WEB BASED
APPLICATION SPECIFIC
INSTALLATION INSTRUCTIONS

Coastal Buck Installation

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Coastal CMU Installation with Installed Buck

Coastal Installation

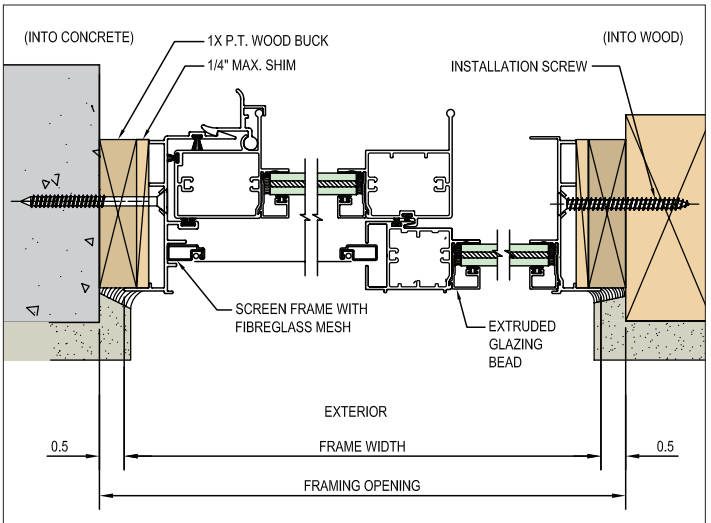
Stucco finished homes are prevalent in coastal areas of the US and with the advent of Hurricane Code Standards in Florida and elsewhere, installation of products for these areas require different details, techniques and procedures.

Stucco Finish

A building system utilizing stucco as a wall cladding is generically known as a drainage wall, a wall system in which the outermost material provides a substantial barrier to water and a secondary material, typically a weather resistive barrier (WRB), provides a backup barrier to water that may penetrate the cladding. Penetrating water is intended to flow by gravity to the exterior outside of the WRB and is prevented from reaching water-sensitive materials.

There are two types of drainage walls: membrane drainage walls and cavity drainage walls. A system utilizing stucco is an example of a membrane drainage wall, whereas a system using masonry veneer is usually designed as a cavity drainage wall. In drainage walls, evaporation may also play a role in moisture dissipation, but is a comparatively slower process subject to weather conditions.

As a material, stucco can provide a high resistance to passage of liquid water if properly formulated and cured, but it is not waterproof. Neither is it, as thought by many, porous. In fact, when liquid water penetrates stucco cladding on a building, it almost always does so not through the field of the stucco but through breaches at cracks, control joints, perimeters of openings such as doors and windows and joints with abutting materials. In a properly designed stucco clad wall, water from these breaches is expected to penetrate no further than the



Typical Flanged Window in Stucco Veneered Block or Frame Wall

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WRB and exit the wall base at a weep screed or dissipate through evaporation. There are limits, however, to the volume of water a stucco clad wall system can successfully handle.

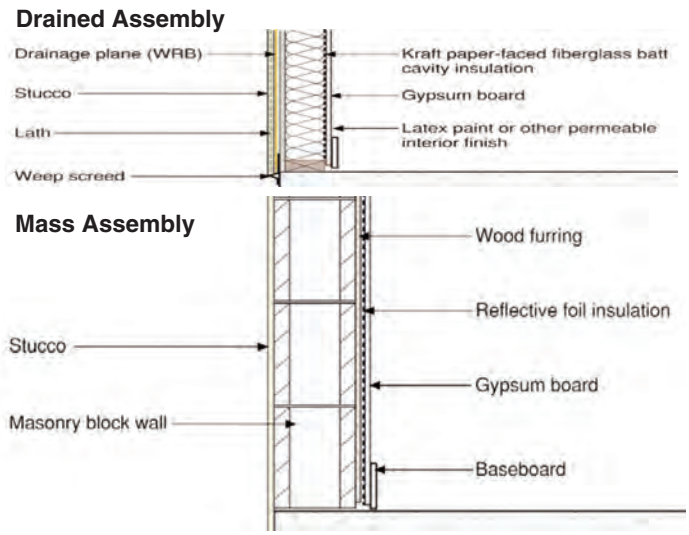
Stucco can be applied over block (typical CBS construction) or over wood frame (often used for the upper story of residential homes). In CBS construction, the block is the Water-Resistant-Barrier (WRB), and in wood frame applications, stucco is placed over a WRB which is a membrane such as water-resistant building paper.

It is not the province of this manual to discuss various construction methods. However, the success of a window or door installation is dependent on the successful handling of the water that will penetrate the stucco. These instructions are dependent on certain principles to accomplish just that.

The role of Concrete Block

The concrete block used in residential housing, when covered with stucco, becomes the water resistant barrier. What that means is that it retards the passage of the water into the interior of the home. Many mistake that to mean, no water should be absorbed into the block, when in reality, the successful performance of the CBS wall depends on a certain amount of absorption to handle the inevitable water penetration of the stucco in severe weather.

