

Best Materials LLC distributes backer rod, caulking and sealants for all types of EIFS joints and penetration sealing applications.

TM



## **GUIDE TO EXTERIOR INSULATION & FINISH SYSTEM CONSTRUCTION**

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EIFS INDUSTRY  
MEMBERS  
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# GUIDE TO EXTERIOR INSULATION & FINISH SYSTEM CONSTRUCTION

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# 1 Typical EIFS Configuration

FIG 1

## STEEL OR WOOD FRAMING

EIFS may be attached by mechanical fasteners (as shown) or by adhesive (as shown below).

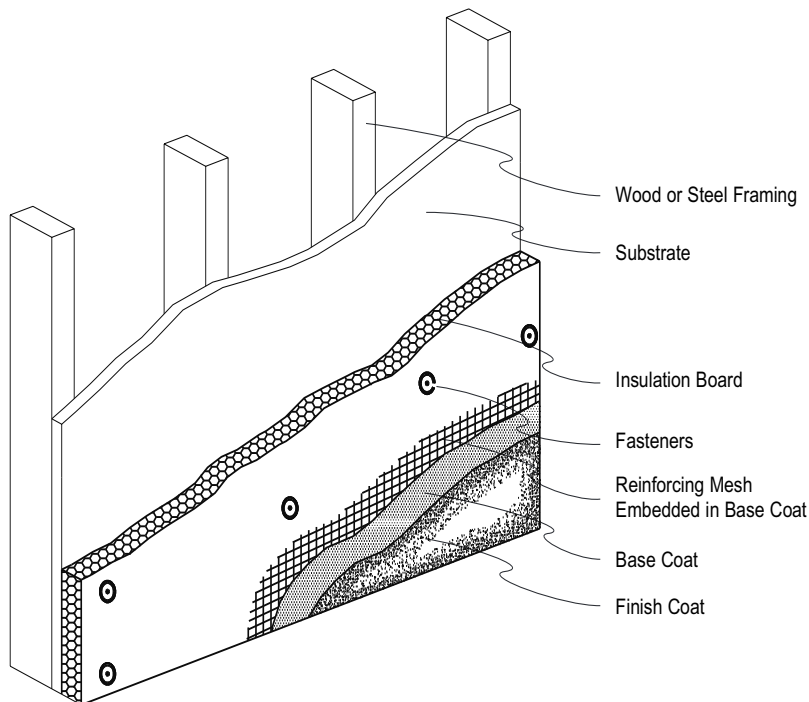
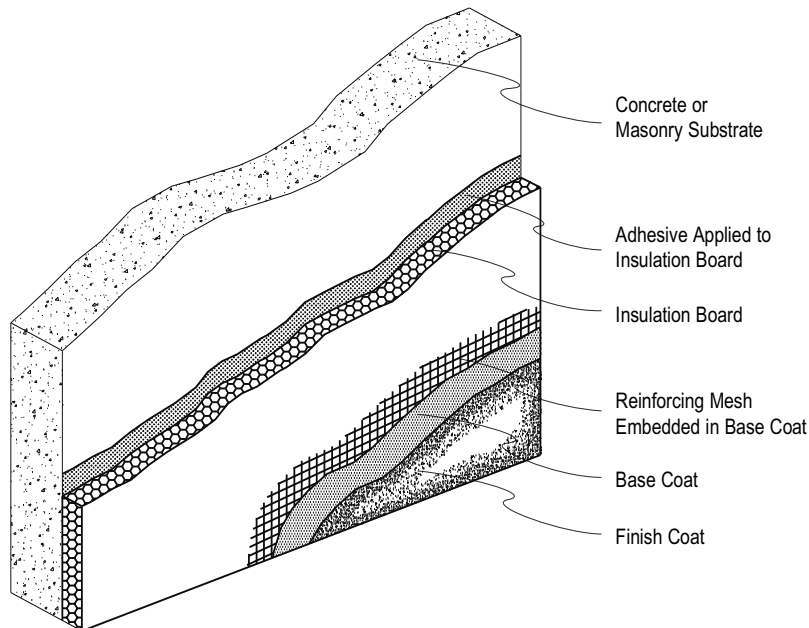


FIG 2

## CONCRETE AND MASONRY

EIFS attached to concrete or masonry using adhesive. Mechanical fasteners may also be used.

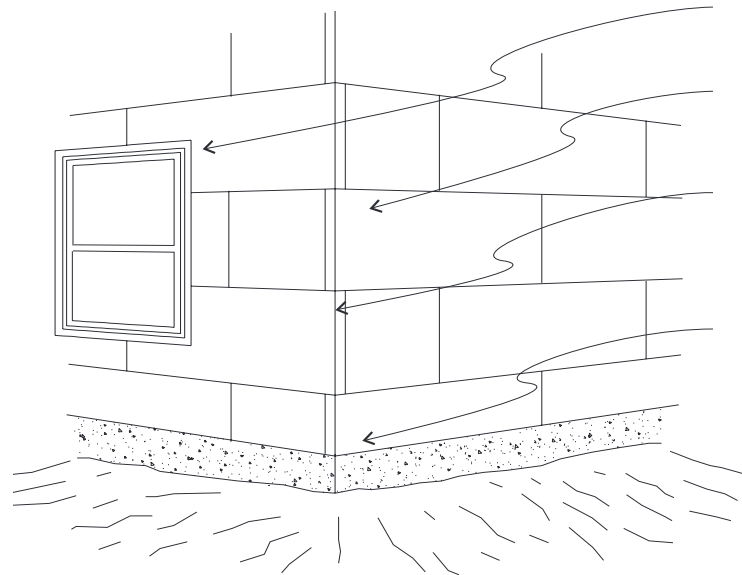


## 2 EPS Board Layout

FIG 1

### EPS BOARD LAYOUT

The Expanded Polystyrene Board (EPS) is placed on the wall in a running-bond pattern. The first row is generally half width to minimize EPS board joints from lining up with sheathing joints. To decrease base coat stress at corners of wall openings, EPS boards are "L" cut.



Insulation Board "L" Cut at Corners of Wall Penetrations

Insulation Board Applied in a Running Bond Pattern

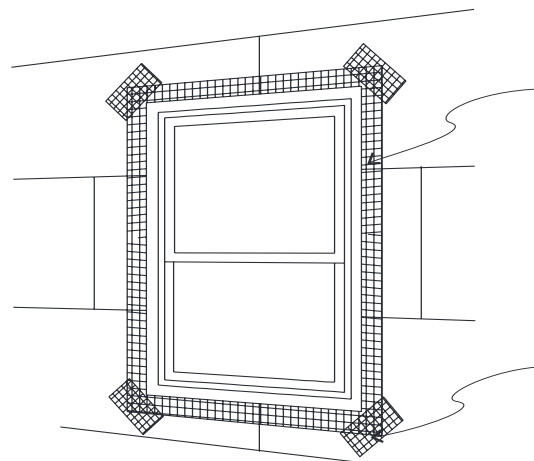
Interlock Edges of Insulation Board at Corners

Starter Row of Insulation Board Used to Offset Insulation Board Joints from Sheathing Board Joints

FIG 2

### MESH TREATMENT AT FENESTRATION

To further guard against cracking, diagonal pieces of mesh called butterflies are placed over the wrapped mesh at corners of the opening.



