

SECTION 07110
DAMPPROOFING

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes cold applied asphalt bituminous dampproofing; and adhesive for insulation.
- B. Related Sections:
 - 1. Section 03300 - Cast-In-Place Concrete: Concrete Surfaces.
 - 2. Section 04810 - Unit Masonry Assemblies: Masonry concrete surfaces.
 - 3. Section 09260 – Gypsum Board Assemblies: Wall sheathing at masonry veneer.

1.2 REFERENCES

- A. ASTM International:
 - 1. ASTM D1227 - Standard Specification for Emulsified Asphalt Used as a Protective Coating for Roofing.
- B. National Roofing Contractors Association:
 - 1. NRCA - The NRCA Waterproofing and Dampproofing Manual.

1.3 SUBMITTALS

- A. Section 01330 - Submittal Procedures: Submittal procedures.
- B. Product Data: Submit properties of primer, bitumen, and mastics.
- C. Manufacturer's Installation Instructions: Submit special procedures and perimeter conditions requiring special attention.

1.4 ENVIRONMENTAL REQUIREMENTS

- A. Section 01600 - Product Requirements.
- B. Maintain ambient temperatures above 40 degrees F for 24 hours before and during application until membrane has cured.

PART 2 PRODUCTS

2.1 BITUMINOUS DAMPPROOFING

- A. Manufacturers:

1. Degussa; Hydrocide 700B sprayed applied.
2. Karnak Corp. #220 sprayed applied.
3. Substitutions: Section 01600 - Product Requirements.

2.2 COMPONENTS

- A. Cold Asphaltic Materials:
1. Emulsified Asphalt: ASTM D1227 (non-asbestos).
 2. Asphalt Primer: ASTM D41, compatible with substrate.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 01300 - Administrative Requirements: Coordination and project conditions.
- B. Verify substrate surfaces are durable, free of matter detrimental to adhesion or application of dampproofing system.
- C. Verify items penetrating surfaces to receive dampproofing are securely installed.

3.2 PREPARATION

- A. Protect adjacent surfaces not designated to receive dampproofing.
- B. Clean and prepare surfaces to receive dampproofing.
- C. Do not apply dampproofing to surfaces unacceptable to manufacturer or applicator.
- D. Do not apply dampproofing to surfaces requiring membrane flashing.
- E. Apply mastic to seal penetrations, small cracks, or minor honeycomb in substrate.

3.3 INSTALLATION

- A. Prime surfaces in accordance with manufacturer's instructions.
- B. Apply cold bitumen by spray application.
- C. Apply bitumen at temperature limited by equiviscous temperature (EVT) plus or minus 25 degrees F; do not exceed finish blowing temperature for four hours.
- D. Apply bitumen in two coats, continuous and uniform, at rate to achieve a dry film thickness of 30 mils. (.30 inch) minimum.

- E. Apply to the following surfaces: Above grade concrete masonry backup wall, concrete beams, concrete columns and over entire surface of gypsum board sheathing.
- F. Place 6 inch wide membrane flashing (specified in Section 04810) at perimeter of wall openings and over masonry control joints. Extend membrane full height and length of joints. Do not apply dampproofing to surfaces requiring membrane flashing.
- G. Seal items Projecting through dampproofing surface with mastic. Seal watertight.
- H. Immediately backfill against dampproofing to protect from damage.
- I. Adhere protection board to substrate with mastic. Scribe and cut boards around Projections, penetrations, and interruptions.

3.4 SCHEDULES

- A. CMU Back Up Wall: Two coatings of asphalt dampproofing to achieve specified thickness.
- B. Gypsum Board Sheathing (Stucco substrate): Two coatings of asphalt dampproofing to achieve specified thickness.

END OF SECTION

SECTION 07213
BATT INSULATION

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes batt insulation in exterior wall roof construction; and batt insulation for filling crevices in exterior wall and roof.
- B. Related Sections:
 - 1. Section 06100 - Rough Carpentry
 - 2. Section 07220 – Roof Insulation.
 - 3. Section 09260 – Gypsum Board Assemblies
 - 4. .

1.2 REFERENCES

- A. ASTM International:
 - 1. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.
 - 2. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
- B. National Fire Protection Association:
 - 1. NFPA 255 - Standard Method of Test of Surface Burning Characteristics of Building Materials.
- C. Underwriters Laboratories Inc.:
 - 1. UL 723 - Tests for Surface Burning Characteristics of Building Materials.

1.3 SUBMITTALS

- A. Section 01330 - Submittal Procedures: Submittal procedures.
- B. Product Data: Submit data on product characteristics, performance criteria, limitations.

1.4 COORDINATION

- A. Section 01300 - Administrative Requirements: Coordination and project conditions.
- B. Coordinate the Work with other trades which abut, adjoin, or are affected by Work under this section.

PART 2 PRODUCTS

2.1 BATT INSULATION

- A. Manufacturers:
 - 1. Johns Manville
 - 2. CertainTeed Insulation.
 - 3. Owens Corning Fiberglas.
 - 4. U.S. Gypsum Co. Thermafiber LLC.
 - 5. Substitutions: Section 01600 - Product Requirements.

2.2 COMPONENTS

- A. Batt Insulation: ASTM C991 Type II; glass fiber blanket; conforming to the following:
 - 1. Johns Manville Model Microlite "L"
 - 2. Thermal Resistance: R-19.
 - 3. Roll Size: 48 inch 50 foot lengths.
 - 4. Facing: Unfaced.
 - 5. Flame/Smoke Properties: 25/50 in accordance with ASTM E84.
- B. Sheet Vapor Retarder: White polypropylene film reinforced with glass fiber reinforcing yarn and metalized polyester film laminated with flame retardant adhesive; 0.007 inch thick.
 - 1. Manufacturer: Johns Manville Model VR-One.
- C. Staples: Type and size to suit application.
- D. Tape: Type as recommended by insulation manufacturer.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 01300 - Administrative Requirements: Coordination and project conditions.
- B. Verify substrate, adjacent materials, and insulation are dry and ready to receive insulation.

