

SECTION 076000

FLASHING AND TRIM

PART 1 GENERAL

1.01 PRODUCTS INSTALLED BUT NOT FURNISHED UNDER THIS SECTION – NOT USED

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Wood Nailers and Blocking: Section 061053.
- B. EPDM Sheet Roofing System: Sections 075323, 075324, or 075553.

1.03 REFERENCES

- A. SMACNA: Sheet Metal and Air Conditioning Contractors' National Association, 4201 Lafayette Center Dr., Chantilly, VA 20151-1209, (703) 803-2980, www.smacna.org.
- B. CDA: Copper Development Association Inc., 260 Madison Ave., New York, NY 10016, (212) 251-7200, www.copper.org
- C. ASTM: ASTM International, 100 Barr Harbor Dr., PO Box C700, West Conshohocken, PA, 19428-2959, (610) 832-9500, www.astm.org.

1.04 SYSTEM DESCRIPTION

- A. Metal flashings, trim, and related accessories that form terminations and waterproof connections.

1.05 SUBMITTALS

- A. Product Data: Catalog sheets, specifications, installation instructions for each item specified except for shop or job formed items, solder, flux, and bituminous paint.
- B. Samples:
 - 1. Materials for Flashings: One 6 inch sq piece, for each type material specified.
 - 2. Anchors: Six, each type required.
 - 3. Cap Flashings: Full section, 6 inches long.
 - 4. Coping: Full section, 12 inches long.

1.06 QUALITY ASSURANCE

- A. Except as otherwise shown or specified, comply with applicable recommendations, details, and standards of CDA, and SMACNA.

- B. Manufacturer's Recommendations: For factory fabricated items, follow the manufacturer's recommendations and installation instructions unless specifically shown or specified otherwise.

1.07 PROJECT CONDITIONS

- A. Do not execute the Work of this Section unless the Director's Representative is present, or unless they direct that the Work be performed during their absence.
- B. Make the roof and all uncompleted flashings watertight at the end of each work day.

PART 2 PRODUCTS

2.01 MATERIALS FOR FLASHING FABRICATION

- A. Plain Copper Sheet: Cold rolled copper, ASTM B 370.
- B. Zinc-Tin Coated Copper Sheet: Cold rolled copper, ASTM B 370. Fifty percent Zinc, 50 percent Tin coating; ASTM B 350, Type 1 0.5 mils thick per sq ft applied to both sides.
- C. Stainless Steel Sheet: Dead soft fully annealed stainless steel sheet, ASTM A 666, Type 302/304, 2D dull finish.
- D. Galvanized Steel Sheet: Commercial quality hot dip galvanized steel sheet, ASTM A653 and ASTM A 526.
 - 1. Mill phosphatized by the sheet manufacturer to prepare the surface for painting.
- E. Prefinished Galvanized Steel Sheet: Commercial quality, extra smooth, hot dip galvanized, mill phosphatized galvanized steel sheet, ASTM A653/526.
 - 1. Finish: Fluorocarbon coating (Polyvinylidene Fluoride, PVDF). Reverse side primed. Shipped with strippable protective tape.
 - 2. Color: As selected by the Director's Representative from manufacturer's standard colors.
- F. Aluminum Sheet: Standard mill finish aluminum sheet. ASTM B 209, 3003-H14 alloy.
- G. Prefinished Aluminum Sheet: ASTM B 209, 3003-H14 alloy.
 - 1. Finish: Fluorocarbon coating (polyvinylidene Fluoride PVDF). Reverse side primed. Shipped with strippable protective tape.
 - 2. Color: As selected by the Director's Representative from manufacturer's standard colors.
- H. Sheet Lead: ASTM B 29. Minimum Wgt. 4 lbs per sq ft.

2.02 FASTENERS

- A. Nails: “Stronghold” type large flat head roofing nail.
 - 1. For Copper: Hardened copper.
 - 2. For Stainless Steel: Stainless steel.
 - 3. For Aluminum: Hard aluminum alloy or stainless steel.
 - 4. For Galvanized: Galvanized.

