ATTENTION! Read and understand all installation instructions before installing this product.

Introduction

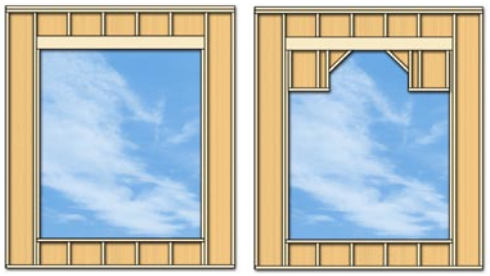
If you do not understand these instructions, or cannot perform the installation as specified in these instructions, do not install this product. Have the product installed by a qualified professional capable of following the instructions, or contact your Sun Windows Dealer or Representative to obtain further information. You may contact Sun Windows Customer Service at (270) 684-0691, Monday through Friday, 8:00 a.m. to 4:30 p.m. central time. Failure to follow these installation instructions will void the Sun Windows Warranty and may result in product malfunction or failure. You may also refer to ASTM E 2112 Standard Practice for the Installation of Exterior Windows, Doors and Skylights for additional installation guidelines.

ATTENTION! These Installation Instructions were developed for use with typical wood frame wall construction in a wall system designed to manage water. If your application is different, you may require additional installation instructions, methods and materials. Please contact Sun Windows if you have any special installation applications. It may be necessary to develop installation instructions specific to your needs. It is the responsibility of the consumer, architect or construction professional to verify the installation method for your application.

ATTENTION! Proper management of water and moisture is an essential part of any structure. All structures must have a functional, engineered drainage system as part of its exterior finished wall system. Sun Windows, Inc. cannot control or be responsible for water/moisture management beyond the product itself. All products manufactured by Sun Windows must be properly installed as described per these installation instructions. All products manufactured by Sun Windows must be properly flashed and a complete vapor barrier applied to seal the product opening. Proper installation of drainage systems, flashing, water and vapor barriers are the sole responsibility of the owner or their agents.

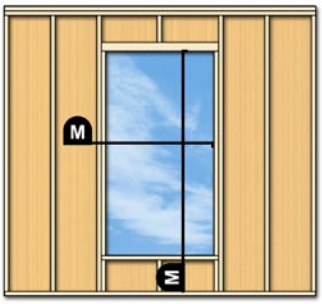
STEP 1 Prepare the Rough Opening

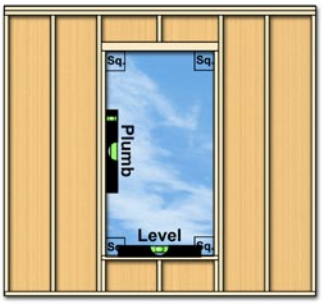
ATTENTION! Building codes have minimum egress size requirements for certain window applications and locations. It is the responsibility of the building designer or builder to verify and meet these code requirements.



ATTENTION! Radius and Special Shape units. Units with curved members or units that are special geometric shapes require custom framing to conform to the shape of the unit. The rough opening should be prepared for the over-all width and height of the unit. Additional framing support should be added once the product has been received and precise dimensions can be determined. Add framing members that provide support to all sides of the unit as well as the exterior wall sheathing.

a) **Verify rough opening size.** The rough opening should provide approximately 1/4" clearance between the sides and top of the product and the framing.
b) **Verify that rough opening sill (bottom) is level.** The rough opening sill must be level as the product sits on this when installed.
c) **Verify that sides are square and plumb**. Rough opening sides that are not square and plumb can prevent the product from being install correctly.
d) **Check the exterior sheathing surface.** The exterior sheathing surface should be smooth and free from any uneven areas, raised nail heads, protrusions, or any obstruction that could keep the product nailing fin from seating evenly around the entire perimeter of the opening.





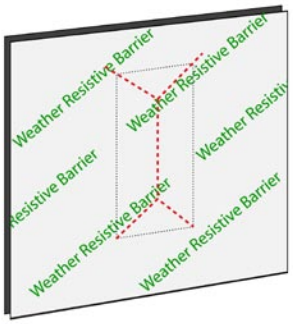
ATTENTION! Correct any problems with the rough opening before proceeding.