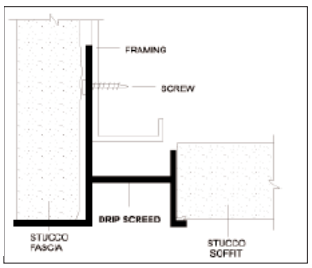
Two ways water that gets behind stucco is handled



When stucco claddings leak, the penetrating water is traditionally managed in two fundamental ways. The first is direction to a water resistant barrier such as in a "drained assembly where the water exits the wall downward, and the second is a "mass assembly' where the eater is absorbed in non-water sensitive material and released to the interior and exterior in a controlled way during "drying" periods. Concrete block serves this purpose well and it is expected to do so in CBS construction. However, it is also expected that the rate of drying will not be exceeded by water collection, so fenestration installation must limit possibility of excess water getting inside the cavity.

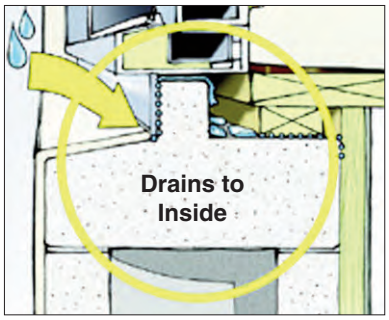
Weep Screeds are Recommended

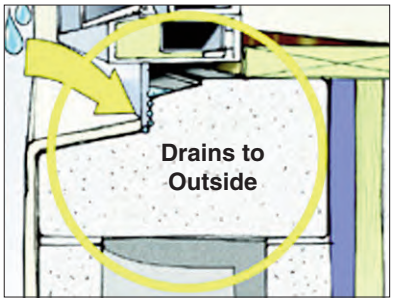
The second component of the systems design requirements is a weep screed at the bottom of the wall and at all soffits. Wherever the vertical wall terminates and/or changes direction, water that may collect behind the stucco veneer needs to be able to drain out. This negatively effects window and door openings where the window unit is recessed from the plane of the wall. If no weep screed is installed, the water will be directed to the header of the window unit, and this is often the case. Therefore, water needs to be directed away from the window/door header and back into the drainage plane to be able to escape from the behind the veneer and not penetrate into the interior of the building.



Proper Sill Pan

The third component of an effective stucco wall, is the drainage of the sill of the window or door unit. As the illustrations show, improper sill shape, improper sill slope, and improper drainage path for the sill will cause problems and not allow the stucco wall to perform as it was intended.





The last consideration is the creation of the window or door opening. Too often it is out of square, improperly sized, improperly bucked, and improperly prepared to accept the window or door. Added to this is the reliance on other trades to prepare the opening before the window installer technician arrives to fit the product.

These instructions will assume that the window fitter has examined the opening and has assured that the rough sill is proper, and that the dimensions are accurate within 1/8" in plumb, square and level. No fenestration product should be installed in any other opening. In addition, the window fitter should fabricate and install the wood bucks, and the sill pan or equivalent(s) and seal them adequately before mounting the new window or door.

Credits: *Photos and Artwork courtesy of Building Science Corporation; TM Windows and Doors; Builder Magazine, December 2005; and AWDI Standards, version 1.3.*

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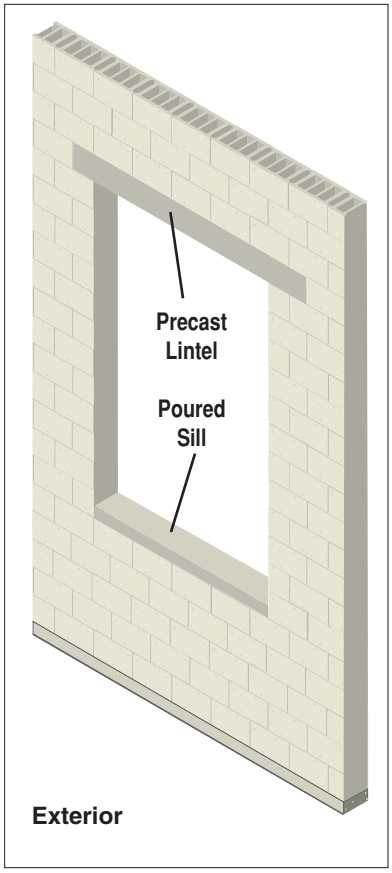
Coastal CMU Installation with Installed Buck

Step 1:

The Opening must be level, plumb and square, and the mortar properly applied to allow no voids, cracks or clumps that might allow water infiltration.

A proper sill must be accommodated either with a pre-cast sill, or an applied buck with a sill pan installed as shown.

