

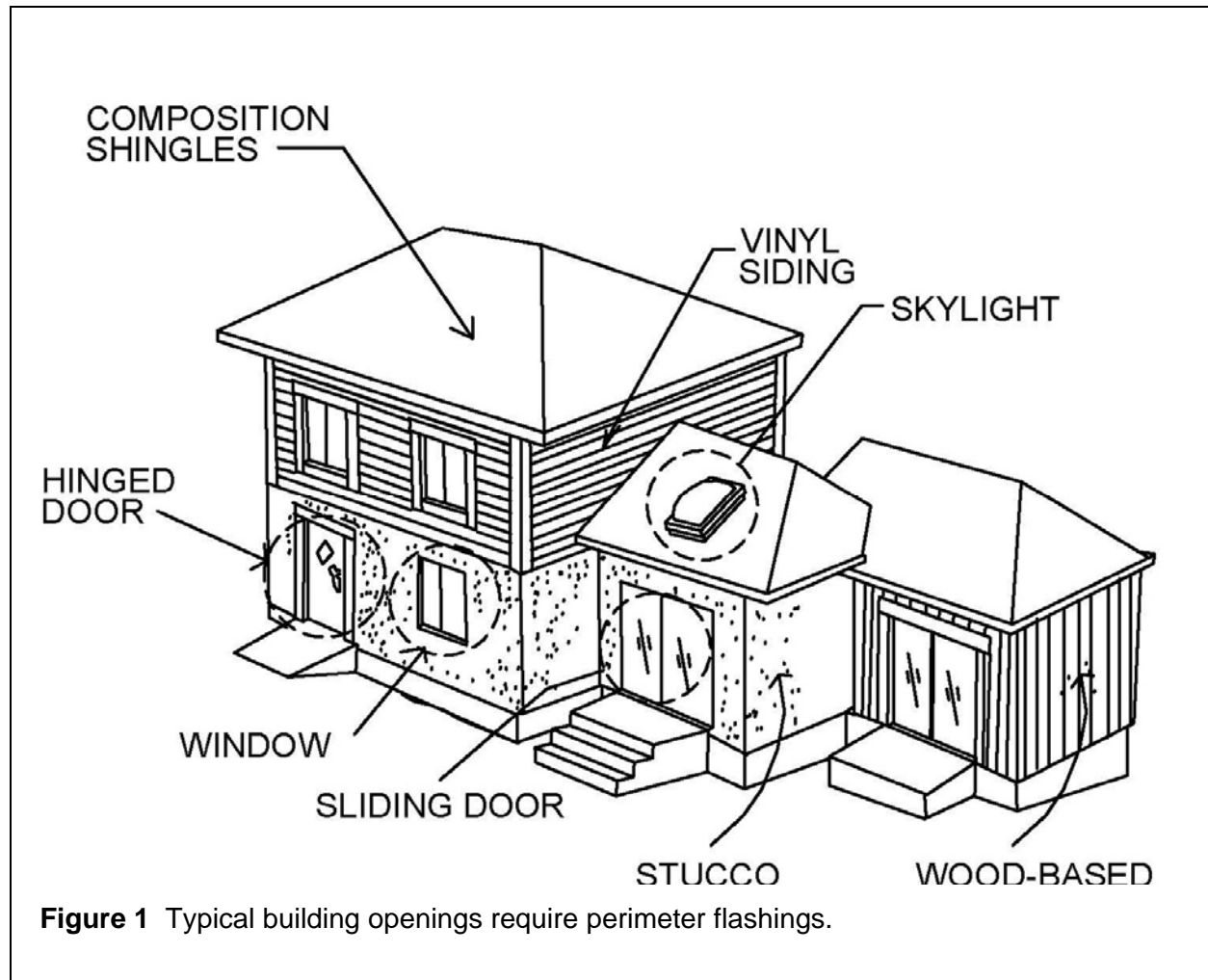
## Window/Door/Skylight Flashing Application Guide

### Polyken® and Nashua® Flashing Tapes

#### Perimeter Opening Flashing

The successful installation of windows, doors, and skylights depends on the performance of the perimeter flashing of these fenestration products within the

building opening. Typical openings requiring flashings are shown in Figure 1. Polyken® and Nashua® Flashing Tapes provide superior waterproofing and durability characteristics for all of these building openings.



The use of Polyken® and Nashua® Flashing Tapes can accommodate different substrates and cladding materials to suit a

wide range of building design and construction variations.

Window & Door Flashing Details

The following flashing details represent a sample of the types of flashing procedures are commonly found in contemporary, wood-frame, residential and light commercial construction that utilize nail fin windows and door frames.

These flashing details are organized into categories based on ASTM E2112-07 Standard Practice for the Installation of Exterior Windows, Doors and Skylights.

In the ASTM publication, there are four variations of window/door perimeter flashing methods as described below. The choice of the particular method is left to the judgment of the building owner, design professional, and contractor for any particular project.

*Method A*

Jamb flashing applied over the window/door frame. Building paper is used as the weather-resistant barrier and is applied after the window/door installation.

*Method A1*

Jamb flashing applied over the window/door frame. Building paper or house wrap is used as the weather-resistant barrier and is applied before the window/door installation.

*Method B*

Jamb flashing applied under the window/door frame. Building paper is used as the weather-resistant barrier applied after the window/door installation.

*Method B1*

Jamb flashing applied under the window/door frame. Building paper or house wrap is used as the weather-resistant barrier applied before the window/door installation.

**Illustrations for Methods A and A1**

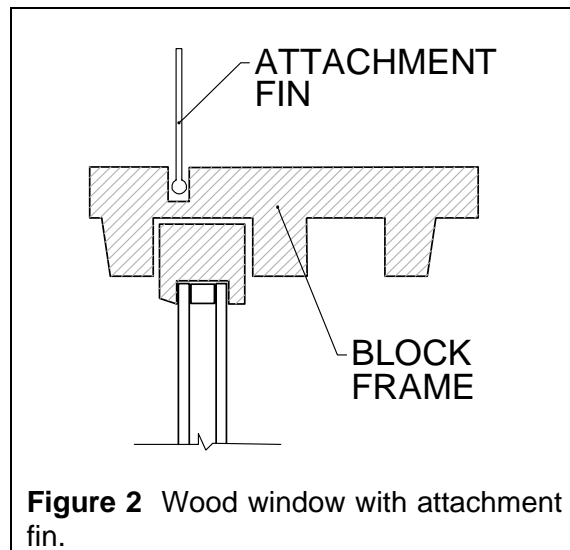
This Application Guide contains illustrations showing the use of Polyken® and Nashua® Flashing Tapes with Methods A and A1 for windows and doors. Methods B and B1 which often use Polyken® and Nashua® Flashing Tapes are conventional flashing procedures, and are not illustrated in this Application Guide.