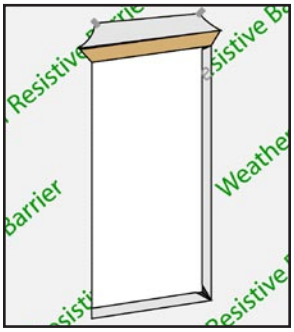
STEP 2 Preparing a Weather Resistive Barrier

Most new homes use a weather resistive barrier to reduce air and water vapor penetration through the wall system. The following instructions provide the correct method for integrating a weather resistive barrier with windows.

Even if a weather resistive barrier is not used, follow all the steps that incorporate flashing tape.

a) **Cut weather resistive barrier.** Find the edges of the window opening and mark a vertical center line at the middle of the opening. Cut a line diagonally from each corner to the vertical center line. Finally, cut the vertical center line between the top and bottom diagonal cut meeting points. (see illustration).

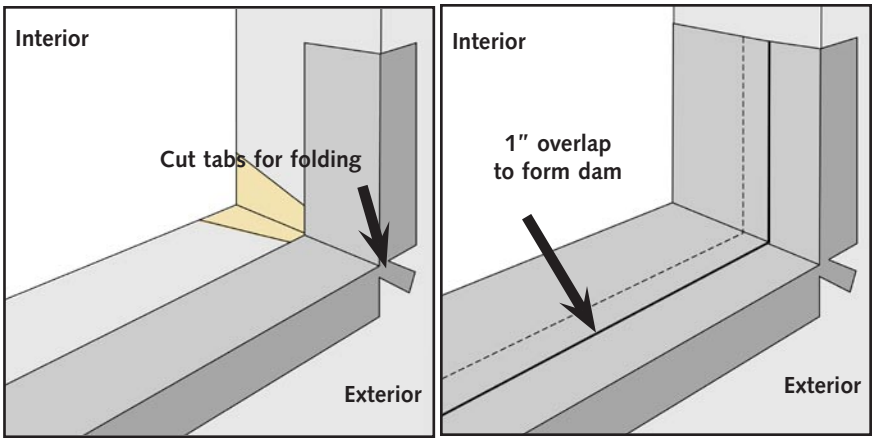




b) **Fold weather resistive barrier into the sides and sill.** Fold side and bottom flaps into the opening and staple in place.

c) **Fold top weather resistive barrier.** Fold the top flap outward and up and temporarily tape out of the way. This will be used in Step 5 b).

d) **Apply sill flashing tape.** Cut a piece of flashing tape 12" longer than the width of the opening. Apply to the bottom of the sill as shown. The flashing tape should overhang to the exterior at least 1". The flashing tape should also extend up each side approximately 6".
Note: Flashing tape is available in two types, one for straight lengths, and the other which can be flexed to conform to curves.



e) **Cut tabs in the sill flashing tape and fold.** Use flexible type flashing tape which can be conformed to bend into the corners or, using straight flashing tape, cut a 1" wide tab at each corner. The tab should be centered on the corner notch. Fold the tape to the exterior and press it firmly into place.

f) **Apply sill dam.** Cut a second piece of flashing tape the same length as the one used in Step 2d. This will function as a dam against water flowing to the inside if it somehow reaches the sill. Apply to the sill overlapping the first piece 1", with the remainder of the flashing tape extending to the inside. Trim excess at the interior edge.

STEP 3 Removing the Packaging

ATTENTION! Do not sit or store products in direct sunlight. Most Sun products are shipped in protective packaging. This packaging is designed to protect the product from dirt, dust and minor debris while being shipped, handled and stored. Because of the characteristics of this packaging, do not sit or store products (with the protective clear wrap packing) in direct sunlight. Keep uninstalled products in a safe place, out of direct sunlight. Remove the clear wrap packing before installing the products.

a) **Remove the packaging.** Remove the protective plastic wrap and any other packing materials from the window. Be careful not to cut the screen cloth or damage the window. Leave the sash in the closed and locked position until later. Some products also have additional support members attached for shipping and handling. These members may be wood strips used to protect the nail fins, or shipping handles (on some door products) that are added to assist in transporting the product. Remove these additional support materials prior to installation.