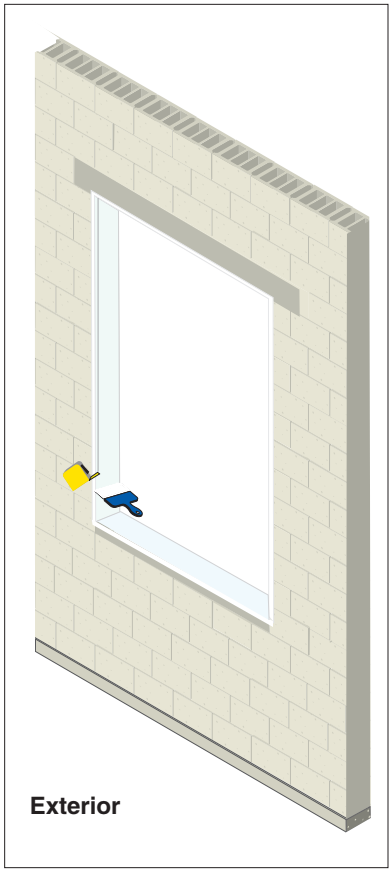
Note: Florida Building Code Requires that products tested for wind and debris - especially for hurricane and high wind zones - be installed as they were tested. This can mean anything other than a wood buck sill can void hurricane and wind approvals.



Step 2:

It is recommended that installer treat the masonry opening with a CMU sealer for the purpose of sealing the CMU window cavity from absorbing liquid water. This application will be put on before the installation of the buck materials.

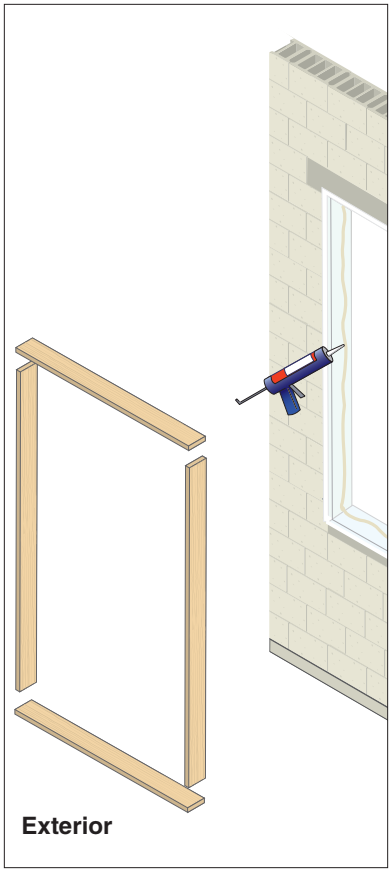
Mark set-back for buck on jambs and header.



Step 3:

Install a window buck, receptor or device which will act as a mounting surface on both sides and the top for the seating of the window into the masonry cavity. Apply a 9 mm (3/8 inch) bead sealant or appropriate gasket under the buck material to prevent the passage of water behind the buck.

Align Head Buck with Sill Detail. The outer-most edge of the jamb and header bucks will align with the outer-most edge of the sill buck and/or pan.



Step 4:

Assure there are no gaps between bucks when anchoring bucks to CMU opening

Note: The number, type and spacing of fasteners required for installation of the bucks is in accordance with local code.

The coatings will need to be extended onto the sill member, ensuring 100% continuity between the buck and the sill member, with no air or water gaps.

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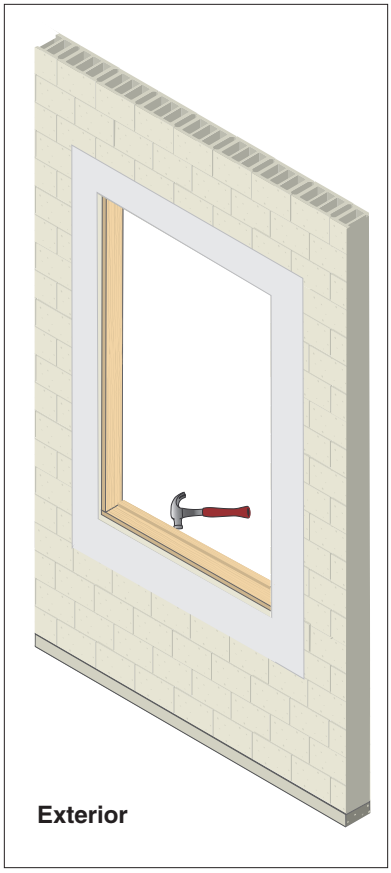
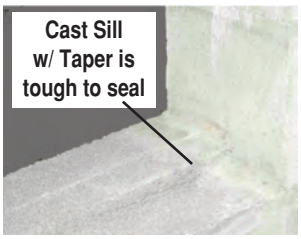
Step 5:

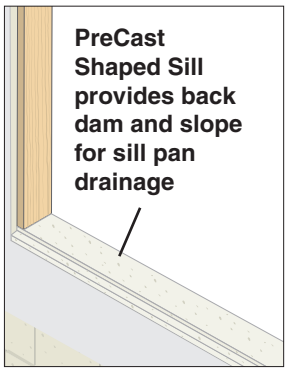
If not using a prefabricated sill pan, cut an approximate 1x1 to serve as back dam for sill drainage and install on sill buck.

