WEB BASED
APPLICATION SPECIFIC
INSTALLATION INSTRUCTIONS

Coastal Window Replacement

Replacing Windows in Concrete Block and Stucco (CBS) Applications

Replacement applications in Coastal Regions will be for windows installed in block walled homes with Stucco finish, and standard wood frame constructed homes with vinyl, wood, aluminum siding or brick or other masonry veneer finish.

There are unique conditions for stucco over wood frame and stucco over concrete block construction. Some conditions of stucco finish on wood frame are covered in the "Jump Frame" section and applications where the stucco is cut back removing a window with brick mould and the new product is installed with a wood block installed over the mounting fin of the new window and the resulting assembly is installed in the opening and sealed to the remaining stucco finish.

The conditions and instructions covered here will apply primarily to building constructions considered CBS (Concrete Block Stucco) and wood frame with similar stucco finish.

Stucco covers the edge of the Old Window
Because the original construction had the stucco finish applied after the window or door was installed, the stucco often will partially cover the flange of the old window. This creates problems that must be dealt with: Measurement, Removal of the Old Window, and Finish of the New Window.

1. Measure- It is difficult to measure for the new window because so much of the old window can be hidden behind the exterior stucco finish and the interior wallboard and/or sill finish. The new window cannot be too large or too small, for obvious reasons. The success of the job can be made or broken with proper measure or improper measurement.

2. Removal of Old Window- When removing the old window, it is problematic because the stucco needs to be kept out of the way of the removal, but damaging the stucco can require costly and difficult stucco repair, which almost never can be matched to the old finish – making for an unsightly exterior finish. The interior wallboard and sill, if damaged, can also require difficult and costly repair and/or replacement of components.

3. Finish of the New Window- Once the new window is installed, the exterior needs to be finished to create a weather barrier that repels entry of water, moisture and air, and the interior needs to be returned to a decorative state as good or better than existed with the old window.

The mistake too often made is to order a window too small for the opening, and/or ordering a window that needs the mounting flanges cut off in order to make it fit in the opening, but rendering it impossible to properly seal it on the outside and trim in on the inside.

The following techniques are designed to allow proper measurement, proper removal of the old window, minimization of opening damage, proper preparation of the remaining opening, proper mounting of the new window to meet applicable codes, and proper finishing of the newly installed window in a weather tight and architecturally acceptable fashion.

How to Measure

Understanding how the old window was mounted will help make proper measurement possible. The diagram shows typical mounting in block and wood frame. Both utilize some form of wood “buck” either a full buck or wood pieces used to approximate the function of the “buck” which is to make amounting surface to which the window can be mounted, while allowing the ?” surrounding flange projection to butt against it effecting an overlap perimeter joint..

Allowing for an approximate 1/8” to 3/16” shim space, the actual opening (hidden behind the exterior stucco and interior wallboard, sill, trim or caulk seal) up to 1” larger in height and width than the exposed window might indicate.

Ordering a new window based on that assumption would create a problem putting the new window in the opening as it must be placed in the opening from the outside to allow the flange to overlap the “buck” for a proper weather seal.

The AWDI method of window removal and install prescribes proper measurement as shown. Measure from the inside of the wallboard on the right to the inside edge of the wallboard on the left. Measure from the upper inside edge of the wallboard to the sill. Subtract 1/2” from the width and height dimensions, and then add 1” to each.

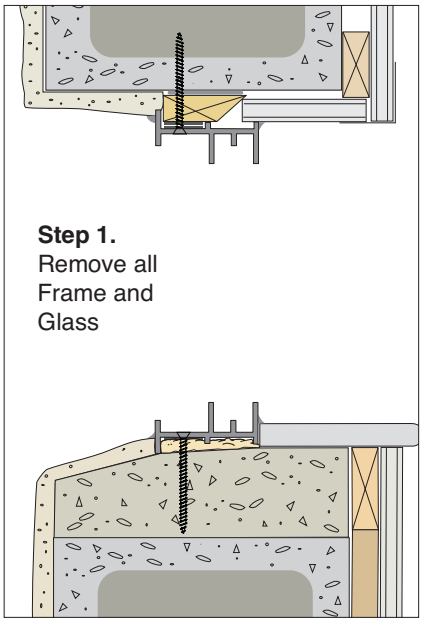
Therefore, a measured width of 34-3/4 will result in an ordered flange tip-to-tip Width of 35-1/4” (34-3/4, minus 1/2”, plus 1”). A measure height of 56-1/8” will result in an ordered flange tip-to-tip Height of 56-5/8” (56-1/8”, minus 1/2”, plus 1”).