Types of Window/Door Frames

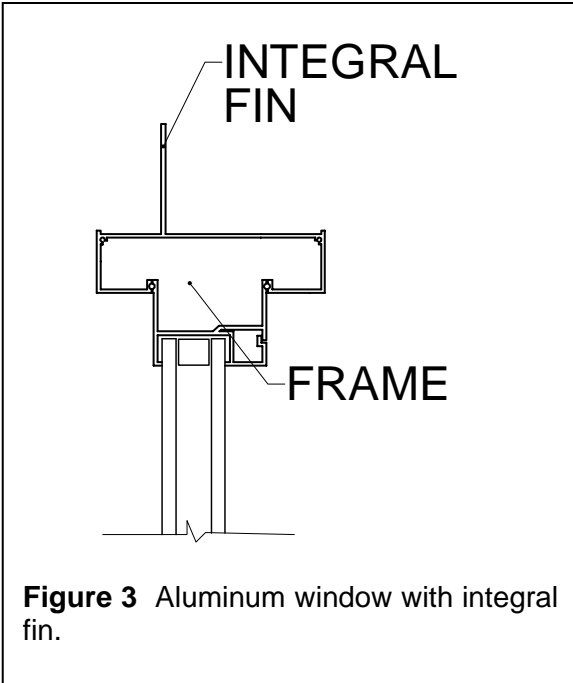
There are basically two types of window and door frames to consider when selecting a method of perimeter flashing: Nail-on Fin (or flange) and Block Frame (non-finned). The frame materials used for either one of these two types of windows can be wood, aluminum, or vinyl/plastic.

*Nail-On Fin (Attachment Flange)*

Nail-on fin frames may use separate attachment fins for fastening the window/door to the building. The nail-on fin window/door can have either a non-integral fin or an integral fin. See Figures 2, 3 & 4. Typically, the separate attachment fin does not function as a flashing for the perimeter of the window/door.

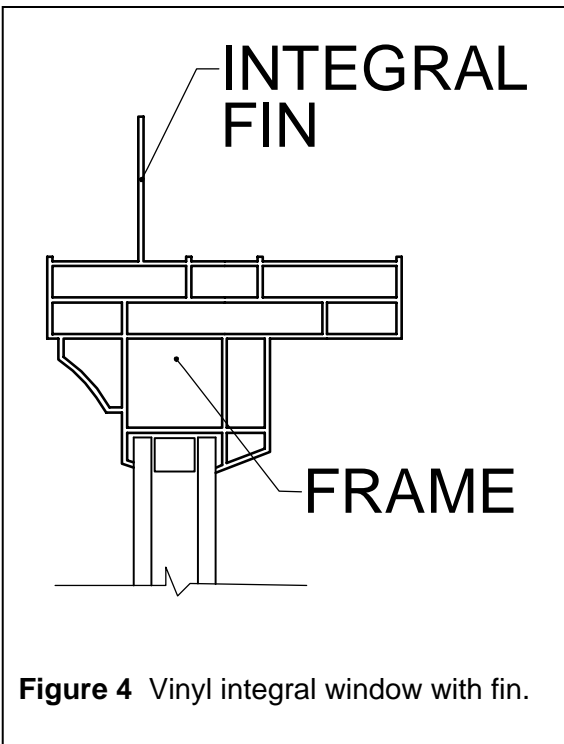
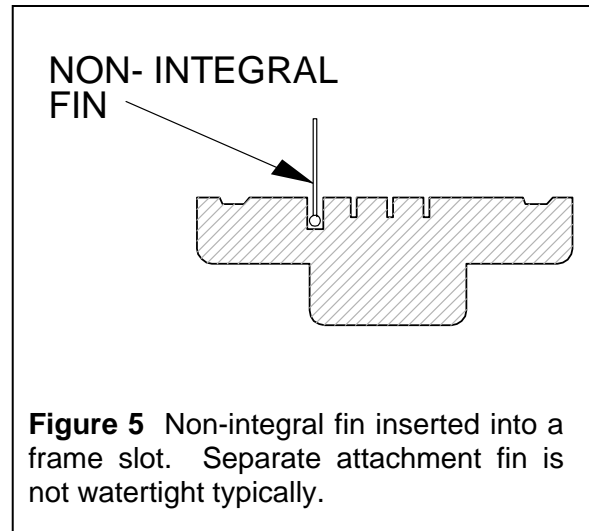


**Figure 2** Wood window with attachment fin.



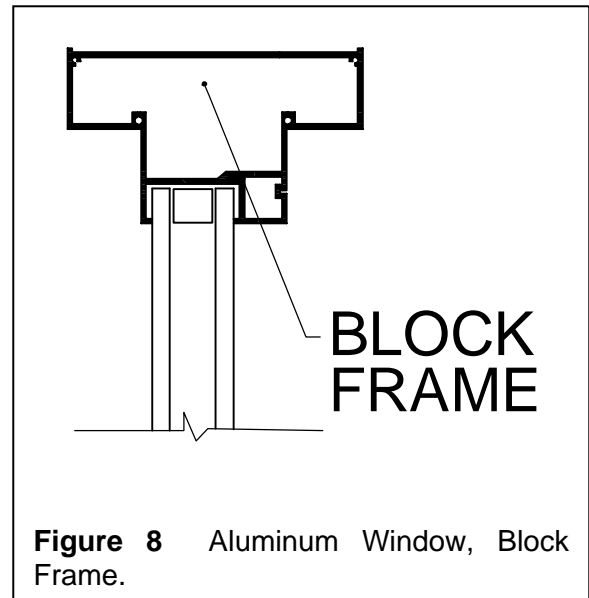
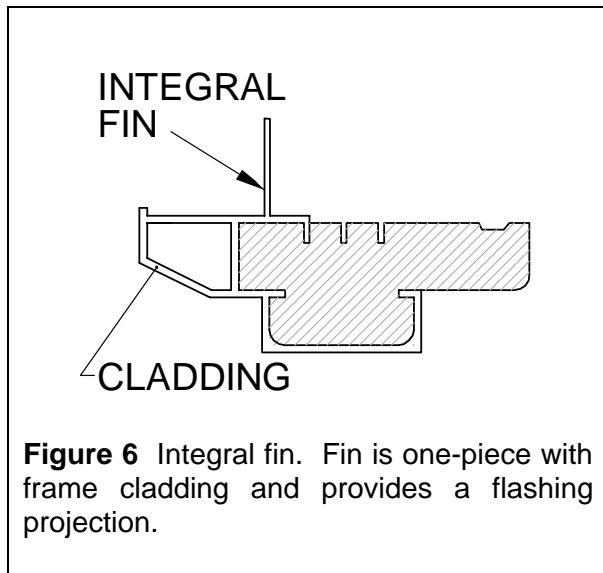
Non-integral fins

Non-integral nail-on fins are only for attachment of the window/door and are either applied to or inserted into the frame. These attached fins often do not provide a watertight connection to the frame. See Figure 5. Flashing for window/doors with a non-integral fin is accomplished similar to the block window conditions.



