

PART 1 – GENERAL

1.1 SECTION INCLUDES

- A. Fabricated sheet metal items.
- B. Flashing and counter-flashing.

1.2 RELATED REQUIREMENTS

- A. 07 92 00 - Joint Sealants.

1.3 SUBMITTALS

- A. Comply with requirements of Section 01 33 00 Submittal Procedures.
- B. Qualification Data: For fabricator.
- C. Product Data: Provide product criteria, characteristics, accessories, jointing and seaming methods, and termination conditions.
- D. Shop Drawings: Indicate material profile, jointing locations, jointing details, fastening methods, flashings, terminations, and installation details.
 - 1. Included details interacting with air and water resistive barriers and joint sealants.
 - 2. Provide documentation that exterior metal trim, meets ANSI/SPRI ES-1 and all applicable FM 1-49 standards for design, fabrication and installation.
- E. Samples:
 - 1. Finish Sample: Submit two samples illustrating each metal finish color.
- F. Certificate: Certify that products meet or exceed specified requirements.
- G. Manufacturer's Installation Instructions: Indicate special preparation of substrate, installation and attachment methods, and perimeter conditions requiring special attention.
- H. Maintenance Data: For Owner's operation and maintenance of system including:
 - 1. Methods for maintaining system's materials and finishes.
 - 2. Precautions about cleaning materials and methods that could be detrimental to components, finishes, and performance.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualification: Company specializing in the manufacture of work specified in this section with minimum 5 years' experience.

1. Certified member in good standing in accordance with SMACNA Architectural Sheet Metal Manual requirements and standard details.
- B. Fabricators Qualifications: Company specializing in performing the work of this section with minimum 5 years' experience on projects of similar size and complexity.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. As required by the manufacturer for a warrantable installation of the installed products to meet the Performance and Design Criteria.

1.6 WARRANTY

- A. Manufacturer's Finish Warranty: Correct defective work within a 20-year period after Substantial Completion for degradation of metal finish, including color fading caused by exposure to weather.

PART 2 – PRODUCTS

2.1 DESCRIPTION

- A. Sheet metal including steel, stainless steel, and aluminum fabricated into items such as flashings, copings, counterflashings, gutters, downspouts, and other items indicated and scheduled.

2.2 PERFORMANCE AND DESIGN CRITERIA

- A. ANSI/SPRI ES-1 and all applicable FM 1-49 standards for design, fabrication and installation.
- B. Design Sheet metal flashing and trim assemblies to withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Completed sheet metal flashing and trim that does not rattle, leak, or loosen, and will remain watertight.

2.3 MATERIALS

- A. Pre-Finished Galvanized Steel: ASTM A653/A653M, with G90/Z275 zinc coating or AZ50 coating; minimum 0.02 inch (0.6 mm) thick base metal, shop pre-coated with PVDF coating.
 1. Fluoropolymer Coating: Superior Performance Organic Finish, AAMA 2605; multiple coat, thermally cured fluoropolymer finish system.
 2. Color: As selected by Owner to match adjacent metal siding or existing building materials.
- B. Stainless Steel: for all other uses: ASTM A 666 Type 304, rollable temper, 0.018 inch (0.46 mm) thick; smooth No. 4 finish.

2.4 FABRICATION

- A. Fabricate metal flashings and sheet metal work other than aluminum in accordance with applicable SMACNA Architectural Sheet Metal Manual.
 - 1. Provide end dams, back dam legs, and end caps on all horizontal flashing elements.
- B. Fabricate cleats of same material as sheet, minimum 4 inch, interlocking with cleat. Provide cleat one gage heavier than sheet metal component being anchored. Continuous cleat at outside face of coping.
- C. Form pieces in 10 foot maximum lengths. Make allowance for expansion at joints. Use maximum length sections possible to minimize joints.
- D. Hem exposed edges on underside 1/2 inch. Miter and seal corners with sealant.
- E. Apply isolation coating to metal surfaces to be embedded in concrete or mortar (not required for stainless steel flashing).
- F. Form joints between lengths of flashing sections with laps and embed two beads of elastomeric sealant at each side of joint.
 - 1. Use prefabricated corner metal flashing with soldered joints at change in direction (corners). Prefabricated corner metal flashing to extend 12 inches at each side of wall. At moving joints, use sealed interlocking hooked seams.
 - 2. Fabricate corners from one piece with minimum 18 inch long legs; seam for rigidity, seal and sealant.
- G. All exposed or visible metal flashing and trim to be finished in selected color as indicated including exposed rear faces of end dams, joints, etc. No exposed or visible steel or aluminum flashing work to be unfinished.
- H. Fabricate custom flashing details and saddles to minimize solder joints.
- I. Install sealant at flashing joints and laps.
- J. Metal Flashings including window / door head and sill flashing, through wall flashing, drip edge flashing, base flashing, etc.
 - 1. Form all flashing surfaces as shown on drawings.
 - 2. Form flashing to provide 1:4 slope to the exterior unless otherwise noted in the drawings.
- K. Reglets and Coping
 - 1. Prefinished sheet metal as detailed and in accordance with SMACNA Architectural Sheet Metal Manual details. Provide slotted fixing holes and hot dipped galvanized steel/neoprene washer fasteners.
 - 2. Coping Joints: provide standing seam joints as detailed in Drawings.
- L. Fabricate vertical faces with bottom edge formed outward ¼ inch and hemmed to form drip.