While it may seem simpler to add to the measurements, this method allows for some adjustment for irregular situations. The 1/2” deduction is for the shimming. The 1” addition is for the flange (1/2” protrusion on all 4 sides). If, after analysis, it is obvious that the shimming is a great deal more or a great deal less, adjustment can be made. If the sill is a ?” thick stone sill, modest adjustment in the ordered Height can be made, as well. Bottom Line: The method of measurement will product the best possible chance to install the new window with a minimum of damage to the existing opening, and a minimum of repair; and allow proper weather-sealing.

How to Remove the Old Window

Remove any of the operating panels or sash.
The exterior stucco finish must be cut back to the edge of the flange. This is possible to do with a Fein oscillating tool and a masonry blade. Carefully determine where the flange edge is on all 4 sides. Using a framing square or other straight edge, cut the stucco to the flange tips on the top, bottom and sides. You should be able to get a clean cut with no damage.

Next, using the Fein oscillating tool and a sealant blade, free the window on the inside from any caulked or sealed joints on the sides, top or bottom.



Remove any of the operating panels or sash.

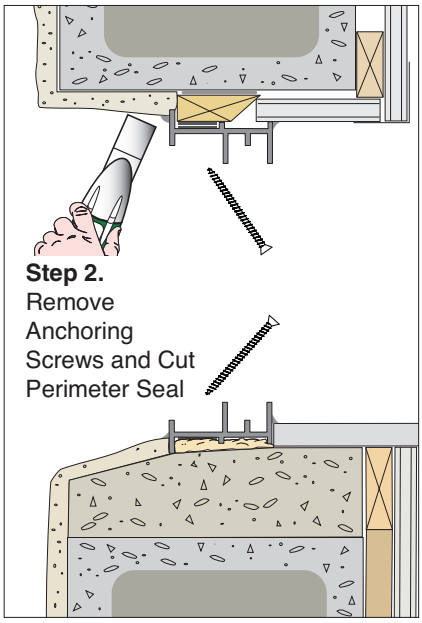
Tape any remaining glass panes, and using the Fein oscillating tool, remove the glazing beads, glazing compound, and glazing adhesive and carefully remove the stationary glass pane(s).

If there is a mullion or other separating piece, if possible use the Fein oscillating tool to cut it free from the window frame.

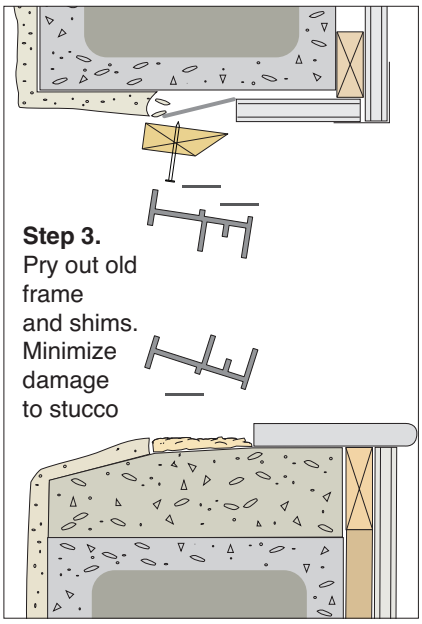
Remove the inside sill (if any).

Remove all mounting screws from the window frame.

If possible, cut the side frame pieces through to release the frame from the opening.



If unable to cut the frame, you can collapse the window frame, carefully as shown. The old window should be out with minimum damage to the opening.

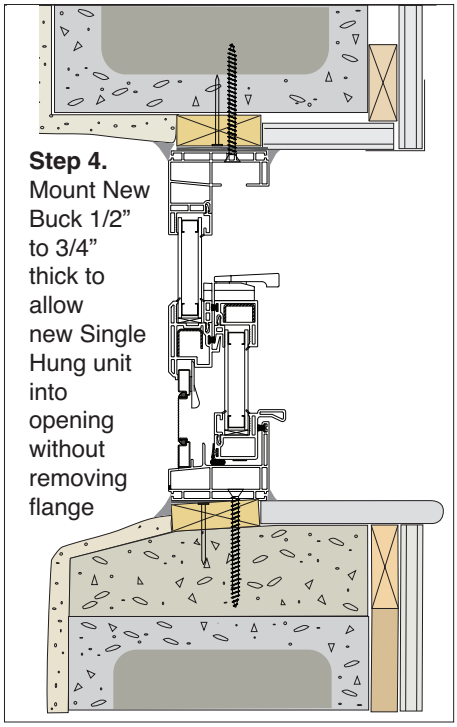


How to Prepare the New Opening
Clean any debris from the opening, including old shims, wood mounting materials and mounting screws.

