



GUIDELINES

General Flashing
Guidelines for
Steep-Sloped Roofs

General Flashing Guidelines for Steep-Sloped Roofs

Flashings are used to weatherproof or seal roof system edges at perimeters, penetrations, walls, expansion joints, valleys, drains, and other places where the roof covering is interrupted or terminated. Install flashings in a manner that will prevent moisture from entering the wall or roof, or through moisture-permeable materials at intersections or other penetrations through the roof plane.

The flashing installation requirements found in the local building code, product manufacturer’s installation instructions, and the applicable FORTIFIED Home standards serve as primary compliance methods. The use of FORTIFIED-approved supplemental standards for conditions other than those found in primary standards is permitted. **(See page 9.)** In all cases, use the more restrictive installation methods for all roof-related flashing, including any associated counter-flashing.

- Use corrosion-resistant metal flashing with a thickness of not less than designated in **local building code or the metal flashing material table. (See Table 1.)**
- Unless otherwise noted to be more restrictive, fasten all metal flashing at a maximum of 6 in. on center at the edges with approved compatible corrosion-resistant fasteners. **(See Table 2.)**
- Prime metal surfaces receiving approved flashing cement with ASTM D41 primer.
- Use approved flashing cement in compliance with roof system manufacturer’s installation instructions.

Exception: Fasten edge metal in hurricane-prone areas with fasteners spaced no more than 4 in. on center.

Table 1. Metal Flashing Material

Material	Gauge Minimum Thickness (in.)	Gauge	Weight (lb per sq ft)
Copper	0.0216	N/A	1 (16 oz)
Aluminum	0.032	N/A	.0451
Stainless steel	0.0188	26	0.79
Galvanized steel	0.0179	26 (zinc coated G90)	1.66
Aluminum zinc coated steel	0.0179	26 (AZ50 aluminum zinc)	1.15

Metal Base Flashing

When discontinuous roof systems require the use of metal base flashing at roof intersection to a vertical wall, one option is continuous L-metal. **(See Figure 1.)**

Installation Guidelines for Continuous L-Metal

Unless otherwise noted, use a minimum 4-in. x 4-in. continuous L-metal with the following instructions:

- Set continuous metal base flashing in a 1/8-in.-thick bed of approved flashing cement. Start installation at the lower portion of the roof to ensure water-shedding capabilities of all metal laps. Overlap metal sections a minimum of 3 in., set in approved flashing cement.
- Attach vertical and horizontal flanges with approved fasteners within 1 in. of the edge, spaced out a maximum of 6 in. on center.
- Seal vertical flange top edge and fasteners with an approved flashing cement and membrane, ASTM D1970 peel-and-stick membrane, or another approved sealant prior to reinstalling any wall cladding. **(See Figure 2.)**

Counter-Flashing

Unless otherwise noted, use counter-flashing and extend the counter-flashing a minimum of 2 in. below the top of any base flashing. Hold the bottom edge of the counter-flashing at least 1 in. above the top of the finished roof surface. Cladding material, preformed metal, and approved sealant are examples of counter-flashing. **(See Figure 3 for example of preformed metal.)**

Wall Cladding Used for Counter-Flashing

Seal the continuous metal base flashing top edge and fasteners to the vertical surface prior to reinstalling any wall cladding. **(See Figure 2.) Do not drive cladding fasteners through the continuous metal base flashing.**

Metal Counter-Flashing

- Set **metal counter-flashing (stucco stop)** in an approved sealant and install directly to a structural vertical surface. Attach the top flange with approved fasteners within 1 in. of the edge, spaced out a maximum of 6 in. on center. Seal the top flange and fasteners with an approved flashing cement and membrane, ASTM D1970 peel-and-stick membrane, or other approved sealant prior to reinstalling any stucco or cladding material. **(See Figures 4A and 4B.)**
- Set **surface-type counter-flashing** in an approved sealant and install over existing cladding. Seal the counter-flashing top edge and fasteners with an approved waterproof sealant and membrane. If caulk receiver is provided at top edge, fill receiver void with approved sealant. Use self-sealing fasteners if fasteners are exposed. **(See Figure 5.)**
- Install **reglet-type counter-flashing** into a minimum continuous groove cut into stucco surface or mortar joint. Fabricate top edge of flashing with a return to create tension

when installed into groove. Use compatible metal wedges and approved sealant to secure and seal top edge. (See Figures 6A & 6B.)

