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Tech Hotline

Flashings and EIFS

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Flashing is a component of wall construction that is intended to keep water out of walls and away from the exterior wall surface. Flashing is usually metal, should be visible from the exterior of the structure, and the terminating edge should extend beyond the cladding to successfully divert water away from the wall. These fundamental principles are no different for EIFS than they are for any other cladding—brick, wood or vinyl siding, or conventional stucco. The successful integration of flashing with the weather barrier in the wall construction is critical for the overall wall assembly to be effective in resisting water penetration.

In barrier wall systems such as EIFS, the weather barrier is the EIFS lamina located at the outer face of the wall construction. In more traditional wall construction such as conventional stucco or brick veneer the weather barrier is building paper or a housewrap type of material located behind the cladding. In either case it is important that the flashings work in concert with the weather barrier in the wall assembly to keep water out of the assembly and beyond the face of the weather barrier. Building codes, specifically the International Residential Code 2000, specify the locations where flashing must be installed in wall construction to prevent water entry in the wall or structural cavity. Refer to the section on flashing from the IRC code and the illustrations that follow.

2000 International Residential Code, Chapter 7

703.8 Flashing – *Approved corrosion-resistive flashing shall be provided in the exterior wall envelope in such a manner as to prevent the entry of water into the wall cavity or penetration of water to the building structural framing components. The flashing shall extend to the surface of the exterior wall finish and shall be installed to prevent water from entering the exterior wall envelope. Approved corrosion-resistant flashings shall be installed at the following locations:*

1. *At the top of all exterior door and window openings in such a manner as to be leakproof, except that self-flashing windows having a continuous lap of not more than $1^{1}/_{8}$ inches (28 mm) over the sheathing material around the perimeter of the opening, including corners, do not require additional flashing; jamb flashing may also be omitted when specifically approved by the building official.*
2. *At the intersection of chimneys or other masonry construction with frame or stucco walls, with projecting lips on both sides under stucco copings.*
3. *Under and at the ends of masonry, wood or metal copings and sills.*
4. *Continuously above all projecting wood trim.*
5. *Where exterior porches, decks or stairs attach to a wall or floor assembly of wood frame construction.*
6. *At wall roof intersections*
7. *At built in gutters*

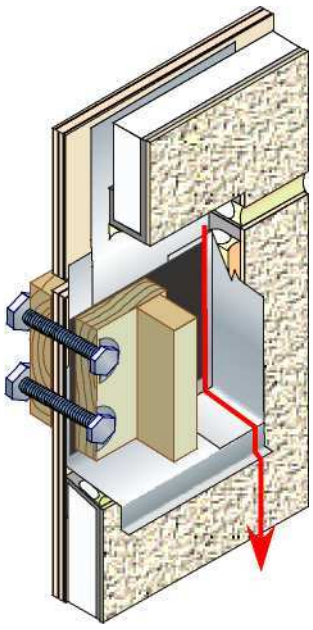

Figure 1: Flashing around deck junctures with wall cladding

Flashing Around Deck Junctures with Wall Cladding

Where decks adjoin wall construction (Figure 1) the ledger board and the attachment of the deck ledger board to the structure must be flashed above, below and to the sides of the deck to keep water from entering behind the cladding. In this case a combination of metal and flexible membrane flashing are used. The flexible membrane flashing is used because it is "self-sealing" around penetrations, for example, where the deck is attached to the structure. End dams prevent water from getting around the ends of the deck and behind the cladding. The deck construction is effectively isolated from the cladding with flashing.

Head Flashing Above Windows and Doors

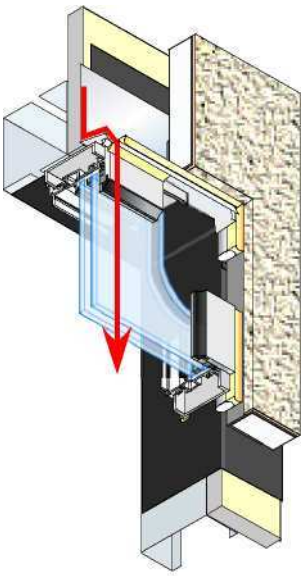

Figure 2: Head flashing above windows and doors

The window head flashing Figure 2) protects the window head. This is particularly important if the window extends beyond the plane of the wall cladding. The edge of the flashing should wrap over the edge of the window unit to protect the corner mitre joint. Also the flashing should bend out to keep water off the window unit and the area immediately above the flashing should be sealed to prevent wind driven rain from entering between the flashing and the cladding.

Sill Pan Flashing Beneath Windows

Recent information has shown that windows can leak significant amounts of water into wall construction. In some cases windows do not meet even the minimum levels of performance required by the building code for resistance to water penetration. ASTM C 1397-98, "Standard Practice for Application of Class PB Exterior Insulation and Finish System," states in section X1.2.6, "Windows installed in EIFS walls shall have metal sill flashing." By installing flashing beneath windows, (figure 3) leakage through them can be diverted to the exterior at the window. A combination of metal and flexible membrane flashing may also be used to create the "pan" flashing beneath the window unit. Note that this work must be done before the window is installed. Also note that in the case of windows with nailing flanges the sill flange may have to be be removed. In many cases the removal of the nailing flange will have no effect on the performance of the window unit provided it is adequately attached elsewhere, however, the window manufacturer should always be consulted before removing the flange. A continuous interior air seal between the window unit and rough opening reduces drafts around it.

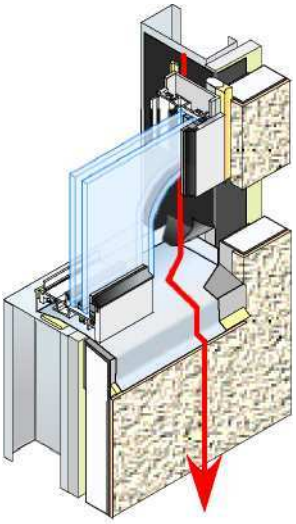

Figure 3: Sill pan flashing beneath windows

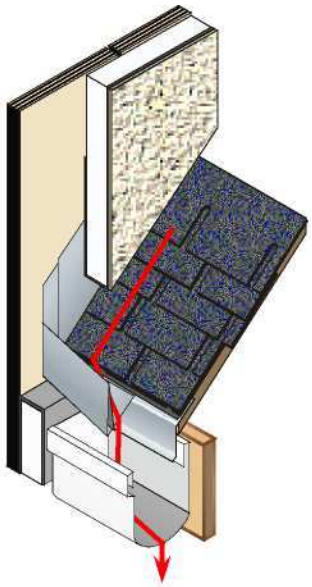

Figure 4: Diverter flashing at Roof / wall intersection

Diverter Flashing at Roof/Wall Intersection

Where roofs and walls adjoin (figure 4) step flashing should be installed to keep water from entering the seam between them. Where the roofline terminates, the wall cladding immediately beneath it will suffer water intrusion unless an end piece of flashing with a bend in it is installed to divert water beyond the face of the cladding.

These illustrations of flashing and how they are used in construction are presented by Sto Corp. to encourage good building practice through the proper use of flashing in wall construction. These illustrations represent typical situations that may not satisfy every condition. They should be modified by the builder or design professional where necessary to accommodate individual project conditions.