

Installing Sidewall and Kick-out Diverter Flashing on Homes
with Rigid Foam Insulation Sheathing

**BUILDING AMERICA ENERGY
PERFORMANCE BRIEF**

Improving Existing Homes:

Installing Sidewall and Kick-out Diverter Flashing On Homes with Rigid Foam Insulation Sheathing



Improper flashing can allow rain water into walls, causing significant damage (Source: DryFlekt Products, Inc.).

When to Do This

When wall-roof intersections lack flashing or properly sized kick-out diverters.

Durability & Health

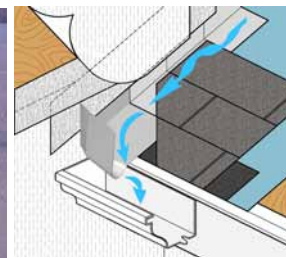
Untreated water intrusion into wall cavities can quickly lead to material damage and mold. If left untreated for too long, structural damage can result.

Deluging rains can pour thousands of gallons of water onto a home's roof in a single storm. In fact, 1 inch of rain can deposit 1,240 gallons of water on a 2,000-square foot roof. In house designs where roofs intersect walls, much of this water is channeled along the wall to a gutter. In big storm events the water can often overflow the gutter and stream down the walls. Diverters are sometime fashioned on site in an attempt to direct this water into the gutters. If undersized, these diverters are not very helpful. If not properly integrated with the existing housewrap and cladding, they can allow water to penetrate behind cladding and weather-resistant barriers. The result can be significant damage to wall sheathing, framing, and insulation and mold inside the house. While older wood siding would show evidence of this water intrusion by peeling paint, new wall claddings like fiber cement, vinyl siding and brick veneer can mask the evidence for years.

Proper flashing that is correctly integrated with housewrap and cladding along roof-wall intersections and kick-out diverters that are seamless and adequately sized to direct flowing water into the rain gutters are important tools to keep the wall cladding from being saturated by flowing water.



(Source: Steve Easley)



(Sources: DryFlekt Products, Inc.)



(Source: DryFlekt Products, Inc.)

(left) Improvised deflectors that are improperly integrated into the wall flashing and gutter are rarely sized to handle the volume of water that can run off the roof in a large downpour and they may contribute to water entry into the wall. To keep the water out, flashing should be integrated with the house wrap, siding, and shingles or roof tiles (center) and the diverter should be seamless and adequately sized to direct all of the water volume away from the wall and into the gutter (right).

Water runoff from rain storms can run along roof-wall intersections and spill over gutters to flow down exterior walls. If flashing is lacking or inadequate, this water runoff can get inside the wall and cause serious damage. Anywhere roof sections adjoin wall sections, sidewall flashing should be used to keep water from entering the walls and kick-out diverters should be used to direct the rain water into rain gutters where it can be carried down and away from the structure. The kick-out flashing should be seamless and sized as shown in the photos at right to manage large volumes of water run-off associated with torrential rains from a variety of roof pitches, with an expected service life to avoid premature failures. (Photo source: DryFlekt Products, Inc.)

Reference

DOE. 2011. *Building America Best Practices Series, Volume 15: 40% Whole-House Energy Savings in the Hot-Humid Climate*, PNNL-20768, U.S. Department of Energy. www1.eere.energy.gov/buildings/building_america/publications.htm.

2009 and 2012 IRC R703.8

Code Requirement for New Construction and Additions

Approved corrosion-resistant flashing shall be applied shingle-fashion in a manner to prevent entry of water into the wall cavity or penetration of water to the building structural framing components... flashings shall be installed at all of the following locations: ...6. At wall and roof intersections. R903.2.1 Locations. Flashings shall be installed at wall and roof intersections.... A flashing shall be installed to divert the water away from where the eave of a sloped roof intersects a vertical sidewall.

For More Information

www.buildingamerica.gov
 EERE Information Center
 1-877-EERE-INF (1-877-337-3463)
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How to Install Sidewall Flashing and Kick-out Diverters - On Homes with Rigid Foam Insulation Sheathing

- 1 Apply drip edge and roof underlayment over roof deck and continue lapping up the sidewall and over the water-resistive barrier (in this case rigid foam insulation) a minimum of 7 inches.
 - Install shingle starter strip at roof eave in accordance with roofing manufacturer's instructions.
 - Place seamless, one-piece, non-corrosive kick-out diverter flashing as the first piece of step flashing.
 - Slide kick-out diverter up roof plane until the starter trough stops at the shingle starter strip. Diverter must be flat on the roof and flush to the sidewall.
- 2 Fasten and seal diverter to the roof deck and starter strip. (Do not fasten to the sidewall.)
- 3 Place first shingle and next section of sidewall flashing over up-slope edge of diverter, lapping a minimum of 4" over diverter. (Sidewall flashing height requirement should be determined by design professional and local building codes.)
- 4 Install remaining sidewall flashing, appropriate counter flashing and shingles in accordance with manufacturer's instructions.
- 5 Apply self adhesive flashing over top of wall flashing, diverter and rigid foam insulation.
- 6 Apply construction tape over the self-adhered flashing. Apply siding over rigid foam insulation.