Encapsulate Insulation Board Edge with Reinforcing Mesh and Base Coat.

Strips of Reinforcing Mesh Placed Diagonally at Opening Corners

**NOTE:** Window flashings, not shown, are placed at the head and sill.

### 3 Foundation Termination Options

FIG 1

#### WRAPPING - Alternate 1

Fiber mesh located between substrate and insulation is attached either by base coat, adhesive, or mechanical anchorage.

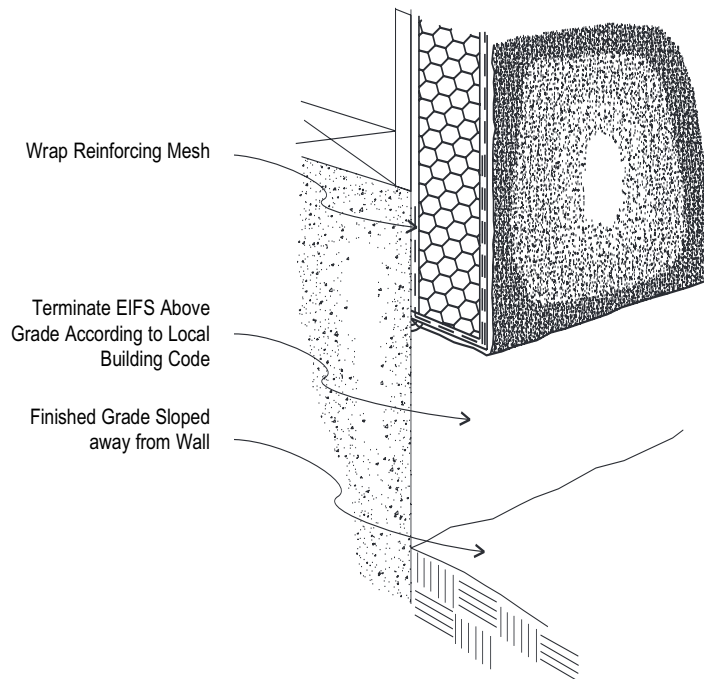
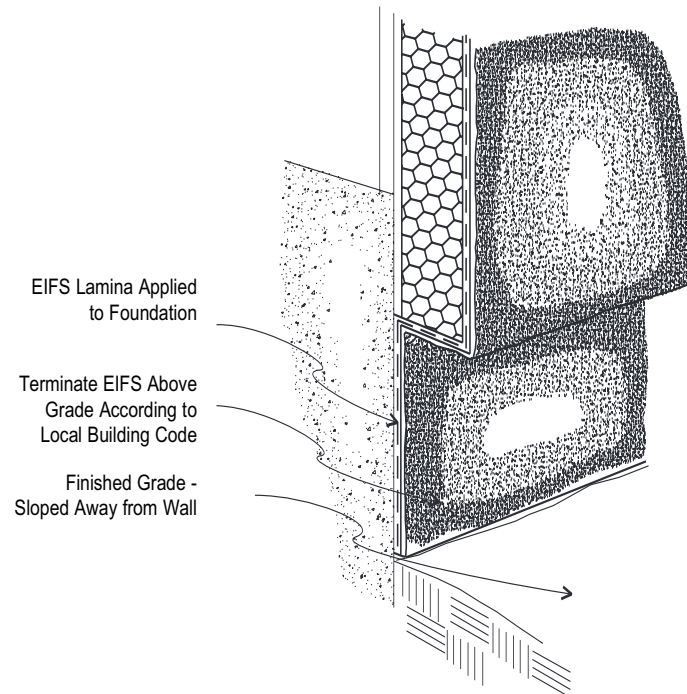


FIG 2

#### WRAPPING - Alternate 2

To give the foundation the appearance of EIFS, the reinforced base coat and finish may be lapped onto the foundation.



## 4 Sealant Configuration Options

FIG 1

### FILLET JOINT

Fillet beads may be used for weather seal joints such as at window and door perimeter. Note that sealant is applied to the reinforced base coat and not to the finish coat.

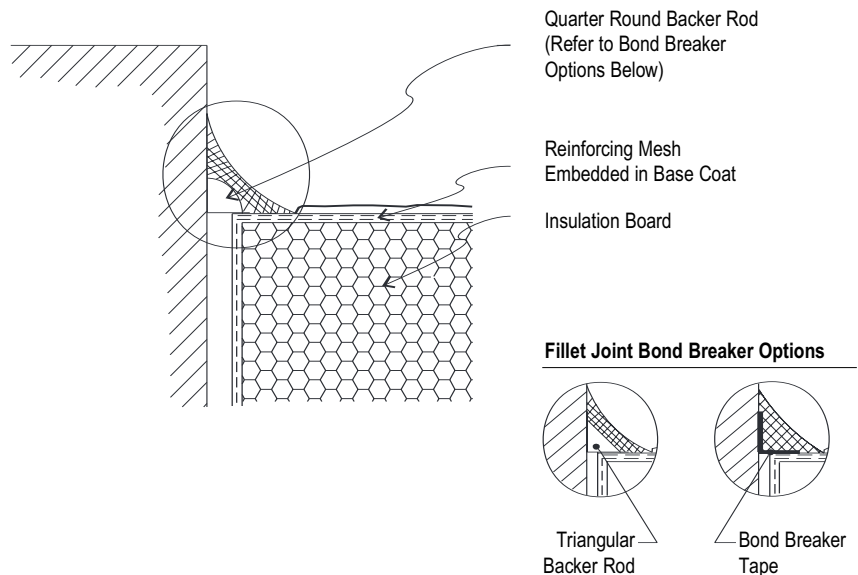
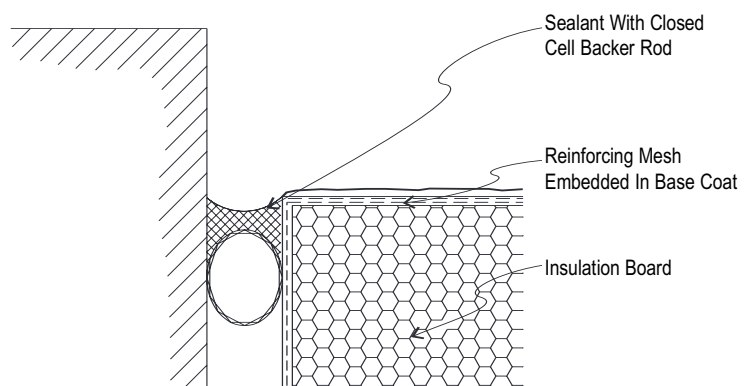


FIG 2

### BUTT JOINT

Expansion joints should be designed for a minimum of four times the anticipated movement, but not less than 3/4" (19 mm). For joints where movement has been determined to be negligible, the minimum butt joint size is 1/2" (13 mm). Note that sealant is applied to the reinforced base coat and not to the finish coat.