Measure the Height to determine if the old sill is at its proper height, or if the old window "floated above". The sill needs to be established at the proper dimension, and it needs to be flat and level the full width of the underlying framing.

Thinset, or similar, can be mixed and poured into the space to create the proper sill width, level and create the proper height dimension.

If possible, a properly sized wood framing member or vinyl lumber pre-formed pvc board can be inserted to create the flat, level sill in its proper position. This will eliminate practice of removing flange to get new window into opening.



Using new "buck" material, place new mounting bucks on the jambs and header. Butt them together at the corners, and caulk seal all joints.

Cut and prepare a proper sill pan (if appropriate), or install a pre-formed sill piece to effect proper drainage and proper mounting of the new windowsill and a back dam to direct all water to the outside.

How to Install the New Window
A new window must be installed on a mounting buck with stainless steel fasteners at the appropriate code required quantity, with the fasteners of sufficient length to penetrate the rough opening frame (block or wood frame).

Plumb, square and level the window in the opening, being careful to keep it as centered as possible. Stackable, plastic shims, should be placed under each mounting hole.

If the stucco is damaged, the new installation will require a lot of repair as shown. Be careful, put in new bucks, and you can minimize the problem, and comply with code.

How to Finish the Installation

It is important to seal the new window in the opening to direct any water away from the interior and into the drainage system of the wall. That is usually behind the stucco, and down to the bottom weep within the wall.

Two goals must be met. First, no water that enters the installed window cavity should get behind the window and into the interior. Second, no moisture shall enter the cavity where it can condense and become trapped.

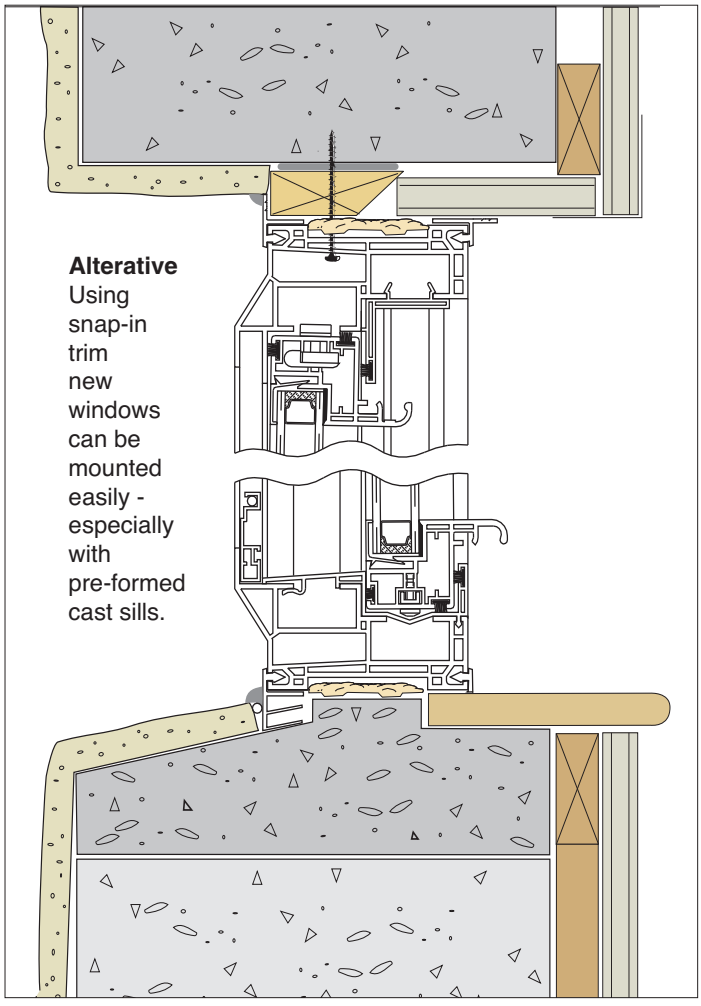
All gaps over 1/8" that are sealed with caulk, must use backer rod. All gaps over must be covered with trim, or any means to block water penetration into the opening.