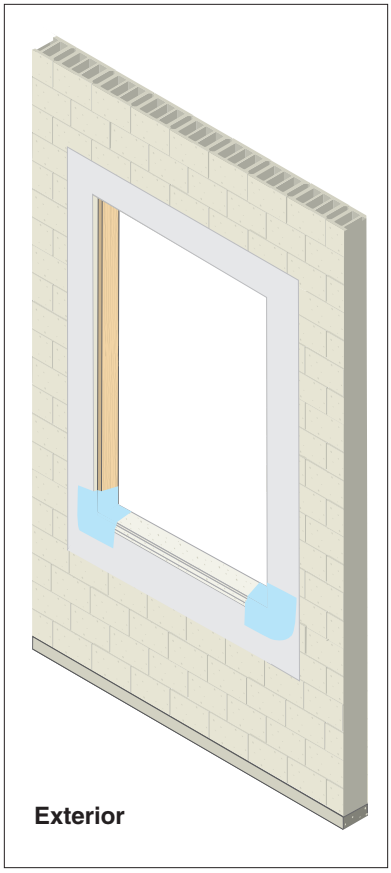


Alternate 1:

If a precast concrete sill is used, coat the corners with liquid flashing or seal the corners to complete the sill pan effect.



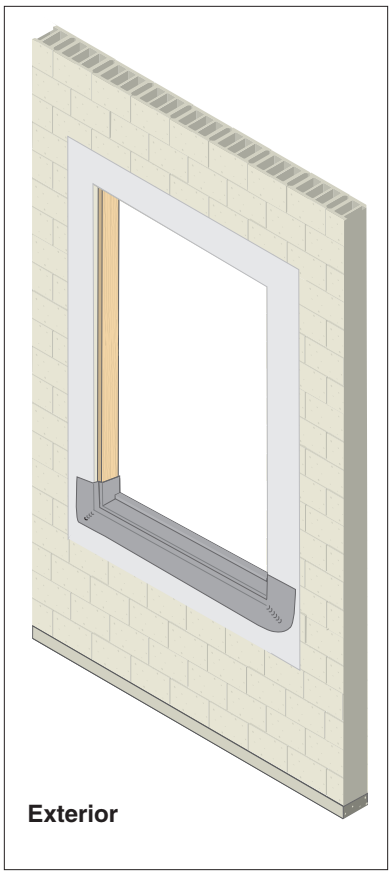




Step 6:

Using liquid membrane flashing material, coat the sill, the back dam and the jamb buck and CMU up the sides 9" and out on the face of the CMU, inside and out, 9 to 12 inches.

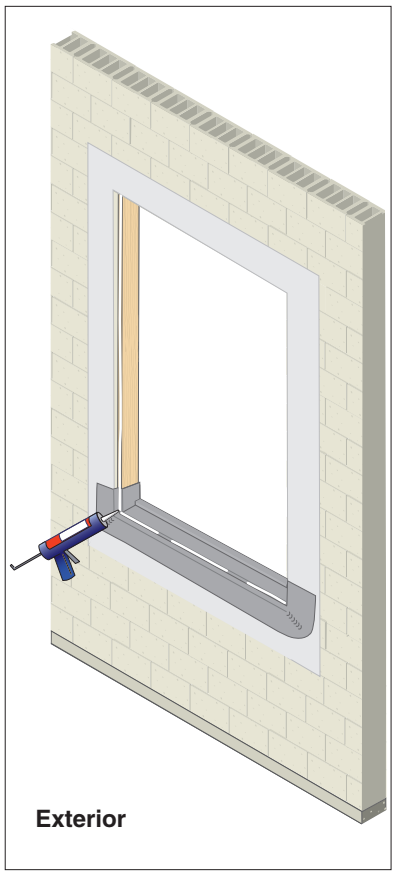
This will form a flashed sill pan for proper drainage of the cavity.



Step 7:

Apply sealant to face of buck on all exterior surfaces to protect it from possible water absorption from the stucco material that it will contact.

On the sill, leave 2" opening in bead of sealant/caulk in two places to allow drainage.



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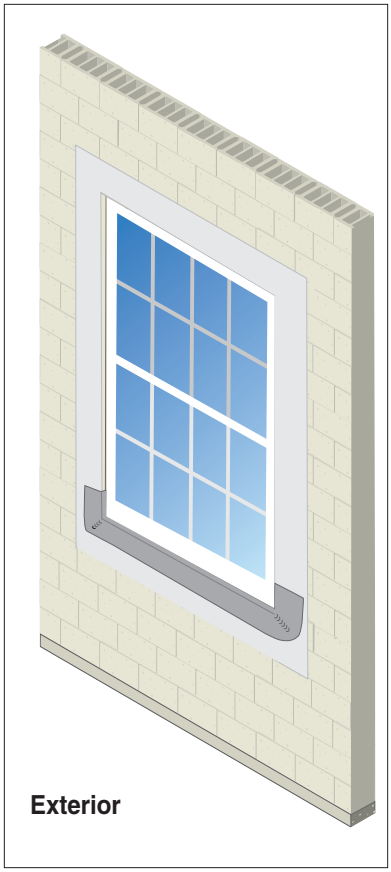
Step 8:.

