

SECTION 0910 - FLASHING AND SHEET METAL

PART 1 - GENERAL

- 1.1 DESCRIPTION: A Work includes: Provide flashing and sheet metal not specifically described in other Sections of these Specifications but required to prevent penetration of water through the exterior shell of the building.

- 1.2 QUALITY ASSURANCE: A. Manufacturer's name of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are company trained with the specified materials and the methods needed for proper performance of the work of this Section. B. In addition to complying with pertinent codes and regulations, comply with pertinent recommendations contained in current editions of "Manufacturers Sheet Metal Manual" published by the Sheet Metal and Air Conditioning Contractors National Association (SMACNA). C. Standard commercial items may be substituted for flashing, trim, registers, and similar purposes provided such items meet or exceed the quality standards specified.

PART 2 - PRODUCTS

- 2.1 MATERIALS AND GAUGES: A. Where an item is required, and no material grade is indicated on the Drawings, provide the highest quality and gauge commercial item with the referenced materials. B. Metal Roof Flashing: 26 gauge galvanized metal, 28 ga., 30 size and annealed indicated on the drawings. C. Cast Flashing: Shall be cast and accurate in 1/8" to 1/16" tolerance. All seams to be full depth joints, except at corners. Corners to be fabricated to minimum 1/8" x 1/8" radius, cast, and sealed in one piece. D. Cast flashing finish to match metal exterior finish and siding color.

- 2.2 GALVANIZED IRON: A. Provide sheet metal or other iron of a standard brand of open-earthen copper-coating steel, copper-microaluminum iron, or puriton stainless steel. B. Zinc coating: 1. Where galvanizing is required, provide zinc coating to hot dip galvanize to all surfaces. 2. Weight: A. Provide no less than 1.14 oz per sq. ft. no more than 1.12 oz per sq. ft., to surfaces required to be galvanized. 3. Conity with ASTM A653.

- 2.3 NAILS, RIVETS, AND FASTENERS: A. Use only rust free nails having anti-rustive coating, galvanized nails, and cadmium plated screws and washers in connection with galvanizing iron and steel. B. Zinc coating: 1. Where galvanizing is required, provide zinc coating to hot dip galvanize to all surfaces. 2. Weight: A. Provide no less than 1.14 oz per sq. ft. no more than 1.12 oz per sq. ft., to surfaces required to be galvanized. 3. Conity with ASTM A653.

- 2.4 SOLDER: A. Where flux is required, use rosin flux. B. Solder: A. Where flux is required, use rosin flux. B. Solder: A. Where flux is required, use rosin flux.

- 2.5 OTHER MATERIALS: A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Owner's Representative. Flashing and sheet metal are complementary materials.

PART 3 - EXECUTION

- 3.1 WORKMANSHIP: A. General: 1. Form sheet metal accurately and to the dimensions and shape required, finishing mottled and broken surfaces with true, sharp, and straight lines and angles and, when intersecting other members, coping in accordance with the drawings. 2. Unless otherwise specifically permitted by the Owner's Representative, trim exposed edges sharp 1/2". B. Form, fabricate, and install sheet metal so as to adequately provide for expansion and contraction in the finished work. C. Weatherproofing: 1. Finish waterproof and weathertight where so required. 2. Make lock seams work fast and true in line, sweating full of solder. 3. Make lock seams and all seams, where indicated, at least 1/2" wide. 4. Where no seams are so indicated, lap according to code, but in no case less than 3". 5. Make flat and lap seams in the direction of flow. D. Joints: 1. For flashing into work, use leaded roofing nails 1/4" long by 1/16" dia. 2. Provide suitable waterproofing joints for runs of more than 48" over, except where closer spacing is indicated on the Drawings or required for proper installation. E. Nailing: 1. Whenever possible, secure metal by means of clips or rivets, without nailing through the exterior metal. 2. In gables, eaves, rakes, roofs, and slopes not more than 30° incline, use nails spaced to the weather, use riveless nails. 3. For nailing into work, use leaded roofing nails 1/4" long by 1/16" dia. 4. For nailing into concrete, use iron cleat plugs and no plugs.

- 3.2 EMBEDMENT: A. Embedment in connection with roof or a solid bed of sealant, using materials and methods described in Section 07520 of these Specifications or other materials and methods approved in advance. B. Sealant: A. Where sealant is required, use sealant complying with ASTM D1083.

- 3.3 SOLDERING: A. Thoroughly clean and fit the joint materials prior to soldering. 2. Perform soldering slowly, with a well heated copper, in order to heat the seams thoroughly and to completely fill them with solder. 3. Perform soldering with a heavy soldering copper of blunt design, properly fitted for use. 4. Complete soldering on finished-to-face metal. Use flux and smooth. B. After soldering, thoroughly wash and flux with a soda solution.

- 3.4 TESTS: A. Upon request of the Owner's Representative, demonstrate by hose or standing water that the flashing and sealant are completely weathertight.