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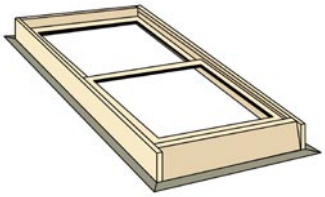
STEP 4 Applying Jamb Extensions

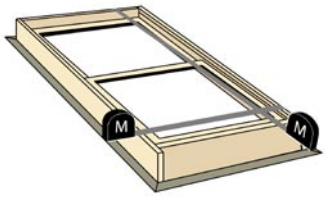
If you do not need jamb extensions, or your jamb extensions were factory applied skip to Step 5.

All Sun products are available with factory applied jamb extensions to meet various wall thickness requirements. If your products requires jamb extensions, and you ordered them "not applied", apply them now as follows:

a) **Window face down.** Place the window on a suitable (flat, clean) work surface, exterior face down.



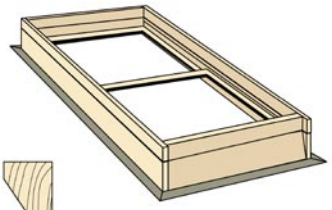
b) **Measurements.** Measure the width and height of the window.



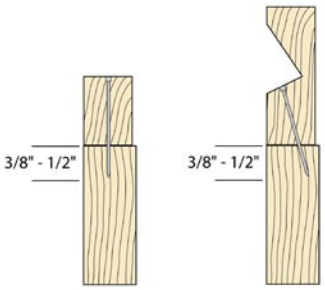
c) **Cut the extensions to length.** Cut the jamb extensions so that when they are applied the outer face of the extensions will be flush with the outer face of the window jamb. Extensions should form butt joints at the corners.

Note: Depending on the thickness of your jamb extension the jamb material will either be:
1" thick or less = square stock approximately 3/4" x thickness.
2" thick or less = 11/16" stock that has a manufactured groove in its outer face for fastening.

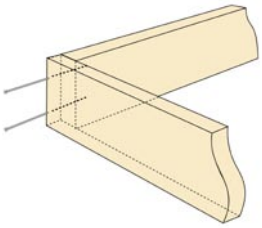
d) **Fasten the extensions.** Set the extension, on the corresponding face of the window jamb. (The recessed groove on 2" material faces outward). Using appropriately sized Brad Nails (see note below), fasten 1" thick or less extensions straight through the extension into the window jamb. Fasten 2" thick or less extensions through the fastening groove into the window jamb. Fasten approximately every 8".



Note: Brad Nails should penetrate the window jamb 3/8" to 1/2". Brad Nails should not penetrate the window jamb more than 1/2". Doing so may interfere with the function of some products. (See illustration)

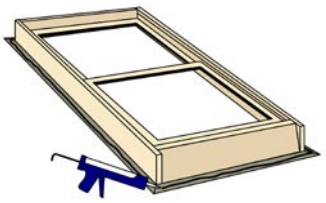


e) **Fasten the corners.** Fasten all four sides as described above and then fasten the butt joint corners through the lapping extension into the end of the joining extension.



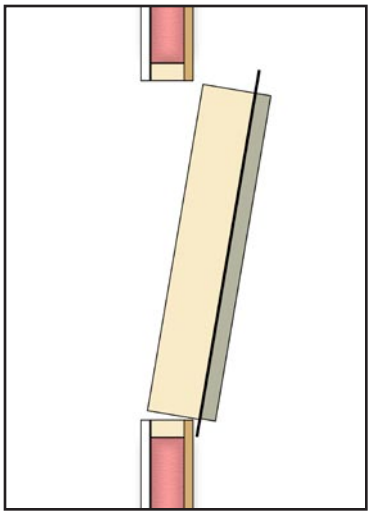
STEP 5 Setting the Window

ATTENTION! These steps may require 2 or more people.