Refer to the sealant manufacturer's guidelines  
for specific installation requirements.

## 5 Window - Metal Framed, Exposed Sill Pan

FIG 1

### WINDOW HEAD

Even with the use of head flashing, sealant is still required, as indicated, and serves to complement the flashing in establishing a water tight, continuous weather seal between the EIFS and the window frame.

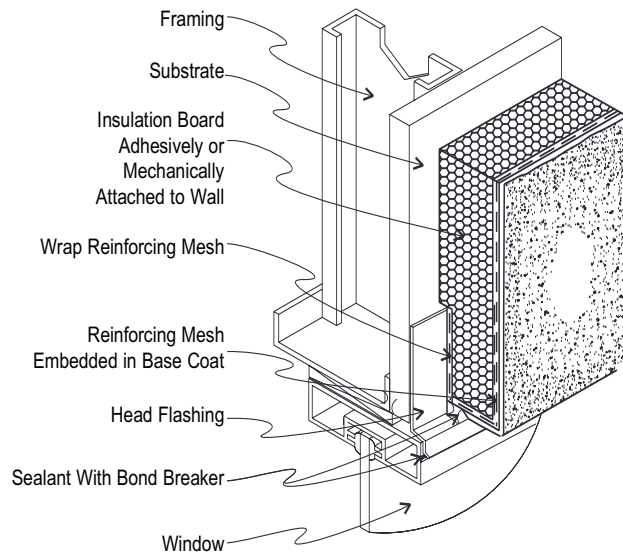
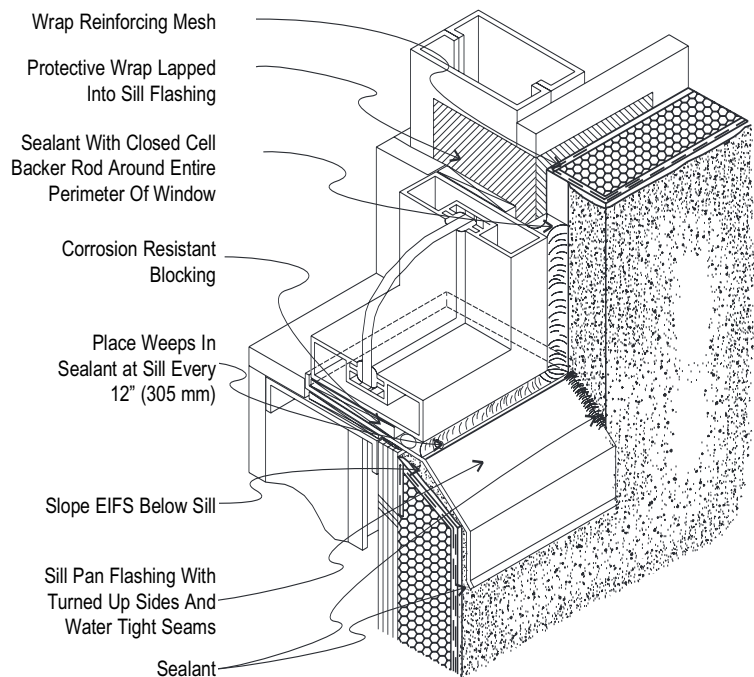


FIG 2

### WINDOW SILL AND JAMB

The purpose of a sill pan flashing is to catch water that may breach the window's barrier or pass beyond the sealant. The flashing should extend between the framing members of the rough opening and be sloped to allow water to drain to the outside of the EIFS. Also, sill pan flashing end dams should extend 1/8" to 3/16" beyond outer plane of window frame. Exposed end dam edge may be covered with sealant if desired for improved appearance. To properly fabricate this detail, the EIFS should be installed before the pan flashing is set in place. This detail reflects an exposed sill pan. However, this type of window may also be installed with a concealed sill pan as depicted in figure 2 of drawings 6 and 7.



Refer to the window manufacturer's guidelines for specific installation requirements.



## 6 Window - Nailing Fin, Concealed Sill Pan

FIG 1

### WINDOW HEAD

Some finned windows are considered “self-flashed”. However, a careful examination should be made of the joinery between the head, jamb and sill fins to ensure continuous protection against air and water passage. Any breach in the window’s outer cladding should be resolved with additional flashing and/or sealant. Consult the window manufacturer for installation recommendations.

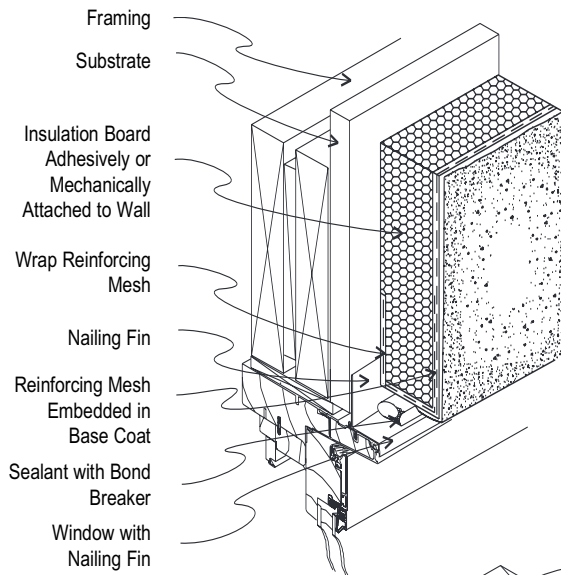
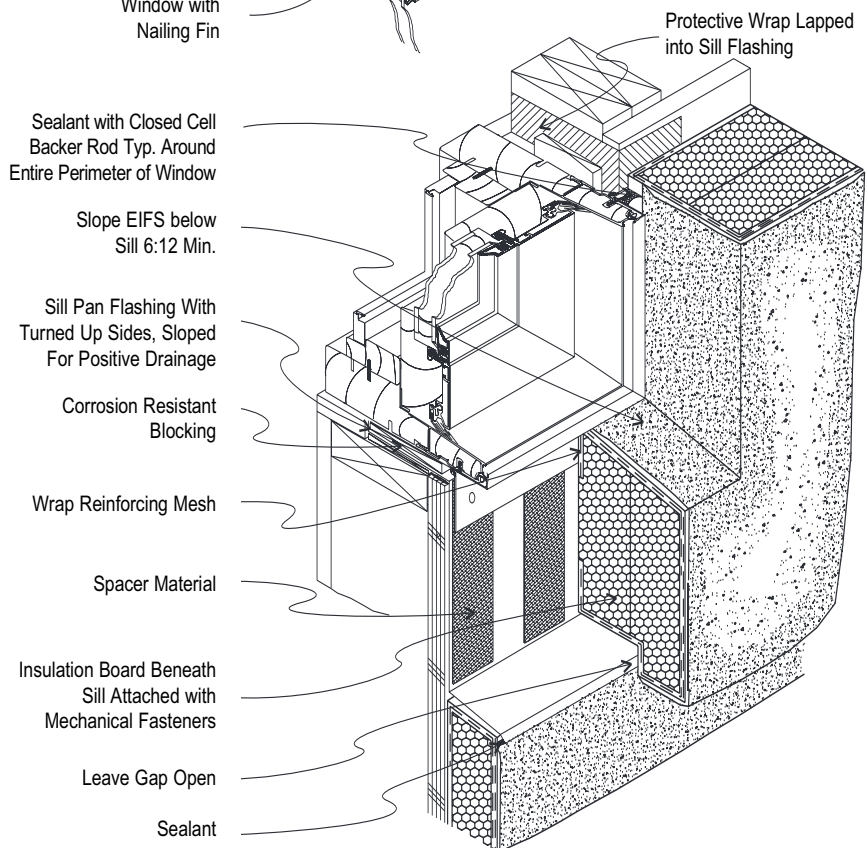