- Install **manufactured counter-flashing** in compliance with manufacturer’s installation specifications.

Table 2. Minimum Fastener Corrosion Protection Requirements for FORTIFIED Home

Fasteners	Structures within 300 ft of saltwater	Structures more than 300 ft but less than 1,000 ft from saltwater ¹	Structures more than 1,000 ft but less than 3,000 ft from saltwater	Structures more than 3,000 ft from saltwater
Roofing Nails for Shingles	Stainless Steel	Stainless Steel	Hot-Dip Galvanized ²	Corrosion Resistant ³
Concrete and Clay Roof Tile Fasteners	Stainless Steel	Stainless Steel	Hot-Dip Galvanized ²	Corrosion Resistant ³
Metal Roof Clips ⁴ and Fasteners Exposed	Stainless Steel ⁴	Stainless Steel ⁴	Stainless Steel ⁴	Corrosion Resistant ^{3,4}
Fasteners used for Attachment of Underlayment to Roof Deck	Hot-Dip Galvanized ²	Hot-Dip Galvanized ²	Hot-Dip Galvanized ²	Corrosion Resistant ³
Roof Vent Fasteners	Stainless Steel	Stainless Steel	Stainless Steel	Corrosion Resistant ³

¹Buildings on open, elevated foundations within 1,000 ft of saltwater shall follow the requirements of structures within 300 ft of saltwater.

²Hot-dip galvanized shall meet the requirements of ASTM A153 Class D for nails and screws.

³Corrosion-resistant nails and screws shall meet the requirements of ASTM A641 Class 1 or an equal corrosion resistance by coating, galvanization, stainless steel, or other suitable corrosion-resistant material.

⁴Clips shall be corrosion-resistant clips. The corrosion resistance shall meet 0.90 oz per sq ft (0.458 kg/m²) measured according to ASTM A90/A90M, TAS 114 Appendix E, or an equal corrosion-resistant coating, electro galvanization, mechanical galvanization, hot-dipped galvanization, stainless steel, nonferrous metals and alloys or other suitable corrosion-resistant material. Stainless steel clips shall conform to ASTM A167 Type 304.



