



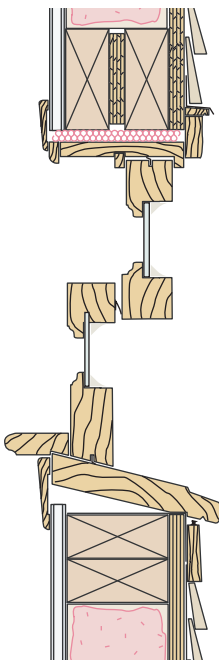
## WEB BASED APPLICATION SPECIFIC INSTALLATION INSTRUCTIONS



# Frame-In Box Frame Replacement

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# Frame-In Installation of Box-Frame Vinyl Replacement Windows



If you have determined that the old wood window frame is adequately interfaced with the existing wall's water management system, Vinyl Replacement Windows are designed to fit neatly and effortlessly into the opening left by the removal of the existing sash in an old wood window. Sized perfectly, the 3-1/4" frame fits into space where the sash and parting stops were.

The head expander and sill angle which are supplied with most vinyl windows accommodate the variances that time and weather made in the old window frame.

The new window is anchored to the old wood window frame - against the exterior or "blindstop", and the interior stops are re-installed to complete the installation.

In order to have a successful installation, it is important to accurately measure for the new vinyl replacement window and specify the appropriate size.

Properly measured and ordered, the new window will fit perfectly, with minimum effort, and provide an installation that will give years and years of satisfactory performance.

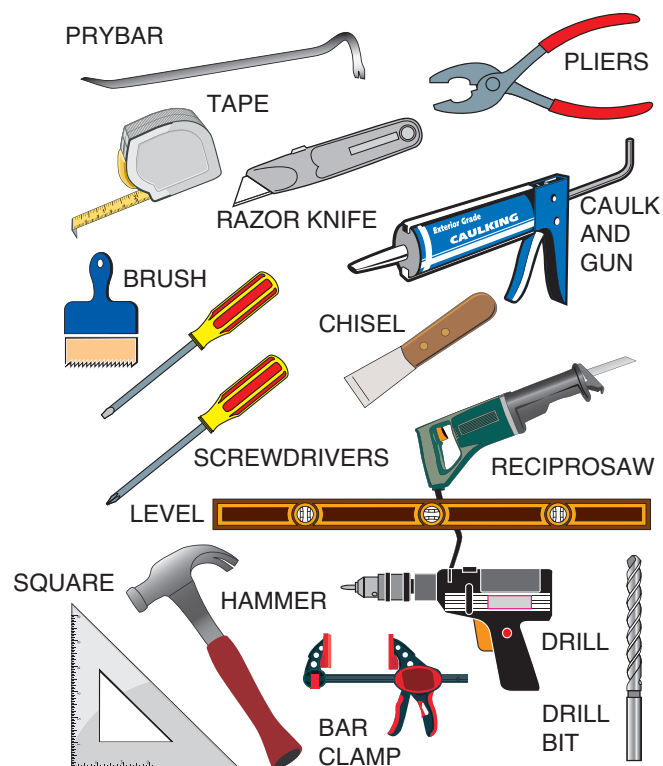
## Before You Start

Read these instructions carefully and identify all the pieces to be removed or added during the installation. Not only are the basics easy and simple, but all work can be done from inside the house.

Some windows are shipped with bands around the middle of the window - or have some other arrangement to keep the unit in square. Do not remove the bands until the unit is in the opening and secured.

## Tools You Will Need

Modern, quality, vinyl replacement windows need only simple hand tools for installation.



## Some other considerations

When replacing an old window with a modern vinyl replacement window, you will no longer need storm windows or separate screens. If there are screens or storms mounted to the outside of the house, it might be better if they were removed. This will give you the opportunity to thoroughly clean the opening and seal or paint any problem areas. If you wish to re-mount the storm windows, they will not interfere with the new replacement window.