FIG 2

### WINDOW SILL AND JAMB

The purpose of a sill pan flashing is to catch water that may breach the window’s barrier or pass beyond the sealant. The flashing should extend between the framing members of the rough opening and be sloped to allow water to drain to the outside of the EIFS. The spacer material should hold the nailing fin off of the sill pan extension by at least 1/8” (3mm) to form drainage channels.



Refer to the window manufacturer’s guidelines for specific installation requirements.



## 7 Window - Brick Mold, Concealed Sill Pan

FIG 1  
**WINDOW HEAD**

Even with the use of head flashing, sealant is still required, as indicated, and serves to complement the flashing in establishing a water tight, continuous weather seal between the EIFS and the window frame.

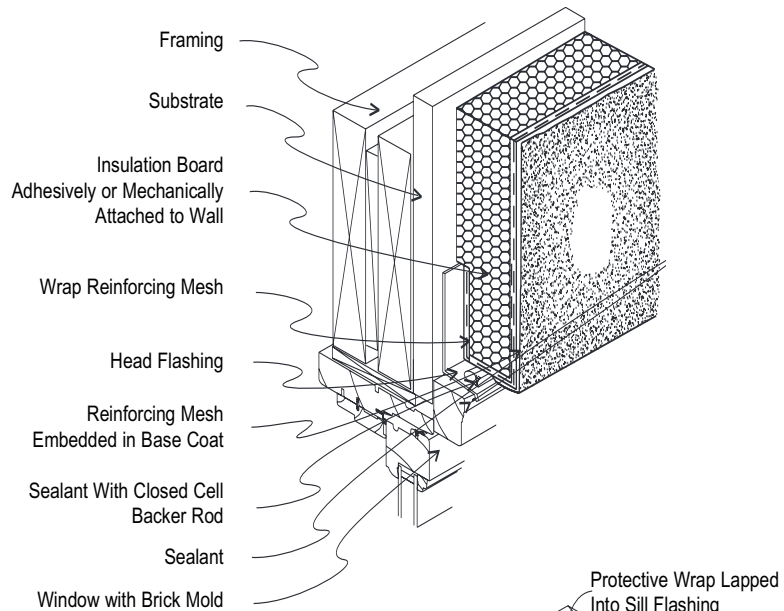
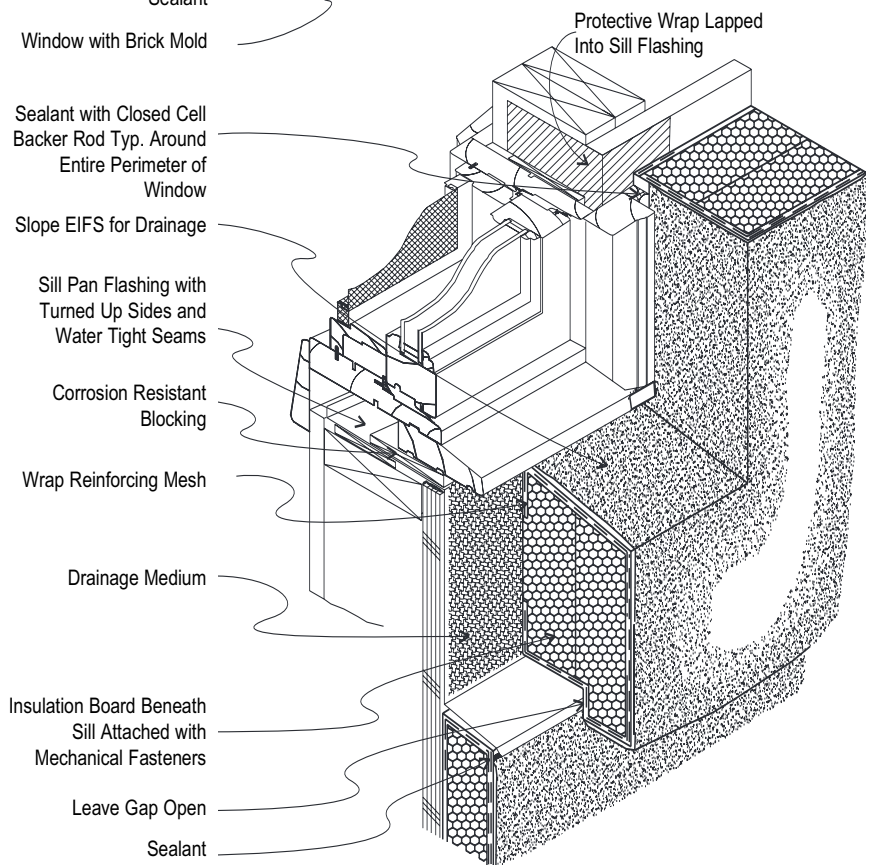


FIG 2  
**WINDOW SILL AND JAMB**

The purpose of a sill pan flashing is to catch water that may breach the window's barrier or pass beyond the sealant. The flashing should extend between the framing members of the rough opening and be sloped to allow water to drain to the outside of the EIFS. The drainage medium should hold the EPS insulation board off of the sill pan extension by at least 1/8" (3mm). This detail depicts a concealed sill pan. However, this type of window may also be installed with an exposed sill pan as depicted in figure 2 of drawing 5.



Refer to the window manufacturer's guidelines for specific installation requirements.

## 8 Plumbing and Electrical Penetrations

FIG 1  
**HOSE BIBB ATTACHMENT**

For accessories subjected to handling, such as hose bibbs and railing supports, wood blocking offers protection to the EIFS while providing a base for rigid attachment. The wood blocking may be painted or encapsulated in flashing.