3.2 INSTALLATION

- A. Install in over steel roof purlins without gaps or voids.
- B. Staple facing flanges in place at maximum 6 inches oc. Retain in place with wire mesh secured to framing members.

- C. Trim insulation neatly to fit spaces. Insulate miscellaneous gaps and voids.
- D. Fit insulation tight in spaces and tight to exterior side of mechanical and electrical services within plane of insulation.
- E. Tape seal butt ends, lapped flanges, and tears or cuts in membrane.
- F. Tape in place.
- G. Metal Framing: Place vapor retarder on warm-in-winter side of insulation; lap and seal sheet retarder joints over member face.

END OF SECTION

SECTION 07468

METAL SIDING

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes preformed metal siding system for walls with related flashings and accessory components.
 - 1. Provide dampproofing over concrete masonry back-up walls.
- B. Related Sections:
 - 1. Section 04810: Unit Masonry Assemblies: Back up wall system.
 - 2. Section 07110 - Dampproofing.
 - 3. Section 07430 - Composite Panels.
 - 4. Section 07613 – Manufactured Sheet Metal Roofing.

1.2 REFERENCES

- A. American Society of Civil Engineers:
 - 1. ASCE 7 - Minimum Design Loads for Buildings and Other Structures.
- B. ASTM International:
 - 1. ASTM A606 - Standard Specification for Steel, Sheet and Strip, High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, with Improved Atmospheric Corrosion Resistance.
 - 2. ASTM A755/A755M - Standard Specification for Steel Sheet, Metallic Coated by the Hot-Dip Process and Prepainted by the Coil-Coating Process for Exterior Exposed Building Products.
 - 3. ASTM A792/A792M - Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
 - 4. ASTM A924/A924M - Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process.
 - 5. ASTM E330 - Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors By Uniform Static Air Pressure Difference.

1.3 SYSTEM DESCRIPTION

- A. System: Preformed and prefinished metal siding system of vertical profile; site assembled.

1.4 PERFORMANCE REQUIREMENTS

- A. Components: Design and size components to withstand dead and live loads caused by positive and negative wind pressure acting normal to plane of wall as calculated in accordance with applicable code.

- B. Maximum Allowable Deflection of Panel: 1/180 of span.
- C. Movement: Accommodate movement within system without damage to components or deterioration of seals, movement within system; movement between system and perimeter components when subject to seasonal temperature cycling; dynamic loading and release of loads; deflection of structural support framing.
- D. Drainage: Provide positive drainage to exterior for moisture entering or condensation occurring within panel system.
- E. Products: Provide continuity of thermal barrier at building enclosure elements in conjunction with thermal insulating materials.

1.5 SUBMITTALS

- A. Section 01330 - Submittal Procedures: Submittal procedures.
- B. Shop Drawings: Indicate dimensions, layout, joints, expansion joints, construction details, methods of anchorage, and interface with adjacent materials.
- C. Product Data: Submit data on panels.
- D. Design Data: Submit design calculations.
- E. Samples: Submit two samples of siding, 12 x 12 inch in size illustrating finish color, sheen, and texture.
- F. Manufacturer's Installation Instructions: Submit special procedures.

1.6 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.
- B. Installer: Company specializing in performing Work of this section with minimum three years documented experience approved by manufacturer.
- C. Design Metal Siding under direct supervision of Professional Engineer experienced in design of this Work and licensed in State of Texas.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Section 01600 - Project Requirements: Product storage and handling requirements.
- B. Protect panels from accelerated weathering by removing or venting sheet plastic shipping wrap.

- C. Store prefinished material off ground protected from weather, to prevent twisting, bending, or abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.
- D. Prevent contact with materials capable of causing discoloration or staining.

1.8 COORDINATION

- A. Section 01300 - Administrative Requirements: Coordination and project conditions.
- B. Coordinate Work with installation of doors and adjacent components or materials.

1.9 WARRANTY

- A. Section 01700 - Execution Requirements: Product warranties and product bonds.
- B. Furnish five year manufacturer warranty for metal siding.

PART 2 PRODUCTS

2.1 MANUFACTURED METAL SIDING

- A. Manufacturers:
 - 1. MBCI Model PBR.
 - 2. Substitutions: Section 01600 - Product Requirements.

2.2 COMPONENTS

- A. Exterior Panel and Other Sheet Materials: Minimum 24 gage thick precoated steel stock; profile as indicated on Drawings; 36 inches wide panel; lapped edges, tape sealed.
 - 1. Precoated Galvanized Steel: ASTM A755/A755M; ASTM A924/A924M, Grade D, Coating Designation G90 (Z275); shop precoated with fluorocarbon coating. Exposed Exterior Surfaces: Color to match existing building panels.
- B. Miscellaneous Sheet Materials: Minimum 24 gage thick steel stock;
 - 1. Galvanized Steel: ASTM A924/A924M, Grade D, Coating Designation G90 (Z275). Precoated Surfaces: Color as selected to match existing.
- 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. Mitered internal corners to be back braced with 22 gage thick pre-coated sheet stock to maintain continuity of profile.
- D. Trim, Closure Pieces, Caps, and Flashings: Same material, thickness and finish as exterior sheets; brake formed to required profiles.

- E. Anchors: Galvanized steel.

2.3 ACCESSORIES

- A. Gaskets: Manufacturer's standard type suitable for use with system, permanently resilient; color as selected.
- B. Sealants: Specified in Section 07900.
- C. Fasteners: Manufacturer's standard type to suit application; with soft neoprene washers; fastener cap same color as exterior panel. Exposed fasteners same finish as panel system.
- D. Power Actuated Fasteners: Steel, hot dip galvanized; with soft neoprene washers, fastener cap same color as exterior panel.
- E. Field Touch-up Paint: As recommended by panel manufacturer.
- F. Bituminous Paint: Asphalt base.
- G. Building Paper: ASTM D226, 15 pound unperforated asphalt felt.