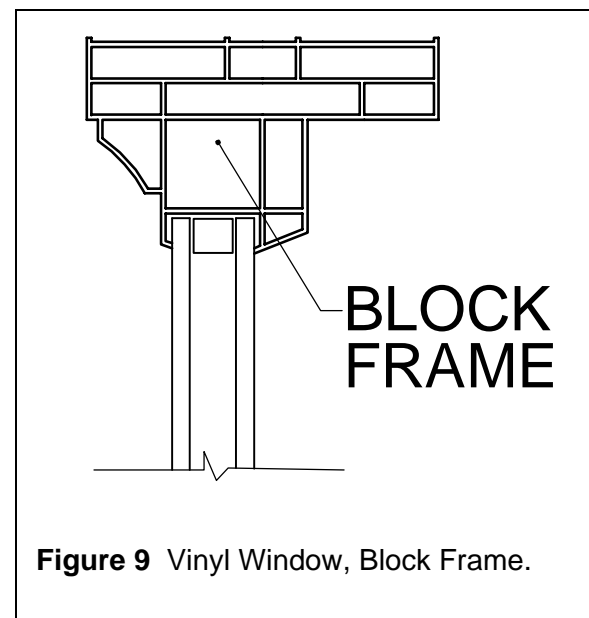
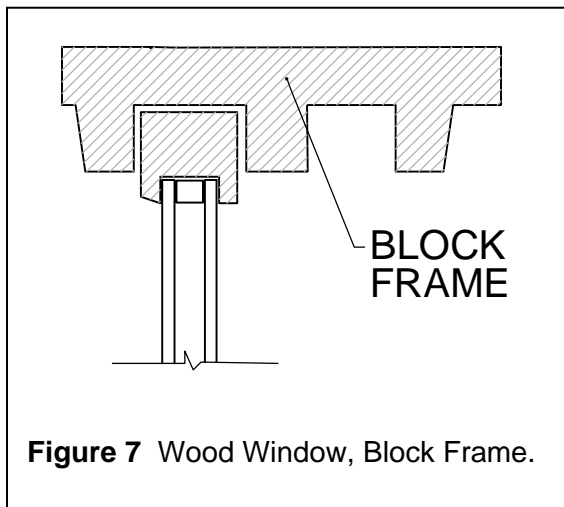
Integral fins

An integral fin is continuous with the frame (e.g., the fin of an extruded aluminum frame or the fin of molded vinyl frame). An integral fin generally is used as a component of the perimeter flashing for the window/door frame. See Figure 6. Polyken® or Nashua® flashing tape is adhered to a watertight nail-on fin thereby extending the effective width of the fin for integration with the weather-resistant barrier of the wall.

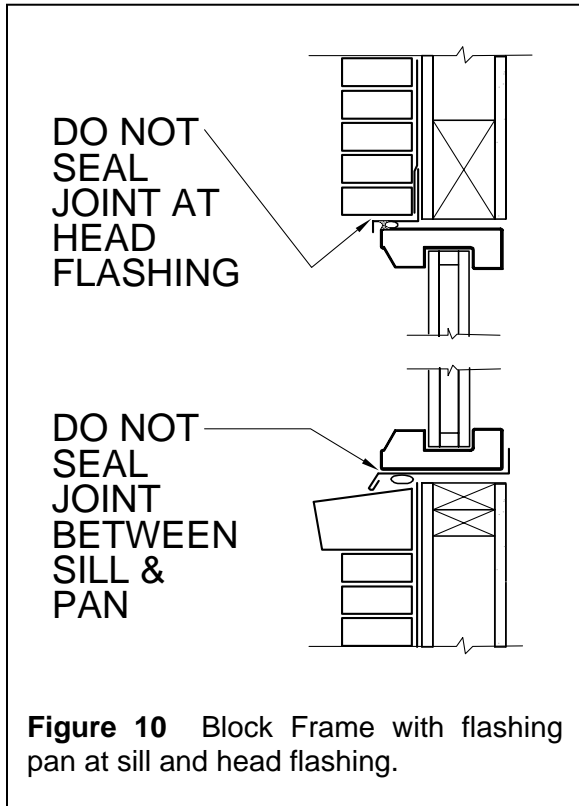


Block Frame Types

Block frames do not incorporate a projecting fin or flange for attaching the window or for flashing. Typical block frame sections are shown in Figures 7, 8 & 9.



Block-framed products need to have a technique for connecting a perimeter flashing to the frame or provisions for sealing the perimeter and including a pan flashing at the head and sill to drain moisture out of the frame opening. See Figure 10.



**Figure 10** Block Frame with flashing pan at sill and head flashing.

Polyken® and Nashua® flashing tape are also used to flash block frame (non-finned) window and door frames. The techniques for flashing block frame windows/doors are described and illustrated in the “AAMA Installation Masters Training Manual” or the “ASTM E2112-07 Standard Practice for Installation of Exterior Windows, Doors and Skylights.”

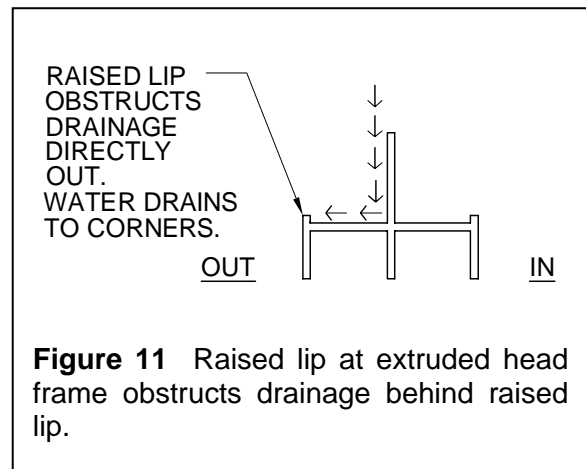
**Supplemental Head Flashing**

A separate pre-formed head flashing (e.g., galvanized steel, stainless steel, copper or

vinyl) is recommended when the head unit of the frame is not capable of directing all water to the exterior.

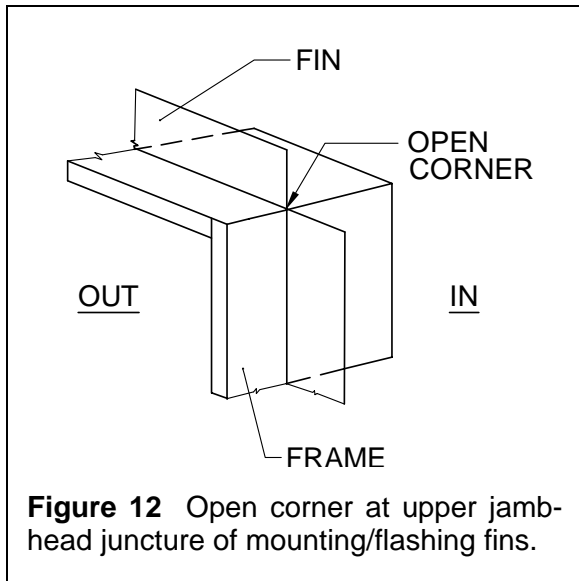
Some examples of problem conditions with many window and door products which prevent complete drainage at the head of the unit are given below:

**Condition 1:** A flat head profile with a continuous raised outer lip creates a dam obstructing water flow immediately to the exterior. Water in this head is directed along the head toward the outer frame corners. See Figure 11.