## Remove the Old Window

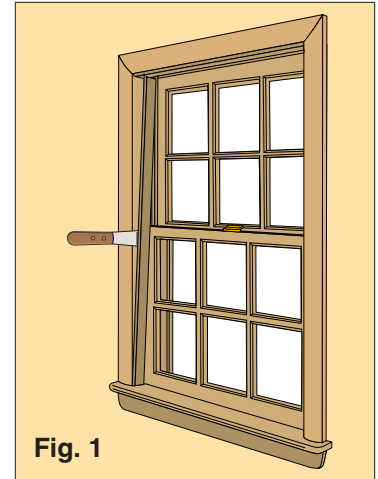
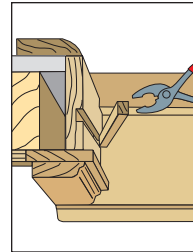
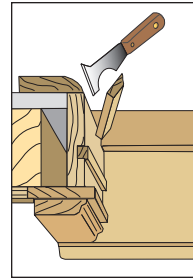
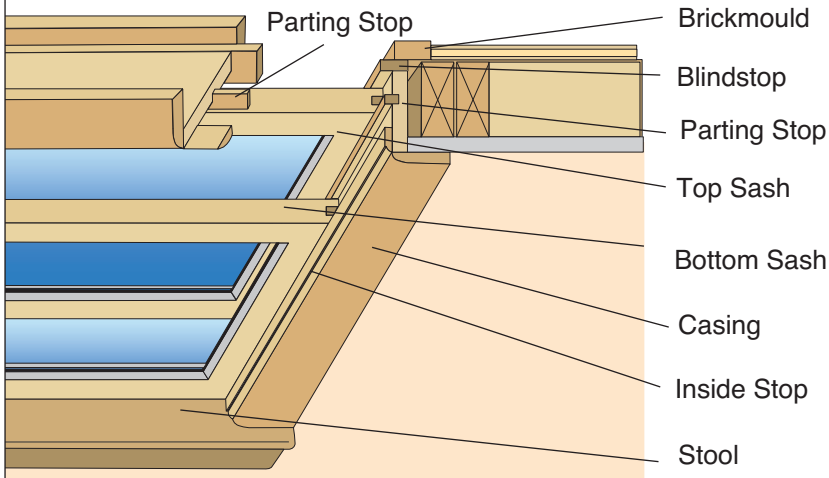


Fig. 1

1. Remove the inside mouldings (stops) with a broad chisel and save them for later use, being careful not to break them. (Fig. 1)

2. Any cords and weights, or spring balances can then be removed so that the old bottom wood sash can be easily removed as shown. Remove the pulleys. If the screws can't be backed out because of corrosion, stick the flathead screwdriver into the pulley and pry it out. (Fig. 2)

3. Pry out the top parting stop. Pliers can easily remove most stops. (Fig. 3-4)

4. Pry out the side stops - left and right. For stops that are heavily painted or stuck, you can use the broad chisel to shear off the part of the stop that protrudes into the jamb. (Fig. 3-4)

5. Once the parting stops are out, the upper sash can be easily removed from the outer track. (Fig. 5)

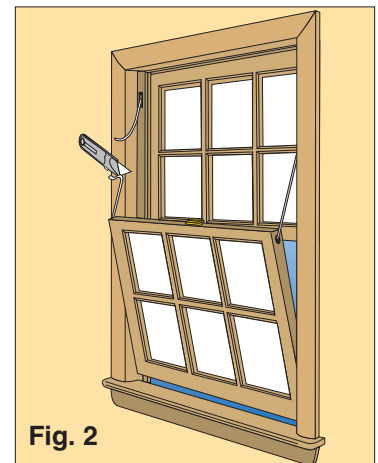


Fig. 2

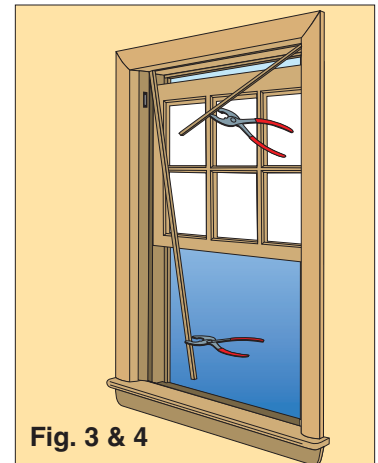
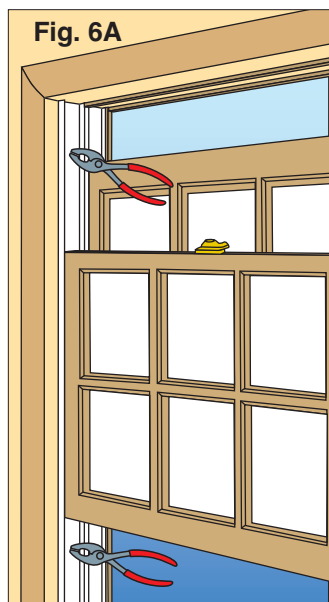
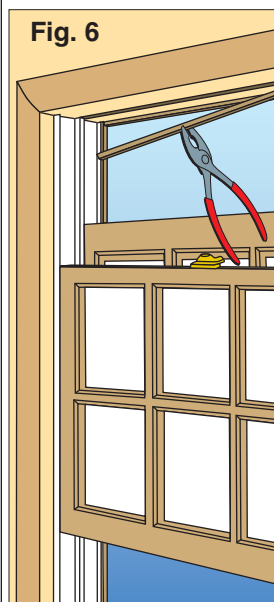