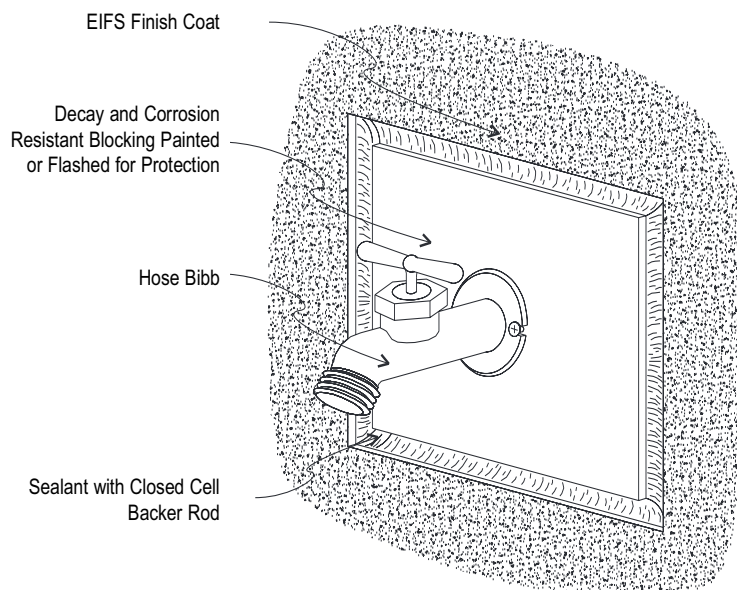
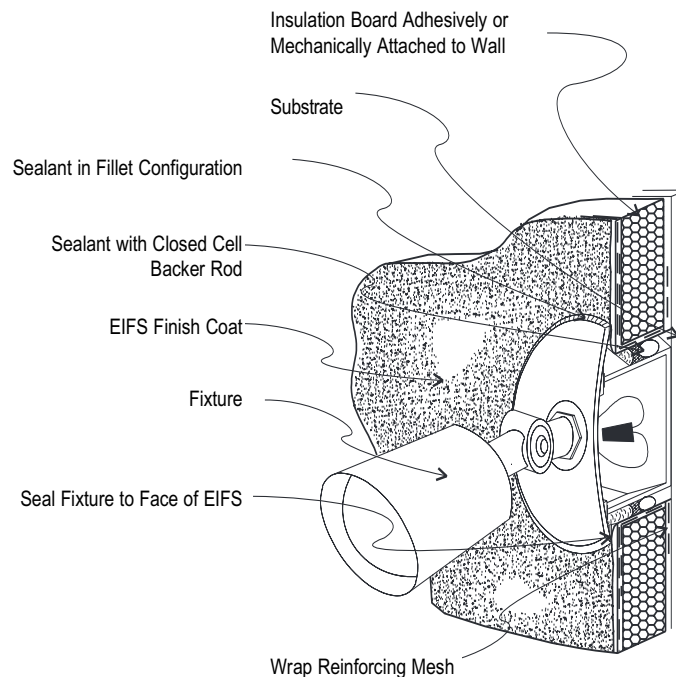


FIG 2  
**ELECTRICAL ATTACHMENT**

Electrical box installations, whether for light fixtures or outlets, may be shimmed back to the sheathing to allow for flush mounting of the electrical accessory.



## 9 Sleeved Attachments

FIG 1

### SHUTTER ATTACHMENT

Sleeve and fastener attachment is adequate for most accessories. Downspouts, mail boxes, awnings, and other lightweight accessories may be mounted using the procedure shown. For non-structural sheathing such as gypsum board, ensure fastener(s) is placed in framing or blocking to provide rigid attachment.

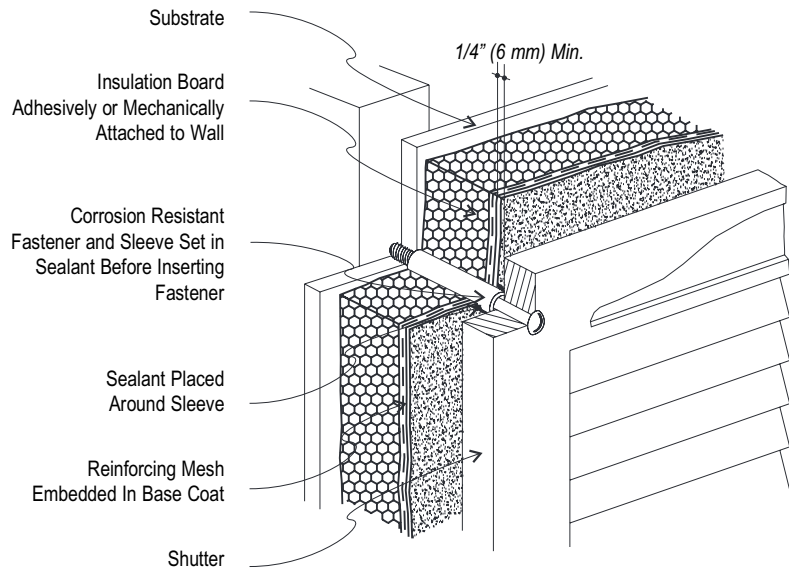
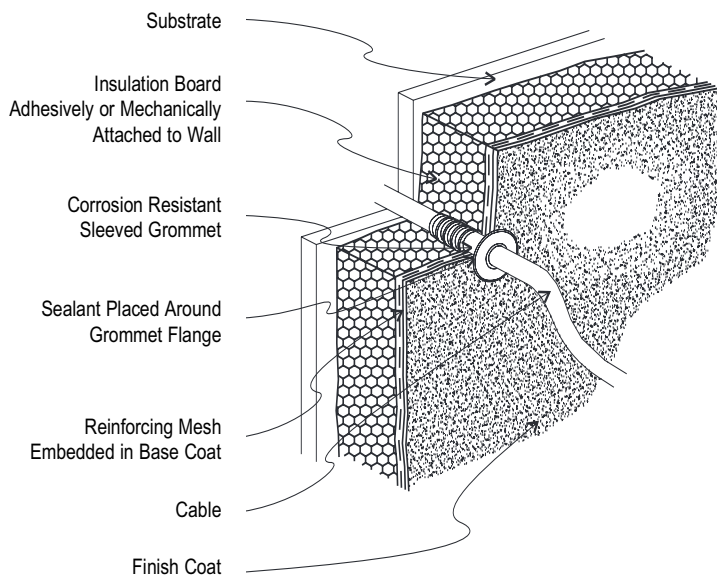