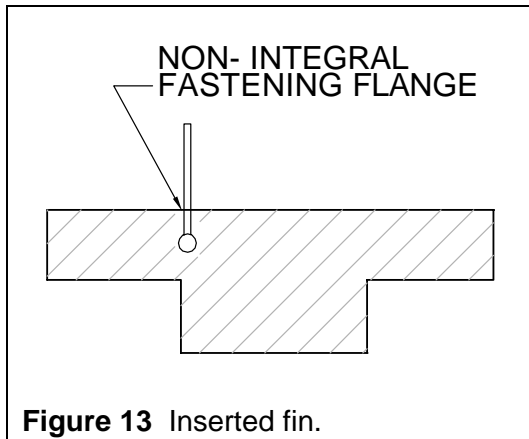
**Figure 11** Raised lip at extruded head frame obstructs drainage behind raised lip.

**Condition 2:** A notched or open corner is provided with no factory, watertight corner seal. The open corner joint can allow water entry behind the otherwise watertight fin. Even with perimeter flashing along the head and up the jamb, the pinhole at the frame notch can allow water entry. See Figure 12.



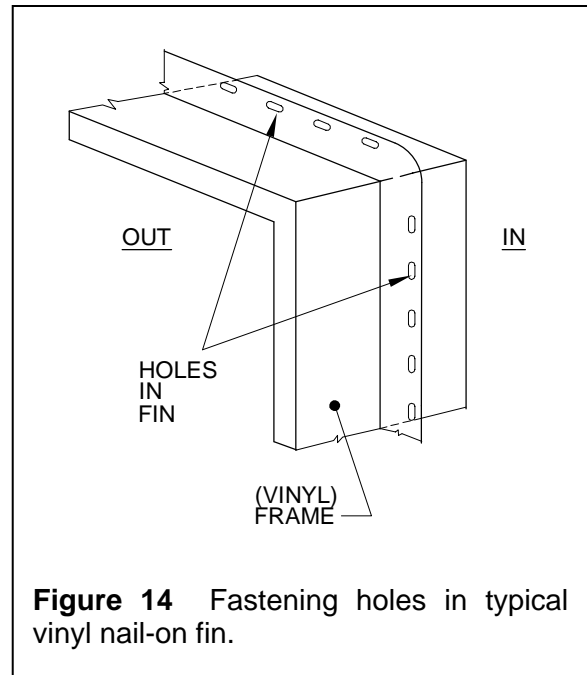
**Figure 12** Open corner at upper jamb-head juncture of mounting/flashing fins.

**Condition 3:** Non-watertight nailing fin. When an inserted fin is used only for fastening the frame, water can enter behind or around the fin-to-frame connection. See Figure 13.



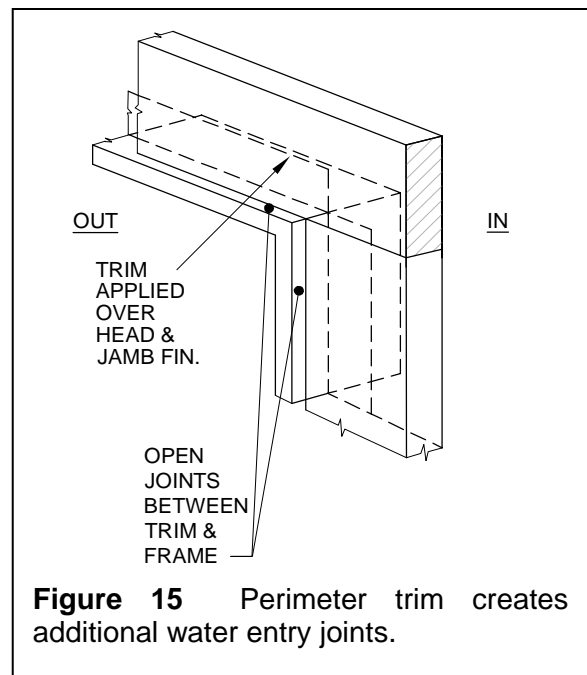
**Figure 13** Inserted fin.

**Condition 4:** Head fin with holes. When the head fin has fastening holes, water can back up and enter through the holes. This condition is especially prevalent with vinyl windows since most vinyl windows have pre-punched frame fin holes. See Figure 14.



**Figure 14** Fastening holes in typical vinyl nail-on fin.

**Condition 5:** Head trim. When head trim is applied over the head frame, two horizontal joints can occur potentially allowing water entry. See Figure 15.



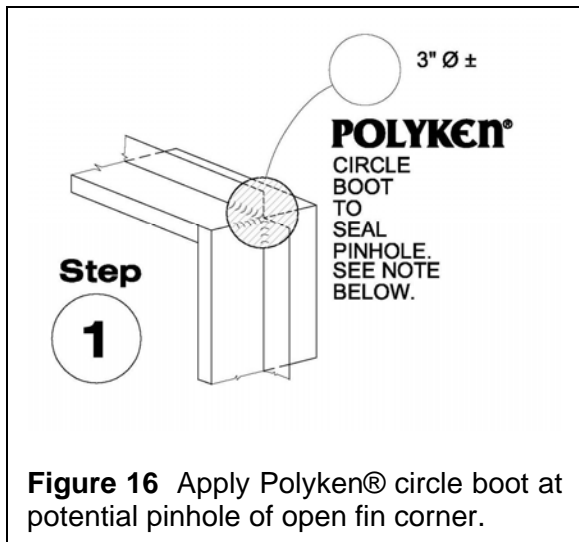
**Figure 15** Perimeter trim creates additional water entry joints.

Supplemental Polyken® and Nashua® Flashing Solves Problems

In lieu of metal head flashing, Polyken® and Nashua® flashing tapes can be used to provide watertight integrity for Conditions 2, 3, and 4 above. Polyken® and Nashua® flashings can be accomplished as follows:

**Condition 2:** Patching open corner notch in fin

Step 1. Apply Polyken® and Nashua® circle boot at position of the potential pinhole. See Figure 16.