Fig. 3 & 4



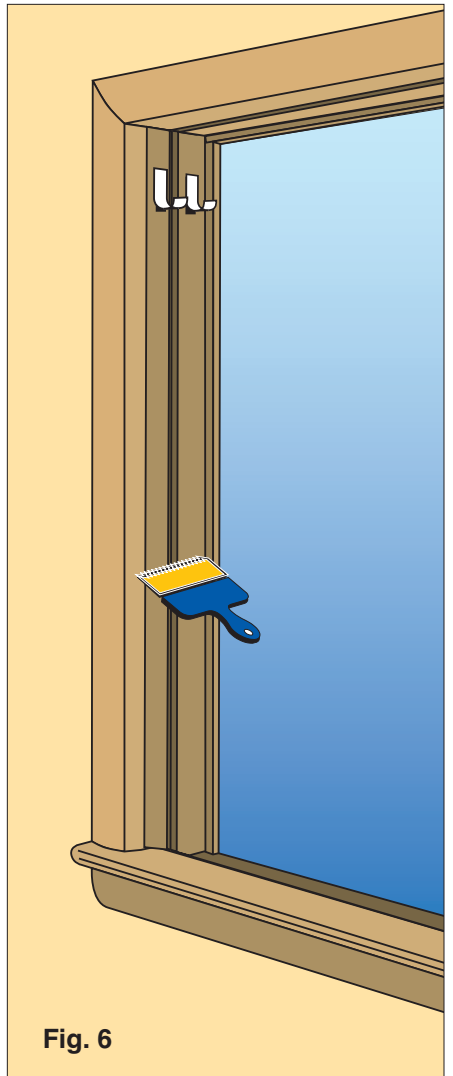
Fig. 5

## Windows with Aluminum Tracks



6. If the old window has pre-formed aluminum tracks, there will be no wood parting stops on the sides, but there will be one on top. Remove the top parting stop. Then remove the staples holding the pre-formed track. There is also a small aluminum block on the top and bottom of the aluminum track. It too, must be removed. (Fig. 6-7)

7. Once the staples are removed, both the upper and lower sash-and the tracks can be removed as a single unit. (Fig 7)



### Clean and Prepare the Opening

Even if the opening will be wrapped, it is very important to clean the opening of any debris. Cover any holes made by the weight pulleys, etc. Remove any old screen hook eyes or other protruding screws or fasteners. If there are holes left by the old weights and cords, fill the holes with insulation and cover with a thin metal plate or aluminum tape.

Even if the old opening is really poor shape, it can be prepared and covered to accept the new window and the final trim.

**NOTE:** It is recommended that you “flash” the left-in-place frame to be sure that any water in the wall is able to escape the opening without damaging the old frame. Use liquid-applied flashing on the sill and adhesive backed flashing on the jambs and header making sure you overlap for drainage.

Fig. 6

## Prepare the Opening

1. Clean the opening of any debris. Cover any holes made by the weight pulleys, etc. Remove any old screen hook eyes or other protruding screws or fasteners. If there are holes left by the old weights and cords, fill the holes with batt insulation and cover with a thin metal plate or aluminum tape. (Fig. 6)

2. After you flash the opening, install the supplied Starter Strip - Sill Angle on the outer sill, 1/8" behind the blind stop. Caulk the inside edge of the stool and outside along sill angle. (Fig. 7) Check Sill slope. Make sure sill angle leg is vertical.

