

# Fenestration Installation

*Navigating the variables*



By  
**Rich Rinka**

No matter how stringent the building code or the underlying performance standard, proper installation is the ultimate key to performance quality of fenestration products. This can be more complicated than it may seem at first glance, owing to the variety of product configurations and the types of exterior walls into which they are to be installed.

Despite its importance, installation does not reduce to a “one size fits all” methodology. To start with, the many different window and door types and mounting configurations, and the differing construction of building walls into which they must be mounted, create a matrix of approaches to enable as-designed performance quality.

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The critical consideration is to be certain that the window or door is fully integrated with the building’s Weather Barrier System, thereby maintaining the integrity of the “drainage plane” of the exterior wall. This drainage plane is the vertical surface that prevents moisture from gaining access to the interior by channeling it down and away from the building and is the last line of defense against water leakage.

The fenestration units, along with all components, act as a part of the drainage plane to shed rainwater from the roof to ground. When installing windows or doors, particularly in retrofit/replacement applications, the installer should be able to clearly define and understand the types of weather barrier systems. This is particularly important in how they relate to the existing water resistive barrier (WRB).

## Barrier systems

The type of WRB is based on where the drainage plane is located. Two different weather barrier systems are commonly used in residential and light commercial construction.

A **surface barrier** system utilizes the outermost surface of the wall (including windows and doors mounted therein) as its sole barrier to shed and control water infiltration. Walls considered to be surface barrier systems are often solid walls (e.g., single width masonry, poured concrete walls, concrete block and others) that do not have interior cavities.

In a **membrane/drainage system**, the drainage plane—formed by a WRB such as building paper, house wrap, sheathing, or other water-shedding material—is located behind the exterior cladding (such as siding or brick veneer). It is coupled with a weep system throughout the wall and flashing at the base of each wall. Some form of air space between the cladding system and the drainage plane is essential to allow this drainage to take place, such as by attaching siding to furring strips rather than directly to the WRB-covered sheathing.

With either system, WRB components are typically applied in weatherboard (shingled) fashion in which upper layers overlap lower layers, channeling rainwater to drain downward.

For installation in walls of these types, windows and doors are manufactured in three main mounting configurations: mounting flange, block frame and flush fin. The installation process varies depending on the product configuration and the type of wall into which the product is being installed.

## Mounting flange windows and doors

Mounting flange windows and doors, commonly referred to as nail fin products, are used in buildings using a membrane/drainage system. They are designed to be attached with fasteners



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that extend through the mounting flange and penetrate the building sheathing into the rough opening framework. Additionally, flashing and sealant are applied to connect the fenestration product and the WRB.

Block frame windows and doors are most often used in buildings that are built using a surface barrier wall system. When working with solid masonry walls, a separate site-built framework, known as a wood buck, is usually employed to facilitate installation, anchorage and sealing of block frame windows. A sealant joint must be used between the unit and the exterior building surface to shed water away from the building. Block frame products can also be used in membrane/drainage system wall systems when care is taken to properly integrate them with the WRB.

### **Flush fin windows and doors**

In flush fin products, the fin is moved forward to be flush with the exterior surface of the frame. The fin is not to be used as a mounting flange for structural attachment; only as a means to facilitate integration with the WRB. Flush fin products are used primarily in retrofit applications, i.e. where the existing window frame is not removed.

It is important to remember that the manufacturer's installation instructions are to be followed in all cases. But, if the manufacturer doesn't offer them, the instructions in AAMA's InstallationMasters program can be used as a guide. The InstallationMasters program, based on accepted industry installation standards, trains and offers credentials to window and door installers. For more information, visit [installationmasters.com](http://installationmasters.com). ■

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Rich Rinka serves as technical manager, standards and industry affairs for the American Architectural Manufacturers Association, [aamanet.org](http://aamanet.org). Rinka previously worked in the industry as a field technical engineer for a component supplier and developed and holds four patents related to sealants.