2.4 FABRICATION

- A. Panel Profile: Manufacturer's standard profile for specified system.
- B. Fabricate corners in one continuous piece with minimum 18 inch returns.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 01300 - Administrative Requirements: Coordination and project conditions.
- B. Verify building framing members are ready to receive panel system.

3.2 INSTALLATION

- A. Protect surfaces in contact with cementitious materials and dissimilar metals with bituminous paint. Allow to dry prior to installation.
- B. Fasten siding to structural supports; aligned, level, and plumb.
- C. Locate joints over supports. Lap panel ends minimum 2 inches.
- D. Use concealed fasteners unless otherwise approved by Architect/Engineer.

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

3.3 ERECTION TOLERANCES

- A. Section 01400 - Quality Requirements: Tolerances.
- B. Maximum Offset From Indicated Alignment Between Adjacent Members Butting or In Line: 1/16 inch.
- C. Maximum Variation from Plane or Location Indicated on Drawings: 1/4 inch.

3.4 CLEANING

- A. Section 01700 - Execution Requirements: Final cleaning.
- B. Remove site cuttings from finish surfaces.
- C. Clean and wash prefinished surfaces with mild soap and water; rinse with clean water.

END OF SECTION

SECTION 07600
FLASHING AND SHEET METAL

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Flashing and sheet metal shall be of the materials indicated and installed to provide a permanent watertight condition. Work includes removal of existing metal flashings with replacement of the existing metal where indicated so as to integrate into the new roof system.
- B. Sheet metal includes prefinished (Kynar 500) metals, galvanized metals, fasteners and associated accessories.
- C. All sheet metal work shall be covered under the warranty designated in Section 07510.

1.02 RELATED DOCUMENTS

Uniform General Conditions, Supplementary General Conditions, Forms, Specification Section found in Division 1 through Division 16 and all Drawings apply to Work specified in this Section.

1.03 RELATED SECTIONS

- A. Section 07613 – Manufactured Sheet Metal Roofing

1.04 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Shop drawings shall be required as part of the work. Shop drawings shall conform to the following requirements.
 - 1. Shop drawings shall be professionally produced in Autocad 2007 format and submitted in CD format and printed form.
 - 2. Shop drawings shall include roof plans indicating locations of all sheet metal components.
 - 3. Shop drawings shall be produced to a recognized scale. Roof plans shall be produced at 1/8" per foot scale. Details shall be produced at 3" per foot scale.
 - 4. The Architect's drawings may not be reproduced or used in any manner except for general guidance for the shop drawing requirement.
 - 5. Shop drawing details shall identify all components including type and gauge of metals; method of jointing; each type of fastener and spacings; and general reference to adjacent components.
- C. Include each sheet metal type, color chart, fasteners, and sealants.

1.05 QUALITY ASSURANCE

- A. Installation shall comply with current SMACNA Architectural Sheet Metal Manual as applicable.
- B. All sheet metal fabrication and installation shall be performed only by qualified sheet metal mechanics familiar and competent in their trade.

1.06 WARRANTY

All sheet metal work shall be covered under the warranty included in Section 07510. Sheet metal work shall be warranted against defects in materials and installation and to be watertight for a period of not less than two (2) years from the date of substantial completion.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Galvanized steel shall be lock forming quality G90 in following gauges and meeting ASTM A-525. Fasteners for these metals must be hot-dipped galvanized or stainless steel as applicable. Unless other indicated below or on the Drawings all metals shall be 24-gauge.
 1. Hook Strip: Minimum 22-gauge. Nail at 8" on center with roofing nails.
 2. Vent Flashings: All joints shall be fully soldered.
 3. Termination Bar: 12-gauge x 1" hot-dipped galvanized bar stock fastened with specified drive pins spaced at 12" on center.
 4. Equipment Curb Caps: All joints fully soldered. Attach to curbs per Drawings.
 5. Downspout Boots: 12-gauge with continuous welded or seamed connection. Anchor to walls with 1/4" x 1/4" x 2" tabs placed at top and bottom ends on either side and at mid-point in between when boots exceed 72" in length. Wall tabs shall be anchored to existing masonry walls with 1/4" expansion sleeve bolts. Boots shall be 8'-0" maximum length and include all required bends, changes in direction and other accompaniments as may be required by the work. A welded in place internal kick shall be provided at the bottom of each boot.
 6. Splash Pans: Manufacturer per Drawings. Spot weld water diverters to base pan. Hem all exposed edges.
- B. Prefinished metals shall be 24-gauge and be fastened or installed in the manner listed below. Prefinished metals shall be Bethlehem Steel Corporation Galvalume or galvanized steel, treated, primed and prefinished under precision conditions. Exposed finish shall be Kynar 500 Fluorocarbon coating. Bottom or unexposed side shall be Manufacturer's standard primer coat. Use for all metals indicated on the Drawings and shown hereafter to be exposed to view and not designated for other metal types. All Kynar 500 finished metal is subject to receiving a twenty (20) year finish warranty. Fasteners for these metals must be hot-dipped galvanized or stainless steel as applicable. All metal shall be delivered to the site with a factory-applied protective plastic film which shall be removed immediately upon installation. The color for prefinished metal shall be selected from the Manufacturer's 16-minimum standard choices by the Owner.
 1. Gravel Guard and Cover Plates: Hook at face on continuous 22-gauge galvanized cleat and nail flange at 3" on center staggered with hot-dipped galvanized roofing nails.