FIG 2

### WIRING PENETRATIONS

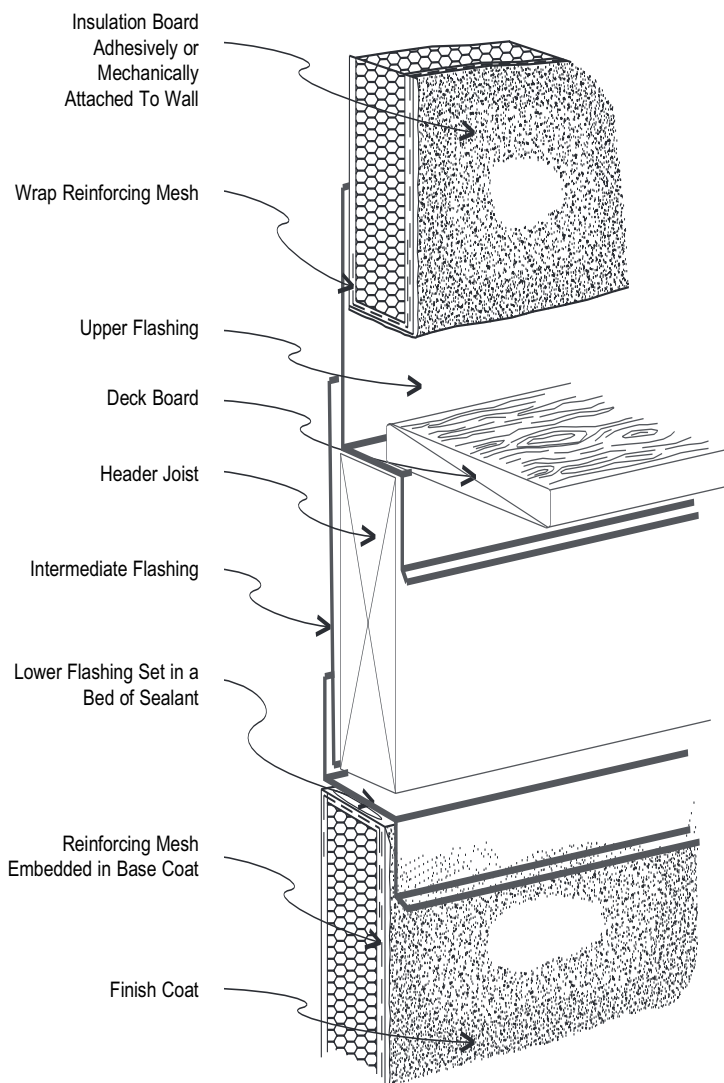
Phone lines, cable lines, outdoor speaker wire and the like may penetrate the EIFS with the use of a sleeved grommet sized to fit snugly around the wire. The grommet flange provides an area for sealant application.



## 10 EIFS Termination at Properly Flashing Deck

FIG 1  
DECK SECTION

The EIF System is held off of deck surface to allow for installation and maintenance of sealant, facilitate removal of foreign matter which may cause water retention, and to decrease exposure of wall system to precipitation, particularly snow and ice.



## 11 Expansion Joints and Reveals

FIG 1

### FLOOR LINE EXPANSION JOINT

Expansion joints shall be installed in the EIFS System as per manufacturers' recommendations but as a minimum where changes in substrate occur, where a joint exists in the substrate, and at floor lines in wood framed construction.

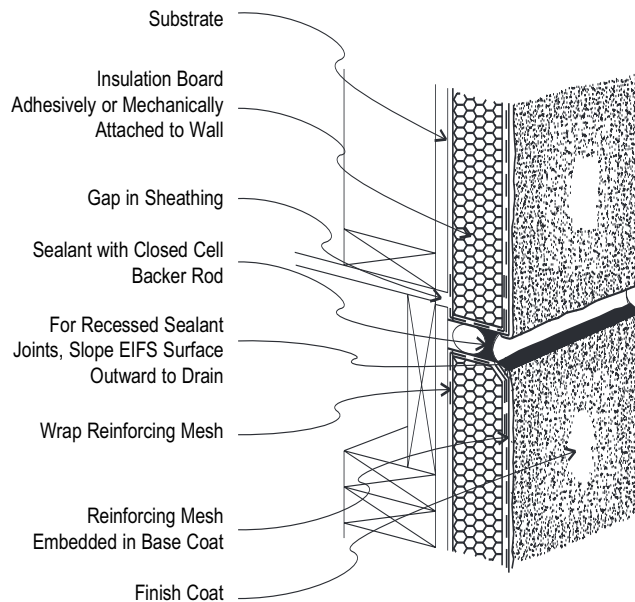
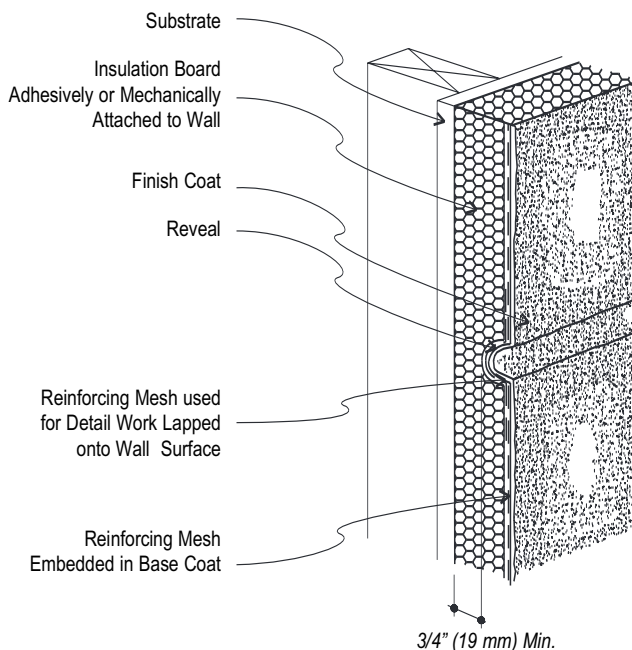


FIG 2

### AESTHETIC REVEALS

Reveals cut into the insulation board serve an aesthetic function by offering the look of joints without having to terminate the system. Grooves can also serve as a drip edge at soffits or head locations of fenestrations.





## 12 Chimney Flashing

FIG 1

### PROPER FLASHING

The flashing located on the high side of the chimney shall divert water away from the EIF System running down the side of the chimney. Turned out flashing ensures proper diversion of water.

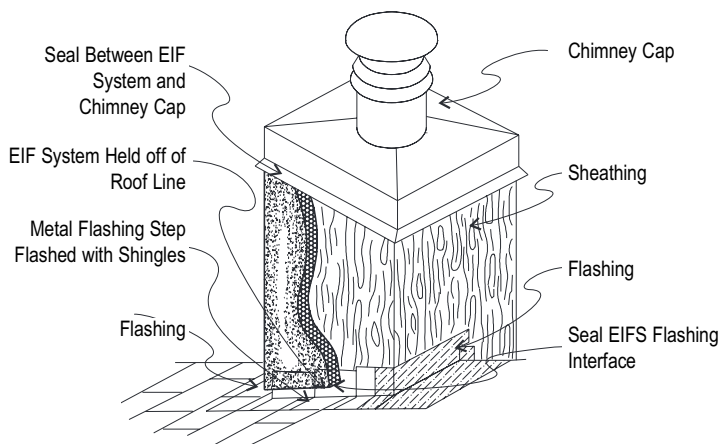


FIG 2

### CHIMNEY WITH EIFS INSTALLED

With the EIF System terminating at the top of the turned out flashing leg and a fillet bead of sealant applied to the flashing/EIFS interface, water is diverted around the chimney.

