WEB BASED
APPLICATION SPECIFIC
INSTALLATION INSTRUCTIONS

Outside-In Box Frame Replacement

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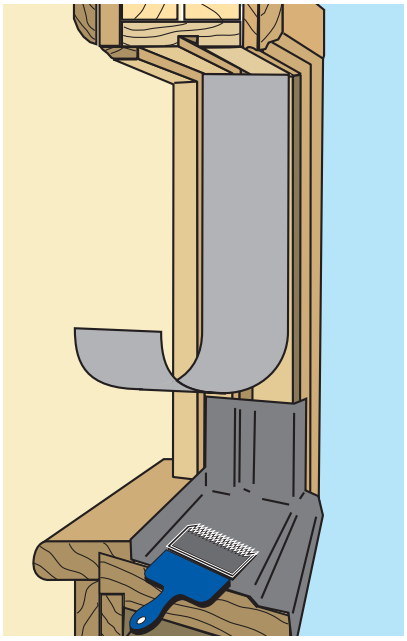
Outside-In Installation of Box Frame Windows

Box Frame Installation of vinyl replacement windows is based on "blindstop" techniques where the window is set into the opening from the inside of the house. Outside-In installation is accomplished from the outside the house and leaves the interior stops intact. Paring away the exterior blindstop, removing the parting stops and both sash provides a clear opening to install the window from the outside without disturbing the interior and without having to lift it over the stool to place it in the opening.

This is an advanced technique that is somewhat more complicated than the traditional "blindstop" method. But its advantage lies in giving satisfactory results while probably being a more effective method for installing all vinyl replacement windows. But, it is important that the old window frame is adequately integrated into the water management system of the wall, or you should use frame out techniques.

Outside-in installation will require access to the opening from outside the house, and though the window can be passed out of the opening from the inside before it is set in place, it may be an advisable and safer method to set the window in place from the outside. For openings above the ground floor, or for large or heavy windows, it is not recommended that outside-in installations be done by one person.

Proper Flashing is recommended



If you leave the old frame in, and install from the outside, it is best to "flash" the opening.

Using liquid flashing on the sill, a pan can be created that will allow any water intrusion to drain to the outside.

Using adhesive-backed applied flashing on the jambs and header, make sure the jamb overlaps the sill, and the header flashing overlaps the jambs.

Making the Decision

The decision to install a replacement window from the "outside in", against the interior stops, by removing the exterior stops, requires more outside work, but this method of installation has many added benefits:

1. The interior stops don't need to be removed and replaced which makes a better looking installation since there is no damage to over-painted interior stops or moulding, etc. The job is cleaner and neater.
2. Since the exterior is to be re-finished in most instances, there is a work savings by not having to remove and replace the inside stops.
3. It is easier to brake and install capping to finish off the exterior of an opening without a blindstop than to cover an old blindstop. The capping looks better, too.
4. Most Replacement Windows without head expanders fit better against interior stops without the 1/8" offset of the material thickness of the expander.
5. The installation is more energy efficient and requires no insulation stuffed into the head expander..
6. More glass and egress area is possible without a head expander. The window can be made taller.

These advantages have to be weighed against the labor of chipping away the blindstop and shimming and squaring the opening from "outside". The diagrams show that the exterior "blindstop", when removed, clears the opening allowing a full height, full width window to be securely installed without the use of a head expander.

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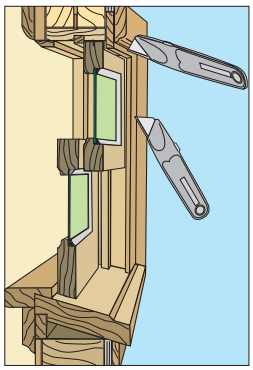
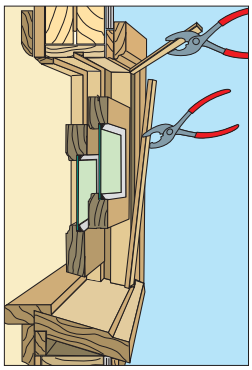
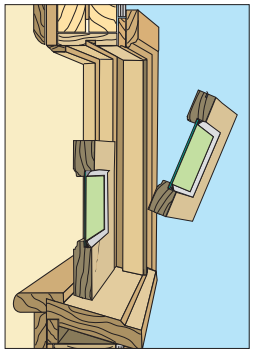
How To Install from the Outside In

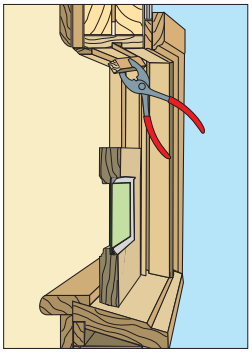
1. Installation procedures are basically the same as with "inside-out" installations except that the exterior " blindstop" is chipped away with the flat wood chisel which will free the upper sash of the old window first.





