipe boots, inside corners, outside corners, etc.; UltraPly TPO Small and Large Pipe Flashing by Firestone.

M. Roof Walkway Pads: Non-reinforced TPO walkway pads, 0.130 inch by 30 inches by 40 feet long with patterned traffic bearing surface; UltraPly TPO Walkway Pads by Firestone.

2.04 ROOF INSULATION AND COVER BOARDS

A. Polyisocyanurate Board Insulation: Closed cell polyisocyanurate foam with black glass reinforced mat laminated to faces, complying with ASTM C1289 Type II Class 1, with the following additional characteristics:
   1. Size: 48 inches by 96 inches, nominal.
   2. R-value (LTTR):
      a. R-30 minimum
   3. Compressive Strength: 20 psi when tested in accordance with ASTM C1289.

B. Insulation Fasteners: Type and size as required by roof membrane manufacturer for roofing system and warranty to be provided; use only fasteners furnished by roof membrane manufacturer.

PART 3 INSTALLATION

3.01 GENERAL

A. Install roofing, insulation, flashings, and accessories in accordance with roofing manufacturer's published instructions and recommendations for the specified roofing system. Where manufacturer provides no instructions or recommendations, follow good roofing practices and industry standards. Comply with federal, state, and local regulations.

B. Obtain all relevant instructions and maintain copies at project site for duration of installation period.

C. Do not start work until Pre-Installation Notice has been submitted to manufacturer as notification that this project requires a manufacturer's warranty.

D. Perform work using competent and properly equipped personnel.

E. Temporary closures, which ensure that moisture does not damage any completed section of the new roofing system, are the responsibility of the applicator. Completion of flashings, terminations, and temporary closures shall be completed as required to provide a watertight condition.

F. Install roofing membrane only when surfaces are clean, dry, smooth and free of snow or ice; do not apply roofing membrane during inclement weather or when ambient conditions will not allow proper application; consult manufacturer for recommended procedures during cold weather. Do not work with sealants and adhesives when material temperature is outside the range of 60 to 80 degrees F.

G. Protect adjacent construction, property, vehicles, and persons from damage related to roofing work; repair or restore damage caused by roofing work.

1. Protect from spills and overspray from bitumen, adhesives, sealants and coatings.
2. Particularly protect metal, glass, plastic, and painted surfaces from bitumen, adhesives, and sealants within the range of wind-borne overspray.
3. Protect finished areas of the roofing system from roofing related work traffic and traffic by other trades.

H. Until ready for use, keep materials in their original containers as labeled by the manufacturer.

I. Consult membrane manufacturer's instructions, container labels, and Material Safety Data Sheets (MSDS) for specific safety instructions. Keep all adhesives, sealants, primers and cleaning materials away from all sources of ignition.

3.02 EXAMINATION

A. Examine roof deck to determine that it is sufficiently rigid to support installers and their mechanical equipment and that deflection will not strain or rupture roof components or deform deck.

B. Verify that surfaces and site conditions are ready to receive work. Correct defects in the substrate before commencing with roofing work.

C. Examine roof substrate to verify that it is properly sloped to drains.

D. Verify that the specifications and drawing details are workable and not in conflict with the roofing manufacturer's recommendations and instructions; start of work constitutes acceptable of project conditions and requirements.

3.03 PREPARATION

A. Take appropriate measures to ensure that fumes from adhesive solvents are not drawn into the building through air intakes.

B. Prior to proceeding, prepare roof surface so that it is clean, dry, and smooth, and free of sharp edges, fins, roughened surfaces, loose or foreign materials, oil, grease and other materials that may damage the membrane.

C. Fill all surface voids in the immediate substrate that are greater than 1/4 inch wide with fill material acceptable insulation to membrane manufacturer.

D. Seal, grout, or tape deck joints, where needed, to prevent bitumen seepage into building.

3.04 INSULATION AND COVER BOARD INSTALLATION

A. Install insulation in configuration and with attachment method(s) specified in PART 2, under Roofing System.

B. Install only as much insulation as can be covered with the completed roofing system before the end of the day's work or before the onset of inclement weather.