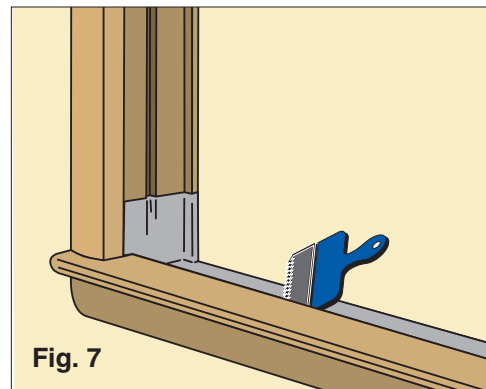


Fig. 7

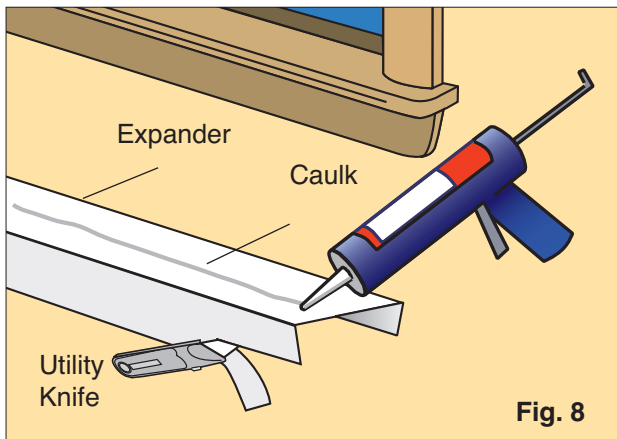


Fig. 8

3. Install the supplied head expander on top of the window. Place fiber glass batt insulation between the expander and the window. Try the window to see if the expander rests too high. The legs of the expander may need to be trimmed with a razor. (Fig. 8 and 8a)

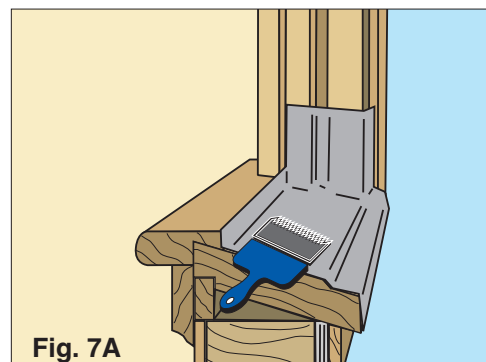


Fig. 7A

4. Caulk the inside edge of the blindstop along the top and down both sides. Make the caulk bead about 1/8". The bead should not lay against the window frame - just the blindstop. Place a bead of caulk on top of the expander. (Fig. 9-10-11)