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- 2.4 FINISH: A. Fluorocarbon Coating: 1. Full strength 70% Fluor 5200 coating based on 15 minutes at 450 degrees F to dry film thickness of 1.0 mil. 2. 15% reflective glass (ASTM D523). (Low Glass) 3. 0.3 mil based on epoxy primer. 4. Color: Ref. Exterior Finish Schedule

- 2.5 EXAMINATION: A. Examine work to verify that work is clean and smooth, free of depressions, waves, or projections, properly ready to accept. B. Verify work is dry. Verify joints in wood shall be watertight and sealed.

- 2.6 PREPARATION: A. Fit Underlayment (void) substrate: 1. Remove one layer of No. 30 felt with horizontal overlap and end seal staggered between layers. 2. Provide one layer of No. 24 non-slip felt with 2" overlap and 6" vertical stagger. 3. Remove stoppage coating below laps and end seal.

- 2.7 INSTALLATION: A. Connect with manufacturer's instructions for assembly, installation and erection. Install in accordance with approved shop drawings. B. Connect with manufacturer's instructions for use and fasteners secure in accordance with manufacturer's recommendations for design wind load criteria. C. Fully seal adjacent panel to achieve continuous engagement of standing seam joint. D. Dissimilar Metals: 1. Where sheet metal is contact with dissimilar metals, isolate juncture to facilitate drainage and minimize possibility of galvanic action. 2. At point of contact with dissimilar metal, coat metal with protective paint. E. Fastening: 1. Conform to SMACNA, Section, Plates 61, 62. 2. Secure fasteners in place using concealed fasteners. Use concealed fasteners only when permitted. 3. Coat and stain all joints. 4. Apply fastener compound between metal flashings and felt flashings. Fit fastening tight in place. Make corners square, use loose but straight in place, and use minimal to protect. 5. Solder metal joints with full metal surface contact. After soldering, wash metal coat with neutralizing solution and rinse with water. 6. Field apply sealant to penetrations, transitions, and other locations necessary (not standing seam) by straight, weathertight installation. F. CLEANING: A. Clean exposed surface of work promptly after completion of installation.

- 3.0 FIELD QUALITY CONTROL: A. Field inspection will be performed under provisions of Section 01400. B. PROTECTION OF FINISHED WORK: A. Protect finished Work unless provisions of Section 01500. B. Do not permit traffic over unprotected surfaces.

- SECTION 0920 - SEALANTS AND CAULKING

- 1.1 DESCRIPTION: A. Provide sealant throughout the Work, seal all cracks and joints where shown on the Drawings and elsewhere as required to provide a positive barrier against passage of air, moisture and passage of air.

- 2.1 SEALANTS: A. Except as specifically otherwise approved by the Owner's Representative, use only the types of sealant described in this Section. B. Provide one component, polyurethane based compound complying with First Step T1-S-02271, with each color of sealant and each color of sealant the product of a single manufacturer selected from the following, or equal products approved in advance by the Owner's Representative: 1. SikaFlex Caulking and Sealant, SikaFlex, by Sika Corporation, (800) 383-5715. 2. No. 884 Architectural Silicone Sealant, by Phoenix, (715) 723-6251. 3. No. 790 Silicone Butyling Sealant, by Dow Corning, (517) 498-6300. 4. No. SCS 1000 Construction Silicone Sealant, by General Electric, (800) 332-3330. 5. Elastomeric Caulking and Sealant material for the building joint shall be equal to one of the following: a. Tremco Vulca-T115 Great Polymer Sealant, (800) 321-7026. b. SikaSealant NP-Gel Grade Polyurethane Sealant, (800) 433-9517. c. No. SCS 1000 Construction Silicone Sealant, by General Electric, (800) 332-3330. 3. Primer, where required shall be used as recommended by manufacturer of sealant, having been tested for staining and suitable on samples of actual surface to be sealed. 4. For other services, provide products specifically formulated for the proposed use and approved in advance by the Owner's Representative. C. Color: 1. Colors of sealant shall match adjacent wall material finish color. 2. Should such standard color not be available from the approved manufacturer accept at additional charge, provide such color at an additional cost to the Owner. D. In concealed installation, and in paint or fully exposed installations where so approved by the Owner's Representative, use standard gray or black sealant.

- 2.2 PRIMERS: A. Make sure those primers which are non-staining, have been tested for durability on the surface to be sealed, and are specifically recommended for this installation by the manufacturer of the sealant used.

- 2.3 BACKUP MATERIALS: A. Use only backup materials which are specifically recommended for this installation by the manufacturer of the sealant used, and which are non-staining. B. Sealant type include: 1. Dimpled or ribbed. 2. Prefabricated support angle for concrete tie control joint and expansion joint work. Use polystyrene or polycarbonate rubber.

- 2.4 BOND PREVENTATIVE MATERIALS: A. Use only one of the following as best suited for the application, and as recommended by the manufacturer of the sealant used: 1. Polyethylene tape, pressure sensitive adhesive, with an adhesive required only to hold tape to the construction materials as indicated; 2. MASKING TAPE: A. For masking surfaces, provide masking tape complying with First Step UUI-1106.