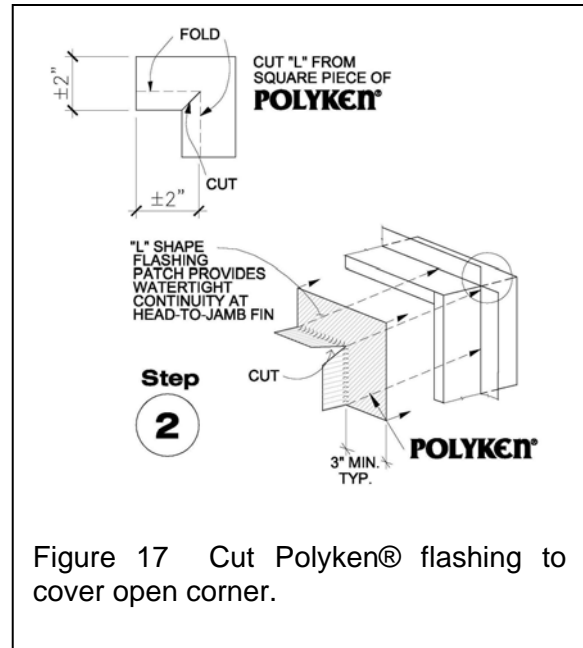


**Figure 16** Apply Polyken® circle boot at potential pinhole of open fin corner.

Note: Alternate—Use Contour flashing for circle boot to conform to corner.

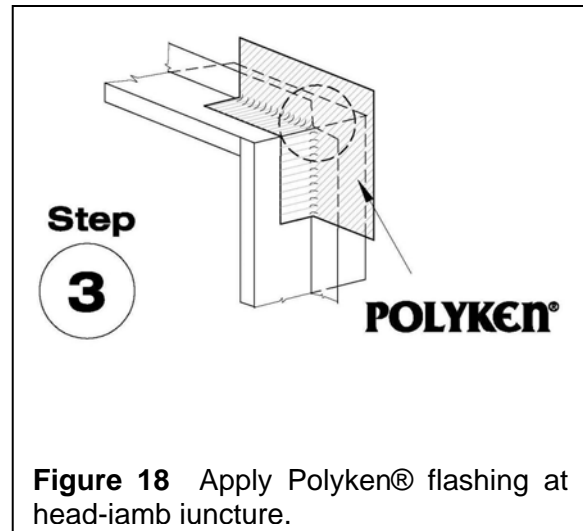
Step 2. Cut an “L” from a piece of Polyken® as shown in Figure 17.

Note: Alternate—Use Nashua® Contour flashing for corner flashing.



**Figure 17** Cut Polyken® flashing to cover open corner.

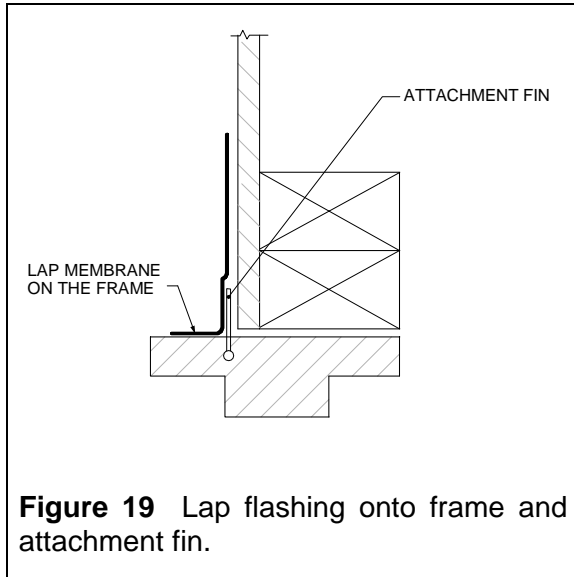
Step 3. Apply Polyken® “L” to shape strip to head-jamb juncture. See Figure 18.



**Figure 18** Apply Polyken® flashing at head-iamb iuncture.

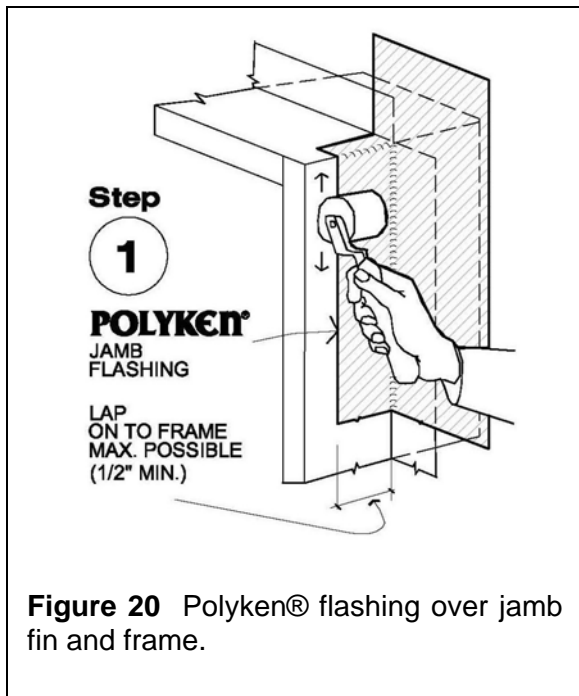
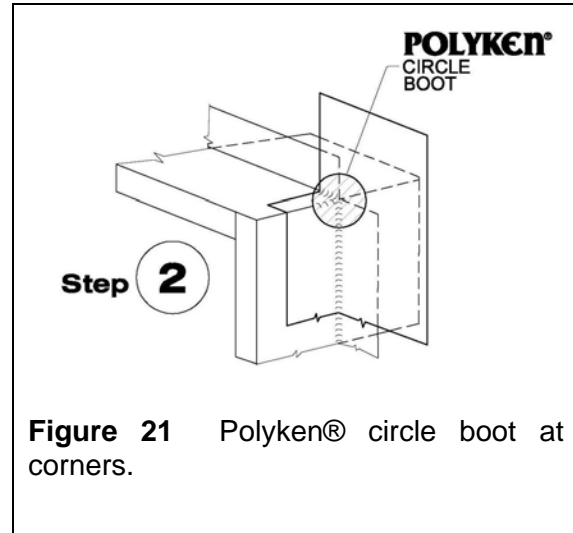
**Condition 3:** Non-watertight nailing fin. Apply Polyken® or Nashua® flashing tape to the attachment fin and onto frame to provide watertight flashing. Lap flashing sufficiently onto the frame and fin surfaces to maintain uniform and continuous

adhesion. See Figure 19. Note: Adhesion to fin and frame material needs to be confirmed with door/window manufacturer. Rolling flashing onto the attachment fin and frame is critical for proper adherence for long-term performance.

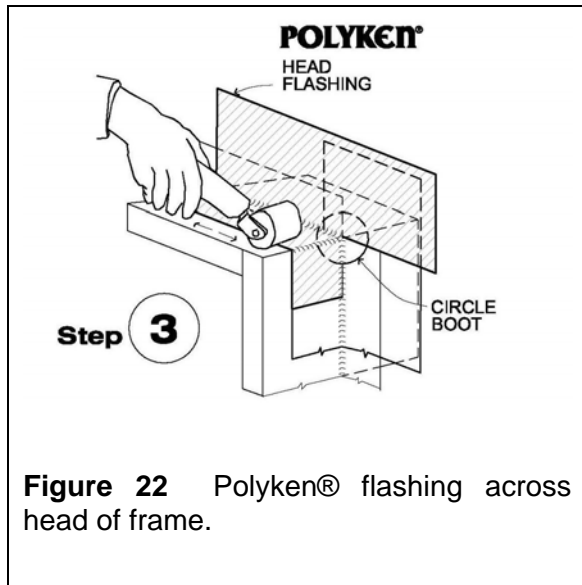


Step 1. Apply flashing on the sides of frame and fin and roll for maximum adhesion. See Figure 20.

