

**SECTION 07 60 00
FLASHING AND SHEET METAL**

PART 1 - GENERAL

1.1 DESCRIPTION

Formed sheet metal work for flashing.

1.2 SUBMITTALS

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Shop Drawings:
 - Flashings
 - Copings
 - Gravel Stop-Fascia
 - Gutter and Conductors
 - Expansion joints
 - Fascia-cant
- C. Manufacturer's Literature and Data:
 - Two-piece counterflashing
 - Thru wall flashing
 - Copper clad stainless steel
 - Copper flashing
 - Stainless steel flashing

1.3 APPLICABLE PUBLICATIONS

- A. The publications listed below for a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.
- B. American Society for Testing and Materials (ASTM):
 - A167-99-09.....Stainless and Heat-Resisting Chromium-Nickel
Steel Plate, Sheet, and Strip
 - B32-08.....Solder Metal
 - B370-09.....Copper Sheet and Strip for Building
Construction
 - D4586-07.....Asphalt Roof Cement, Asbestos Free
- C. American National Standards Institute/Single Ply Roofing Institute (ANSI/SPRI):
 - ES-1-2003.....Wind Design Standard for Edge Systems Used with
Low Slope Roofing Systems

- D. Sheet Metal and Air Conditioning Contractors National Association (SMACNA): Architectural Sheet Metal Manual (2003 Edition).
- E. National Association of Architectural Metal Manufacturers (NAAMM): AMP 500-06.....Metal Finishes Manual
- G. Federal Specification (Fed. Spec): A-A-1925A.....Shield, Expansion; (Nail Anchors)
- H. International Building Code (IBC): 2009 Edition

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Solder: ASTM B32; flux type and alloy composition as required for use with metals to be soldered.
- B. Stainless Steel: ASTM A167, Type 302B, dead soft temper.
- C. Copper ASTM B370, cold-rolled temper.
- K. Fasteners:
 - 1. As recommended by the manufacturer for each type, unless specified otherwise.

2.2 SHEET METAL THICKNESS

- A. Except as otherwise shown or specified use thickness or weight of sheet metal as follows:
- B. Concealed Locations (Built into Construction):
 - 1. Copper: 30g (10 oz) minimum 0.33 mm (0.013 inch thick).
 - 2. Stainless steel: 0.25 mm (0.010 inch) thick.
 - 3. Copper clad stainless steel: 0.25 mm (0.010 inch) thick.
- C. Exposed Locations:
 - 1. Copper: 0.4 Kg (16 oz).
 - 2. Stainless steel: 0.4 mm (0.015 inch).
 - 3. Copper clad stainless steel: 0.4 mm (0.015 inch).

2.3 FABRICATION, GENERAL

- A. General: Fabricate sheet metal flashing and trim to comply with SMACNA guidelines.
- B. Joints:
 - 1. Form nonexpansion, but moveable in metal to accommodate sealant to comply with SMACNA guidelines.
 - 2. Conceal all fasteners where possible.
- C. Flat and lap joints shall be made in direction of flow.
- D. Soldering:
 - 1. Comply with ASTM B32

E. Expansion and Contraction Joints:

1. Fabricate in accordance with the Architectural Sheet Metal Manual recommendations.

F. Cleats:

1. Fabricate cleats, metal edges, drips, edge strips, and attachment devices from the same material as accessory being anchored.

2.4 FINISH

- A. Use same finish on adjacent metal or components and exposed metal surfaces unless specified or shown otherwise.
- B. In accordance with NAAMM Metal Finishes Manual, unless otherwise specified.

2.5 COUNTERFLASHING

- A. Either copper or stainless steel, unless specified otherwise.
- B. Comply with SMACNA guidelines for installation tolerances.
- C. Fabricate to lap base flashing a minimum of 100 mm (4 inches) with drip.
- D. One-piece Counterflashing:
 1. Back edge turned up and fabricates to lock into reglet in concrete.
 2. Upper edge formed to extend full depth of masonry unit in mortar joint with back edge turned up 6 mm (1/4 inch).
- E. Two-Piece Counterflashing:
 1. Receiver to extend into masonry wall depth of masonry unit with back edge turned up 6 mm (1/4 inch) and exposed edge designed to receive and lock counterflashing upper edge when inserted.
 2. Counterflashing upper edge designed to snap lock into receiver.
- F. Surface Mounted Counterflashing; one or two piece:
 1. Use at existing or new surfaces where flashing cannot be inserted in vertical surface.
 2. One piece fabricate upper edge folded double for 65 mm (2 1/2 inches) with top 19 mm (3/4 inch) bent out to form "V" joint sealant pocket with vertical surface. Perforate flat double area against vertical surface with horizontally slotted fastener holes at 400 mm (16 inch) centers between end holes.
 3. Two pieces: Fabricate upper edge to lock into surface mounted receiver. Fabricate receiver joint sealant pocket on upper edge and lower edge to receive counterflashing, with slotted fastener holes at 400 mm (16 inch) centers between upper and lower edge.