2. Coping: Hook at face on continuous 22-gauge galvanized cleat. Secure back leg with neoprene-head screws spaced at 16" on center. Provide with 1" high standing seam joints.
3. Counterflashing and Receiver: Attach receiver as shown in Drawings and noted hereafter. Attach counterflashing to receiver with sheet metal screws spaced at 16" on center.
4. Expansion Joint Hook Strips: Attach with neoprene-head screws spaced at 12" on center.
5. Expansion Joint Cover: Hooked on both sides.
6. Downspouts: Transition from downspout to gutter with 24-gauge galvanized fully soldered drops. Attach downspouts to masonry walls with 12-gauge x 1" galvanized steel straps with two (2) zinc-jacketed masonry drive pins per strap. Anchor straps to downspouts with three (3) stainless steel sheet metal screws, 0.5" maximum length, per strap. Space straps uniformly at 60" on center and cover each joint in the downspout.
8. Gutters: Fastened at 6" on center to substrate wood nailers with stainless steel wood screws and having 12-gauge x 1" galvanized steel straps spaced at 30" on center. Straps shall be anchored with stainless steel sheet metal screws to gutter front edge and back face.

C. Fasteners:

1. Steel Roofing Nails: 11-gauge hot-dipped galvanized nails with annular threaded rings.
2. Neoprene-Head Screws: #10 or #12 stainless steel screws with hexagonal heads and matching color metal jacketed neoprene rubber washer.
3. Stainless Steel Masonry Nails: Stainless steel pin and zinc-jacketed fastener equal to Zamac Screw Type Nailin, minimum 0.25 x 1.5"±.
4. Stainless Steel Masonry Nailer Washer: EPDM sealing washer bonded to Type 304 stainless steel jacket equal to Rawl EPDM Sealing Washer, 3/4" to 1" diameter.
5. Blind Rivets: Stainless steel Series 44. Both rivet and mandrel are to be stainless steel. A mixture of materials will not be permitted. Stainless steel pop rivets shall be used for galvanized and pre-finished metals.
6. Exposed Fasteners: All exposed fasteners to receive metal-jacketed neoprene or EPDM washers. Omit washers where fasteners attach counterflashing to receivers, straps to gutters and downspouts to walls. Exposed horizontal surface fasteners are unacceptable. Other cleats, screws, rivets, bolts, etc. shall be of matching material to which they attach or be galvanically compatible to the surface to which they are secured.

D. Miscellaneous Sheet Metal Related Materials.

1. Plastic Roof Cement: Trowel grade roofing cement conforming to ASTM D4586 (non-asbestos containing).
2. Sealant: Equal to Sonneborn NP-1. One component urethane gun-grade sealant meeting F.S. TT-S-00230-C, Type II, Class A and ASTM C-920-79.
3. Solder: 50% Pig lead and 50% black tin as per ASTM B32.
4. Concrete Splash Blocks: Provide a preformed concrete splash block measuring minimum 12" x 18" at the base of each new downspout. Each downspout shall be provided with a concrete splash block where water is deposited on asphalt, bare ground or planted surfaces. Splash blocks are not required where water is deposited on existing concrete surfaces.

PART 3 - EXECUTION

3.01 INSPECTION

Coordinate all sheet metal work with other roofing work and other trades on this Project for correct sequencing of items which make up the entire Project.

3.02 PREPARATION

- A. All sheet metal flanges connected or contacting the roof shall be primed with uniform coating of asphalt primer and set into a full bed of mastic.
- B. All joints shall be locked, sealed, welded or soldered as required.
- C. All joints, other than those receiving standing seam or cover and back plates, in galvanized sheet metal edging, copings, accessories, flanges and umbrellas, etc. shall be connected by stainless steel blind rivets spaced at 2" on center and fully soldered completely watertight.
- D. Expansion joint covers, expansion breaks or other devices so needing same, shall be fitted with watertight standing seam joints allowing for lateral expansion as dictated by gauge of metal, "stretch out" or exposure, and latest printed SMACNA guidelines and criteria.
- E. Fabricate new metal in longest practical lengths up to ten feet so as to minimize joints, solder points, welds and seal-offs.
- F. Provide for thermal movement of all exposed sheet metal devices.
- G. All metal flanges, flashings and other metal items coming in contact with bituminous built-up roof assembly are to be completely primed with asphalt cut back type primer and, as applicable, set in uniform bed of plastic cement for horizontal surfaces or flashing cement for vertical surfaces.

3.03 GENERAL INSTALLATION

- A. Includes all sheet metal items associated with the Work.
- B. Counterflashing and receiver joints shall be lapped a minimum of 4" and have a 1/4" bead of sealant pressed between the pieces. The sealant shall not be visible from the exterior. The bottom hemmed edge of the counterflashing shall be neatly hooked in bayonet fashion. Metal counterflashings shall completely cover all fasteners used to hold in place top terminations of composition base flashings.
- C. Install all sheet metal flashings and accessories in accordance with the latest printed SMACNA guidelines and in accord with recognized roofing and sheet metal industry standards. Fit flashings tightly in place using square and true mitered corners. Surfaces shall be true and straight and lines accurate to profiles encountered.
- D. Install new 6" wide cover and backer plates at all new gravel guard, fabricated of matching metal and suitable profile so as to ensure complete and permanent water tight integrity of metal joint. Fasten adjoining 10' metal gravel guard sections as per

most current SMACNA requirements. New cover plates shall be set in specified sealant. Mastic shall not be used in the jointing of gravel guard corners or cover and backer plates. Cover plates shall be neatly bent along the edges to hug the gravel guard over which they are installed. Any gap of more than 1/16" is not allowed. Gravel guard flanges shall be nailed in place not more than 3" o.c. with staggered pattern.

- F. Cover plate joints shall be symmetrically laid out so that opposite end sticks of metal are of the same length with all lengths in between being the same. Sample layouts will be required in the field for the Architect's approval prior to proceeding with the Work.

3.04 CLEANING

- A. Remove all bituminous stains from all sheet metal components. Clean exposed sealant from all joints. Sealant shall not remain exposed unless intended by the Drawings.
- B. Touch-up paint is not permitted and shall not be used on any exposed prefinished sheet metal component. Any metal receiving touch-up paint shall be completely cleaned to the Architect's satisfaction, or be replaced.