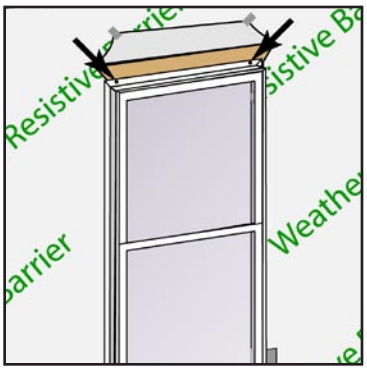


a) **Apply Sealant to nail fin.** Place the window on a suitable work surface exterior face down. Apply a continuous bead of High Grade Exterior Sealant to the back side of the top and side nailing fins near the outer edge of the fin. Do not apply sealant to the bottom nailing fin. Note: High Grade Exterior Sealant should conform to AAMA 808 specification.

Window Installation Instructions

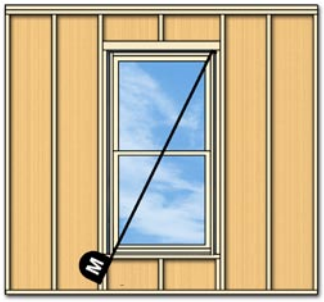


b) **Place window into opening.** From the exterior, place the window into the opening. With the bottom of the window resting on the sill, center the window from side to side, then press in place to contact the High Grade Exterior Sealant with the weather resistive barrier or sheathing surface.



c) **Temporarily fasten.** To temporarily hold the window in the opening, fasten the top corners of the window through the nail fin with 2″ galvanized nails. Note: a nail can be driven through the aluminum nail fin but you may find it helpful to pre-drill holes for fastening. Note: While temporarily fastening, leave nail heads raised in case they need to be pulled for window adjustment purposes.

d) **Level the sill.** The window must be level, plumb and square to operate correctly. Working from the interior side of window, place a level on the window sill and check for level. If necessary shim under the low corner until level is achieved. You may need to loosen the top corner to make this adjustment. ATTENTION! Only place shims under the bottom corners. Shimming anywhere else under the bottom rail may cause it to bow.



e) **Square the sides.** Working from the interior side of window, measure diagonally from one top corner of the window frame to the opposite bottom corner. Next, measure the other corners. These measurements should be equal. If they are not, the window is not square. Shift the bottom of the window until these measurements are the same.

f) **Fasten all four corners.** Once the window is level and square, fasten all four corners.

g) **Shim the window sides.** Use a level or good straight edge to check the sides for plumb. Apply shims (on both sides of the window) at the top and bottom corners, the midpoint, and halfway between the corners and the midpoint. Shim to achieve plumb.

ATTENTION! Do not over-shim or under shim. Do not shim above the window. Proper shimming is required for correct operation and optimum performance of the window.

h) Check operation. Check the operation of the window. Unlock the sash and check its full operation. Sashes should open and close completely without binding. Tilt-in sash windows should tilt-in and close without excessive force. Hung sash windows midpoint meeting rails should be parallel with each other. Sashes that are difficult to open or tilt (tilt-sash windows only) are probably over-shimmed and have too much tension against the jambs. If a window is under-shimmed it will not have a proper weather seal and hung sash windows will slip or slide down when opened. If the window does not seem to operate properly, go back to step 2e and adjust the window for level, square and plumb. Readjust the shims.

i) **Finish fastening.** Once you have verified that the window is level, square and plumb, and that it operates correctly, finish fastening through the nail fin, applying a nail at least every 12″.

