

RETROFIT Improvements

Improve Window & Door Flashing/Sealing

Making
Homes
Safer in
Disasters

Retrofit Opportunity

- At window or door replacement
- At siding replacement
- Caulking can be done anytime to promote durability and air tightness

Purpose

- To prevent moisture and air from entering into the home around windows and doors
- To provide redundant barriers to water and air entry around wall openings

Benefits

- Improves durability
- Improves energy efficiency
- Keeps out moisture and mold which enhances indoor air quality

Hazards

Wind



Rain



Flood



Seismic



Fire



Snow



Summary

Water intrusion around window and door openings can cause structural degradation and fastener corrosion that weakens the window or door frame or even the wall itself. Water intrusion can also lead to preventable building damage such as water damage to interior finished surfaces, furnishings, and mold growth.

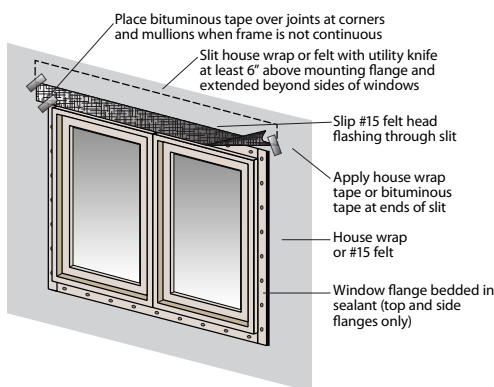
Like the roof, walls and openings in walls require redundant barriers to shed water regardless of the type of exterior cladding and trim used—or the direction, frequency, and duration of the wind and rain. Lapped flashing will direct the flow of water that naturally penetrates behind some cladding, like vinyl, downward and away from the window or door. Flashing at the side and head of an opening is usually installed over sheathing and a weather resistant barrier (WRB) after the window is installed. The window flanges also act like flashing. Pan flashing, installed at the window sill or door threshold, goes in before the component (i.e., the window or door). Manufacturers will provide recommended flashing instructions for their product(s).

Caulks, adhesives, and sealants are another way to seal abutting joints, like trim and window frames, from water penetration. Durability of these depends on the elasticity of the sealant, the size of the gap, and the movement of the abutting components. Salt and sunshine (ultra-violet rays) can deteriorate caulk and prematurely degrade the seal. Because of this, sealants are best employed as the secondary barrier and should be regularly inspected and maintained, where accessible. Window and door manufacturers will often specify that a bead of caulk be placed behind integral flanges and molding in prehung door assemblies as an additional precaution against water intrusion.

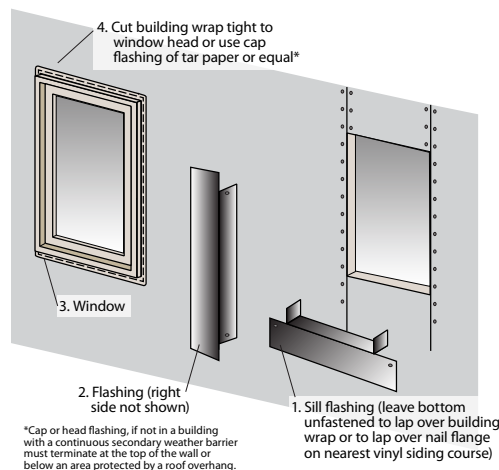
All window and door replacement scopes of work should include new flashing at the opening. The materials and work may require an additional \$8 - \$15 per window.

Illustrations

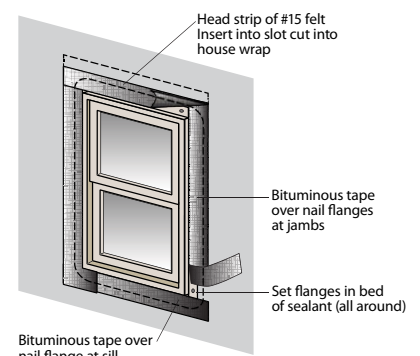
Retrofit



Window Flashing Illustration
(building wrap installed prior to window, typical nail flange installation)



Window Sill and Jamb Flashing Detail
(building wrap installed after window)



Window Flashing for Severe Weather
(areas subject to frequent wind-driven rain)

Potential Damage



Photo: www.fema.gov

Key Steps

- This retrofit is easy when a replacement project is scheduled at the same time.
- Detailed information about window and door installation is provided in the American Society for Testing and Materials (ASTM) standard ASTM E 2112. The standard concentrates on detailing and installation procedures that are aimed at minimizing water infiltration in new construction. Installation of new windows or siding will present the same opportunity as that of new construction, so follow the best practices outlined in ASTM 2112.
- Your contractor may have additional ideas on how to improve the safety of your home.
- For more details about this retrofit improvement, please refer to the list of Resources in the section below.

Resources

DOE, *Window Installation*

http://www.energysavers.gov/your_home/windows_doors_skylights/index.cfm/mytopic=13470

EPA, *Technical Guidance to the Indoor airPLUS Construction Specifications*

http://www.epa.gov/indoorairplus/technical/moisture/1_6.html

FEMA, *Home Builder's Guide to Coastal Construction*

<http://www.fema.gov/library/viewRecord.do?id=2138>

NAHB Research Center, *Flashing Products*

<http://www.fema.gov/library/viewRecord.do?id=2138>

Rob Moody, *Installing and Flashing Windows Correctly*

<http://www.finehomebuilding.com/how-to/install-replacement-windows-and-flashing-correctly.aspx>