The preferred method for trim/sealing the interior and exterior is Snap Trim. Pvc windows are fitted with an accessory groove into which trim can snap that will bridge any gap, and maintain drainage out of the cavity and away from the window as shown.

Aluminum windows can utilize two piece aluminum snap trim, where one piece is screw anchored to the frame, and the finish piece is snapped in place to effect a complete trim cover of the perimeter joint.

All snap trim is cut to where the header portion passes over the top edge of side pieces, and where the bottom piece fits between the 2 side pieces. This effects the proper "shingle-style" overlap drainage.

Exterior joints can be caulked, interior joints are best left un-caulked to maintain vapor barrier continuity in warm/humid coastal areas.



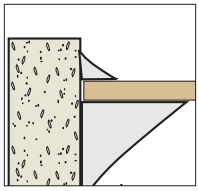
Picking the Proper Sealant

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:

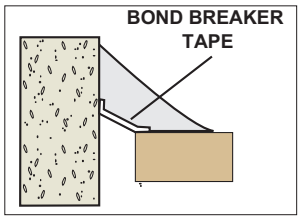
- Adhesion
- Flexibility
- Durability
- Compatibility
- Temp, Weather, Exposure)
- Aesthetics

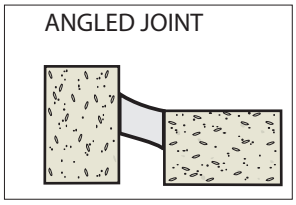
Within these three performance aspects there are countless combinations of applications, substrates and conditions a sealant is exposed to.

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.

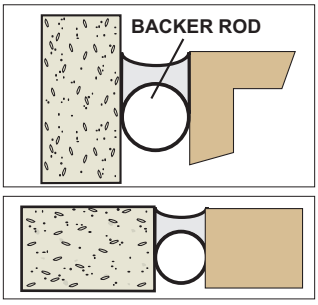


Fillet Joints:
A fillet joint is formed when two surfaces come together to form a right angle. The sealant used to join these two surfaces is triangular in shape. The sealant must adhere to the variety of substrates you're faced with. Without strong adhesion there is a high chance that the sealant will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

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.

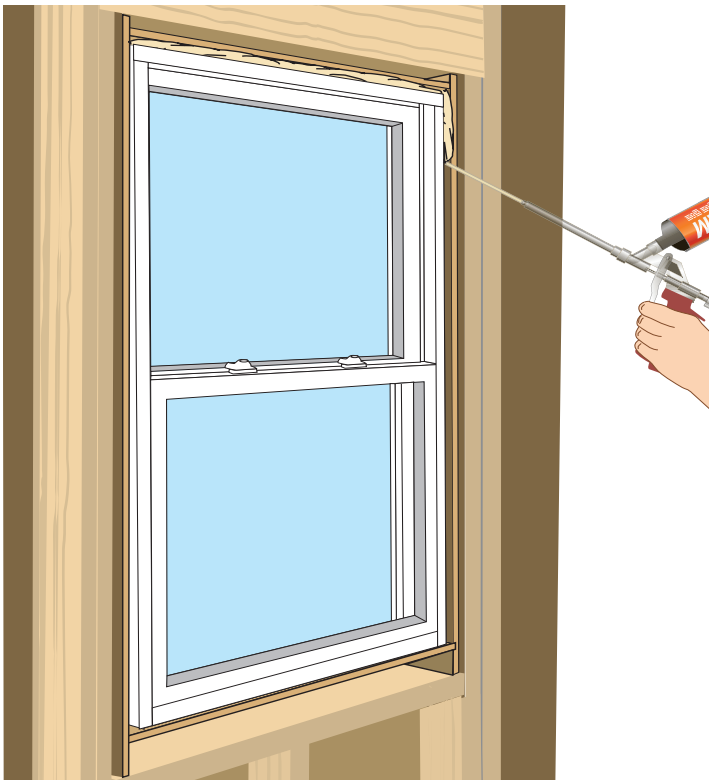
Closed-cell spray foam (ccSPF) has a closed cell structure which yields rigid hard foam, with a density of 1.8-2.3 pound per cubic foot (pcf), and can provide structural enhancement in certain framed buildings. The smaller cells trap insulating gas from the curing, which has a lower thermal conductivity 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



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.