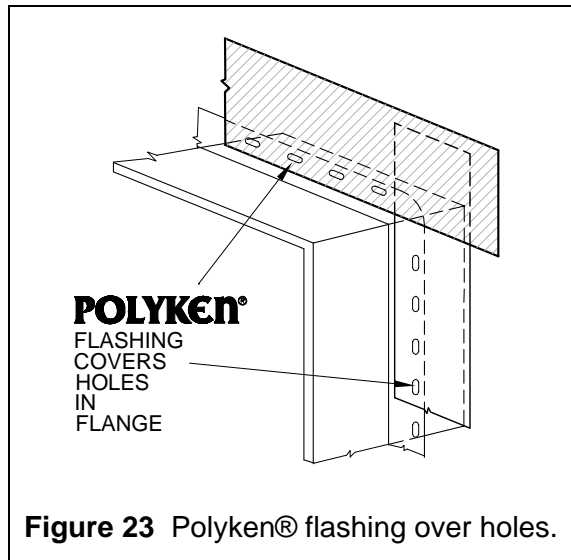
Step 2. Apply a circle boot at the corner where a pinhole would occur. See Figure 21.



Step 3. Apply Polyken® or Nashua® flashing across the head of the frame and roll all head flashing. See Figure 22.

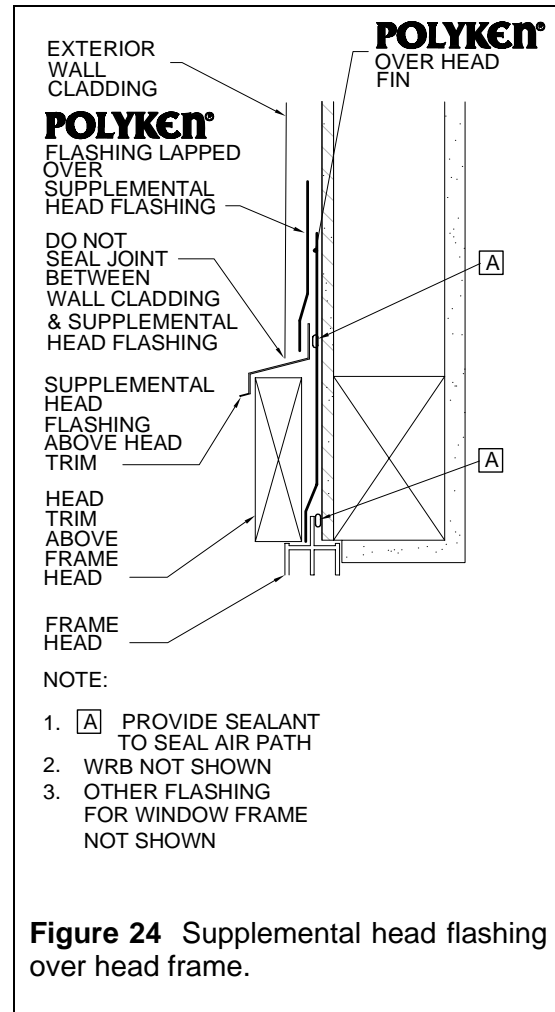


**Condition 4:** Use flashing tape to cover fin fastening holes at head and jamb. Polyken® flashing applied over the fin holes can prevent water entry. See Figure 23.

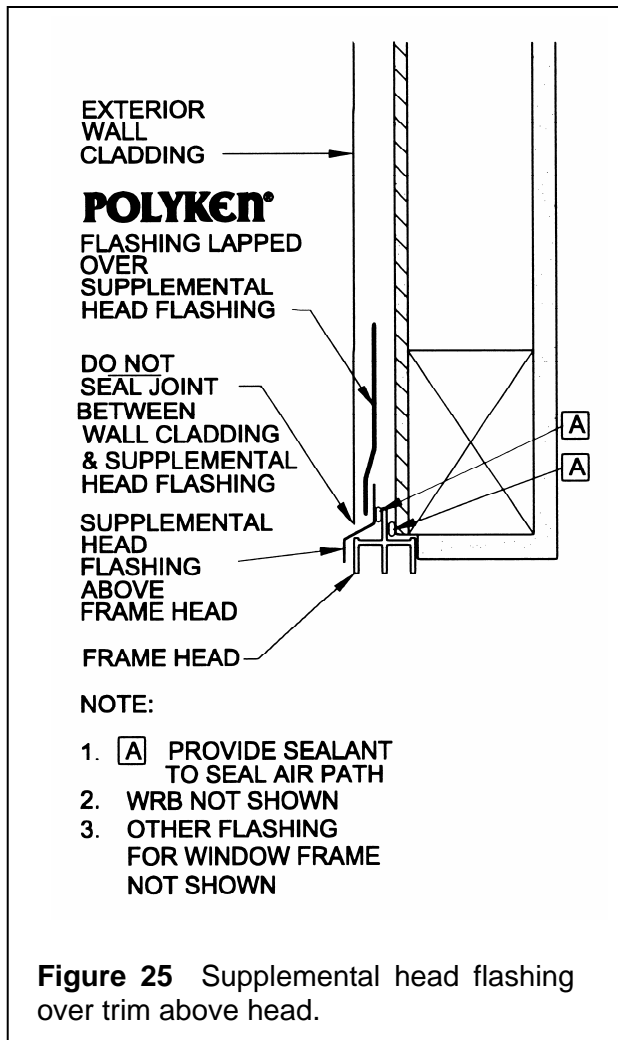


*Supplemental Head Flashing – Lapping the Top*

**Conditions 1, 2, 3, and 4:** The use of supplemental head flashing should include the provision for Polyken® or Nashua® flashing tape applied over the top of the vertical leg of the supplemental head flashing. See Figure 24.