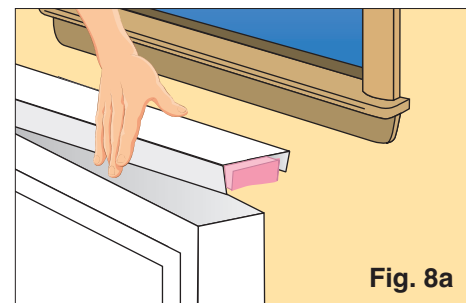


Fig. 8a

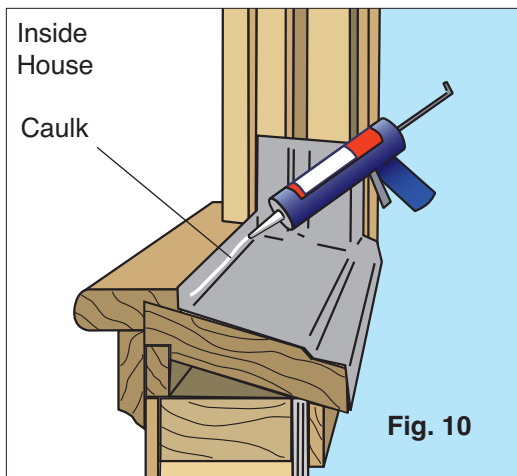


Fig. 10

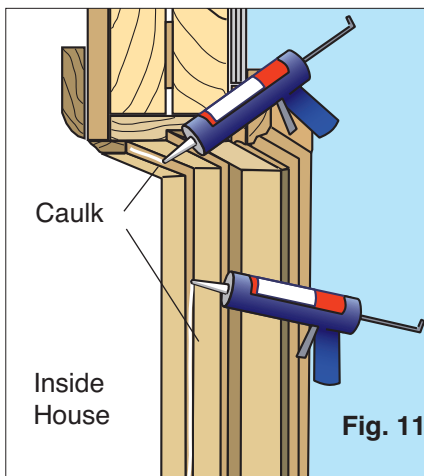


Fig. 11

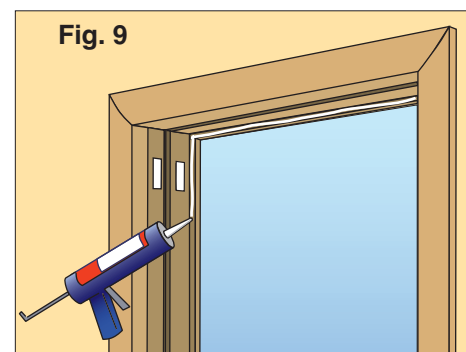
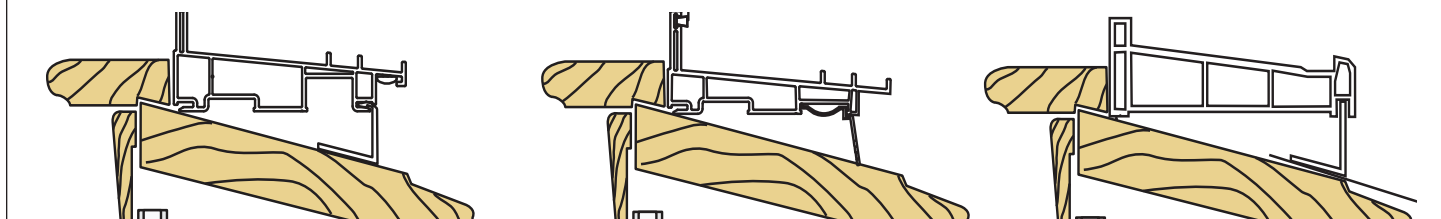


Fig. 9

### **IMPORTANT: Accommodating Sill Slope**

When the old wood frame is left in the opening, the slope of the sill needs to be accommodated to allow the new window to sit level. The most common slopes are 7 degrees and 14 degrees. There are 3 common ways the bottom of the new window is "fitted" with support. Either through positioning, or trimming, the slope of the sill support can be adjusted. Insulate under the new sill and allow drainage to the outside.



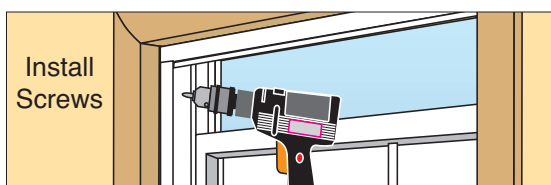
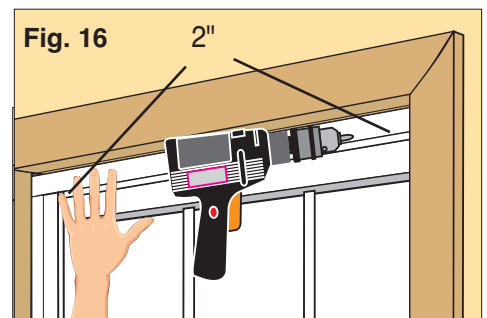
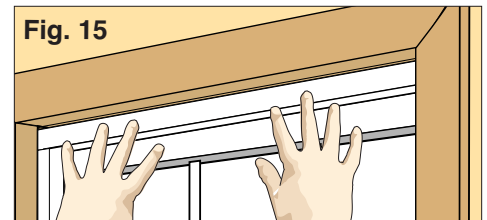
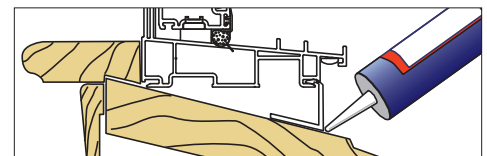
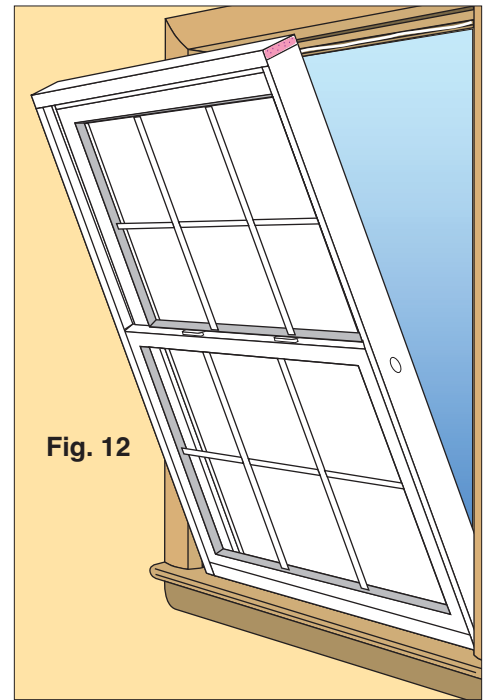
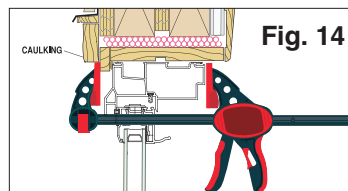
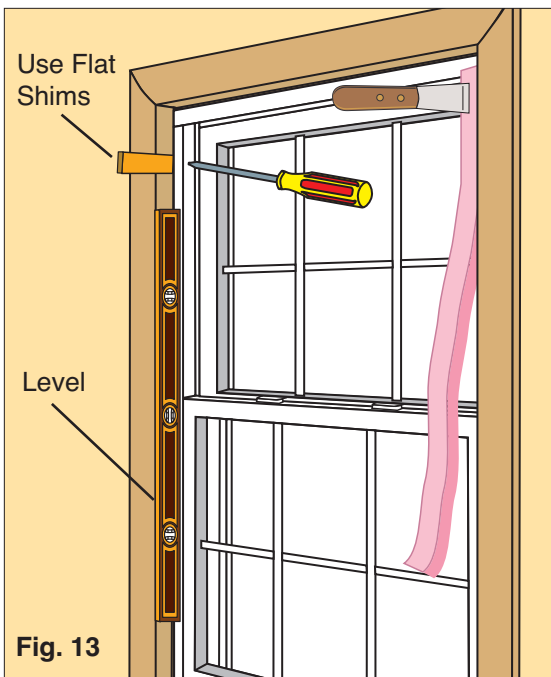
## Install the New Window