2. The parting stop is removed as in other installations which will free the upper sash.

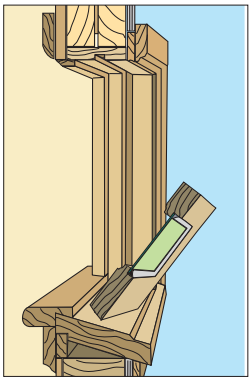


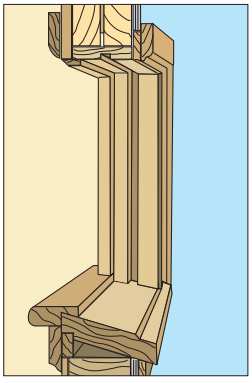


3. Windows with aluminum tracks are removed as a unit once the "blindstops" are removed.

4. The only other difference is that the interior stops are undisturbed and left intact. The new window will be applied “against” the interior stops in the same fashion as against the exterior blindstop.

5. Once the old pulleys, cords, and chains are removed, and the opening cleared of debris, caulk the interior stops.



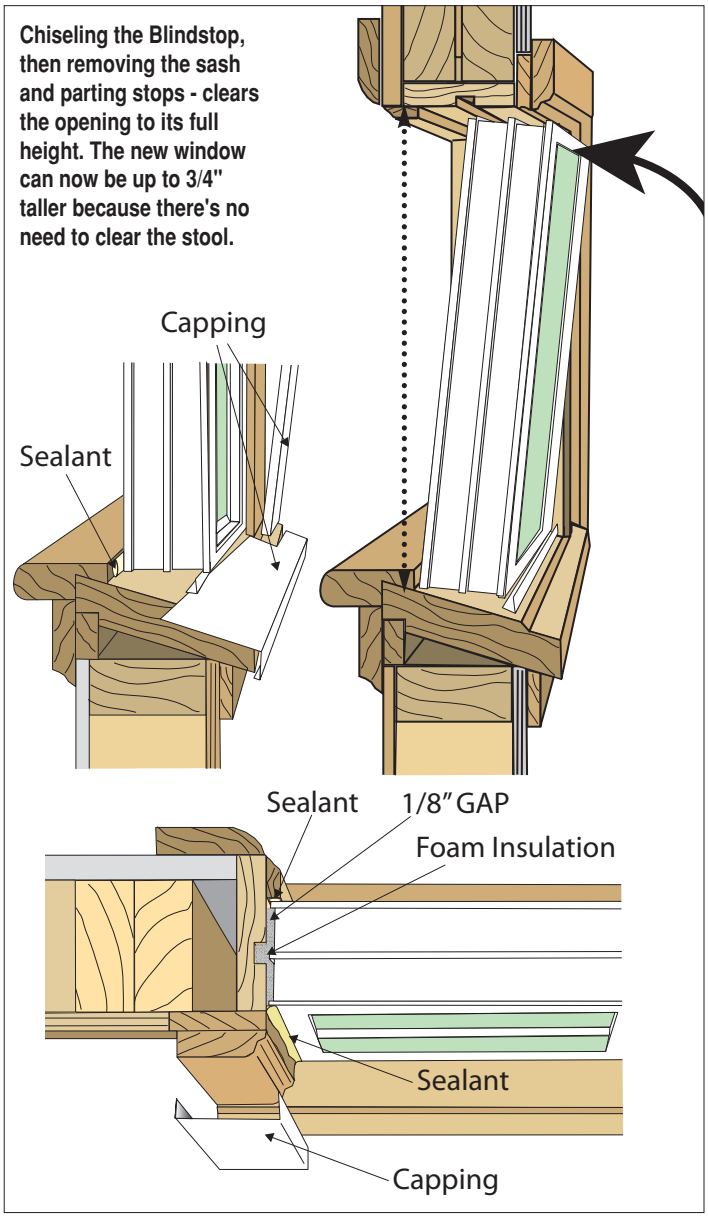


6. Put the window outside the opening. Then, resting the bottom of the window on the sill, tilt the window back in toward the interior stops. This, in effect, places the window upright, against the interior stops, and seals the opening.