C. Lay roof insulation in courses parallel to roof edges.

D. Neatly and tightly fit insulation to all penetrations, projections, and nailers, with gaps not greater than 1/4 inch. Fill gaps greater than 1/4 inch with acceptable insulation. Do not leave the roofing membrane unsupported over a space greater than 1/4 inch.

3.05 SINGLE-PLY MEMBRANE INSTALLATION

A. Beginning at low point of roof, place membrane without stretching over substrate and allow to relax at least 30 minutes before attachment or splicing; in colder weather allow for longer relax time.

B. Lay out the membrane pieces so that field and flashing splices are installed to shed water.

C. Install membrane without wrinkles and without gaps or fishmouths in seams; bond and test seams and laps in accordance with membrane manufacturer's instructions and details.

D. Install membrane adhered to the substrate, with edge securement as specified.

E. Adhered Membrane: Bond membrane sheet to substrate using membrane manufacturer's recommended bonding material, application rate, and procedures.

F. Edge Securement: Secure membrane at all locations where membrane terminates or goes through an angle change greater than 2 in 12 inches using mechanically fastened reinforced perimeter fastening strips, plates, or metal edging as indicated or as recommended by roofing manufacturer.
   1. Exceptions: Round pipe penetrations less than 18 inches in diameter and square penetrations less than 4 inches square.
   2. Metal edging is not merely decorative; ensure anchorage of membrane as intended by roofing manufacturer.

3.06 FLASHING AND ACCESSORIES INSTALLATION

A. Install flashings, including laps, splices, joints, bonding, adhesion, and attachment, as required by membrane manufacturer's recommendations and details.

B. Metal Accessories: Install metal edgings, gravel stops, and copings in locations indicated on the drawings, with horizontal leg of edge member over membrane and flashing over metal onto membrane.
   1. Follow roofing manufacturer's instructions.
   2. Remove protective plastic surface film immediately before installation.
   3. Install water block sealant under the membrane anchorage leg.
   4. Flash with manufacturer's recommended flashing sheet unless otherwise indicated.
   5. Where single application of flashing will not completely cover the metal flange, install additional piece of flashing to cover the metal edge.
   6. If the roof edge includes a gravel stop and sealant is not applied between the laps in the metal edging, install an additional piece of self-adhesive flashing membrane over the metal lap to the top of the gravel stop; apply seam edge treatment at the intersections of the two flashing sections.
   7. When the roof slope is greater than 1:12, apply seam edge treatment along the back edge of the flashing.

C. Flashing at Walls, Curbs, and Other Vertical and Sloped Surfaces: Install weathertight flashing at all walls, curbs, parapets, curbs, skylights, and other vertical and sloped surfaces that the roofing membrane abuts to; extend flashing at least 8 inches high above membrane surface.
   1. Use the longest practical flashing pieces.
   2. Evaluate the substrate and overlay and adjust installation procedure in accordance with membrane manufacturer's recommendations.
   3. Complete the splice between flashing and the main roof sheet with specified splice adhesive before adhering flashing to the vertical surface.
   4. Provide termination directly to the vertical substrate as shown on roof drawings.

D. Roof Drains:
   1. Taper insulation around drain to provide smooth transition from roof surface to drain. Use specified pre-manufactured tapered insulation with facer or suitable bonding surface to achieve slope; slope not to exceed manufacturer's recommendations.
   2. Position membrane, then cut a hole for roof drain to allow 1/2 to 3/4 inch of membrane to extend inside clamping ring past drain bolts.
   3. Make round holes in membrane to align with clamping bolts; do not cut membrane back to bolt holes.
   4. Apply sealant on top of drain bowl where clamping ring seats below the membrane
   5. Install roof drain clamping ring and clamping bolts; tighten clamping bolts to achieve constant compression.

E. Flashing at Penetrations: Flash all penetrations passing through the membrane; make flashing seals directly to the penetration.
   1. Pipes, Round Supports, and Similar Items: Flash with specified pre-molded pipe flashings wherever practical; otherwise use specified self-curing elastomeric flashing.

2. Pipe Clusters and Unusual Shaped Penetrations: Provide penetration pocket at least 2 inches deep, with at least 1 inch clearance from penetration, sloped to shed water.
3. High Temperature Surfaces: Where the in-service temperature is, or is expected to be, in excess of 180 degrees F, protect the elastomeric components from direct contact with the hot surfaces using an intermediate insulated sleeve as flashing substrate as recommended by membrane manufacturer.