Run a continuous 9 mm (3/8 inch) bead of sealant up both sides and across the top of the inside of the flange. Connect that bead of sealant across any joinery of the window frame at all four corners.

You can also apply the bead of sealant to the flashing directly.

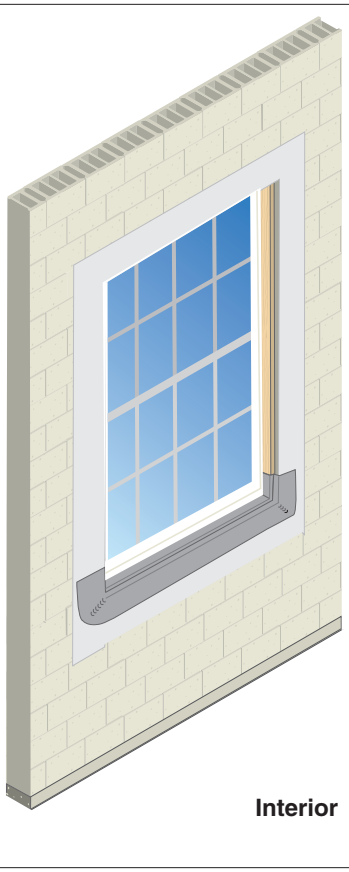


Step 9:

Place window/door unit into opening, pressing flange against the opening to make a firm contact with the sealant.

Do not run a bead of sealant across the inside of the bottom flange of the window to allow water that has entered the window sill to exit easily.

Make preliminary determination of level.

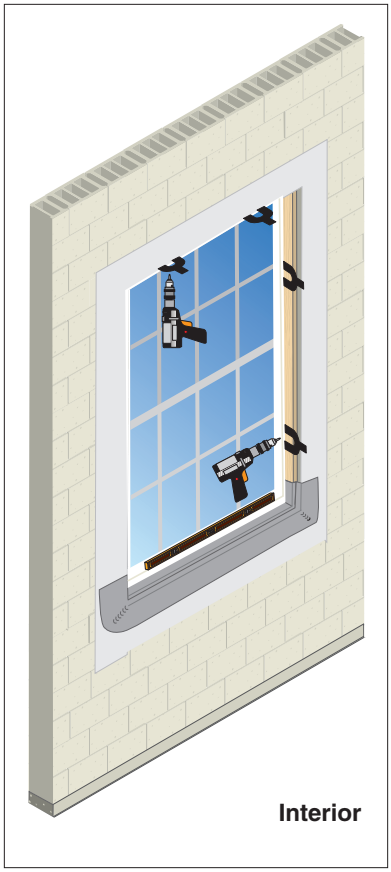


Step 10:

Using a framing square, plumb and square the window/door carefully. Shim with plastic, flat, stackable shims. Never use tapered wood shims.

Using proper, code approved fasteners, anchor window through frame into the bucks.

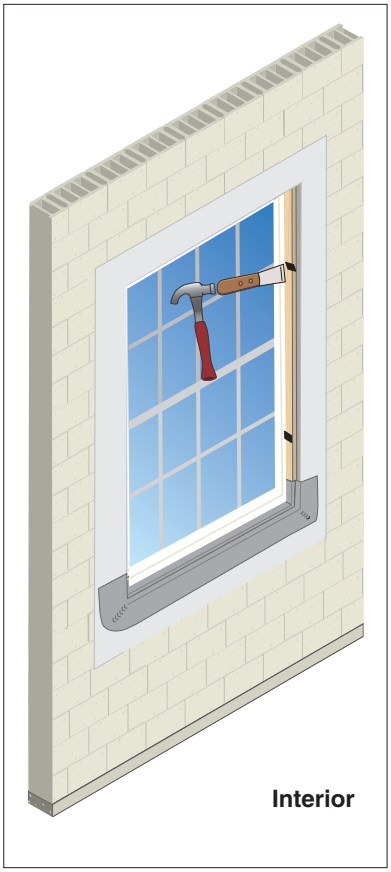
Make sure all anchors are properly sized. Drill through wood buck to at least 1-3/8" into block for proper tap-con anchoring.



Step 11:

Trim excess shim material flush with exterior face of window to ensure that shims do not interfere with the application of the interior trim material Take care not to crack or split the shim.

Note: Use Fein® Tool or similar for clean cut.