END OF SECTION

SECTION 07613
MANUFACTURED SHEET METAL ROOFING

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
1. Structural lapped seam metal roofing.
 2. Metal facias, flashings, and trim.
 3. Metal gutters and downspouts.
- B. Related Sections:
1. Section 03100 - Concrete Forms and Accessories: Placement of flashing reglets and accessories.
 2. Section 04810 - Unit Masonry Assemblies: Placement of flashing reglets and accessories.
 3. Section 06100 – Rough Carpentry: Wood Blocking.
 4. Section 07213 - Batt Insulation: Flexible insulation under sheet metal roofing system.
 5. Section 07600 - Flashing and Sheet Metal.
 6. Section 07714 - Gutters and Downspouts.
 7. Section 07900 - Joint Sealers.
 8. Section 09900 - Painting and Coatings: Field painting.

1.2 REFERENCES

- A. American Architectural Manufacturers Association:
1. AAMA 2603 - Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels.
 2. AAMA 2604 - Voluntary specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels.
 3. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels.
- B. American Iron and Steel Institute:
1. AISI SG-973 - Cold-Formed Steel Design Manual.
- C. American Society of Civil Engineers:
1. ASCE 7 - Minimum Design Loads for Buildings and Other Structures.
- D. ASTM International:

1. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 2. ASTM A755/A755M - Standard Specification for Steel Sheet, Metallic Coated by the Hot-Dip Process and Prepainted by the Coil-Coating Process for Exterior Exposed Building Products.
 3. ASTM A792/A792M - Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
 4. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
- E. Federal Specification Unit:
1. FS TT-C-494 - Coating Compound, Bituminous, Solvent Type, Acid Resistant.
- F. National Roofing Contractors Association:
1. NRCA - The NRCA Roofing and Waterproofing Manual.
- G. Sheet Metal and Air Conditioning Contractors:
1. SMACNA - Architectural Sheet Metal Manual.
- H. Underwriters Laboratories Inc.:
1. UL 580 - Tests for Uplift Resistance of Roof Assemblies.

1.3 DESIGN REQUIREMENTS

- A. Roof Loads: Design to resist live loads with 1/360 maximum deflection.
1. Roof Live Loads: Minimum 20 psf.
 2. Dead Loads: Actual weight of materials incorporated into Work.
- B. Wind Loads: Design and size components to withstand positive and negative wind loads, including increased loads at building corners.
1. Design Wind Load: To design pressure of 20 psf.
- C. Wind Uplift Resistance: UL 580; Class 90.
- D. Air Infiltration: Limit air leakage through roof assembly to 0.03 cfm/sq ft of wall area, measured at reference differential pressure across assembly of 6.24 psf as measured in accordance with ASTM E283.
- E. Water Leakage: None, when measured in accordance with ASTM E331 with test pressure of 6.24 psf.
- F. Gutter and Downspout Components: Conform to SMACNA Architectural Sheet Metal Manual for sizing components for rainfall intensity determined by storm occurrence of 1 in 100 years.
- G. Exterior Components: Accommodate the following without damage to system, components or deterioration of seals.

1. Movement within system.
2. Movement between system and perimeter framing components.
3. Dynamic loading and release of loads.
4. Deflection of structural support framing.
5. Expansion and contraction from temperature range of 170 degrees F over 12 hour period.

1.4 SUBMITTALS

- A. Section 01330 - Submittal Procedures: Submittal procedures.
- B. Shop Drawings:
 1. Indicate metal roofing panel profiles, jointing patterns, jointing details, fastening methods, flashings, terminations, and installation details.
- C. Product Data:
 1. Submit data on metal types, finishes, and characteristics.
 2. Submit color charts for finish selection.
- D. Samples:
 1. Submit two samples 12 x 12 inch in size illustrating metal roofing mounted on plywood backing illustrating typical seam, external corner, internal corner, and junction to vertical dissimilar surface, material, and finish.
 2. Submit two samples 12 x 12 inch in size illustrating metal finish color.
- E. Design Data:
 1. Submit structural design calculations for metal roofing supports signed and sealed by professional engineer.
- F. Manufacturer's Installation Instructions: Submit instructions including special procedures for roofing penetrations, flashings, and perimeter conditions requiring special attention.
- G. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.

1.5 QUALITY ASSURANCE

- A. Calculate structural properties of framing members in accordance with AISI SG-973.
- B. Perform Work in accordance with SMACNA Architectural Sheet Metal Manual.

1.6 QUALIFICATIONS

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

- B. Installer: Company specializing in performing work of this section with minimum five years approved by manufacturer.
- C. Design sheet metal roofing under direct supervision of Professional Engineer experienced in design of this Work and licensed in State of Texas.

1.7 PRE-INSTALLATION MEETINGS

- A. Section 01300 - Administrative Requirements: Pre-installation meeting.
- B. Convene minimum two weeks prior to commencing work of this section.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Section 01600 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.
- B. Stack material to prevent twisting, bending, and abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.
- C. Prevent contact with materials causing discoloration or staining.

1.9 FIELD MEASUREMENTS

- A. Verify field measurements prior to fabrication.

1.10 COORDINATION

- A. Section 01300 - Administrative Requirements: Coordination and project conditions.
- B. Coordinate with Work of Section 05120 for connecting structural supports to building structural frame.
- C. Coordinate with Work of Section 07213 for insulation installed within roof assembly.

1.11 WARRANTY

- A. Section 01700 - Execution Requirements: Requirements for warranties.
- B. Furnish 10 year manufacturer warranty for sheet metal roofing against structural failure, corrosion, and water penetration].
- C. Furnish 20 year manufacturer warranty for metal finish against fading, chipping, chalking, and blistering.

PART 2 PRODUCTS

2.1 MANUFACTURED SHEET METAL ROOFING

- A. Manufacturers:
 - 1. MCBI Model PBR.
 - 2. Substitutions: Section 01600 - Product Requirements.

- B. Structural Lapped Seam Metal Roofing: Factory formed metal roofing panel system with exposed fasteners.
 - 1. Panel Materials: Pre-finished galvalume steel sheet 0.024 inch base metal thickness.
 - 2. Panel Width: Nominal 36 inches.
 - 3. Panel Profile: "PBR" by specified manufacturer.
 - 4. Panel Depth: Nominal 1-1/4 inches.
 - 5. Seam Type: Lapped.
 - 6. Color: As selected to match existing.