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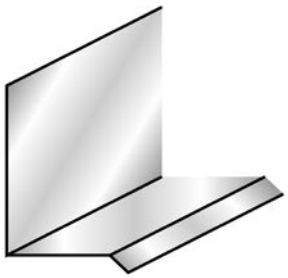
STEP 6 Flashing the Window

ATTENTION! All products manufactured by Sun Windows must be properly flashed and a complete vapor barrier applied to seal the product opening. Proper installation of drainage systems, flashing, water and vapor barriers are the sole responsibility of the owner or their agents.

a) **Apply side flashing tape.** Cut 2 pieces of flashing tape 4″ to 6" longer than the rough opening height. Apply one piece to each side, covering the nailing fin and sealing against the weather resistive barrier or sheathing. The tape should extend 2″ to 3" below the bottom of the opening and 2″ to 3" above the top of the opening.

If your window is a single unit (one unit wide) skip to step 6 c)

Note: On multi-wide units a separate drip cap must be installed. This drip cap must run the entire width of the multi unit. It must form a drip edge that extends beyond the top, outer most face of the window unit. It must form a 90° angle at the back and cover the nailing fin. This cap may be purchased pre-formed from a building materials supplier or it may be made from typical aluminum flashing, available in rolls (coil stock) from a building materials supplier.



b) **Install the drip cap on top of the window** and fasten it to the wall sheathing with galvanized roofing nails.

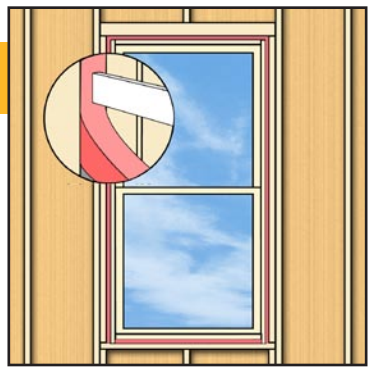
c) **Apply top flashing tape.** Cut 1 piece of flashing tape long enough to go across the top of the window and extend at least 1″ past each piece of side flashing tape. Apply the tape so that it covers the nail fin and seals against the exposed sheathing (left exposed in step 2 c).

d) **Fold top flap down.** If a weather resistive barrier was used, fold the top flap (temporarily taped out of the way in Step 2 c) down over the top flashing tape applied in the previous step.

e) **Apply corner flashing tape.** On weather resistive barrier applications, cut 2 pieces of flashing tape at least 1″ longer than the diagonal cuts on the top weather resistive barrier flap. Apply the tape to each top corner so that it completely covers each diagonal cut and overlaps the top corners.

ATTENTION! Do not apply flashing tape to the bottom nailing fin.

STEP 7 Insulating & Applying Interior Seal

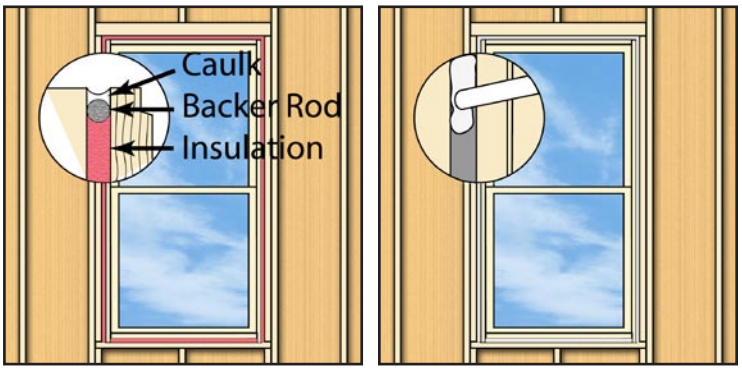


a) **Apply fiberglass insulation.** Loosely fill the space between the window and the rough opening with fiberglass insulation. Be careful not to pack the insulation too tightly. Over packing may cause the window to bow.

b) **Apply backer rod.** Apply 1/4" backer rod over the fiberglass insulation and press in place so that it is recessed approximately 3/8" to 1/2".

c) **Apply sealant.** Apply High Grade Exterior Sealant over the backer rod and tool to finish the seal.

d) **Alternate Method:** Apply foam insulation. Using a quality low expansion foam, apply a 2" thick bead of foam approximately 1" deep into the space between the window perimeter and the rough opening framing. Note: no backer rod or caulk seal is needed for this method.