1. Place the window in the opening by placing the inside lower edge on the outside sill tightly against the stool. Tilt the window into the opening taking care to have the outer edge accessory accommodate the slope of the sill. (Fig. 12). Common slopes can be 7 degrees and 14 degrees.

2. Check for plumb (vertical) and level (horizontal). It is important that the window remain square in the opening even if the opening itself isn't square. Use flat shims to keep the window square.

3. Place the shims behind the mounting screw holes. There are 2 screw holes on each side at the top and bottom. Tighten the screws "finger tight." Use flat shims or non-tapered shims. Tapered shims can contort the frame which may impede smooth operation of the sash. (Fig. 13)

**Note:** Jamb Adjuster Screws can be used to anchor the window to the old frame. This adjuster eliminates the need for shims in the center of the window. (See Anchoring section for options). Adjust the screws "finger tight". Do not over-tighten. If you over-tighten, the frame will deform and the window may not operate correctly. Bar Clamps (Fig. 14) keep the window plumb and square while it is fastened avoiding deformities during anchoring.



4. Push the head expander up tight against the upper part of the opening. Replace the upper inside moulding tight against the expander. Secure the expander, if necessary, with the two small screws provided. (Fig. 15-16)

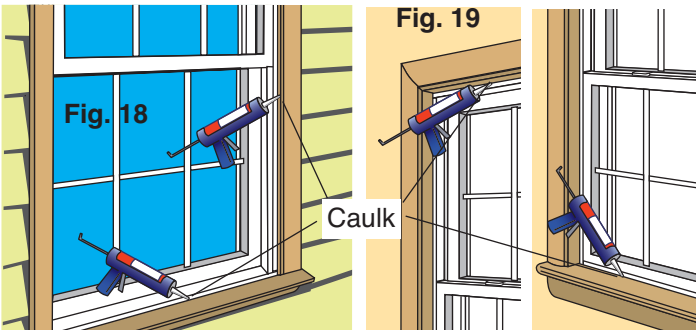
5. Replace the side inside mouldings tight against the window. Caulk against the inside mouldings and window to seal any gap. If you desire, you can replace the inside mouldings. (Fig. 17)