7. Temporarily secure the window. A sloped sill requires support for the outer edge of the window. A sill angle cut to the proper length can be used. Apply adhesive based caulk along the bottom surface of the sill angle to adhere it to the sill and slide it up under the bottom of the window until it is snug.

8. Once secured in the opening, the new window can be opened, and the screws installed to mount the window to the frame. Plumb and square the window in the opening. Shim as necessary using flat shim stock behind the mounting screws.

9. Capping made from coil stock, or new exterior moulding, can now be applied on the outside against the new window. Following the caulking guidelines, caulk the window and capping or moulding where they meet - to help secure it in the opening, and seal the installation against the weather.



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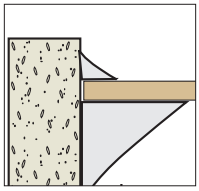
Picking the Proper Sealant

AWDI understands that the application of a sealant is as crucial as the choice of sealant. When a bead of sealant is applied to a joint there are severable factors to consider:

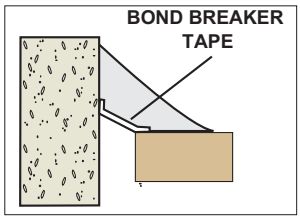
- Adhesion
- Flexibility
- Durability
- Compatibility
- Temp, Weather, Exposure)
- Aesthetics

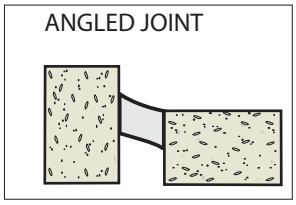
Within these three performance aspects there are countless combinations of applications, substrates and conditions a sealant is exposed to.

Bedding Joints:
For bedding joints, it is especially important that the sealant meet AAMA 800-802, and is of the right consistency and made up of 100% solids so it will not shrink after cure, unlike solvent and latex based sealants that shrink and create gaps after curing.

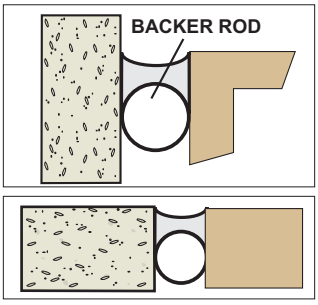


Fillet Joints:
A fillet joint is formed when two surfaces come together to form a right angle. The sealant used to join these two surfaces is triangular in shape. The sealant must adhere to the variety of substrates you're faced with. Without strong adhesion there is a high chance that the sealant will pull away from the substrate allowing for air and water infiltration.





Control Joints:
A control joint is formed when two similar or dissimilar materials meet or when substrates do not form a right angle. This joint will require both a backer rod and sealant for proper application. This joint can be as wide as 5/8 inch and be prone to extreme movement, a highly flexible sealant is necessary for a reliable seal with this application. In order to successfully install a window or door and effect a lasting weathertight seal, AWDI recommends an ASTM C920, Class 50 sealant such as premium DYNAFLEX® from DAP as a good representative to seal the exterior joints of windows and exterior finish materials. The best choice is a sealant that meets AAMA 800-802 to assure proper adhesion to the most common building materials and that is compatible with WRB and flashing tapes; and can be ued in a wide temperature range and wet surfaces.



Desired Properties

- No Shrinkage
- Locks out air and water infiltration to protect integrity of the seal
- Proven Wet Surface Application
- Ability to use the same sealant in warm and cold temperature situations to produce consistent results. 0F – 140F cold and warm weather application
- Strong Adhesion / All Surfaces Will stick to even the most difficult to bond building materials
- 5X stretch, 50% joint movement Long term durability assurance even with expansion and contraction of building materials
- 24 hour fast cure, paintable 1 HR. Fast cure to protect the building structure from outside forces and quick paintability saves time
- Achieves bubbling resistance faster to ensure optimal aesthetics
- 4,600 + Color Matches ensures perfect color match to all primary building materials
- Dirt & Dust Resistance ensures optimal visual appeal long after an installation
- UV Resistance
- Long term durability to compliment the durability of the building structure

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Spray Foam Insulation

While the term “Spray Foam” is often widely used in construction, there are two different types and each has its advantages and disadvantage.