- B. Screws, Bolts, and Other Fastening Accessories:
 - 1. For Copper: Copper or brass.
 - 2. For Stainless Steel: Stainless steel.
 - 3. For Aluminum: Hard aluminum alloy or stainless steel.
 - 4. For Galvanized: Stainless steel.

- C. Anchors: Provide one of the following types:
 - 1. Hammer driven anchors, consisting of a stainless steel drive pin and a plastic or corrosion resistant metal expansion shield inserted thru a stainless steel disc with an EPDM sealing washer.
 - 2. Self-tapping, corrosion resistant, concrete and masonry screw inserted thru a stainless steel disc with an EPDM sealing washer.

2.03 MISCELLANEOUS MATERIALS

- A. Solder: Composition of block tin/pig lead of proportion recommended by the metal manufacturer.

- B. Flux: Paste or acid type as recommended by the metal manufacturer.

- C. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187.

- D. Type 2 Sealant: One-part acrylic polymer sealant; Pecora AVW-920, PTI 738, or Tremco Mono.

- E. Type 3 Sealant: One-part butyl rubber sealant; Pecora BC-158, PTI 707, or Bostik Chem-Calk 300 (not SWRI).

- F. Type 4 Sealant: One-part silicone sealant for high temperatures; Bostik 9732 High Temp Red, Dow Corning Silastic 736 RTV, Dow Corning High Temp, General Electric RTV 106.

- G. Thru Wall Flashing Joint Sealant: Trowel grade asphalt roof cement.

2.04 FABRICATION

- A. Where practicable, form and fabricate sheet metal Work in the factory or shop. Produce bends and profiles accurately to the indicated shapes. Where not indicated or specified, follow the applicable requirements of the reference standards listed in PART 1.

- B. Cap Flashing:
 - 1. Copper: 16 oz.

2. Zinc-Tin Coated Copper: 16 oz.
 3. Stainless Steel: 26 ga (.018 inch).
 4. Galvanized Steel: 24 ga (.023 inch).
 5. Pre Finished Galvanized Steel: 24 ga (.023 inch).
- C. Cap Flashing With In-Wall or Thru-Wall Cap Receiver: Three way mortar bond type receiver with snap fit cap flashing; “Keystone Two-Piece Cap Flashing” by Keystone Flashing Co., 5119 N. Second Street, Philadelphia, PA 19120, (800) 526-8348, www.keystoneflashing.com.
1. Copper: 16 oz.
 2. Zinc-Tin Coated Copper: 16 oz.
 3. Stainless Steel: 26 ga (.018 inch).
- D. Base Flashing:
1. Copper: 20 oz.
 2. Zinc-Tin Coated Copper: 20 oz.
 3. Stainless Steel: 24 ga (.025 inch).
 4. Aluminum: .032 inch.
 5. Prefinished Aluminum: .032 inch.
 6. Prefinished Galvanized Steel: 24 ga (.023 inch).
 7. Hypalon Coated Metal: Specified under Section 075002.
 8. PVC Coated Metal: Specified under Section 075418.
- E. Extruded Aluminum Gravel Stop and Fascia Sump: Complete system including fascia, water dam, splice plates, corners, and intersections, and all other accessory components by Viridian Systems, 30700 Solon Industrial Parkway, Solon, OH 44139; Metal ERA, 1600 Airport Rd., Waukesha, WI 53188, (800) 558-2162, www.metalera.com; or IMETCO (Innovative Metals Company, Inc.) 2070 Steel Dr., Tucker, GA 30084, (800) 646-3826, www.imetco.com.
1. Face Height: Closest manufacturer’s standard dimension to face height shown on Drawings.
 2. Style: Specifically Designed For:
 - c. One Ply Roofing Membrane.
 - d. Protected One Ply Roofing Membrane.
 3. Finish: Fluorocarbon Coating (Polyvinylidene Fluoride, PVDF)/Clear Anodized/ Color Anodized.
 4. Color: As selected by the Director’s Representative from manufacturer’s standard colors.
- F. Extruded Aluminum Gravel Stop: Complete system including gravel stop, extruded aluminum joint cover plates, concealed .025 inch aluminum joint flashing, fasteners, corners, and intersections and all other accessory components. Type F gravel stop by Architectural Products Company, 1290 Aviation Blvd., Suite 200, P.O. Box 630, Hebron, KY, (800) 837-1001, www.archprod.com.
1. Face Height: Closest manufacturer’s standard dimension to face height shown on drawings.
 2. Finish: Fluorocarbon Coating (Polyvinylidene Fluoride, PVDF)/ Clear Anodized/ Color Anodized.
 3. Color: As selected by the Director’s Representative from manufacturer’s standard colors.