6. Caulk outside where the sill angle meets the sill. Take care to seal any gap (Fig. 18-19). Leave drainage holes.

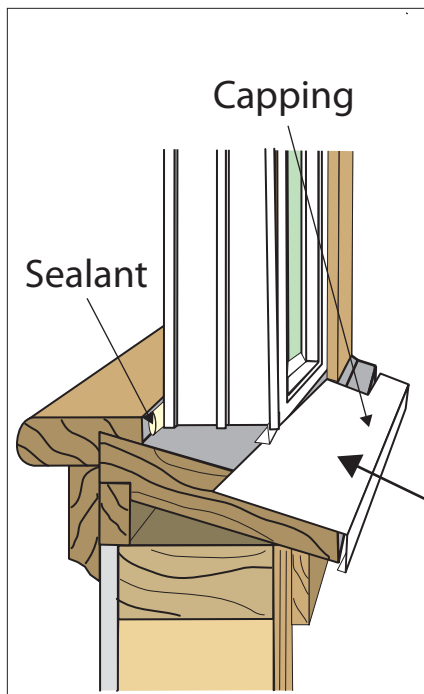
7. Caulk outside where the window meets the blindstop,

## Finish the Job Inside and Outside

To complete the installation, carefully seal the interior against the weather and gap air infiltration. Repair any damage to the outside of the house. Fill any old storm window holes or screen holes with putty. Use a paintable caulk so you'll be able to re-finish the outside and seal it to the new window.



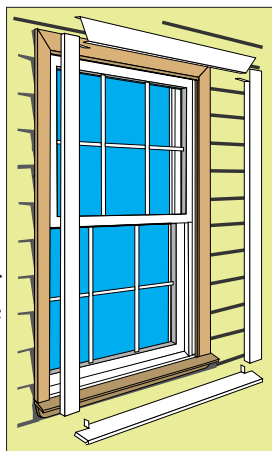
If you damage the interior stops when you remove them, or if old curtain rod brackets have them damaged, it may be wise to replace them. Most lumberyards have a selection of mouldings that will match anything you might have. With the choices of pre-finished mouldings now available, it is even easier to complete the job - without painting or staining.



## Capping The Finished Installation

Wherever possible, cover and seal the existing opening frame, and/or the cavity created between the newly installed window and the existing wall with properly installed capping materials. Be sure to establish a drip cap to divert water from the top, around to the sides of the window installation.

Capped Installations should integrate or seal to the perimeter of the new window or door to the siding in an air and water-tight manner. However, allow for ventilation, and for moisture to escape from under the capping.