3.07 FINISHING AND WALKWAY INSTALLATION

A. Install walkways at access points to the roof, around rooftop equipment that may require maintenance, and where indicated on the drawings.

B. Walkway Pads: Adhere to the roofing membrane, spacing each pad at minimum of 1.0 inch and maximum of 3.0 inches from each other to allow for drainage.
1. If installation of walkway pads over field fabricated splices or within 6 inches of a splice edge cannot be avoided, adhere another layer of flashing over the splice and extending beyond the walkway pad a minimum of 6 inches on either side.
2. Prime the membrane, remove the release paper on the pad, press in place, and walk on pad to ensure proper adhesion.

3.08 FIELD QUALITY CONTROL

A. Inspection by Manufacturer: Provide final inspection of the roofing system by a Technical Representative employed by roofing system manufacturer specifically to inspect installation for warranty purposes (i.e. not a sales person).

B. Perform all corrections necessary for issuance of warranty.

3.09 CLEANING

A. Clean all contaminants generated by roofing work from building and surrounding areas, including bitumen, adhesives, sealants, and coatings.

B. Repair or replace building components and finished surfaces damaged or defaced due to the work of this section; comply with recommendations of manufacturers of components and surfaces.

C. Remove leftover materials, trash, debris, equipment from project site and surrounding areas.

3.10 PROTECTION

A. Where construction traffic must continue over finished roof membrane, provide durable protection and replace or repair damaged roofing to original condition.

END OF SECTION

SECTION 07 6200

SHEET METAL FLASHING AND TRIM

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Fabricated sheet metal items, including flashings and counterflashings.

B. Sealants for joints within sheet metal fabrications.

1.02 REFERENCE STANDARDS

A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

B. SMACNA (ASMM) - Architectural Sheet Metal Manual.

1.03 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene one week before starting work of this section.

1.04 SUBMITTALS

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

B. Shop Drawings: Indicate material profile, jointing pattern, jointing details, fastening methods, flashings, terminations, and installation details.

C. Samples: Submit two samples ____by____ inch in size illustrating metal finish color.

1.05 QUALITY ASSURANCE

A. Perform work in accordance with SMACNA (ASMM) and CDA A4050 requirements and standard details, except as otherwise indicated.

B. Maintain one copy of each document on site.

C. Fabricator and Installer Qualifications: Company specializing in sheet metal work with ____ years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Stack material to prevent twisting, bending, and abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.

B. Prevent contact with materials that could cause discoloration or staining.

PART 2 PRODUCTS

2.01 SHEET MATERIALS

A. Galvanized Steel: ASTM A653/A653M, with G90/Z275 zinc coating; minimum 24 gage, (0.0239 inch) thick base metal.

B. Pre-Finished Galvanized Steel: ASTM A653/A653M, with G90/Z275 zinc coating; minimum 24 gage, (0.0239) inch thick base metal, shop pre-coated with PVDF coating.

1. Color: As selected by Architect from manufacturer's standard colors.

2.02 FABRICATION

A. Form sections true to shape, accurate in size, square, and free from distortion or defects.

B. Form pieces in longest possible lengths.

C. Hem exposed edges on underside 1/2 inch; miter and seam corners.

D. Form material with flat lock seams, except where otherwise indicated; at moving joints, use sealed lapped, bayonet-type or interlocking hooked seams.

E. Fabricate corners from one piece with minimum 18 inch long legs; seam for rigidity, seal with sealant.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify roof openings, curbs, pipes, sleeves, ducts, and vents through roof are solidly set, reglets in place, and nailing strips located.

B. Verify roofing termination and base flashings are in place, sealed, and secure.

3.02 INSTALLATION

A. Secure flashings in place using concealed fasteners, and use exposed fasteners only where permitted..

END OF SECTION

SECTION 07 7123

MANUFACTURED GUTTERS AND DOWNSPOUTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Galvanized steel downspouts and collector heads.

B. Cast Iron Downspout Boots

1.02 REFERENCE STANDARDS

A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

B. SMACNA (ASMM) - Architectural Sheet Metal Manual.

1.03 ADMINISTRATIVE REQUIREMENTS

A. Conform to SMACNA (ASMM) for sizing components for rainfall intensity determined by a storm occurrence of 1 in 5 years.

