

SECTION 07620**SHEET METAL FLASHING AND TRIM****PART 1 GENERAL****1.01 SUMMARY**

- A. This Section includes sheet metal flashing and trim in the following categories:
 - 1. Copings.
 - 2. Metal flashing.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Section 07550, "Built-Up Bituminous Roofing".
 - 2. Section 07920, "Sealants and Caulking".

1.02 PERFORMANCE REQUIREMENTS

- A. General: Install sheet metal flashing and trim to withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failing.
- B. Fabricate and install flashings at roof edges to comply with recommendations of FM Loss Prevention Data Sheet 1-49 for wind zone 3 or ASCE 7 whichever is more stringent. All flashing, roof edges, perimeters, and corners shall meet the roofing assembly requirements approved by the Dade County Product Approval. Submit to Engineer Certificate of Code Compliance.

1.03 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Product Data including manufacturer's material and finish data, installation instructions, and general recommendations for each specified flashing material and fabricated product.
- C. Shop Drawings of each item specified showing layout, profiles, methods of joining, and anchorage details.
- D. Qualification data for firms and persons specified in the "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of Engineers and owners, and other information specified.
- E. Certificate of Code Compliance that roofing system and flashing assembly meets Florida Building Code and ASCE 7 requirements. Certify that wind uplift

requirements have been met for the design height and assembly.

1.04 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experience Installer who has completed sheet metal flashing and trim work similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.
- B. For 20 year roofing system guarantee see section on Build-up Bituminous Roofing.

1.05 PROJECT CONDITIONS

- A. Coordinate Work of this Section with interfacing and adjoining Work for proper sequencing of each installation. Ensure best possible weather resistance, durability of Work, and protection of materials and finishes.

PART 2 PRODUCTS

2.01 METALS

- A. Stainless Steel: 24 gauge, type 304, 2B, ASTM A-240, and cleats shall be 22 gauge.

2.02 COUNTERFLASHING

- A. General: Units of type, material, and profile indicated, formed to provide secure interlocking of separate reglet and counterflashing pieces and compatible with flashing indicated.
- B. Flexible Flashing Retainer: Provide resilient plastic or rubber accessory to secure flexible flashing in reglet where clearance does not permit use of standard metal counterflashing or where Plans show coping without metal counterflashing.
- C. Counterflashing Wind-Restraint Clips: Provide clips to be installed before counterflashing to prevent wind uplift of the counterflashing lower edge.
 - 1. Material: 24 gauge, type 304, 2B, ASTM A-240.
- D. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:
 - 1. Fry Reglet Corporation.
 - 2. Hickman: W.P. Hickman Co.
 - 3. Keystone Flashing Company.
 - 4. MM Systems Corporation, ART Architectural Roof Edge Technologies.

2.03 MISCELLANEOUS MATERIALS AND ACCESSORIES

- A. Solder: ASTM B 32, 50% Tin-50% Tin Silver ASTM 96.5TS.
- B. Foam Tape: Closed cell foam, PSA on one side, 1/4" or 3/8" x 1" wide, ASTM D 1056.
- C. Sealant: Single part urethane, ASTM C 920.
- D. Fasteners: Same metal as sheet metal flashing or other noncorrosive metal as recommended by sheet metal manufacturer. Match finish of exposed heads with material being fastened.
- E. Asphalt Mastic: SSPC-Paint 12, solvent-type asphalt mastic, nominally free of sulfur and containing no asbestos fibers, compounded for 15-mil (0.4-mm) dry film thickness per coat.
- F. Mastic Sealant: Polyisobutylene; nonhardening, nonskinning, nondrying, nonmigrating sealant.
- G. Elastomeric Sealant: Generic type recommended by sheet metal manufacturer and fabricator of components being sealed and complying with requirements for joint sealants as specified in Division 7 Section "Joint Sealants."
- H. Adhesives: Type recommended by flashing sheet metal manufacturer for waterproof and weather-resistant seaming and adhesive application of flashing sheet metal.
- I. Paper Slip Sheet: 5-lb/square (0.244 kg/sq. m) red rosin, sized building paper conforming to FS UU-B-790, Type I, Style 1b.
- J. Polyethylene Underlayment: ASTM D 4397, minimum 6-mil- (0.15-mm-) thick black polyethylene film, resistant to decay when tested according to ASTM E 154.
- K. Metal Accessories: Provide sheet metal clips, straps, anchoring devices, and similar accessory units as required for installation of Work, matching or compatible with material being installed; noncorrosive; size and thickness required for performance.
- L. Roofing Cement: ASTM D 4586, Type I, asbestos free, asphalt based.