- G. Thru Wall Scupper:
1. Copper: 20 oz.
 2. Zinc-Tin Coated Copper: 20 oz.
 3. Stainless Steel: 24 ga (.025 inch).
 4. Galvanized Steel: 24 ga (.023 inch).
 5. Prefinished Galvanized Steel: 24 ga (.023 inch).
- H. Factory Fabricated Formed Coping: Complete system including .063 inch aluminum coping, anchor plates, joint drainage system, concealed joint covers, corners, and intersections, and all other accessory components by Viridian Systems, 30700 Solon Industrial Parkway, Solon, OH 44139; Metal ERA, 1600 Airport Rd., Waukesha, WI 53188, (800) 558-2162, www.metalera.com; or IMETCO (Innovative Metals Company, Inc.) 2070 Steel Dr., Tucker, GA 30084, (800) 646-3826, www.imetco.com.
1. Finish: Fluorocarbon Coating (Polyvinylidene Fluoride PVDF)/ Clear Anodized/ Color Anodized.
 2. Color: As selected by the Director's Representative from manufacturer's standard colors.
- I. Metal Expansion Joint Cover:
1. Copper: 20 oz.
 2. Zinc-Tin Coated Copper: 20 oz.
 3. Stainless Steel 24 ga (.025 inch).
 4. Aluminum: .040 inch.
 5. Galvanized Steel: 24 ga (.023 inch).
- J. Bellows Type Expansion Joint Cover: Factory fabricated unit with neoprene bellows backed with closed cell foam, anchored to metal flange. Include prefabricated corners, and intersections (if any), joint splice plater, and all other accessory components.
1. Metal Flange: Copper/Galvanized Steel/Aluminum.
- K. Roof Drain Flashing: Sheet lead, 4 lbs per square.
- L. Flashing Pipe thru-Roof:
1. Copper: 16 oz.
 2. Zinc-Tin Coated Copper 16 oz.
 3. Stainless Steel: 26 ga (.018 inch).
- M. Pitch Pockets:
1. Copper: 16 oz.
 2. Zinc-Tin Coated Copper: 16 oz.
 3. Stainless Steel: 26 ga (.018 inch).
 4. Hypalon Coated Metal: Specified under Section 075002.
 5. PVC Coated Metal: Specified under Section 075418.
- N. Crickets:
1. Copper: 20 oz.
 2. Zinc-Tin Coated Copper: 20 oz.
 3. Aluminum: .032 inch.
 4. Prefinished Aluminum: .032 inch.

5. Prefinished Galvanized Steel: 24 ga (.023 inch).
- O. Thru Wall Flashing:
1. Copper Fabric: 7 oz copper sheet with asphalt impregnated glass fabric bonded to both sides.
 - a. Joint Sealant: Trowel grade asphalt roofing cement.
- P. Cleats:
1. Copper: 16 oz.
 2. Galvanized Steel: 24 ga (.023 inch).
 3. Aluminum: .040 inch.
- Q. Continuous Edge Strip:
1. Copper: 20 oz.
 2. Galvanized Steel: 24 ga (.023 inch).
 3. Aluminum: .040 inch.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Coordinate the Work of this Section with other Work for the correct sequencing of items that make up the entire system of weatherproofing or waterproofing.