2.2 SHEET METAL MATERIALS

- A. Pre-Finished Galvalume Steel Sheet: ASTM A755/A755M coil coated.
 - 1. Base Metal: ASTM A792/A792M; Structural Quality, Grade 50 aluminum-zinc alloy coating.
 - 2. Exposed Finish: Minimum two coat] fluoropolymer coating with minimum 70 percent polyvinylidene fluoride resin.
 - 3. Unexposed Finish: Acrylic coating.

2.3 STRUCTURAL SUPPORTS

- A. Roof Framing: Metal framing as specified in Section 05120.

2.4 ACCESSORIES

- A. Fasteners: Same material and finish as roofing metal with soft neoprene washers where exposed.
- B. Protective Backing Paint: FS TT-C-494, Bituminous.
- C. Sealant: Sealant as specified in Section 07900.
- D. Plastic Cement: ASTM D4586, Type I.
- E. Eave Protection Sheet: Rubberized asphalt bonded to sheet polyethylene, 40 mil total thickness, with strippable treated release paper; Perma-A-Barrier Wall Flashing manufactured by Grace Construction Products.

2.5 FABRICATION

- A. Form sections shape as indicated on Drawings, accurate in size, square, and free from distortion or defects.
- B. Fabricate fascia, trim, flashing, and other metal components from same material as metal roof panels. Provide exposed metal surfaces with same finish as exposed face of metal roof panels.
- C. Fabricate cleats of same material as sheet, to interlock with sheet.
- D. Fabricate starter strips of same material as sheet, continuous, to interlock with sheet.
- E. Form pieces in longest practical lengths.
- F. Hem exposed edges on underside 1/2 inch; miter and seam corners.
- G. At moving joints, use sealed lapped, bayonet-type or interlocking hooked seams.
- H. Fabricate corners from one piece with minimum 18 inch long legs; seam for rigidity, seal with sealant.
- I. Fabricate vertical faces with bottom edge formed outward 1/4 inch and hemmed to form drip.
- J. Fabricate gutters to profile and size indicated.
- K. Fabricate downspouts to profile and size conforming to specified design requirements.
- L. Fabricate downspouts to profile and size indicated.
- M. Fabricate accessories in profile and size to suit gutters and downspouts.
 - 1. Anchorage Devices: In accordance with SMACNA.
 - 2. Gutter Supports: Straps.
 - 3. Downspout Supports: Straps.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 01300 - Administrative Requirements: Verification of existing conditions before starting work.
- B. Structural Framing Substrate:
 - 1. Verify primary and secondary framing members are installed and fastened, properly aligned and sloped eaves.

2. Verify damaged shop coatings are repaired with touch up paint.
- C. Verify roof openings, curbs, pipes, sleeves, ducts, or vents through roof are solidly set, reglets are in place, and nailing strips located.
- D. Verify roofing termination and base flashings are in place, sealed, and secure.
- E. Verify insulation is installed and ready for roof application.

3.2 PREPARATION

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

3.3 INSTALLATION - STRUCTURAL SUPPORTS

- A. Install structural supports in accordance with Drawings.
- B. Align supports with top surface in plane, uniformly sloped to eaves.
- C. Secure supports to building structural frame with mechanical fasteners.

3.4 INSTALLATION - EAVE PROTECTION

- A. Apply eave protection sheet over deck flange of eave edge flashings.
- B. Extend eave protection sheet minimum 2 feet upslope beyond interior face of exterior wall.
- C. Place single width eave protection sheet centered over valley, hips and ridges.
- D. Place single width eave protection sheet along gable, parallel to gable edge.

3.5 INSTALLATION - LAPPED SEAM METAL ROOFING

- A. Install furring configured to continuously support roof panel side laps and receive fasteners.
- B. Install roofing panels with long dimension perpendicular to eaves.
- C. Install roofing panels beginning at eaves. Weather lap ends minimum 6 inches.
- D. Align transverse lapped joints of roofing sheets.
- E. Terminate roofing panels with sheet metal trim and flashing for watertight installation. Close and conceal openings between roofing panels, panel seams, and roof substrate.
- F. Seal metal joints watertight.

3.6 INSTALLATION - FLASHING

- A. Install flashings in accordance with Section 07600.
- B. Place eave edge and gable edge metal flashings tight to fascia. Weather lap joints 2 inches and seal with plastic cement. Secure flange to substrate.
- C. Apply plastic cement compound between metal flashings and felt flashings.
- D. Fit flashings tight in place. Make corners square, surfaces true and straight in planes, and lines accurate to profiles.
- E. Seal metal joints watertight.

3.7 INSTALLATION - GUTTERS AND DOWNSPOUTS

- A. Built-In Gutters:
 - 1. Secure gutter lining to substrate with cleats spaced minimum 24 inches on center along edges of gutters.
 - 2. Longitudinal joints not acceptable.
 - 3. At roof edges, extend gutter lining under metal roofing 6 inches minimum and terminate in 3/4 inch folded edge secured by cleats. Hook lower end of roofing into lock strip to form 3/4 inch wide loose-lock seam.
- B. Secure gutters and downspouts in place using [concealed] fasteners.
- C. Slope gutters minimum 1/4 inch per foot.
- D. Seal gutters watertight. Seal joint of gutter to drain.
- E. Terminate downspouts at 8 inches above grade.
- F. Set splash pads under downspouts. Secure in place.

3.8 PROTECTION OF INSTALLED CONSTRUCTION

- A. Section 01700 - Execution Requirements: Protecting installed construction.
- B. Do not permit traffic over unprotected roof surface.