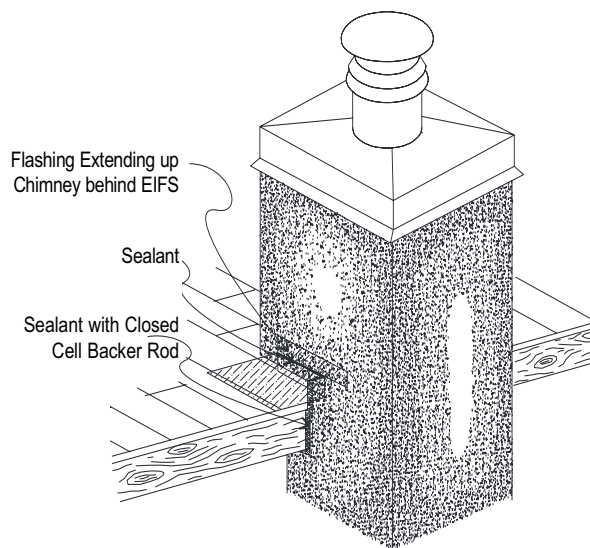
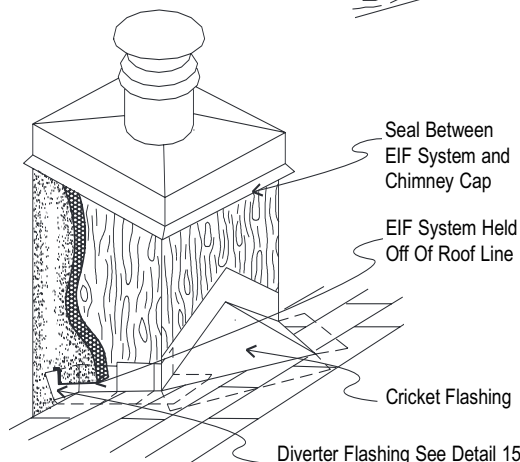


FIG 3

### EIFS CHIMNEY WITH CRICKET

Cricket detailing helps divert water around the chimney and alleviates snow and ice buildup. Diverter flashing is used anywhere an area of water shed terminates into a vertical wall.



Flashing shall have watertight joints. Refer to the Sheet Metal and Air Conditioning Contractors National Association (SMACNA) for flashing configurations.



## 13 Soffit and Gable End

FIG 1  
**GABLE END**

The frieze board should extend over the EIFS face approximately 1 1/2" (38 mm). For less of an overlap it is advisable to terminate the EPS board 1/2" (13 mm) from the wood blocking and apply sealant with closed cell backer rod.

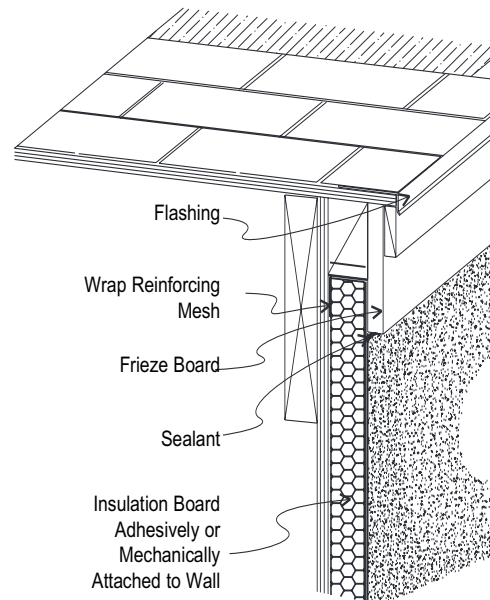


FIG 2  
**NON EIFS SOFFIT**

Refer to the note for Figure 1.

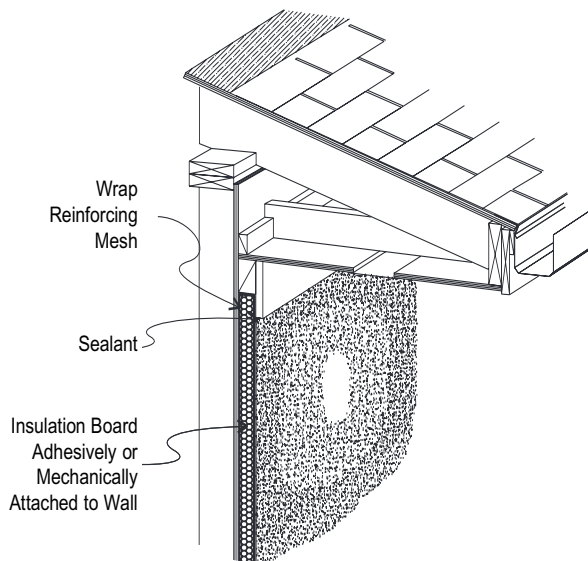
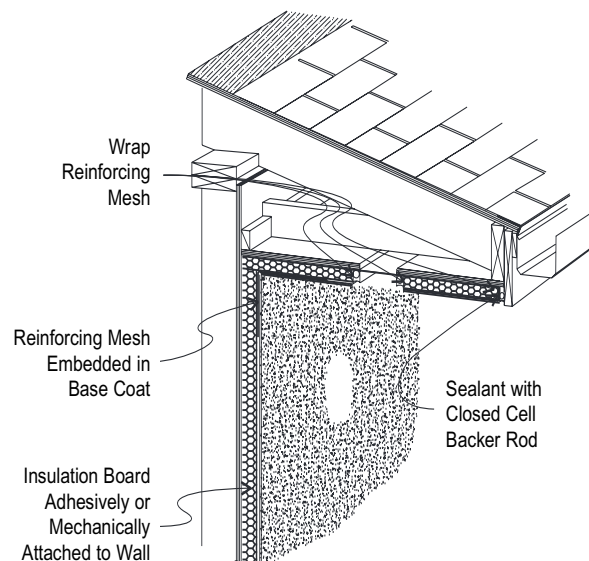


FIG 3  
**EIFS SOFFIT**

As with all inside corners, the reinforcing mesh from both legs of the corner should lap onto the adjacent leg 8" (200 mm). Under certain circumstances, an expansion joint may be required at the inside corner. Refer to the manufacturer's specification for guidelines.



## 14 Dormer Flashing

FIG 1  
**FLASHINGS**

Flashings should extend up wall. Where window is close to roof line, continue dormer-to-roof flashing into window opening.