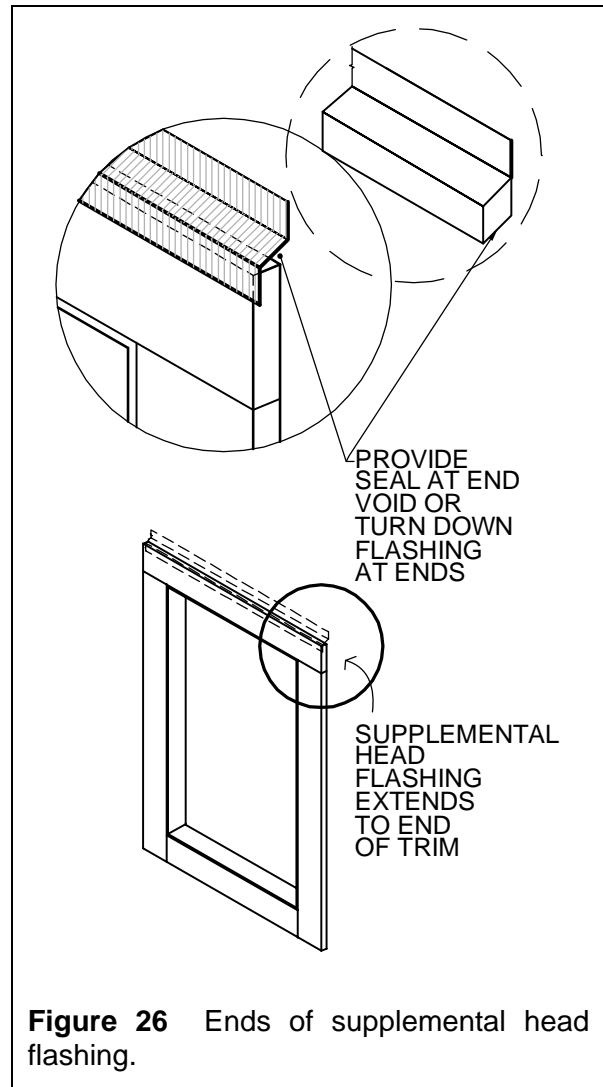


**Condition 5:** Supplemental head flashing is also recommended for trim over the head frame. Many window and door perimeters are trimmed out with an additional piece of exterior casing. Supplemental head flashing can address the horizontal joint created at the trim cladding juncture above the head. See Figure 25.



**Figure 25** Supplemental head flashing over trim above head.

When supplemental head flashing is provided along the top of head trim, the flashing must extend to the end of the trim. See Figure 26.



**Figure 26** Ends of supplemental head flashing.

*Considerations for Cladding Materials*

Generally, the cladding material for most residential and light-commercial buildings relies upon a weather-resistant barrier (WRB), such as building paper or an air barrier (house wrap) that is installed underneath the cladding.

The exterior cladding prevents most of the water entry, and the WRB takes care of the incidental water that inevitably finds its way past the cladding. The perimeter opening flashings are an essential part of the complete WRB and cladding system.

**Wood-Based Siding and Trim**

Wood-based siding, such as clapboards, plywood panels, and shingles, should be separated from window and door frames with a gap that is sealed. The gap dimension may vary depending on the product from 1/8" to 1/2" minimum. When trim around the opening and frame is used, it must also be separated with a gap and sealed.

**Stucco**

Stucco is often applied up to the window/door frame without a perimeter trim. In such case, no perimeter seal between stucco and frame is provided.

When no perimeter seal to the frame is added, the underlying WRB and perimeter flashing needs to be durable in order to withstand recurring and direct water entry from the narrow gap at the stucco to frame joint.

The condition of the sill flashing and the lathing for the stucco needs attention if paper-backed lath assembly is used. The paper and wire must be separated and the top of the paper in the assembly must be installed under the sill flashing, while the wire lath of the assembly must be over the sill flashing.

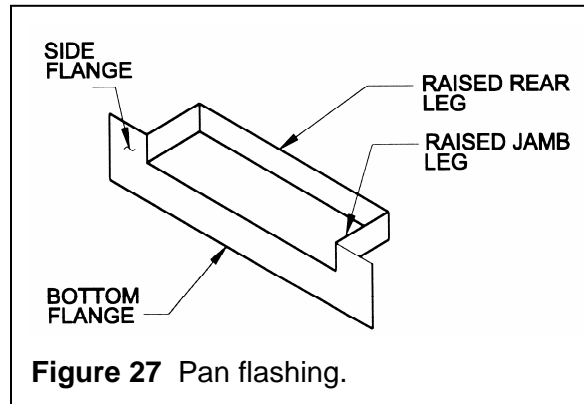
**Vinyl**

Vinyl siding is applied over a WRB and perimeter opening flashing similar to wood-based claddings. When perimeter trim is used around openings, it should be sealed to the fenestration frame and to the vinyl wall siding.

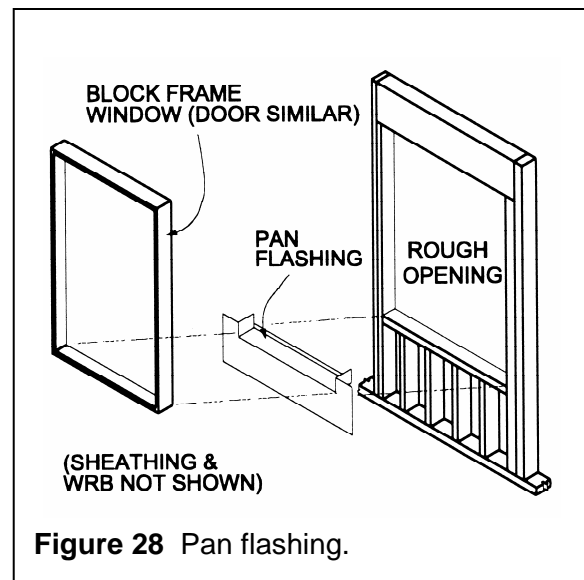
Sill/Threshold Pan Flashing

Sill/threshold pan flashings supplement the perimeter flashing system at the bottom of window and door products. Sill (threshold) pans are generally recommended at all door threshold locations, except where sill nail-on fin frames are used. Sill pans are recommended for all block frame windows.

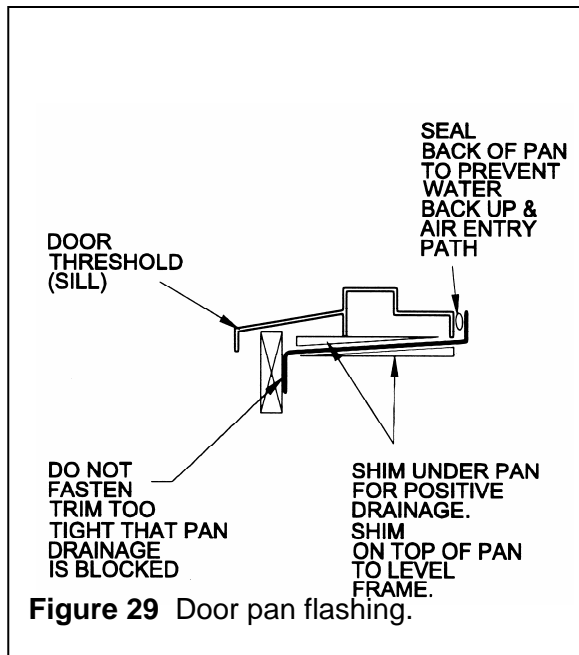
The sill pan can either direct water from the opening to drain to the exterior of the cladding or to the surface of the weather-resistant barrier behind the cladding. See Figures 27 and 28. ASTM E2112-07 recommends sill pans for all types of windows and doors.