Figures

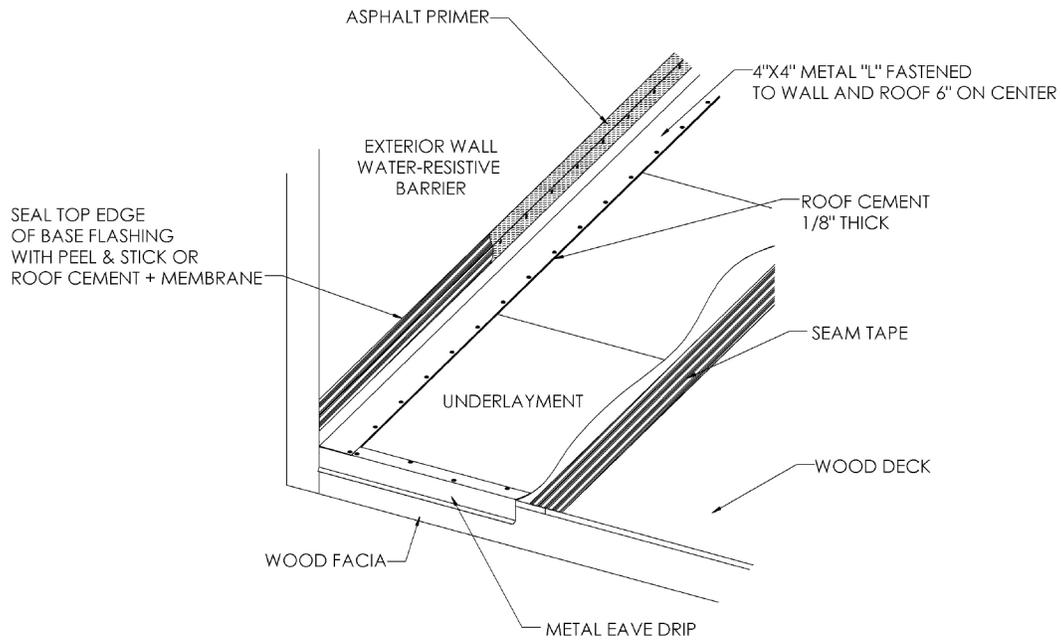


Figure 1

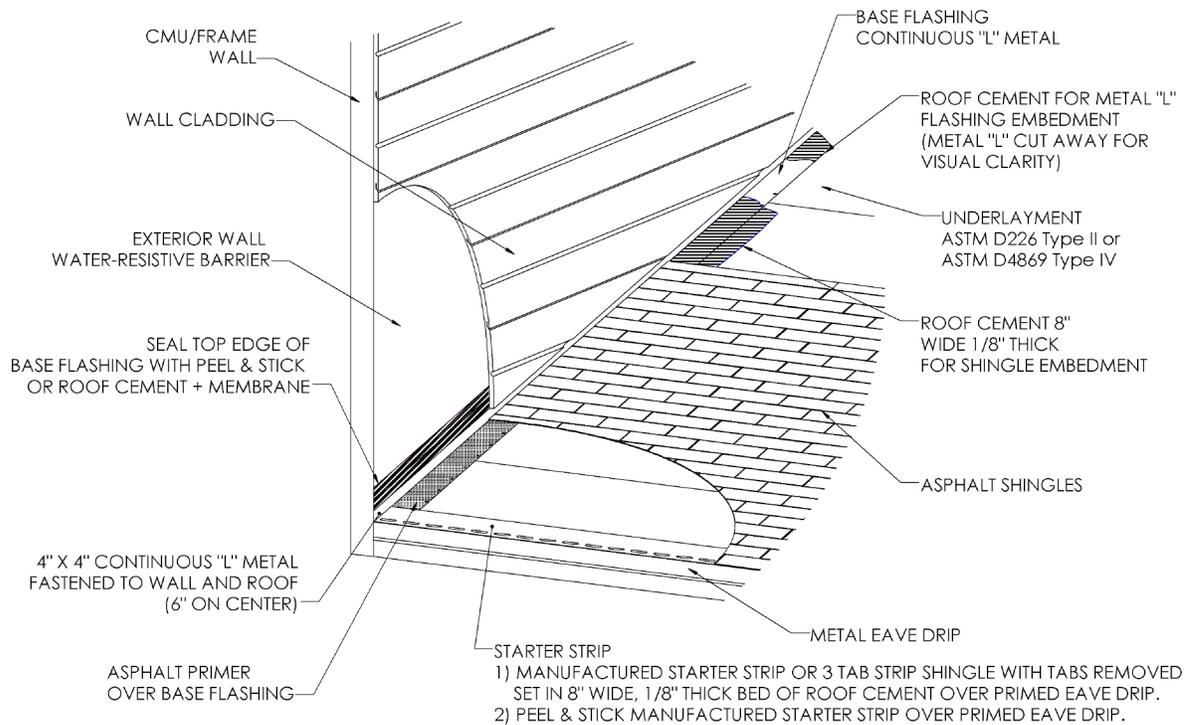


Figure 2