2.04 FABRICATION, GENERAL

- A. Sheet Metal Fabrication Standard: Fabricate sheet metal flashing and trim to comply with recommendations of SMACNA's "Architectural Sheet Metal Manual" that apply to the design, dimensions, metal, and other characteristics of the item indicated.
- B. Comply with details shown to fabricate sheet metal flashing that fit substrates and result in waterproof and weather-resistant performance once installed. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.

- C. Form exposed sheet metal Work that is without excessive oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems.
- D. Seams: Fabricate nonmoving seams in sheet metal with flat-lock seams. Tin edges to be seamed, form seams, and solder.
- E. Expansion Provisions: Space movement joints at maximum of 10 feet (3 m) with no joints allowed within 24 inches (610 mm) of corner or intersection. Where lapped or bayonet-type expansion provisions in Work cannot be used or would not be sufficiently weatherproof and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with mastic sealant (concealed within joints).
- F. Sealed Joints: Form nonexpansion, but movable, joints in metal to accommodate elastomeric sealant to comply with SMACNA standards.
- G. Separate metal from noncompatible metal or corrosive substrates by coating concealed surfaces at locations of contact with asphalt mastic or other permanent separation as recommended by manufacturer.
- H. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of sheet metal exposed to public view.
- I. Fabricate attachment devices from same material as sheet metal component being anchored or from compatible, noncorrosive metal recommended by sheet metal manufacturer.
 - 1. Size: As recommended by SMACNA manual or sheet metal manufacturer for application but never less than thickness of metal being secured.

2.05 SHEET METAL FABRICATIONS

- A. General: Fabricate sheet metal items in thickness or weight needed to comply with performance requirements but not less than that listed below for each application and metal.
- B. Provide all accessories or other items essential to completion of sheet metal installation of same kind of material as item to which applied. Nails, screws and bolts shall be of type and of a composition that is compatible with metal which it will contact. System specified above shall be installed as recommended by manufacturer and as detailed. Use factory formed interior and exterior corners.
- C. Metal Flashing for bases and curbs:
 - 1. Fabricate from flat sheet to detail and extend vertical down over base flashing a minimum of 4".
 - 2. Extend over top of curbs and set in plastic cement and mechanically attach at 3" o.c.

3. Where bolted connections puncture flashing provide 4 pound sheet lead washers, 2" larger than bolt holes.
- D. Downspouts and scuppers:
1. Provide 24 gauge, type 304, 2B, ASTM A-240, size and shape detailed.
 2. Fabricate downspouts to size noted shown on Drawings in 8' to 10' lengths. Telescope vertical joints 2" and lock longitudinal joints. Fasten to walls/ columns with heavy straps or clamps equally spaced 6' apart maximum .
 3. Fit downspout into iron boots or drain pipes where indicated. Caulk and cement joints neatly.
 4. Close tops of downspouts heads with removable ½" mesh aluminum wire screens cups.
- E. Fabricate gutters from the following material unless otherwise allowed:
1. Aluminum: 0.0320 inch (0.8 mm) thick.
 2. Stainless Steel: 0.0156 inch (0.4 mm) thick.
- F. Pitch pans shall be permitted only as a measure of last resort and at locations where the Engineer's written approval has been granted.
- G. Fabrication of flashings for pipes, conduits, and other round items penetrating, resting, on or anchored the roof which allows a tubular flashing to be slipped over:
1. Form tubular flashing sleeve no less than 9 inches high and of proper diameter to provide 1/8 inch minimum - 1/4 inch maximum clearance from pipe or conduit.
 2. Fabricate square flashing plate to a size 7-1/2 inch larger than protrusion. Punch hole of appropriate size in center and extrude surrounding material upward 1/4 inch, providing a continuous vertical soldering flange and solder 9 inch high tubular flashing sleeve. Cut 1" minimum radius on flashing plate corners.
 3. Fabricate counter flashing 5 inches high with a diameter ½ inch larger than pipe or conduit.
 4. Provide a conical sealant cover, sloped outward and downward at 30 degrees to 45 degrees from the horizontal plane with an inside diameter equal to pipe or conduit size and an outside diameter 1 to 2 inches larger.
 5. Shop solder all seams watertight.
 6. Provide standard accessory sealant cover.
 7. Provide Model P/S or C/S as manufactured by SBC Industries, North Miami, Fl. or equal.
 8. Install stainless steel vent flashings as manufactured by SBC or equal.
 9. Stainless Steel: 26 gauge, type 304, 2B, ASTM A-240.
- H. Workmanship - Metals:
1. All joints neatly constructed: Items properly and substantially secured and made completely watertight using best possible materials, methods,

and workmanship.