- 2.6 OTHER MATERIALS: A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Owner's Representative.

PART 3 - EXECUTION

- 3.1 SURFACE CONDITIONS: A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected. B. COORDINATION: A. Coordinate as required with other trades to assure proper and adequate provision in the work of those trades or other trades which are to be installed in conjunction with the work of this Section. B. Make measurements as required in the field to assure proper.

- 3.2 INSTALLATION: A. Install the work of this Section in strict accordance with the original design, the approved Shop Drawings, and the requirements of Governmental agencies having jurisdiction, and the manufacturer's recommended installation procedure as approved by the Owner's Representative, anchoring all components firmly into position for long life. B. Remove protective coating completely from exposed surface as soon as progress of the Work will permit with safety. C. When glazing is performed under the Section, provide the type of glass required and glass in accordance with pertinent provisions of Section 05000 of these Specifications to completely fit joints as specified. D. Anchor and Bracing: Properly isolate and fasten anchoring devices into structure. E. Dissimilar Materials: Isolate aluminum surface contact between or other metals using asphalt mastic. Apply isolation materials to dissimilar surfaces. F. Top joints shall be shown on the Drawings, or as otherwise required of such profile are not shown on the Drawings. G. PROTECTION: 1. Install the sealant in accordance with the manufacturer's printed instructions and warnings. 2. Provide proper and adequate ventilation during the application, during installation, and until properly cured or dry. 3. Provide proper and adequate application, storage, and disposal of the sealant in prevent potential of an environmental hazard. 4. Cleaning up: 1. Remove masking tape immediately after joints have been installed. 2. Clean adjacent surfaces free from sealant as the installation progresses, using solvent or cleaning agent recommended by the manufacturer of the sealant used.

- 3.3 INSTALLATION: A. Form sections true to shape, accurate in size, square, and free from distortion or defects. B. Apply stoppage coating to the side of metal to protect finish during fabrication, shop work, and erection. C. Have exposed edges on underside 5/16 inch radius corners. D. Fabricate vertical base with bottom edge 1/8 inch x 1/8 inch radius. E. Fabricate fasteners to show to be in excess of 2". F. Panels: 1. Provide factory formed panels with all 18 inch x 36 inch panels. 2. Provide panels with full length from ridge to eave. 3. Where single length panels are not practical, use overlapping panels for positive joint lock, overlaid with overlap in direction of water flow. G. Seams: 1. Panel seams shall overlap one lap without overlap fasteners. 2. Engage standing seam to lock up and provide joint sealant and sealant during erection. 3. Fabricate fasteners with gaskets and sealant. 4. Provide factory sealant in excess of 1/8" in thickness. 5. Sealant shall provide panel-to-panel seal while allowing expansion and contraction. H. Fasteners: 1. Provide manufacturer's standard accessories and other items essential to completeness of standing seam roof installation. 2. Provide iron nails and plugs for clean termination of panel. 3. Provide factory fabricated covers at roof slope transitions. 4. Dissimilar Metals: 1. Color coordinated premises silicone or high grade, non-staining butyl as recommended by panel manufacturer. 2. Do not use sealant containing asphalt. I. FABRICATION: A. Form sections true to shape, accurate in size, square, and free from distortion or defects. B. Apply stoppage coating to the side of metal to protect finish during fabrication, shop work, and erection. C. Have exposed edges on underside 5/16 inch radius corners. D. Fabricate vertical base with bottom edge 1/8 inch x 1/8 inch radius. E. Fabricate fasteners to show to be in excess of 2". F. Panels: 1. Provide factory formed panels with all 18 inch x 36 inch panels. 2. Provide panels with full length from ridge to eave. 3. Where single length panels are not practical, use overlapping panels for positive joint lock, overlaid with overlap in direction of water flow. G. Seams: 1. Panel seams shall overlap one lap without overlap fasteners. 2. Engage standing seam to lock up and provide joint sealant and sealant during erection. 3. Fabricate fasteners with gaskets and sealant. 4. Provide factory sealant in excess of 1/8" in thickness. 5. Sealant shall provide panel-to-panel seal while allowing expansion and contraction. H. Fasteners: 1. Provide manufacturer's standard accessories and other items essential to completeness of standing seam roof installation. 2. Provide iron nails and plugs for clean termination of panel. 3. Provide factory fabricated covers at roof slope transitions. 4. Dissimilar Metals: 1. Color coordinated premises silicone or high grade, non-staining butyl as recommended by panel manufacturer. 2. Do not use sealant containing asphalt.

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- 3.5 BOND BREAKER INSTALLATION: A. Provide an approved bond breaker in strict accordance with the manufacturer's recommendations for the application of the adhesive, or as otherwise recommended by the manufacturer's Representative. B. Make measurements as required in the field to assure proper.

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