METAL STUCCO STOP COUNTER FLASHING SIDE VIEW

METAL SURFACE MOUNTED COUNTER FLASHING SIDE VIEW

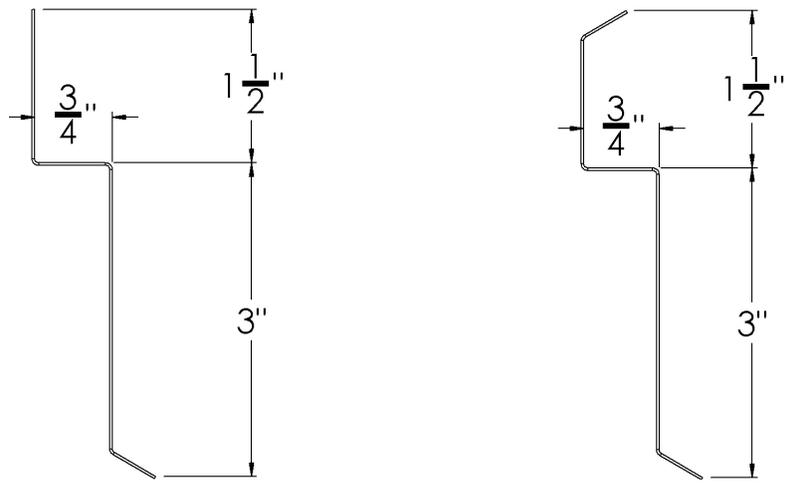