3.02 PREPARATION

- A. Do not install the Work of this Section unless all necessary nailers, blocking and other supporting components have been provided.
- B. Do not install the Work of this Section unless all substrates are clean and dry.

3.03 INSTALLATION

- A. Isolation: Separate dissimilar metals from each other with bituminous paint.
- B. Tinning and Soldering:
1. Remove all factory applied finishes to bare metal at all areas to be soldered.
 2. Clean, flux and tin all surfaces to be soldered.
 3. Sweat solder thoroughly into seams, completely filling the seam for the full width.
 4. Upon completion of soldering, remove all traces of flux residue, and if required, apply a neutralizing wash followed by a clean water wash.
- C. Touch-Up Painting: After all prefinished galvanized steel flashings have been installed, apply the metal coating manufacturer's touch-up paint to all soldered areas and all other areas where the finish has been damaged.
- D. Installing In-Wall and Thru-Wall Cap Flashing Receivers:
1. Set the receiver so there is mortar above and below the built-in portion.

2. Do not mallet, bend or deform the exposed portion.
 3. Lap all end joints so they interlock at the first raised rib. Apply Type 3 sealant between the mating surfaces of the built-in portion of the receiver before interlocking end joints.
- E. Installing Cap Flashing:
1. Form and install the cap to provide a spring tight fit against the base flashing. Lap all end joints and base flashing a minimum of 3 inches. Extend the cap continuously around corners or provide lock seams.
 2. Cap Flashing for Installation In Reglets:
 - a. Extend the built in portion of the cap a min of 3/4 inch into the reglet. Form the edge of the built in portion with a 1/4 inch hook dam.
 - b. Secure the cap with lead wedges 8 inches oc. Fill joint completely with Type 2 sealant and tool to a slightly concave surface.
 3. Surface Mounted Cap Flashing:
 - a. Form the top portion of the cap flashing which comes in contact with the wall surface with a one-inch wide bearing surface. Form a 45 degree x 1/4 inch wide stiffener and caulking flange along the top edge.
 - b. Apply Type 2 sealant on the back side of the bearing surface.
 - c. Secure the cap flashing to the wall with fasteners spaced one foot oc thru the bearing surface.
 - d. Apply Type 2 sealant along the caulking flange.
 4. In-Wall Cap Flashing:
 - a. Extend the built-in portion of the cap a minimum of 4 inches into the wall. Form the edge of the built in portion with a 1/4 inch hook dam.
 - b. Set the cap so there is mortar above and below the built-in portion.
 5. Cap Flashing For Installation in Receivers:
 - a. Insert the cap flashing into the receiver locking slot. Apply upward pressure along the entire length of the cap flashing so that it is securely locked into position.
- F. Dressing Down Existing Cap Flashing:
1. Turn up all cap flashings as required to perform the Work. Upon completion of the Work dress down all disturbed cap flashings so they lay flat against the base flashing.
 2. Secure the cap flashing to the wall surface with fasteners spaced 18 inches oc.
 3. Install matching metal patches at corners of cap flashings that have been cut to perform the Work. Lap the patches a minimum of one inch on each side of the cap flashing.
 - a. Secure the patch by pop riveting or by soldering.
- G. Installing Formed Metal Gravel Stops:
1. Form the gravel stop into lengths not exceeding 8'-0". Allow 1/4 inch between sections for expansion.
 2. Install a continuous edge strip secured 8 inches oc.