- M. Fabricate corners from one piece with minimum 18 inch long legs; seam for rigidity, seal with sealant.
- N. Fabricate vertical faces with bottom edge formed outward 1/4 inch and hemmed to form drip.
- O. Exposed Edges:
 - 1. Clip or fold exposed ends of flashing to form rounded edges.
 - 2. File exposed metal edges, ends, corners, folds or laps to remove sharp edges and ensure rounded edges.
 - 3. Apply sealant coverage to match metal finishes over clipped and filed metal edges, ends, corners, folds or laps.
 - 4. Adjust metal hems, seams, edges and other aspects to minimize projections.
- P. Form sections square, true and accurate to size, free from distortion and other defects detrimental to appearance or performance.
 - 1. Align of lengths of sheet metal.
 - 2. Clip hems and edges.
 - 3. Accurate and consistent leg length, hems and face profiles.
 - 4. Concealed fastening whenever possible
 - 5. Color matched sealant and paints, rivets and any exposed fasteners.

2.5 ACCESSORIES

- A. All accessory materials required by the manufacturer for a warrantable installation of the installed products in a manner that meets the Performance and Design Criteria.
- B. Flexible Flashing:
 - 1. For use under metal copings and flashings use high temperature type.
- C. Slip Sheet: Rosin sized building paper.
- D. Protective Backing Paint: See Section 09 91 13 - Exterior Painting.
- E. Sealant: As specified in Section 07 92 00 - Joint Sealers.
- F. Fasteners:
 - 1. Wood: Steel pan head screws with coarse thread.
 - a. #8 x 1 inch (minimum) long stainless steel suitable for metal flashing application. Series 300 or 400 stainless.
 - b. For exposed conditions use hex-head stainless steel screws Series 300, with neoprene washer; hex heads color to match flashing.
 - 2. Masonry, concrete, stone:

- a. One piece steel screw set into predrilled hole in concrete or masonry for medium duty connections.
 - 1) 1/4 inch diameter x 1-1/2 inch long stainless fastener. Hex head for easier installation, Philips head for softer materials such as concrete block. Provide stainless steel washers to hold metal securely. Minimum 5/8 inch diameter.
 - 2) For exposed conditions, provide stainless steel washer with bonded neoprene gasket.
- b. Steel pan head screws with stainless steel washers set into plastic plugs predrilled into concrete or masonry for lighter duty connections. Plastic plug version is required in softer materials such as brick or stucco.
 - 1) #8 x 1 inch long stainless steel pan head screws with 5/8 inch diameter stainless steel washers. For exposed conditions, provide washers with bonded neoprene gaskets. Stainless to be 300 Series when exposed otherwise 300 or 400 Series is acceptable.
 - 2) Plastic plugs to be 1-1/8 inch long.

G. Sheet Steel:

1. Steel pan head screws with fine thread for metal. Self-tapping or self- drilling.
 - a. #8 x 1/2 inch (minimum) long stainless steel suitable for metal flashing application. Stainless to be 300 Series when exposed otherwise 300 or 400 Series is acceptable.
 - b. For exposed conditions use pan head stainless steel screws, with neoprene washer, heads colored to match flashing.

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Verify existing conditions meet the manufacturer's requirements before starting work.

3.2 PREPARATION

- A. Prepare surfaces to receive work in accordance with manufacturer's instructions.

3.3 INSTALLATION

- A. Install work of this section in accordance with: Construction Documents, reviewed shop drawings, manufacturers' installation instruction, SMACNA Architectural Sheet Metal Manual and Aluminum Sheet Metal Work on Building Construction.
- B. Use concealed fasteners except where approved before installation.
- C. Provide underlay sheet metal as required. Secure in place and lap underlayment joints 4 inch minimum.

- D. Counterflash bituminous flashings at intersections of roof with vertical surfaces and curbs. Flash joints using standing seams forming tight fit over hook strips.
- E. Lock end joints and seal with sealant.
- F. Fit flashings tight in place. Provide for thermal expansion. Make corners square, surfaces true and straight in planes, and lines accurate to profiles.
- G. Solder metal joints for full metal surface contact. After soldering, wash metal clean and neutralizing solution and rinse with water. Paint soldered assemblies in shop.
- H. Install surface mounted reglets true and level, and caulk top of reglet with sealant.
- I. Install head and sill flashings at windows and doors in one continuous piece wherever possible.
- J. Install flashings lapped "shingle" style with membranes to divert water to the exterior.
- K. Install all flashings so that all surfaces have a minimum slope of 1:4 to the exterior.
- L. Cross Cavity Wall Flashings
 - 1. Fit flashings together so that one end of each section is free to move in the joint.
 - 2. Provide folded end dams when flashings terminate. Caulk end dam to flashing and adjacent material to make watertight.
 - 3. Provide crickets where required to divert moisture to the exterior face of cladding assemblies.

3.4 PROTECTION

- A. Protect installed work as required by the manufacturer to maintain product performance, design criteria and warranty.

END OF SECTION