B. Conform to applicable code for size and method of rain water discharge.

C. Maintain one copy of each document on site.

1.04 SUBMITTALS

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

B. Product Data: Provide data on prefabricated components.

C. Shop Drawings: Indicate locations, configurations, jointing methods, fastening methods, locations, and installation details.

D. Samples: Submit two samples, ____ inch long illustrating component design, finish, color, and configuration.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Stack material to prevent twisting, bending, or abrasion, and to provide ventilation. Slope to drain.

B. Prevent contact with materials that could cause discoloration, staining, or damage.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Downspouts:
   1. Rain Trade Corporation - guttersupply.com.

B. Collectors:
   1. Custom design-galvanized steel, reference drawings..
   2. Substitutions: See Section 01 6000 - Product Requirements.

2.02 MATERIALS

A. Galvanized Steel Sheet: ASTM A653/A653M, with G90/Z275 zinc coating; minimum 0.02 inch thick base metal.

2.03 COMPONENTS

A. Downspouts: 6" Plain Round profile.
   1. Model No: GAPRD6XG26X

B. Anchors and Supports: Profiled to suit gutters and downspouts.
   1. Downspout Supports: Brackets.

C. Fasteners: Galvanized steel, with soft neoprene washers.

2.04 ACCESSORIES

A. Splash Pads: Precast concrete type, size and profiles indicated; minimum 3000 psi at 28 days, with minimum 5 percent air entrainment.

B. Downspout Boots: Cast iron; ASTM A48.
   1. Manufacturer: Barry Pattern & Foundry.
   2. Model No: B26A - 18".

2.05 FABRICATION

A. Form downspouts of profiles and size indicated.

B. Fabricate with required connection pieces.

C. Form sections square, true, and accurate in size, in maximum possible lengths, free of distortion or defects detrimental to appearance or performance. Allow for expansion at joints.

D. Hem exposed edges of metal.

E. Fabricate downspout accessories; seal watertight.

2.06 FINISHES

A. Primer Coat: Finish concealed side of metal sheets with primer compatible with finish system, as recommended by finish system manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that surfaces are ready to receive work.

3.02 PREPARATION

A. Paint concealed metal surfaces and surfaces in contact with dissimilar metals with protective backing paint to a minimum dry film thickness of 15 mil.

3.03 INSTALLATION

A. Install downspouts, and accessories in accorinance with drawings and industry standards .

B. Sheet Metal: Join lengths with formed seams sealed watertight. Flash and seal downspouts and accessories.

C. Connect downspouts to downspout boots at 18 inches above grade. Seal connection watertight.

D. Connect downspouts to storm sewer system. Seal connection watertight.

END OF SECTION

SECTION 07 7200

ROOF ACCESSORIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Manufactured curbs, equipment rails, and pedestals.

B. Roof hatches.

1.02 SUBMITTALS

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

B. Product Data: Manufacturer's data sheets on each product to be used.
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation methods.
   4. Maintenance requirements.

C. Shop Drawings: Submit detailed layout developed for this project. Show dimensioned location and number for each type of roof accessory.

D. Warranty Documentation:
   1. Submit manufacturer warranty.
   2. Ensure that forms have been completed in Owner's name and registered with manufacturer.

1.03 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Store products under cover and elevated above grade.

PART 2 PRODUCTS

2.01 MANUFACTURED CURBS

A. Manufactured Curbs, Equipment Rails, and Other Roof Mounting Assemblies:
   1. AES Industries Inc; _____: www.aescurb.com.
   2. The Pate Company; _____: www.patecurbs.com.
   3. Roof Products & Systems (RPS); _____: www.rpscurbs.com.
   4. Substitutions: See Section 01 6000 - Product Requirements.

B. Manufactured Curbs, Equipment Rails, and Other Roof Mounting Assemblies: Factory-assembled hollow sheet metal construction with fully mitered and welded corners, integral counterflashing, internal reinforcing, and top side and edges formed to shed water.
   1. Sheet Metal: Hot-dip zinc coated steel sheet complying with ASTM A653/A653M, SS Grade 33; G60 coating designation; 18 gage, 0.048 inch thick.
   2. Manufacture curb bottom and mounting flanges for installation directly on roof deck, not on insulation; match slope and configuration of roof deck.
   3. Provide the layouts and configurations indicated on the drawings.