Figure 3

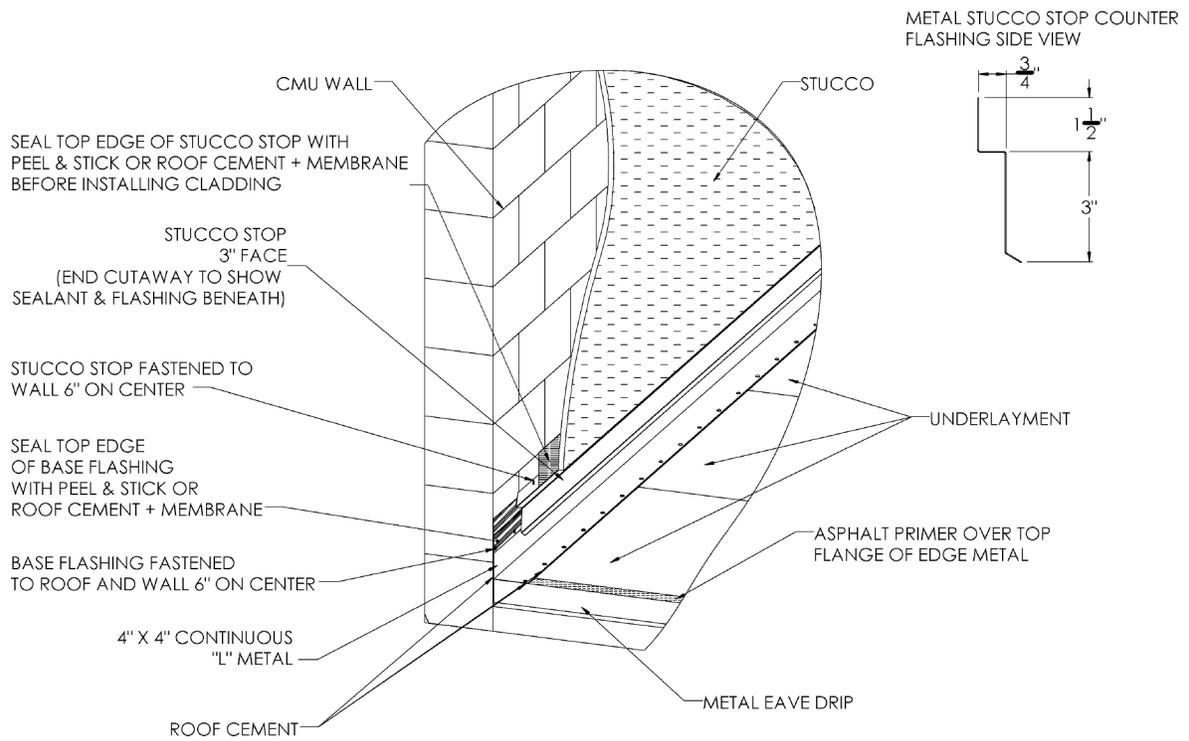


Figure 4A

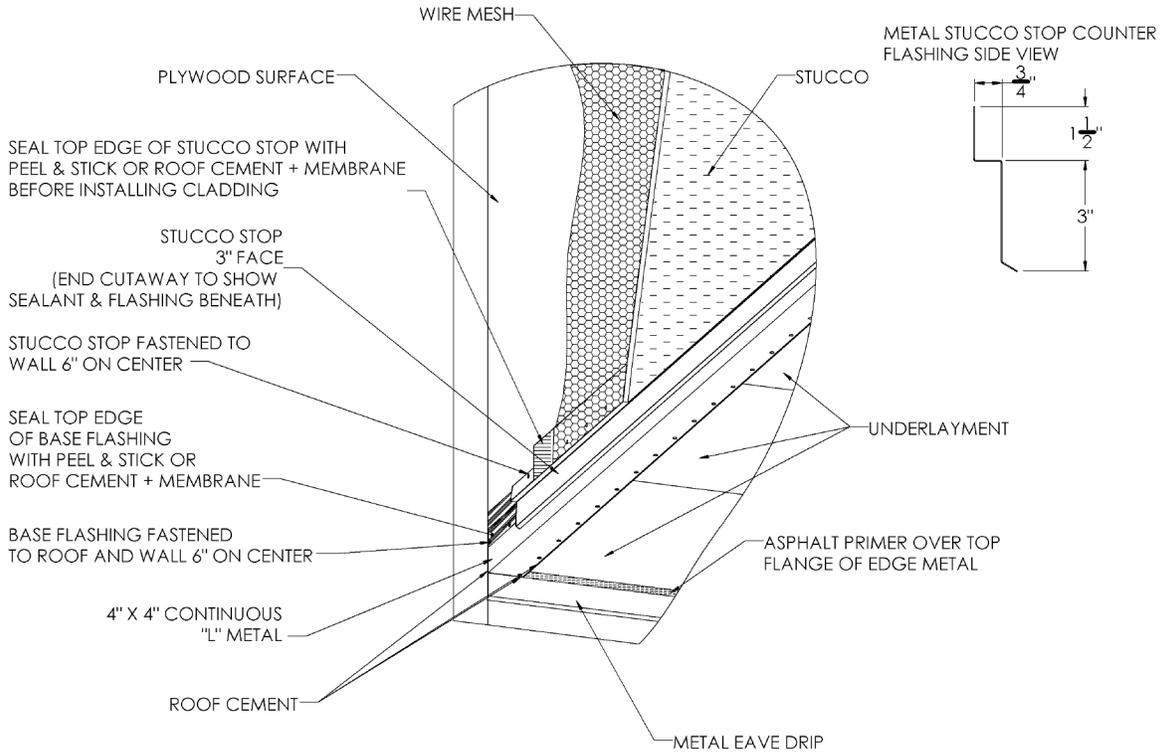


Figure 4B