END OF SECTION

SECTION 07840

FIRESTOPPING

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes firestopping and through-penetration protection system materials and accessories; firestopping tops of fire rated walls; and smoke sealing at joints between floor slabs and exterior walls.
- B. Related Sections:
 - 1. Section 03300 - Cast-In-Place Concrete
 - 2. Section 04810 - Unit Masonry Assemblies
 - 3. Section 05310 - Steel Deck
 - 4. Section 05805 - Expansion Joint Cover Assemblies
 - 5. Section 07900 - Joint Sealers
 - 6. Section 09260 - Gypsum Board Assemblies: Gypsum board fireproofing.
 - 7. Division 15 - Mechanical: Mechanical work requiring firestopping.
 - 8. Division 16 - Electrical: Electrical work requiring firestopping.

1.2 REFERENCES

- A. ASTM International:
 - 1. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
 - 2. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials.
 - 3. ASTM E814 - Standard Test Method for Fire Tests of Through-Penetration Fire Stops.
- B. Underwriters Laboratories Inc.:
 - 1. UL 263 - Fire Tests of Building Construction and Materials.
 - 2. UL 723 - Tests for Surface Burning Characteristics of Building Materials.
 - 3. UL 1479 - Fire Tests of Through-Penetration Firestops.
 - 4. UL - Fire Resistance Directory.
- C. Intertek Testing Services (Warnock Hersey Listed):
 - 1. WH - Certification Listings.

1.3 DEFINITIONS

- A. Firestopping (Through-Penetration Protection System): Sealing or stuffing material or assembly placed in spaces between and penetrations through building materials to arrest movement of fire, smoke, heat, and hot gases through fire rated construction.

1.4 SYSTEM DESCRIPTION

- A. Firestopping Materials: ASTM E814, UL 1479, and UL 2079 to achieve fire ratings as noted on Drawings for adjacent construction, but not less than 1-hour fire rating.
 - 1. Ratings may be 3-hours for firestopping in through-penetrations of 4-hour fire rated assemblies unless otherwise required by applicable codes.
- B. Surface Burning: ASTM E84 and UL 723 with maximum flame spread / smoke developed rating of 25/450.
- C. Firestop interruptions to fire rated assemblies, materials, and components.

1.5 SUBMITTALS

- A. Section 01330 - Submittal Procedures: Submittal procedures.
- B. Product Data: Submit data on product characteristics, performance and limitation criteria.
- C. Schedule: Submit schedule of opening locations and sizes, penetrating items, and required listed design numbers to seal openings to maintain fire resistance rating of adjacent assembly.
- D. Manufacturer's Installation Instructions: Submit preparation and installation instructions.
- E. Manufacturer's Certificate: Certify products meet or exceed specified requirements.
- F. Engineering Judgements: For conditions not covered by UL or WH listed designs, submit judgements by licensed professional engineer suitable for presentation to authority having jurisdiction for acceptance as meeting code fire protection requirements.

1.6 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.
- B. Applicator: Company specializing in performing Work of this section with minimum three years documented experience.

1.7 ENVIRONMENTAL REQUIREMENTS

- A. Section 01600 - Product Requirements.
- B. Do not apply materials when temperature of substrate material and ambient air is below 60 degrees F.

- C. Maintain this minimum temperature before, during, and for minimum 3 days after installation of materials.
- D. Provide ventilation in areas to receive solvent cured materials.

PART 2 PRODUCTS

2.1 FIRESTOPPING

- A. Manufacturers:
 - 1. A/D Fire Protection Systems, Inc.
 - 2. Dow Corning Corp.
 - 3. Hilti Corp.
 - 4. 3M fire Protection Products.
 - 5. Pecora Corporation.
 - 6. Substitutions: Section 01600 - Product Requirements.
- B. Product Description: Different types of products by multiple manufacturers are acceptable as required to meet specified system description and performance requirements; provide only one type for each similar application.
 - 1. Silicone Firestopping Elastomeric Firestopping: Single component silicone elastomeric compound and compatible silicone sealant.
 - 2. Foam Firestopping Compounds: Single component foam compound.
 - 3. Formulated Firestopping Compound of Incombustible Fibers: Formulated compound mixed with incombustible non-asbestos fibers.
 - 4. Fiber Stuffing and Sealant Firestopping: Composite of mineral or ceramic fiber stuffing insulation with silicone elastomer for smoke stopping.
 - 5. Mechanical Firestopping Device with Fillers: Mechanical device with incombustible fillers and silicone elastomer, covered with sheet stainless steel jacket, joined with collars, penetration sealed with flanged stops.
 - 6. Intumescent Firestopping: Intumescent putty compound which expands on exposure to surface heat gain.
 - 7. Firestop Pillows: Formed mineral fiber pillows.
- C. Color: As selected from manufacturer's full range of colors.

2.2 ACCESSORIES

- A. Primer: Type recommended by firestopping manufacturer for specific substrate surfaces and suitable for required fire ratings.
- B. Dam Material: Permanent:
 - 1. Mineral fiberboard.
 - 2. Mineral fiber matting.
 - 3. Sheet metal.
- C. Installation Accessories: Provide clips, collars, fasteners, temporary stops or dams, and other devices required to position and retain materials in place.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 01300 - Administrative Requirements: Coordination and project conditions.
- B. Verify openings are ready to receive firestopping.

3.2 PREPARATION

- A. Clean substrate surfaces of dirt, dust, grease, oil, loose material, or other matter affecting bond of firestopping material.
- B. Remove incompatible materials affecting bond.
- C. Install backing and damming materials to arrest liquid material leakage.

3.3 APPLICATION

- A. Install material at fire rated construction perimeters and openings containing penetrating sleeves, piping, ductwork, conduit and other items, requiring firestopping.
- B. Apply primer where recommended by manufacturer for type of firestopping material and substrate involved, and as required for compliance with required fire ratings.
- C. Apply firestopping material in sufficient thickness to achieve required fire and smoke rating, to uniform density and texture.
- D. Place intumescent coating in sufficient coats to achieve rating required.

3.4 CLEANING

- A. Section 01700 - Execution Requirements: Final cleaning.
- B. Clean adjacent surfaces of firestopping materials.