C. Curbs Adjacent to Roof Openings: Provide curb on all sides of opening, with top of curb horizontal for equipment mounting.
   1. Provide preservative treated wood nailers along top of curb.
   2. Insulate inside curbs with 1-1/2 inch thick fiberglass insulation.

2.02 ROOF HATCHES

A. Manufacturers - Sound Rated Roof Hatches:
   1. Bilco Co.; Thermally Broken Design: www.bilco.com.

B. Manufacturers - Roof Hatches:
   1. Bilco Company; Type E (ladder access, 3 ft square, solid cover): www.bilco.com.

2. Substitutions: See Section 01 6000 - Product Requirements.

C. Ladder Safety Post: Manufacturer's standard safety accessory safety post mounted directly to ladder.
   1. Post Model: LU-1
   2. Finish: Steel, yellow powder coat.
   3. Manufacturers:
      a. Bilco Company, www.bilco.com

D. Hardware: Steel, zinc coated and chromate sealed, unless otherwise indicated or required by manufacturer.
   1. Lifting Mechanisms: Compression or torsion spring operator with shock absorbers that automatically opens upon release of latch; capable of lifting covers despite 10 psf load.
   2. Hinges: Heavy duty pintle type.
   3. Hold open arm with vinyl-coated handle for manual release.
   4. Latch: Upon closing, engage latch automatically and reset manual release.
   5. Manual Release: Pull handle on interior.
   6.

PART 3 EXECUTION

3.01 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.02 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.03 INSTALLATION

A. Install in accordance with manufacturer's instructions, in manner that maintains roofing weather integrity.

3.04 CLEANING

A. Clean installed work to like-new condition.

3.05 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Date of Substantial Completion.

END OF SECTION

SECTION 07 9005

JOINT SEALERS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Sealants and joint backing.

1.02 REFERENCE STANDARDS

A. ASTM C834 - Standard Specification for Latex Sealants.

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

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

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

E. ASTM D2240 - Standard Test Method for Rubber Property--Durometer Hardness.

1.03 ADMINISTRATIVE REQUIREMENTS

A. Coordinate the work with other sections referencing this section.

1.04 SUBMITTALS

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

B. Product Data: Provide data indicating sealant chemical characteristics.

C. Samples: Submit two samples, 3" x 5" inch in size illustrating sealant colors for selection.

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

1.05 QUALITY ASSURANCE

A. Maintain one copy of each referenced document covering installation requirements on site.

B. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.

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

1.06 FIELD CONDITIONS

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

1.07 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

2.01 MANUFACTURERS

A. Gunnable and Pourable Sealants:

1. BASF Construction Chemicals-Building Systems: www.buildingsystems.basf.com.
2. Bostik Inc: www.bostik-us.com.
3. Dow Corning Corporation: www.dowcorning.com.
4. Hilti, Inc: www.us.hilti.com.
5. Sika Corporation: www.usa-sika.com.
6. W.R. Meadows, Inc: www.wrmeadows.com.
7. Substitutions: See Section 01 6000 - Product Requirements.

2.02 SEALANTS

A. General Purpose Exterior Sealant: Polyurethane; ASTM C920, Grade NS, Class 25 minimum; Uses M, G, and A; single component.
   1. Color: Match adjacent finished surfaces.
   2. Applications: Use for:
      a. Control, expansion, and soft joints in masonry.
      b. Joints between concrete and other materials.
      c. Joints between metal frames and other materials.
      d. Other exterior joints for which no other sealant is indicated.
   3. Polyurethane Products:
      a. Pecora Corporation; DynaTrol I-XL General Purpose One Part Polyurethane Sealant: www.pecora.com.
      b. Sika Corporation; Sikaflex-1a: www.usa-sika.com.
      c. Substitutions: See Section 01 6000 - Product Requirements.

B. Exterior Metal Lap Joint Sealant: Butyl or polyisobutylene, nondrying, nonskinning, noncuring.
   1. Applications: Use for:
      a. Concealed sealant bead in sheet metal work.
      b. Concealed sealant bead in siding overlaps.