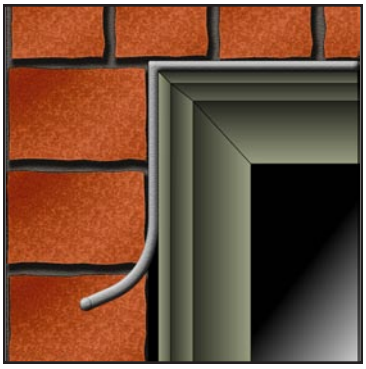


ATTENTION! Do not use high expanding foam as it will cause the window to bow. Follow foam manufacturer's recommendations for application.

e) **Apply interior trim.** After insulating and sealing the window perimeter apply interior trim. With the exception of radius casing (trim), all trim is supplied by sources other than Sun Windows. Follow traditional methods for applying trim. Do not used excessively long trim nails. Trim nails should penetrate 3/8" to 1/2". Exceeding 1/2" may damage operating components of the window. Sun Windows Interior Casing for radius window products may require manipulation to conform to the curve of the window product. Begin by fastening at the center point of the window curve and work to the outer edges, fastening as proper alignment is achieved.

STEP 8 Applying Exterior Seal

The seam between the product perimeter and the exterior wall finish material must be sealed around the entire product. Failure to apply this seal may result in water penetration around the product.



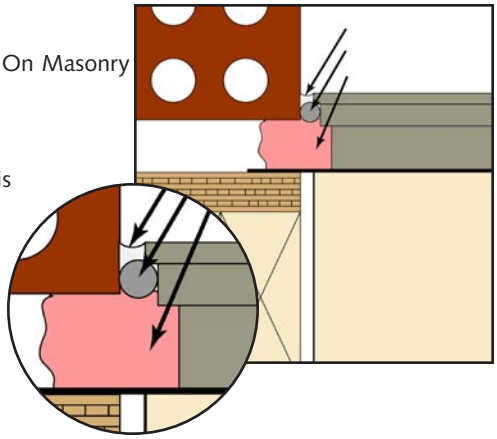
ATTENTION! Masonry Applications. All masonry applications require a 3/8" sealed expansion joint between the product perimeter and the masonry surfaces. This allows for the difference in expansion and contraction of wall/building structure and the masonry. Failure to apply this expansion joint may result in distortion or damage to the product and failure of product operation. Failure to apply this expansion joint will void the warranty.

a) **Exterior perimeter space.** Typical siding applications and other wall finish systems that are attached to the wall structure do not require an expansion joint. Masonry applications and other wall finish systems that are set separately on a foundation require a 3/8" space between the product perimeter and the exterior wall finish material.

b) **Apply backer rod.** (Masonry Applications only) Apply closed cell foam backer rod to the space between the exterior perimeter of the window and the wall finish material.

c) **Apply sealant.** Apply a bead of high quality exterior sealant to the perimeter space. On Masonry applications this should cover the backer rod.

d) **Finish the seal.** Finish the seal by tooling and shaping the perimeter seal so that it is slightly concave. Clean the excess sealant from the window and wall finish surfaces.



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STEP 9 Interior Finishing

SunClad Wood Products

All visible wood surfaces (see note* below) must be finished immediately with either a stain and clear sealer or paint. The wood surfaces of all SunClad wood products are suitable for finishing when shipped from the factory, however, exposure to the harsh environment of building construction will degrade the quality of the wood surfaces and may make it necessary to prepare the wood for finishing. Remove any dust, dirt or debris from the wood surfaces and lightly sand with fine grade sand paper. Filling of nail or staple holes is at the discretion of the finisher. If the window has removable wood grilles, remove them and paint them separately. Failure to finish the wood voids the Warranty.

*ATTENTION! Do not apply finish to the sides of double hung sashes. Doing so may cause them to stick to the jamb liners and/or hinder their operation.

ATTENTION! Do not finish or allow finishes to contact any vinyl surfaces, weather-stripping, or other non-wood surfaces.

SunVinyl Products

Do not apply any additional finish to SunVinyl products. Doing so will interfere with their performance and void the Warranty.