**Figure 27** Pan flashing.



**Figure 28** Pan flashing.

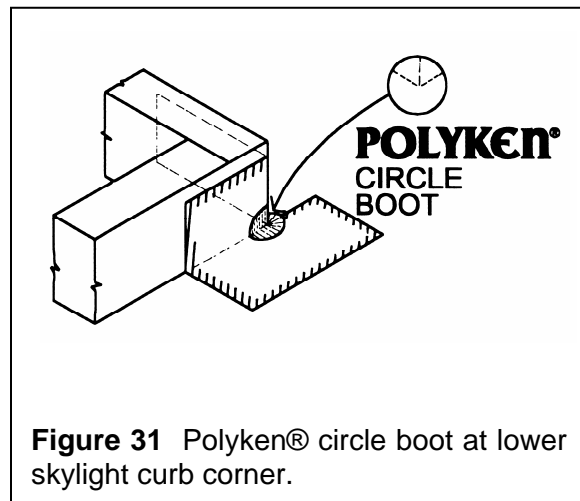
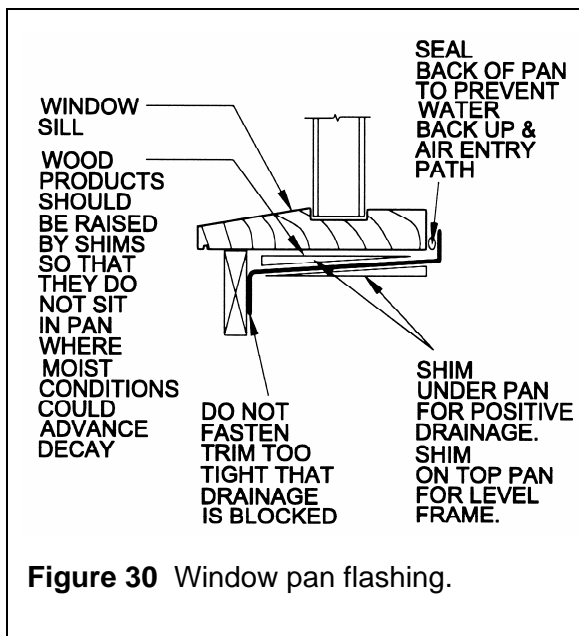


- Type 3: Deck Mount
- Type 4: Inset Mount

A diagram illustrating each of the four types is shown under Flashing Sequence Diagrams on page 6.23.

The perimeter flashing for the four types of skylights is shown in the Polyken® Application details for use with composition shingles. The flashing is similar for other shingle products including wood and cement-based where there is a solid substrate and a uniform application of a roof underlayment, such as asphalt saturated felt.

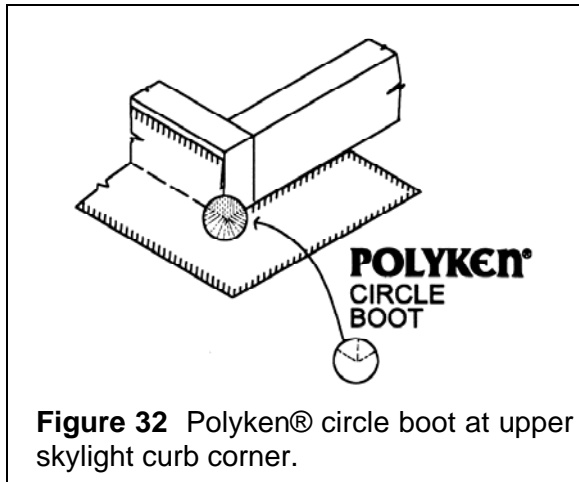
Polyken® or Nashua® circle boots can be used at the curb junctures of skylight flashings. Also, Polyken® and Nashua® circle boots will conform to vertical and horizontal planes at outside corners. See Figures 31 & 32.



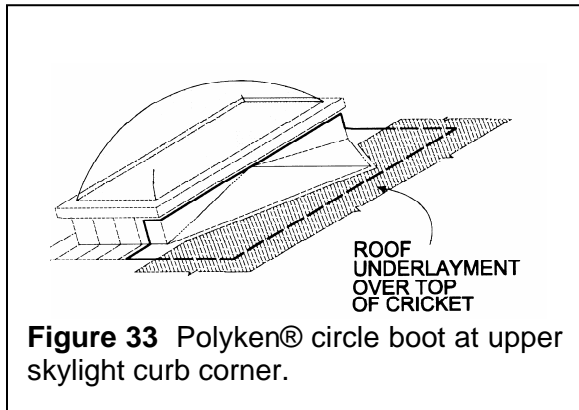
**Considerations for Skylight Flashing**

There are four classes of skylights from the ASTM E2112 Standard:

- Type 1: Flush Mount
- Type 2: Curb Mount

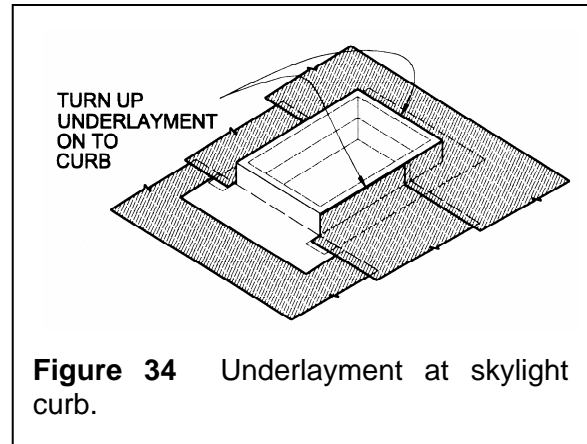


For all skylights it is important to counterflash the top of the skylight saddle or cricket with a strip of roof underlayment that is also counterflashed by roof underlayment further upslope. See Figure 33. With curb mount skylights, turn up the roof underlayment onto the curb. See Figure 34.



See the flashing sequence diagrams for more specific information on skylight flashings.

For roof covering products such as tiles, slate, and wood shakes, the perimeter skylight flashing would vary from the details shown in the Polyken® and Nashua® Application details.



Consult with the specific roofing and skylight product manufacturer to verify the suitability and application of the Polyken® and Nashua® perimeter skylight flashing systems.

### Replacement Windows and Doors

The flashing installation for replacement window and door products is similar to new installations when the exterior cladding is removed around an opening for a sufficient distance to access the existing perimeter flashings.

The installation of the replacement window/door with nail-on fins requires the removal of a portion of the perimeter cladding and the removal of the existing frame. Flashing Methods SAF, A and A1 using Polyken® and Nashua® flashing tapes are an extremely effective and efficient procedure to tie-in the new flashing to the existing flashing or weather resistant barrier. Usually, where exterior cladding is not removed, nail-on windows/doors are not used.

For replacement of block frame windows and doors, or where the exterior cladding around the perimeter is not removed, follow the procedures given in the AAMA Installation Masters Training Manual or the ASTM E2112 Standard Practice for Installation of Exterior Windows, Doors and Skylights.