C. General Purpose Interior Sealant: Acrylic emulsion latex; ASTM C834, Type OP, Grade NF single component, paintable.
   1. Color: Match adjacent finished surfaces.
   2. Applications: Use for:
      a. Interior wall and ceiling control joints.
      b. Joints between door and window frames and wall surfaces.
      c. Other interior joints for which no other type of sealant is indicated.
   3. Products:
      a. Pecora Corporation; AC-20 + Silicone Acrylic Latex Caulking Compound: www.pecora.com.
      b. Substitutions: See Section 01 6000 - Product Requirements.

D. Bathtub/Tile Sealant: White silicone; ASTM C920, Uses I, M and A; single component, mildew resistant.
   1. Applications: Use for:
      a. Joints between plumbing fixtures and floor and wall surfaces.
      b. Joints between kitchen and bath countertops and wall surfaces.
   2. Products:
      a. Pecora Corporation; 898NST Sanitary Silicone Sealant - Class 50: www.pecora.com.
      b. Substitutions: See Section 01 6000 - Product Requirements.

E. Acoustical Sealant for Concealed Locations:
   1. Composition: Acrylic latex emulsion sealant.
   2. Applications: Use for concealed locations only:
      a. Sealant bead between top stud runner and structure and between bottom stud track and floor.
   3. Products:
      a. Pecora Corporation; AC-20 FTR Acoustical and Insulation Sealant: www.pecora.com.

F. Concrete Floor Joint Filler: Self-leveling, pourable, semi-rigid sealant intended for filling cracks and control joints not subject to significant movement; rigid enough to support concrete edges under traffic.
   1. Composition: , Single or multi-part,100 percent solids by weight.
   2. Color: Concrete gray.

3. Joint Width: 1/8 inch.
4. Joint Width, Maximum: 1/4 inch.
5. Joint Depth: Provide product suitable for joints from 1/8 inch to 2 inches in depth including space for backer rod.
6. Applications: Use for:
    a. Control joints in concrete slabs and floors not filled with filler placed in form.
    b. joints in concrete slabs and floors.
7. Products:
    a. W.R. Meadows, Inc; Rezi-Weld Flex: www.wrmeadows.com.
    b. Substitutions: See Section 01 6000 - Product Requirements.

G. Polyurea Concrete Floor Joint Filler: Self-leveling, pourable, semi-rigid sealant intended for filling cracks and control joints not subject to significant movement; rigid enough to support concrete edges under traffic.
1. Composition: Single or multi-part,100 percent solids by weight.
2. Hardness: 75, minimum, after 7 days, when tested in accordance with ASTM D2240 Shore A.
3. Color: Concrete gray.
4. Joint Width, Minimum: 1/8 inch.
5. Joint Width, Maximum: 3/4 inch.
6. Joint Depth: Provide product suitable for joints from 1/8 inch to 1-1/2 inches in depth excluding space for backer rod.
7. Applications: Use for:
    a. Control joints in concrete slabs and floors not filled with filler placed in form.
    b. Construction joints in concrete slabs and floors.
8. Products:
    a. Metzger/McGuire; Spal-Pro RS 88: www.metzgermcguire.com.
    b. Substitutions: See Section 01 6000 - Product Requirements.

H. Concrete Paving Joint Sealant: Polyurethane, self-leveling; ASTM C920, Class 25, Uses T, I, M and A; single component.
1. Color: Gray.
2. Applications: Use for:
    a. Joints in sidewalks and vehicular paving.
3. Products:
    a. Pecora Corporation; NR-201 Self-Leveling Traffic and Loop Sealant: www.pecora.com.
    b. Substitutions: See Section 01 6000 - Product Requirements.

2.03 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

3.01 EXAMINATION

A. Verify that substrate surfaces are ready to receive work.

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

3.02 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.

E. Exposed Concrete Floor Joints: Test joint filler in inconspicuous area of floor slab. Verify specified product does not stain or discolor slab.

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

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

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

H. Tool joints concave.

I. Concrete Floor Joint Filler: Install concrete floor joint filler per manufacturer's written instructions. After floor joint filler is fully cured, shave joint filler flush with top of concrete slab.

3.04 CLEANING

A. Clean adjacent soiled surfaces.

3.05 PROTECTION

A. Protect sealants until cured.

END OF SECTION