STEP 10 Exterior Finishing

SunClad Wood Products

The exterior finish on SunClad wood products is a factory applied baked-on enamel finish that has a 25 year or more life expectancy. This surface can be painted with a high grade exterior paint. Follow the paint manufacturers instruction for preparing and painting the exterior clad surfaces. Do not paint any vinyl surfaces or weather-stripping.

SunVinyl Products

Do not apply any additional finish to SunVinyl products. Doing so will interfere with their performance and void the Warranty.

STEP 11 Cleaning

Glass Surfaces

Clean glass surfaces with regular household glass cleaner as needed.

Wood Surfaces

Painted and stained wood surfaces should be cleaned according to the finish manufacturer's instructions.

Vinyl Surfaces

Clean with a mild soap and water solution and a soft clean cloth.

Chemicals and Cleaners

Do not allow any chemicals, chemical vapors, acids, cleaners, brick or masonry cleaner, abrasives, or other substrates to contact (directly or indirectly) any of the product surfaces, parts, and hardware. Deterioration or damage to to the product may result. Protect all surfaces, parts, and hardware during all phases of construction and finishing. Surface scratches as well as damage from any such chemical, chemical vapor, acid, cleaner, brick or masonry cleaner, abrasive, or other substrate is not covered by the warranty.

Door Installation Instructions

Attention! Read and understand all installation instructions before installing this product.

These instructions are to be used for SunClad Inswing and True French Doors only; other manufacturers instructions should not be used to install SunClad Inswing and True French doors.

Failure to install per these instructions will void the manufacturers warranty.

Attention! For maximum benefits of workmanship, materials and engineering to be realized, proper installation and maintenance is critical. Installation is the sole responsibility of the installer and beyond the control of Sun Windows, Inc. Sun Windows, Inc. is not responsible for installation related problems.

What you will need:

Tools required: Safety glasses, gloves, hammer, tape measure, level (6 ft recommended), caulking gun and framing square.
Materials required: High grade exterior sealant, batt insulation or non-expanding foam, corrosion resistant fasteners and shims.

The Rough Opening:

Rough opening must be of stable construction as well as plumb, square and level. Diagonal measurements for squareness should not exceed 1/4" in difference. Sill surface must be level, flat, and free of irregularities and provide rigid support for the door sill. Sun recommends a sill flashing be installed to the rough opening sill, per accepted industry methods, before the door is installed. Sill flashings of proper design will eliminate the possibility of water intrusion to the interior. Controlling water penetration is the sole responsibility of the owner or it's agents and can void all warranties if not properly installed.

Installation:

Preparation

Any shipping products attached to bottom of door and interior packing must be removed before installation. NOTE: High performance 4 9/16" or 6 9/16" sills must not be pulled or pushed across flooring surfaces after protective sill board is removed. The joint sealant tape on the bottom of the sill cannot be damaged in any manner. Always keep the door in the closed position as shipped. To avoid sill damage after installation, cover the and protect the sill area during construction.

Calking the Sill

Apply three (3) continuous beads of high grade exterior sealant along bottom of sill. One bead along the interior edge of the sill, one bead along the center of the sill and one bead approximately 4" away from the interior edge of the sill. NOTE: High performance 6 9/16" sills will require the third bead to be approximately 6 " from the interior edge. The sealant tape on the bottom of the 6 9/16" sill must not come in contact with any caulking product. Protect and keep top surface of sill clean at all times.

Setting the Door

Apply a bead of high grade exterior sealant on the backside of the perimeter nail flanges. Center the bead over the nailing holes if job site drilled, making sure there are no gaps or voids. Install the door with the sill in the proper orientation before letting the weight of the door to fully settle on sill. Once the door is in this position it cannot be moved in any inward or outward motion. If the door is moved in such directions, remove from opening and re-caulk the sill per previous instructions. Center the sill in the rough opening from left to right. With the sill properly oriented, push unit tightly against the exterior wall surface. Always consider Weather Sealing Tape over the fin as an extra precaution in avoiding water and air intrusion.