3.5 PROTECTION OF INSTALLED CONSTRUCTION

- A. Section 01700 - Execution Requirements: Protecting installed construction.
- B. Protect adjacent surfaces from damage by material installation.
conduit.

END OF SECTION

SECTION 07900

JOINT SEALERS

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes sealants and joint backing, and accessories.
- B. Related Sections:
 - 1. Section 03300 – Cast-In-Place Concrete.
 - 2. Section 04810 – Unit Masonry Assemblies.
 - 3. Section 08800 - Glazing: Glazing sealants and accessories.
 - 4. Section 09260 - Gypsum Board Assemblies: Acoustic sealant.

1.2 REFERENCES

- A. ASTM International:
 - 1. ASTM C834 - Standard Specification for Latex Sealants.
 - 2. ASTM C919 - Standard Practice for Use of Sealants in Acoustical Applications.
 - 3. ASTM C920 - Standard Specification for Elastomeric Joint Sealants.
 - 4. ASTM C1193 - Standard Guide for Use of Joint Sealants.
 - 5. ASTM D1667 - Standard Specification for Flexible Cellular Materials-Vinyl Chloride Polymers and Copolymers (Closed-Cell Foam).

1.3 SUBMITTALS

- A. Section 01330 - Submittal Procedures: Submittal procedures.
- B. Products Data: Submit data indicating sealant chemical characteristics, performance criteria, substrate preparation, limitations, and color availability.
- C. Samples: Submit samples, illustrating sealant colors for selection.
- D. Manufacturer's Installation Instructions: Submit special procedures, surface preparation, and perimeter conditions requiring special attention.
- E. Warranty: Include coverage for installed sealants and accessories failing to achieve airtight seal, watertight seal, exhibit loss of adhesion or cohesion, and sealants which do not cure.

1.4 QUALIFICATIONS

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

- B. Applicator: Company specializing in performing Work of this section with minimum three years documented experience.

1.5 ENVIRONMENTAL REQUIREMENTS

- A. Section 01600 - Products Requirements.
- B. Maintain temperature and humidity recommended by sealant manufacturer during and after installation.

1.6 COORDINATION

- A. Section 01300 - Administrative Requirements: Coordination and project conditions.
- B. Coordinate Work with sections referencing this section.

PART 2 PRODUCTS

2.1 JOINT SEALERS

- A. Manufacturers:
 1. Dow Corning Corp.
 2. GE Silicones.
 3. Pecora Corp.
 4. Sonneborn.
 5. Substitutions: Section 01600 - Products Requirements.
- B. Products Description:
 1. High Performance General Purpose Exterior (Nontraffic) Sealant: Polyurethane; ASTM C920, Grade NS, Class 25, Uses M, G, and A; multi- component.
 - a. Type: Sonolastic NP11 manufactured by Sonneborn.
 - b. Color: Colors as selected by Architect.
 - c. Applications: Use for:
 - 1) Control, expansion, and soft joints in masonry.
 - 2) Joints between concrete and other materials.
 - 3) Joints between metal frames and other materials.
 - 4) Other exterior nontraffic joints for which no other sealant is indicated.
 2. General Purpose Traffic Bearing Sealant: Polyurethane; ASTM C920, Grade P, Class 25, Use T; single component.
 - a. Type: SL-1 manufactured by Sonneborn.
 - b. Color: Standard colors matching finished surfaces.
 - c. Applications: Use for exterior and vehicular traffic bearing joints.
 3. Exterior Metal Lap Joint Sealant: Butyl or polyisobutylene, non-drying, non-skinning, non-curing.

- a. Applications: Use for [concealed sealant bead in sheet metal work] [and] [concealed sealant bead in siding overlaps].
- 4. General Purpose Interior Sealant : Acrylic emulsion latex; ASTM C834, single component, paintable.
 - a. Type: Sonnelac manufactured by Sonneborne.
 - b. Color: Standard colors matching finished surfaces.
 - c. Applications: Use for interior wall and ceiling control joints, joints between door and window frames and wall surfaces, and other interior joints for which no other type of sealant is indicated.:
- 5. Tile Sealant: White silicone; ASTM C920, Uses M and A; single component, mildew resistant.
 - a. Type: Silicone Sanitary 1700 Sealant manufactured by GE.
 - b. Applications: Use for joints between plumbing fixtures and floor and wall surfaces, and joints between toilet room counter tops and wall surfaces.
- 6. Acoustical Sealant: Butyl or acrylic sealant; ASTM C920, Grade NS, Class 12-1/2, Uses M and A; single component, solvent release curing, non-skinning.
 - a. Applications: Use for concealed locations only at acoustically rated construction.
 - 1) Provide sealant bead between top stud runner and structure and between bottom stud track and floor.

2.2 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 D1056, closed cell polyethylene; oversized 30 to 50 percent larger than joint width.
 - 1. Type: Sonofoam manufactured by Sonneborne.
- D. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 01300 - Administrative Requirements: Coordination and project conditions.
- B. Verify substrate surfaces and joint openings are ready to receive work.
- C. Verify joint backing and release tapes are compatible with sealant.

3.2 PREPARATION

- A. Remove loose materials and foreign matter impairing adhesion of sealant.
- B. Clean and prime joints.
- C. Perform preparation in accordance with ASTM C1193.
- D. Protect elements surrounding Work of this section from damage or disfiguration.

3.3 INSTALLATION

- A. Perform installation in accordance with ASTM C1193.
- B. Perform acoustical sealant application work in accordance with ASTM C919.
- C. 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.
- D. Install bond breaker where joint backing is not used.
- E. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.
- F. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.
- G. Tool joints concave.

3.4 CLEANING

- A. Section 01700 - Execution Requirements: Final cleaning.
- B. Clean adjacent soiled surfaces.

3.5 PROTECTION OF INSTALLED CONSTRUCTION

- A. Section 01700 - Execution Requirements: Protecting installed construction.
- B. Protect sealants until cured.

END OF SECTION