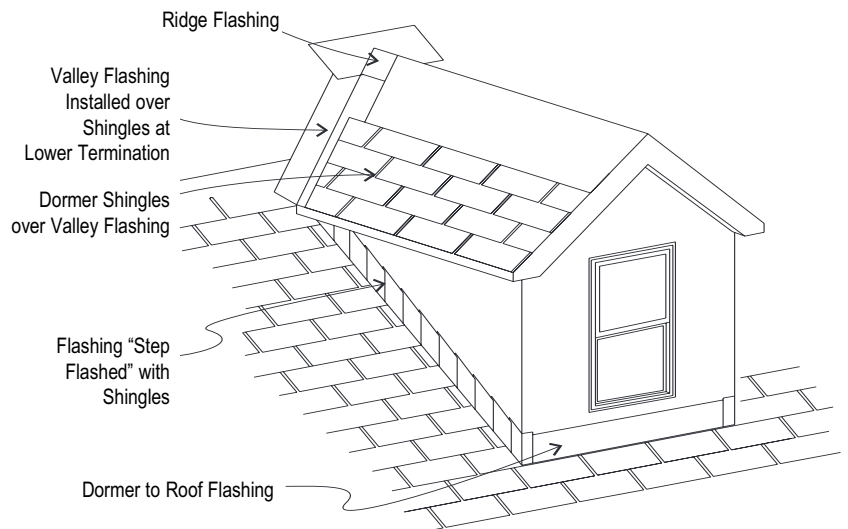
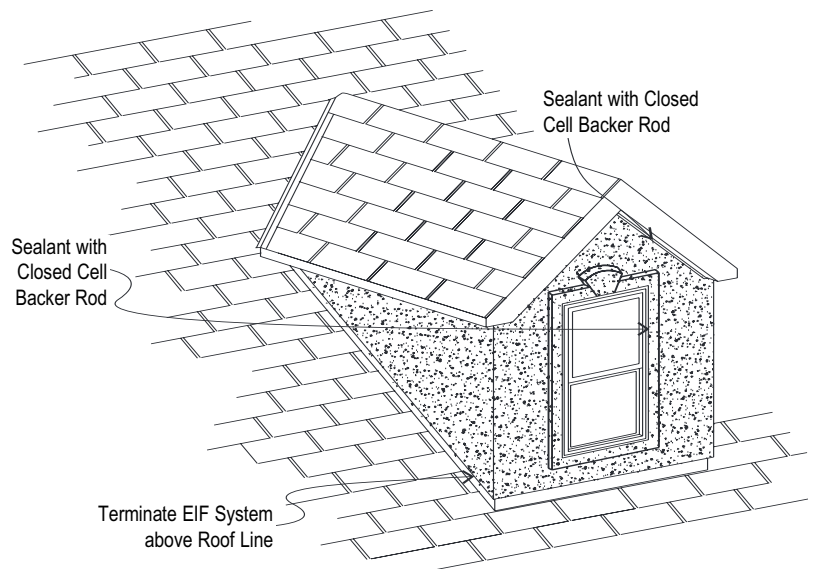


FIG 2  
**COMPLETED DORMER**

The EIF system should be terminated above the roof line to facilitate roof repairs and treatment of EIFS termination. In addition, the clearance allows for free-flow of water and minimizes accumulation of debris. Sealant with closed cell backer rod should be placed between the EIF system and gable and also around window perimeter. For gable end with frieze board see detail 13.



Flashing shall have watertight joints. Refer to the Sheet Metal and Air Conditioning Contractors National Association (SMACNA) for flashing configurations.

## 15 Roof and Wall Intersection

FIG 1  
**FLASHING**

Flashing should extend up behind EIF system. A diverter flashing should be used where ever a water shed terminates into a vertical wall (as shown).

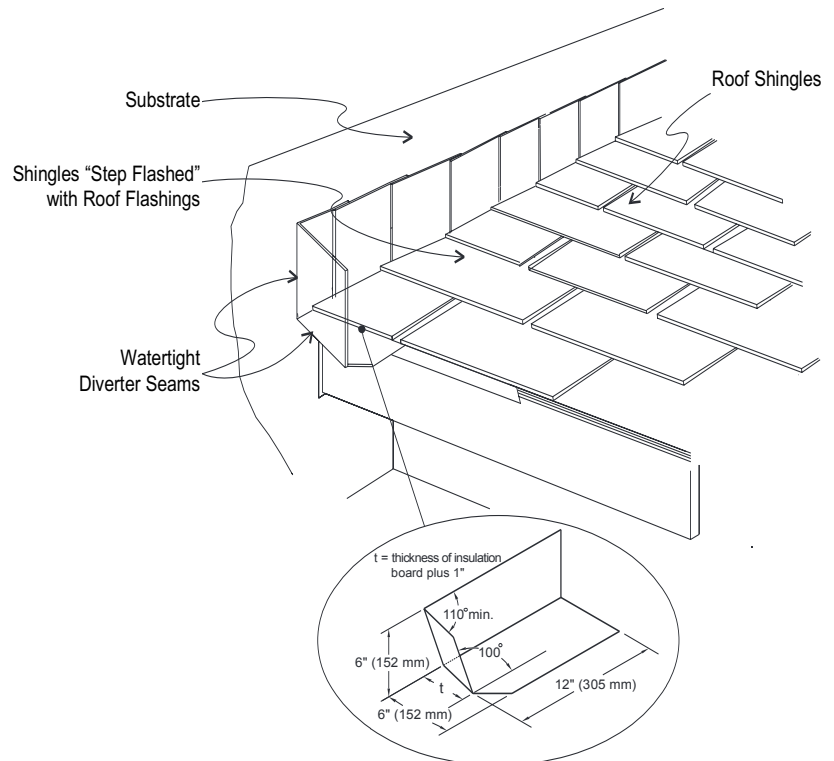
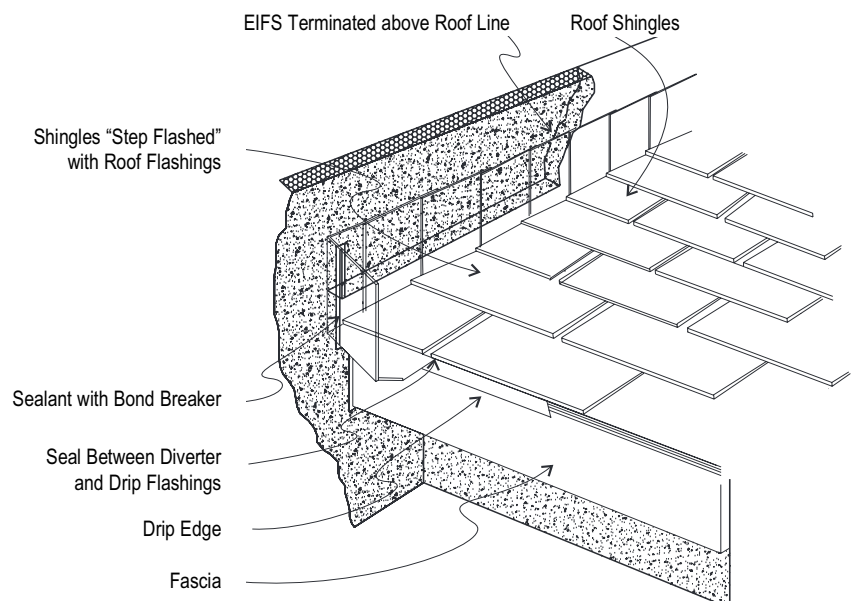


FIG 2  
**EIFS INSTALLED**

The EIF system should be terminated above the roof line to facilitate roof repairs and treatment of EIFS termination. In addition, the clearance allows for free-flow of water and minimizes accumulation of debris. Set the diverter flashing in a full bed of roof cement between the roof cement between the roof sheathing and underlayment.



Flashing shall have watertight joints. Refer to the Sheet Metal and Air Conditioning Contractors National Association (SMACNA) for flashing configurations.

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