Spray foam has been shunned by window installers and manufacturers over the years because foams, in the past, have either continued to expand after trim has been applied deforming the more pliable vinyl window frames, or because they have been over used to fill the gaps left when old windows are removed and the underlying rough opening has been exposed.

Make sure the foam you use has been tested in accordance with AAMA 812 and meets standard for low pressure development.

Most standards applying to window installation do not delineate between open cell foam and closed cell foam, the more popular “minimal expansion” foams are most frequently used and they are mostly closed cell. More confusing yet, is when foams are recommended, the compressed foam tape alternatives are called out to be open cell.

When it comes to Spray Foams, it helps to understand the differences.Open-cell spray foam (ocSPF) has a cell structure where the cells are filled with air. The open-cell structure renders soft, flexible foam, with a density of about 0.5-0.8 pounds per cubic foot (pcf).

The R-value per inch of open-cell foam typically ranges from R3.6 to R4.5 per inch. Unlike fiberglass and cellulose, the fine cell structure of ocSPF makes it air-impermeable at certain thicknesses. The air-impermeability of ocSPF qualifies it as an air-barrier material, dramatically reducing air leakage through the building envelope, significantly lowering the building’s heating and cooling costs. However, ocSPF, like fiberglass and cellulose insulations, is moisture-permeable, and may require the installation of a vapor retarder in colder climates.

Closed-cell spray foam (ccSPF) has a closed cell structure which yields rigid hard foam, with a density of 1.8-2.3 pound per cubic foot (pcf), and can provide structural enhancement in certain framed buildings. The smaller cells trap insulating gas from the curing, which has a lower thermal conductivity than still air, and increases the R-value to anywhere from R5.8 to R6.9 per inch.

Like ocSPF, ccSPF is also air impermeable at certain thicknesses and can qualify as an air-barrier material. The bigger benefit is that the closed-cell structure of ccSPF also makes it water-resistant, and is the only spray foam that can be used where contact with water is likely.

At a thickness of 1.5 inches, no additional vapor retarder is required for most applications.

Desired Properties

- Make sure the foam used has been tested in accordance with AAMA 812 and meets standard for low pressure development.
- Quick Setting Formulation: can be cut or trimmed in less than 1 hour
- Cold Temperature Application: can be applied in temperatures as low as 14F
- Insulation Value of R5: makes it an efficient method for stopping air and moisture infiltration
- Remains Flexible Once Cured: will not crack or dry out

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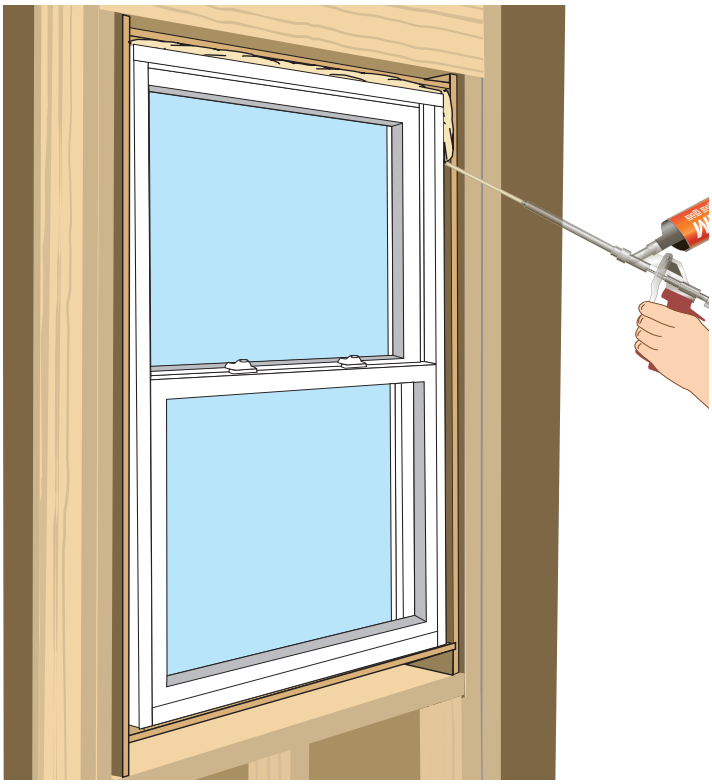


Using Spray Foam

For the best installation, it is necessary for the gap around the window or door to be sealed to block out air, water and vapor penetration. ccSPF can do that well if selected and used properly. Improper use can create water traps, impede drainage and exert excessive pressure to the window frame during expansion.