- I. Counterflashing: Fabricate from the following material:
 - 1. Provide 24 gauge, type 304, 2B, ASTM A-240.047 clear anodized aluminum.
- J. Eave Flashing: Fabricate from the following material:
 - 1. Provide 24 gauge, type 304, 2B, ASTM A-240.
- K. Coping:
 - 1. Provide 24 gauge, type 304, 2B, ASTM A-240, in lengths no longer than 10 feet. Provide fasteners as recommended by the manufacturer.
- L. Sheet metal, flashing and counter-flashing:
 - 1. Roof flashing: Provide 24 gauge, type 304, 2B, ASTM A-240 roof flashing.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine substrates and conditions under which sheet metal flashing and trim are to be installed and verify that Work may properly commence. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. General: Unless otherwise indicated, install sheet metal flashing and trim to comply with performance requirements, manufacturer's installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Anchor units of Work securely in place by methods indicated, providing for thermal expansion of metal units; conceal fasteners where possible, and set units true to line and level as indicated. Install Work with laps, joints, and seams that will be permanently watertight and weatherproof.
- B. Install exposed sheet metal Work that is without excessive oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to result in waterproof and weather-resistant performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
- C. Roof-Edge Flashings: Secure metal flashings at roof edges according to FM, ASCE 7, and the Roofing Assembly as approved by Dade County Product Approval.
- D. Parapet Coping and Counter-Flashing Systems:

1. Install counter-flashing and coping systems according to roof details shown on Plans, unless revision is authorized by the Engineer.
 2. Make Provisions for metal work to expand and contract without losing watertight fit.
- E. Expansion Provisions: Provide for thermal expansion of exposed sheet metal Work. Space movement joints at maximum of 10 feet (3 m) with no joints allowed within 24 inches (610 mm) of corner or intersection. Where lapped or bayonet-type expansion provisions in Work cannot be used or would not be sufficiently weatherproof and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with mastic sealant (concealed within joints).
- F. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter. Pre-tin edges of sheets to be soldered to a width of 1-1/2 inches (38 mm), except where pretinned surface would show in finished Work.
1. Do not use torches for soldering. Heat surfaces to receive solder and flow solder into joint. Fill joint completely. Completely remove flux and spatter from exposed surfaces.
- G. Sealed Joints: Form nonexpansion, but movable, joints in metal to accommodate elastomeric sealant to comply with SMACNA standards. Fill joint with sealant and form metal to completely conceal sealant.
1. Use joint adhesive for nonmoving joints specified not to be soldered.
- H. Seams: Fabricate nonmoving seams in sheet metal with flat-lock seams. Tin edges to be seamed, form seams, and solder.
- I. Separations: Separate metal from noncompatible metal or corrosive substrates by coating concealed surfaces, at locations of contact, with asphalt mastic or other permanent separation as recommended by manufacturer.
1. Underlayment: Where installing stainless steel directly on cementitious or wood substrates, install a slip sheet of red-rosin paper and a course of polyethylene underlayment.
 2. Bed flanges of Work in a thick coat of roofing cement where required for waterproof performance.
- J. Counterflashings: Coordinate installation of counterflashings with installation of assemblies to be protected by counterflashing. Install counterflashings in reglets or receivers. Secure in a waterproof manner by means of snap-in installation and sealant, lead wedges and sealant, interlocking folded seam, or blind rivets and sealant. Lap counterflashing joints a minimum of 2 inches (50 mm) and bed with sealant.
- K. Roof-Penetration Flashing: Coordinate roof-penetration flashing installation with roofing and installation of items penetrating roof. Seal and clamp flashing to pipes penetrating roof.

3.03 CLEANING AND PROTECTION

- A. Clean exposed metal surfaces, removing substances that might cause corrosion of metal or deterioration of finishes.
- B. Provide final protection and maintain conditions that ensure sheet metal flashing and trim Work during construction is without damage or deterioration other than natural weathering at the time of Substantial Completion.

END OF SECTION