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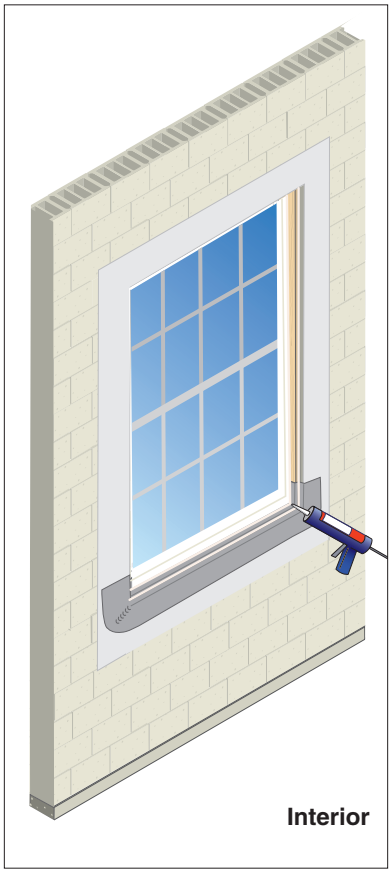
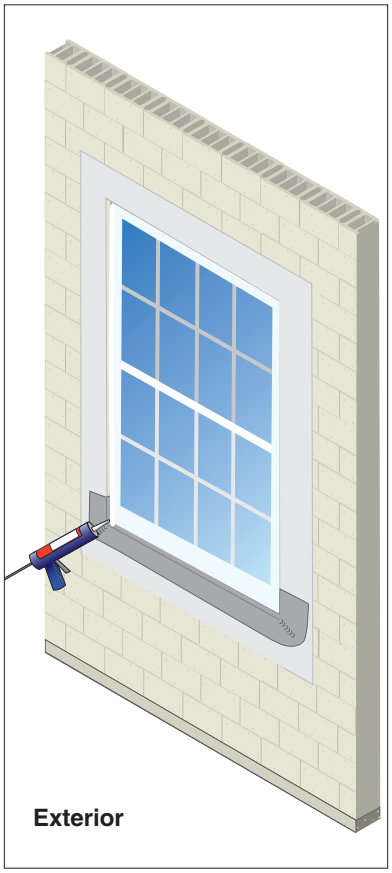
Step 12:

Apply backer rod and an interior perimeter bead of sealant or other window manufacturer approved material between the window and the substrates to ensure a complete air and water seal.



Step 13:

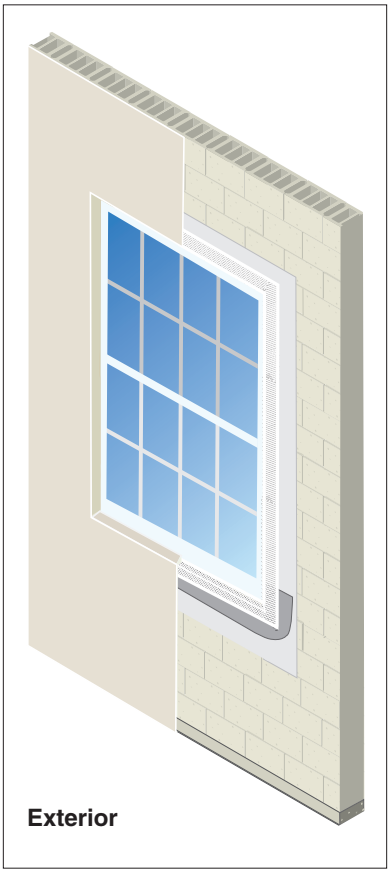
Caulk/Seal exterior to make sure window is properly interfaced with CMU Sealer and sill pan liquid flashing - careful not to block either of the two 2" drainage gaps in the sill sealant.



Step 14:

When exterior stucco finish is applied, it is imperative that the outside bottom of the window flange is not sealed or covered to allow for water drainage, do not seal outside bottom of window flange.

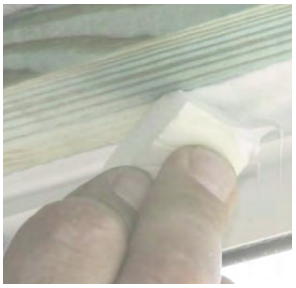
Any finish applied to the sill shall not interfere with the drainage of liquid water. The water must drain to the exterior surface of the facade.



Finish

Inside, tool sealant in such a way as to not interfere with the placement of any interior trim on the inside of the window masonry opening.

Outside, when placing stucco finish, be careful not to block drainage from under sill.



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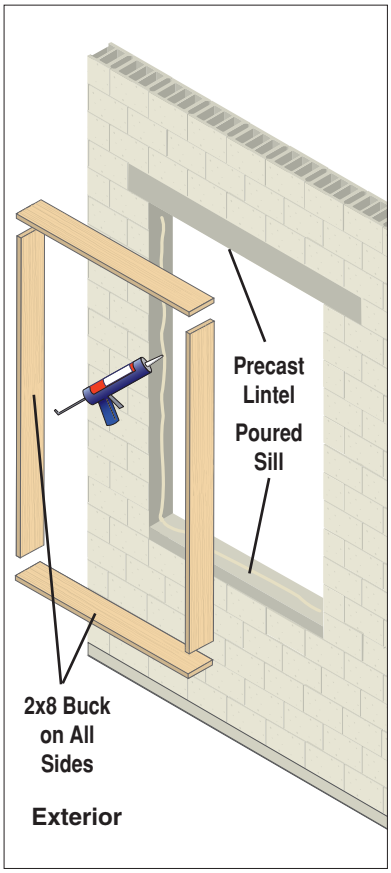
Coastal CMU Installation with Flush 2x8 Buck

2 x 8 Step 1:

To flush mount a finned window use 2"x8" pressure-treated buck material fastened to the block with code required fasteners properly embedded into the block.