Temporarily Fastening the Door

Install 1 fastener halfway up on each side jamb. Install 1 fastener in head jamb at the center of the unit. DO NOT fully drive fasteners in as unit may need further adjusting. Check if doorjambs and head jamb are straight, plumb and square. If any adjustments are needed, shim the door to the correct position and fully secure fasteners. NOTE: Fasteners must be of sufficient length to penetrate the framing members a minimum of 1". Fasteners for clad doors should be roofing type nails of sufficient length.

Shimming the Door

Check the interior of door for a uniform 1/8" gap between the head jamb and the operating panel in closed position. If the gap is wider on the lock side jamb, Shimming needs to be re-checked. Proper installation is very important to the life of the door and frame.

Shim each side jamb with three (3) shims per side (4 shims on 8–0 height doors). The lock side jamb should be shimmed so a uniform gap exists between it and the panel. Finish nails should go through side jambs and shims to secure door.

Final Fastening of the Door

Finish installing exterior fasteners 3" to 6" from each corner and 10" to 12" spacing along entire side and head jambs. Be sure fasteners are installed tight enough so the entire perimeter of caulk is pressed against the exterior surface. There should be no gaps or voids between the nail flange and the exterior surface. Clad nail fin should not be fastened so tightly that it becomes deformed. All nail fin holes without a fastener should be sealed. The long Hinge screws (included) should be installed in the top and center hinge.

Sun Windows, Inc. • 1515 E. 18th St. • Owensboro, KY 42303 • Office: (270) 684-0691 Fax: (270) 926-6452 • email: info@sunwindows.com • web: www.sunwindows.com

Applying Insulation
Fill all voids between jambs and rough opening with loosely inserted batt insulation or non-expanding foam. DO NOT USE EXPANDING TYPE FOAM. Expanding type foam usage will automatically waive any warranties stated by Sun Windows, Inc.

Install the Hardware
Cut the operating panel strap. Install door hardware provided with the unit. All swinging doors have adjustable hinges that can fine tune the operation of the door. The oak threshold and interior wood parts should be protected with a quality finish as soon as possible.

Proper Flashing
Proper flashing on the exterior of the door is critical for optimum performance. Aluminum nail fin on a clad unit is not a flashing for the door unit. Flashing needs to be applied in a "weatherboard system" starting with the lowest section and proceeding upwards. Caulk the perimeter joint where the door makes contact with any exterior finish material. Sun Windows, Inc. is not responsible for damage resulting from improper flashing or no flashing on units at time of construction or at any future date.

Finishing the Wood Surfaces
All exposed wood surfaces, to include top and bottom surfaces, need sealed and finished promptly after installation (within 30 days). Fill and finish any blemishes, remove any smudges, dirt or fingerprints, insure door is DRY AND CLEAN prior to finishing. Finish with high quality paint or stain. Apply per paint manufacturers instructions. DO NOT paint weather-strip. DO NOT paint sill. Keep sill clean at all times. Contact Sun Windows, Inc. for any questions regarding paints or finishes. Aluminum touch-up paint for clad doors is available from Sun Windows, Inc.

Cleaning the Glass
Glass can be cleaned with a mild non-abrasive cleaner, a soft sponge or soft brush and warm water. NEVER use scouring pads, abrasive brushes, steel wool or other abrasives. Glass with reflective coating should be cleaned with caution to avoid scratching. Test any cleaners in a small area before cleaning the entire surface. Contact Sun Windows, Inc. for any questions regarding cleaners.

Protecting the Door
Fully protect all surfaces from brick and mortar cleaners or harsh cleaning materials to include acids or strong soap cleaners. Always protect the Glass and frame from Cement and Mortar splatter or splashing. Improperly cleaning Mortar or Cement from the Glass and frame can cause permanent damage to the Painted surface and the glass surface.

NOTE: It is the responsibility of the owner, architect, or builder to select products in compliance with applicable laws and building codes. Improper installation will void the warranty.

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