Remember: Vapor barriers need to applied on the warm side of the opening. Double vapor barriers (one on the warm side and another on the cool side) encourage condensation between and will trap the resulting condensation. Also, window installation cavities (the space between the window frame and the rough opening, or left-in-place old window frame) need to "breathe" to the outside, and allow drainage of collected water to the outside.

Used wisely, ccSPF can be the best solution. AWDI recommends DAP® DRAFTSTOP 812 Window and Door foam. DAP® DRAFTSTOP 812 also achieves a thermal performance of R-5 per inch.

Application

DAP DRAFTSTOP Foam is applied using a Foam Applicator Gun. This foam and gun combination allows for more precise application than the straw grade foam alternative. This gun offers a rear valve used to control the size of bead applied into the openings. The valve also allows the life of the foam to be extended by closing the opening of the barrel for future use.

For even smaller openings, a detachable screw on top is included with the gun to be able to fill gaps as small as ¼" wide.

Important tips:

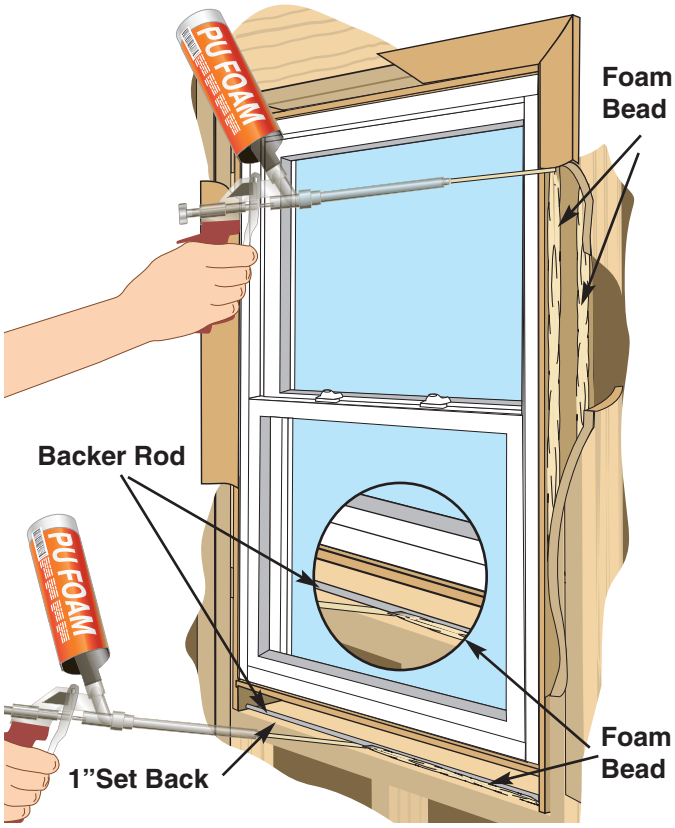
• Similar to the sealant gun, it is critical that you balance the movement of the foam gun or straw barrel and how you dispense the foam so that the foam makes contact with both the rough or existing window frame and replacement window frame.

• If the dispensed foam does not make contact with both the rough frame and the window frame, there won't be an adequate bond to seal out water and air.

• Industry Standards suggest application of 1 inch beads, separated by an equal space. Be careful not to create two vapor barriers - one at the exterior and one at the interior. Make sure there is the ability for the opening to breathe to the cold side for drying and drainage. Use backer rod about one inch in the sill as a stop to make a workable back dam

• When applying foam around the perimeter of the window or door, you must maintain a minimum depth of 1 inch. This depth is required to provide the correct thermal performance, to help improve energy savings, and to protect against condensation problems.

• When applying foam as a back dam to the gap between the window frame and the rough sill, do not allow the foam to extend to the exterior edge of the opening. Maintain a minimum of a 1 inch gap between the foam and the exterior edge of the rough sill. If foam fills this gap at the sill, any water from leakage will not be able to drain to the drainage plane or exterior cladding surface. Place backer rod the length of the sill, 1" from edge and use it as a back dam guide.



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