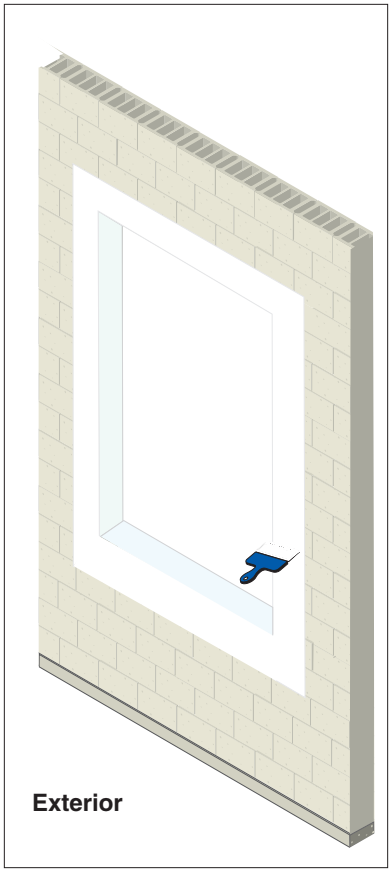
Use sealant on the block to seal the buck against the block when installed. Seal all four corner joints.



2 x 8 Step 2:

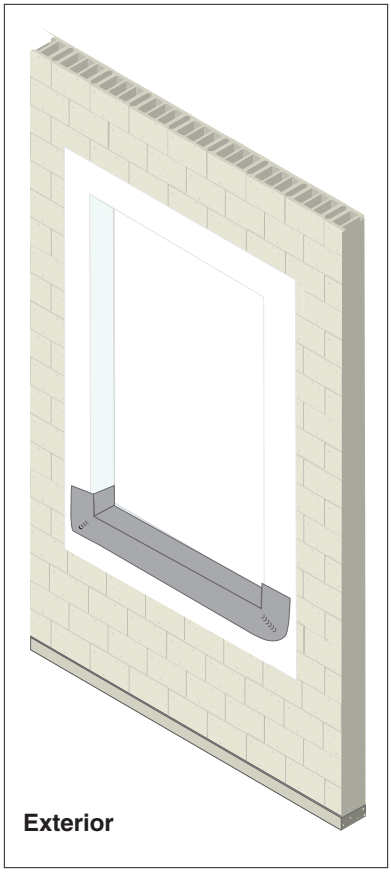
As with recessed mounting, treat the masonry opening with a CMU sealer for the purpose of sealing the CMU window cavity from absorbing liquid water.

Be sure to cover the buck, and the block - inside and out to a distance of approximately 9" out from the opening in all directions.



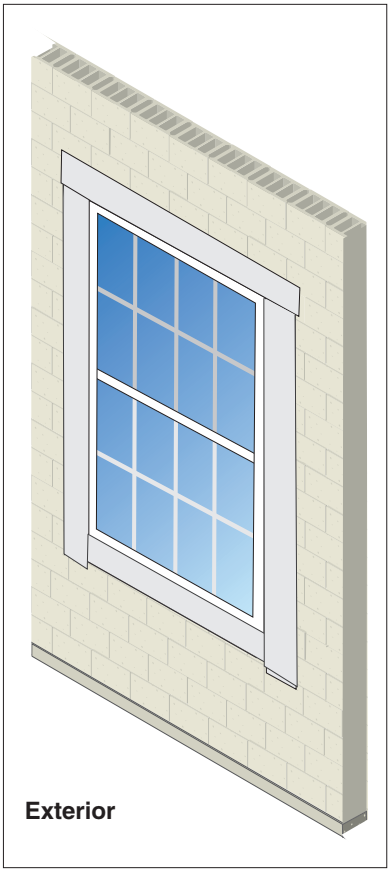
2 x 8 Step 3:

Using flexible, adhesive-backed flashing, create a sill-pan by applying the flashing along the sill and up the sides approximately 6 inches.



2 x 8 Step 4:

Once the window is mounted, flexible adhesive-backed flashing and wire lathe as needed to be sure the entire exterior perimeter is well sealed to shed surface water.