PART 3 - EXECUTION**3.1 INSTALLATION****A. General:**

1. Anchor sheet metal flashing and trim and other components of the work securely in place with provisions for thermal and structural movement. Use fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required to complete flashing and trim assemblies.
2. Install flashing and sheet metal items as shown in Sheet Metal and Air Conditioning Contractors National Association, Inc., publication, ARCHITECTURAL SHEET METAL MANUAL, except as otherwise shown or specified.
3. Apply sheet metal and other flashing material to surfaces which are smooth, sound, clean, dry and free from defects that might affect the application.
4. Remove projections which would puncture the materials and fill holes and depressions with material compatible with the substrate. Cover holes or cracks in wood wider than 6 mm (1/4 inch) with sheet metal compatible with the roofing and flashing material used.
5. Coordinate with masonry work for the application of a skim coat of mortar to surfaces of unit masonry to receive flashing material before the application of flashing.
6. Confine direct nailing of sheet metal to strips 300 mm (12 inch) or less wide. Nail flashing along one edge only. Space nails not over 100 mm (4 inches) on center unless specified otherwise.
7. Install bolts, rivets, and screws where indicated, specified, or required in accordance with the SMACNA Sheet Metal Manual. Space rivets at 75 mm (3 inch) on centers in two rows in a staggered position. Use neoprene washers under fastener heads when fastener head is exposed.
8. Coordinate with roofing work for the installation of metal base flashings and other metal items having roof flanges for anchorage and watertight installation.
9. Nail continuous cleats on 75 mm (3 inch) centers in two rows in a staggered position.
10. Nail individual cleats with two nails and bend end tab over nail heads. Lock other end of cleat into hemmed edge.

11. Install flashings in conjunction with other trades so that flashings are inserted in other materials and joined together to provide a water tight installation.
12. Where required to prevent galvanic action between dissimilar metal isolate the contact areas of dissimilar metal with sheet lead, waterproof building paper, or a coat of bituminous paint.

3.2 COUNTERFLASHING

A. General:

1. Install counterflashing over and in conjunction with installation of base flashings, except as otherwise specified or shown.
2. Install counterflashing to lap base flashings not less than 100 mm (4 inch).
3. Install upper edge or top of counterflashing not less than 225 mm (9 inch) above top of the roofing.
4. Lap joints not less than 100 mm (4 inch). Stagger joints with relation to metal base flashing joints.
5. Use surface applied counterflashing on existing surfaces and new work where not possible to integrate into item.
6. When fastening to concrete or masonry, use screws driven in expansion shields set in concrete or masonry. Use screws to wood and sheet metal. Set fasteners in mortar joints of masonry work.

B. One Piece Counterflashing:

1. Where flashing is installed at new masonry, coordinate to insure proper height, embed in mortar, and end lap.
2. Where flashing is installed in reglet in concrete insert upper edge into reglet. Hold flashing in place with lead wedges spaced not more than 200 mm (8 inch) apart. Fill joint with sealant.
3. Where flashing is surface mounted on flat surfaces.
 - a. When top edge is double folded anchor flat portion below sealant "V" joint with fasteners spaced not over 400 mm (16 inch) on center:
 - 1) Locate fasteners in masonry mortar joints.
 - 2) Use screws to sheet metal or wood.
 - b. Fill joint at top with sealant.
4. Where flashing or hood is mounted on pipe.
 - a. Secure with draw band tight against pipe.

- b. Set hood and secure to pipe with a one by 25 mm x 3 mm (1 x 1/8 inch) bolt on stainless steel draw band type clamp, or a stainless worm gear type clamp.
 - c. Completely fill joint at top with sealant.
- C. Two-Piece Counterflashing:
 - 1. Where receiver is installed at new masonry coordinate to insure proper height, embed in mortar, and lap.
 - 2. Surface applied type receiver:
 - a. Secure to face construction in accordance, with manufacturer's instructions.
 - b. Completely fill space at the top edge of receiver with sealant.
 - 3. Insert counter flashing in receiver in accordance with fabricator or manufacturer's instructions and to fit tight against base flashing.
- D. Where vented edge occur install so lower edge of counterflashing is against base flashing.
- E. When counter flashing is a component of other flashing install as shown.

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