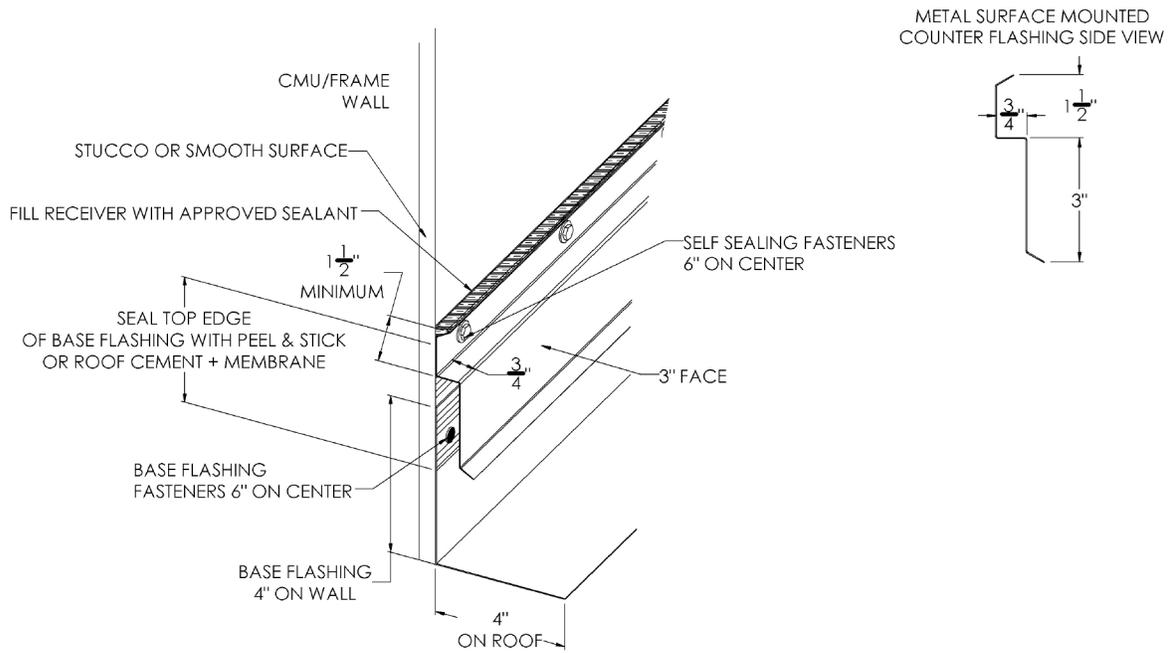


Figure 5

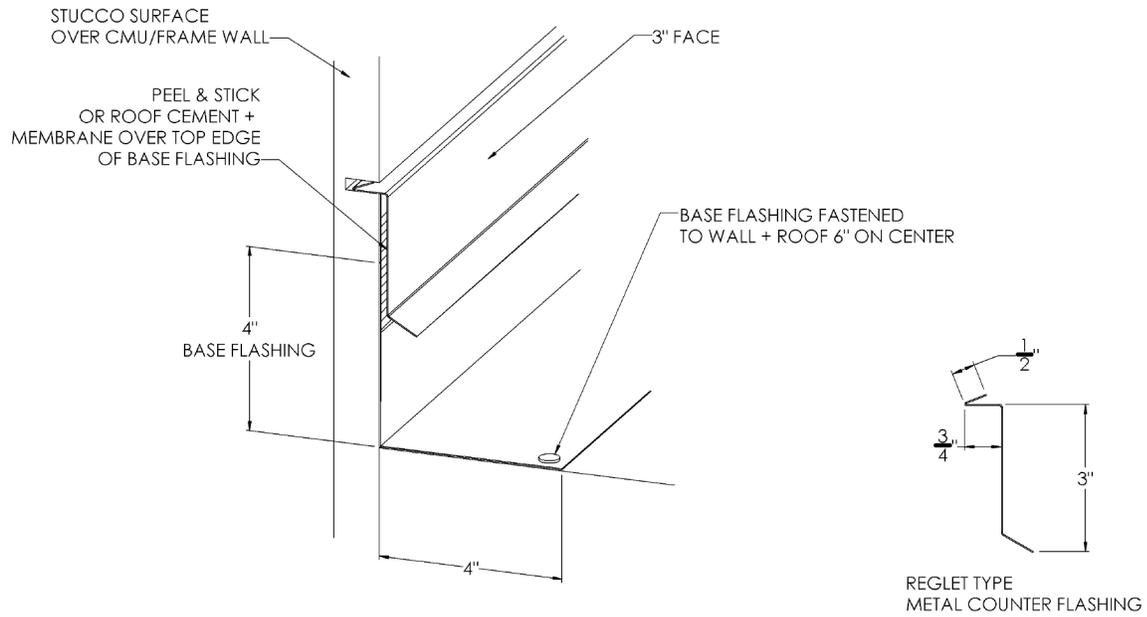
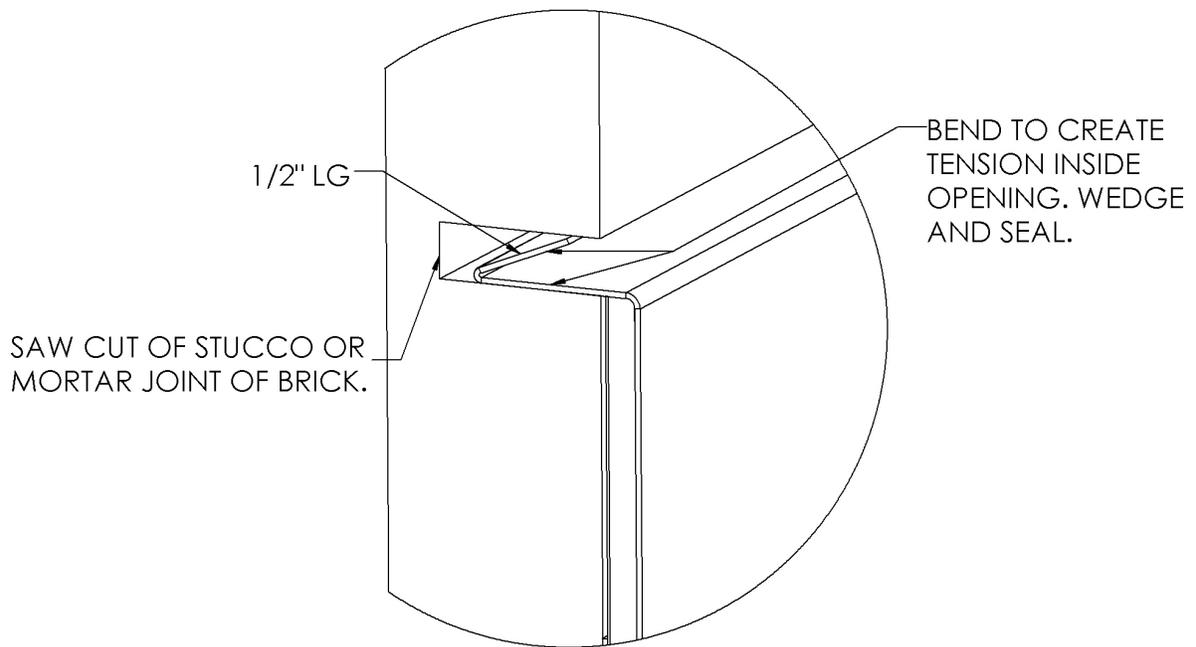