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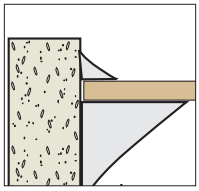
Picking the Proper Sealant

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:

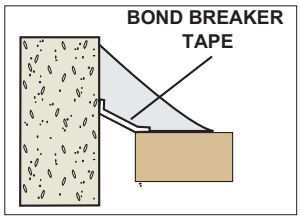
- Adhesion
- Flexibility
- Durability
- Compatibility
- Temp, Weather, Exposure)
- Aesthetics

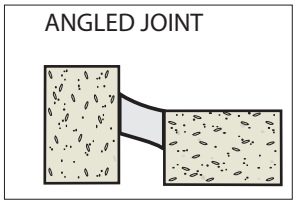
Within these three performance aspects there are countless combinations of applications, substrates and conditions a sealant is exposed to.

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.

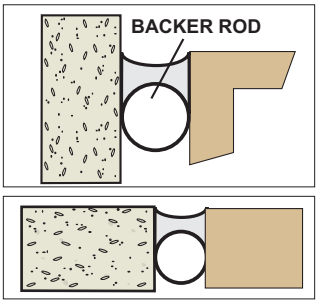


Fillet Joints:
A fillet joint is formed when two surfaces come together to form a right angle. The sealant used to join these two surfaces is triangular in shape. The sealant must adhere to the variety of substrates you're faced with. Without strong adhesion there is a high chance that the sealant will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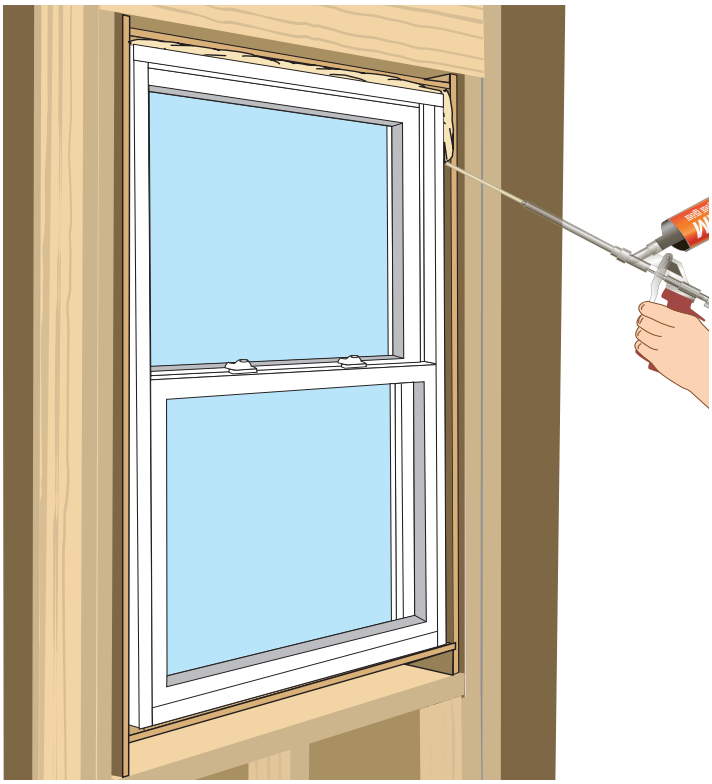


Using Spray Foam

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:

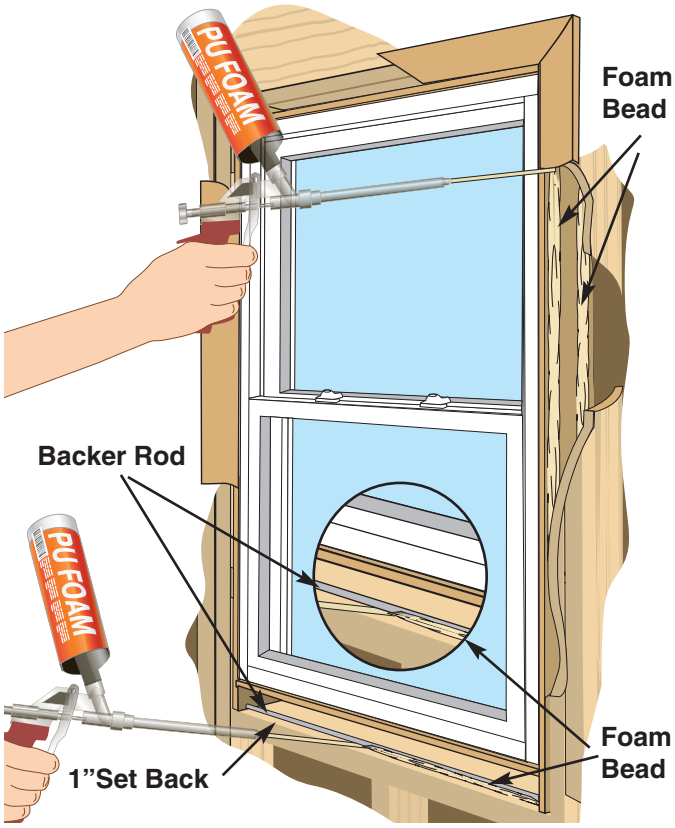
• Similar to the sealant gun, it is critical that you balance the movement of the foam gun or straw barrel and how you dispense the foam so that the foam makes contact with both the rough or existing window frame and replacement window frame.

• 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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