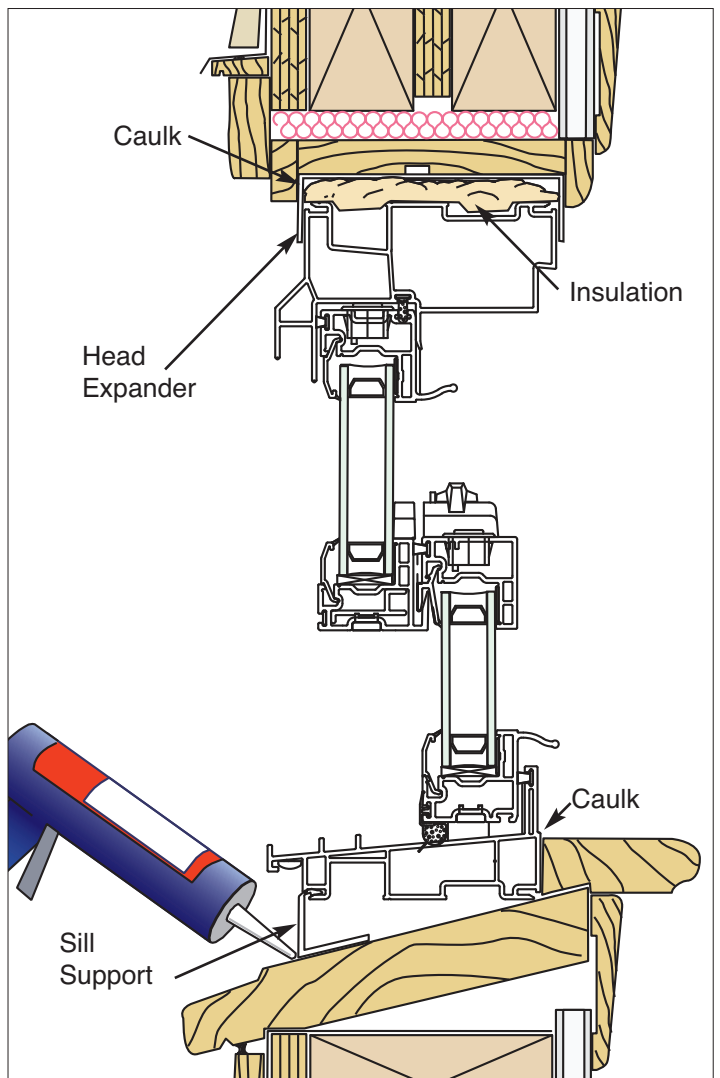


For non-capped Installations, use suitable sealing materials and procedures to create a weather-tight seal between the newly installed window mainframe, and the opening into which it is installed.



## Choose Your Sealant Carefully

You will be "sealing" the new window to the old frame and that will be your weather barrier. Make sure the sealant you choose adheres to both the window material and the old frame material sufficiently to make a lasting seal.



# Picking the Proper Sealant

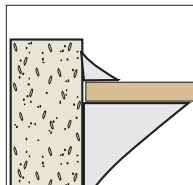
AWDI understands that the application of a sealant is as crucial as the choice of sealant. When a bead of sealant is applied to a joint there are severable factors to consider:

- 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.

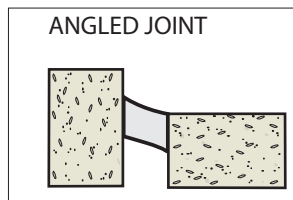
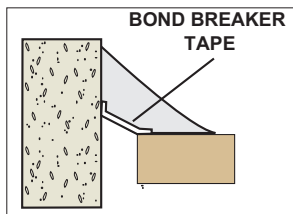
## Bedding Joints:

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.



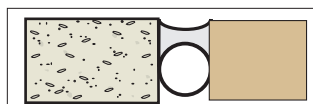
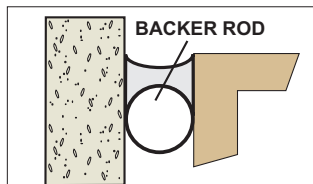
## Fillet Joints:

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 used 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



# 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



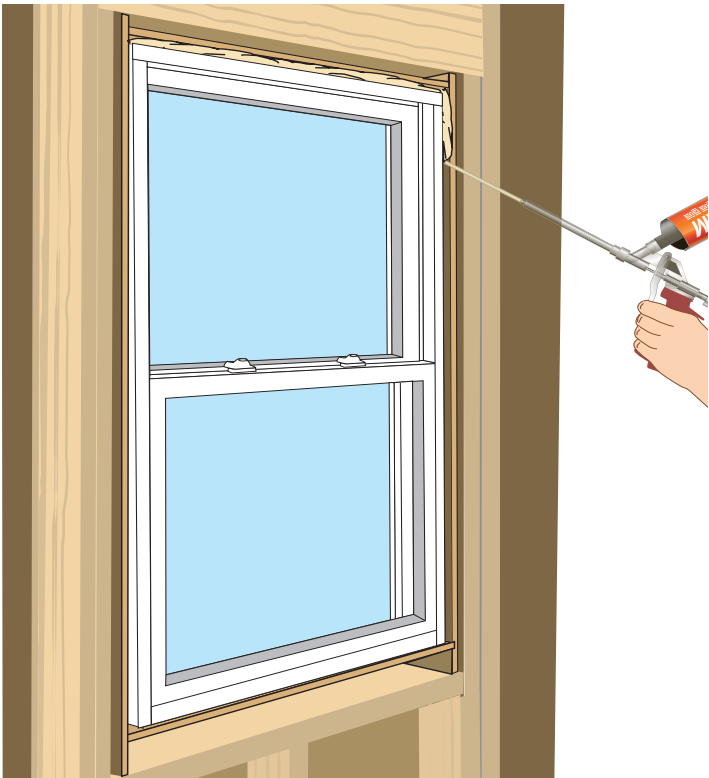
density of 1.8-2.3 pound per cubic foot (pcf), and can provide structural enhancement in certain framed buildings. The smaller cells trap insulating gas from the curing, which has a lower thermal conductivity than still air, and increases the R-value to anywhere from R5.8 to R6.9 per inch.

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



### 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.

### 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 be 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.