Figure 6A



CLOSE-UP OF FIGURE 6A

Figure 6B

Suggested Resources

The following sites provide additional information on the standards referenced below.

Asphalt Roofing Manufacturers Association
(ARMA) www.asphaltroofing.org

Florida Roofing and Sheet Metal Contractors
Association (FRSA) www.floridarroof.com

National Roofing Contractors Association
(NRCA) www.nrca.net

Tile Roof Institute
(TRI) tileroofing.org

Florida Building Code
(FBC) www.floridabuilding.org

Cedar Shake and Shingle Bureau
(CSSB) www.cedarbureau.org

Common Steep-Slope Roofing Systems

Asphalt Shingle Systems

The flashing installation requirements found in the local building code, shingle manufacturer's installation instructions and the applicable FORTIFIED Home standards serve as primary compliance methods. The use of FORTIFIED-approved supplemental standards for conditions other than those found in primary standards is permitted. In all cases, use the more restrictive installation methods for all roof-related flashing, including any associated counter-flashing. The ARMA Residential Asphalt Roofing Manual; the NRCA Roofing Manual: Architectural Metal Flashing; and the FBC Roofing Application Standard (RAS) No. 115 listed in the Test Protocols for High-Velocity Hurricane Zones, 5th Edition (2014) are FORTIFIED-approved supplemental standards.

Cement and Clay Roof Tile Systems

Use the more restrictive of the following installation methods for all roof-related flashing, including any associated counter-flashing: the local building code; the tile manufacturer's installation instructions; the FRSA/TRI Florida High Wind Concrete and Clay Tile Installation Manual; the FBC Roofing Application Standard (RAS) No. 111, 118, 119 or 120 listed in the Test Protocols for High-Velocity Hurricane Zones, 5th Edition (2014); and the applicable FORTIFIED Home standards.

Metal Roof Shingles or Panels

Install all flashing including any associated counter-flashing in compliance with the local building code and/or the metal shingle or panel manufacturer's installation instructions.

Wood Shingles and Wood Shakes

Install all flashing including any associated counter-flashing in compliance with the local building code, the wood shingle or wood shake manufacturer's installation instructions, and/or the CSSB New Roof Construction Manual.