3. Install a 12 inch wide concealed splice plate at all joints. Form the splice plate to the exact shape of the gravel stop. Center the splice plate beneath the joints of the gravel stop and secure to the roof deck.
 4. Apply the membrane manufacturer's recommended sealant between the contact surface of the horizontal portion of the splice plate and the gravel stop.
 5. Extend the horizontal portion of the gravel stop onto the roof surface a minimum of 4 inches and terminate in a 1/2 inch folded edge. Secure with nails spaced 3 inches oc staggered. Hook the drip edge of the gravel stop over a continuous metal edge strip.
 6. Where gravel stop face height exceeds 8 inches provide a longitudinal break at the center line unless shown otherwise on the Drawings.
- H. Installing Thru Wall Scupper:
1. Form the scupper with 4 inch wide flashing flanges.
 2. Lock and solder, or rivet and solder all construction joints of the scupper.
 3. Secure the scupper to the roof deck and the inside face of the wall with fasteners installed thru the flashing flanges.
 - a. On the outside face of the wall lock the scupper on four sides to a surface mounted receiver formed from the same metal as the scupper.
 - b. Form the receiver with a 1/4 inch wide caulking flange.
 - c. Apply Type 2 sealant on the lock side of the flange.
 - d. Secure the flange to the wall with fastener 6 inches oc.
 - e. Apply Type 2 sealant along the caulking flange.
- I. Installing Extruded Aluminum Gravel Stops/and Fascia Sump:
1. Install the gravel stop in strict accordance with the manufacturer's written instructions unless shown or specified otherwise.
- J. Installing Extruded Aluminum Gravel Stop:
1. Install 12 inches wide .025 inch concealed aluminum flashing beneath the gravelstop at all joints.
 2. Apply the membrane manufacturer's recommended sealant between the contact surfaces of the horizontal portion of the splice plate and the gravel stop.
 3. Secure the gravel stop at the mid point, and at ends of each 10 ft. section. Allow a 1/2 inch space between each section for expansion.
 4. Install a 4 inch wide exposed aluminum cover plate at all joints.
- K. Installing Formed Metal Coping:
1. Form the coping into lengths not exceeding 8'-0".
 2. Join coping sections with 1-1/2 inch loose locked seams filled with Type 3 sealant.
 3. Hook the front and back edges of the coping over continuous metal edge strips. Nail the edge strip 6 inches oc.
- L. Installing Factory Fabricated Formed Metal Coping:
1. Install in accordance with the manufacturer's written instructions unless shown or specified otherwise.

- M. Installing Expansion Joint Cover:
1. Install combination edge strip and cap flashing over the base flashing. Secure the edge strip along the top of the curb and lap the base flashing a minimum of 3 inches. Lap each individual length a minimum of 3 inches.
 2. Form the expansion joint cover with standing seam joints not to exceed 10'-0" oc.
 3. Turn the edges of the cover over the edge strip. Allow clearance of one half the width of the expansion joint between all edges of cover and edge strip.
- N. Installing Bellows Type Expansion Joint Cover:
1. Install the expansion joint in continuous lengths. No more than one splice joint will be allowed on straight runs less than 50 feet. long. Install the expansion joint in strict accordance with the manufacturer's written instructions unless shown or specified otherwise.
 2. Where expansion joints intersect gravel stops, provide the manufacturer's prefabricated expansion joint section. Install the expansion joint before installing the gravel stop.
- O. Installing Pitch Pockets:
1. Form the pitch pocket with 4 inch wide flashing flanges. Extend the pitch pocket a minimum of 3 inches above the roof membrane and a minimum of one inch beyond the roof penetration.
 2. Solder all construction joints.
 4. Secure the pitch pocket thru the flashing flanges with nails 3 inches oc.
- P. Installing Crickets:
1. Form the cricket with flanges that extend onto the roof surface 6 inches and up beneath the cap flashing a min of 3 inches. Extend the roof deck flange a min of 5 inches beneath the shingles and terminate with a 1/2 inch folded edge. Secure the cricket to the roof deck with 2 inch wide cleats one ft oc.
- Q. Installing Thru Wall Flashing:
1. Install the flashing in continuous lengths with the minimum number of joints.
 2. At corners, beams, columns, etc. cut out fit flashing to the proper contour.
 3. Form all joints with 1-1/2 inch folded lock seams completely filled with trowel grade asphalt roof cement. Roll or press the joints firmly to insure complete adhesion of the cement.
 4. Build the flashing into masonry walls so there is mortar above and below the flashing.
 5. Terminate the flashing 1/2 inch back from the exposed face of masonry wall.
 6. Extend the flashing 6 inches beyond the sides of all openings and turn up 1/4 inch to form a pan.

END OF SECTION