





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

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 product. Be careful not to cut the screen cloth (if applicable) or damage the product surfaces. Leave the door 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.

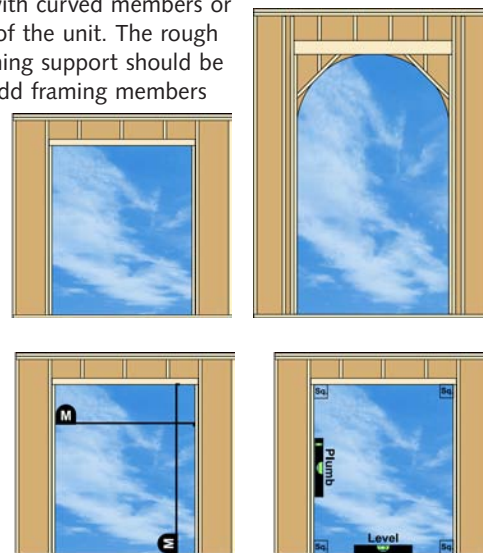
STEP


2

Prepare the Rough Opening

 **ATTENTION!** Applications that include Radius and Special Shape windows. 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 and free of irregularities as the product must sit flush 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 installed 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 opening.
- e) **Test Fit Door and Top Units.** Test fit the door and top window units (if applicable) in the opening to verify that they will fit into the opening.



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



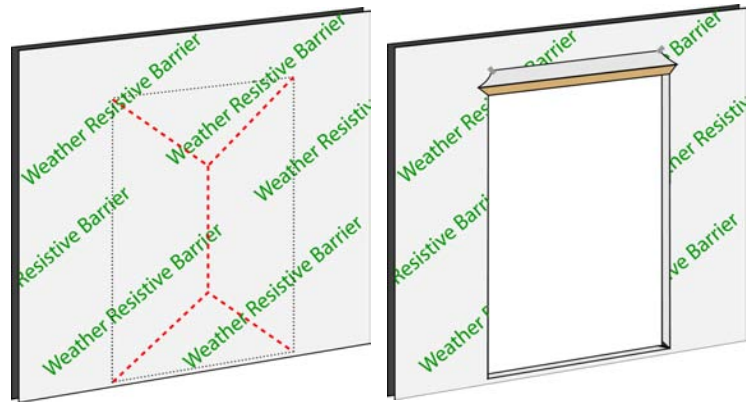
Door Installation Instructions

STEP 3 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 the door.

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

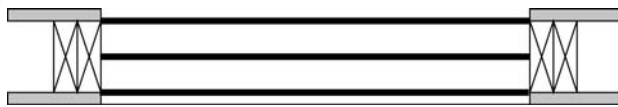
- a) **Cut the weather resistive barrier.** Find the edges of the door opening and mark a vertical center line at the middle of the opening. Cut a line diagonally from each corner to the vertical center line. Finally, cut the vertical center line between the top and bottom diagonal cut meeting points. (see illustration).
- b) **Fold weather resistive barrier into the sides.** Fold side flaps into the opening and staple in place. Trim excess at the interior edge.
- 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 9 d).



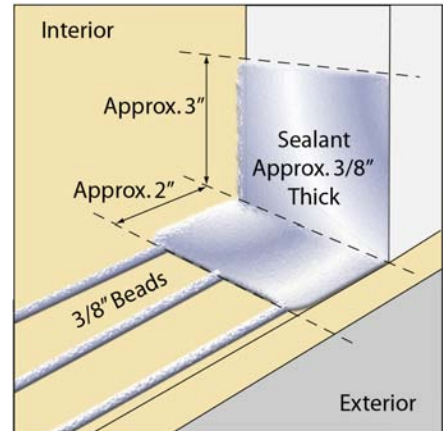
STEP 4 Preparing the Sill

Note: Prior to completing this step, test fit the door unit in the opening to verify that it will fit.

- a) **Apply sealant to sill.** Apply three 3/8" beads of Polyurethane Window & Door Sealant along the entire length of the sill. One toward the outer edge, one toward the inner edge, and one down the middle.



- b) **Apply sealant to sill ends.** Apply a solid bed of Polyurethane Window & Door Sealant (2" x the width of the sill x 3/8" thick) at each end of the sill.
- c) **Apply sealant to jambs.** Apply a solid covering of Polyurethane Window & Door Sealant from the sill to about 3" up both side jambs.

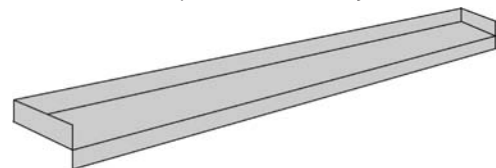


Note: Alternate method

The use of a "sill pan" will also help ensure that water cannot leak-in underneath the door threshold. A pan can be fashioned from heavy flashing material or can be purchased from other manufacturers. Contact your building materials dealer for product availability.

Instructions:

- 1) Apply sealant as specified above.
 - 2) Set sill pan in sealant.
- (For purchased sill pan, follow sill pan manufacturers instructions.)



Additional information:

ASTROpan™ manufactured by Astro Plastics / 14101 Industrial Park Blvd. NE / Covington, GA 30014 / 1-800-334-4474 / (770) 786-2703
Email: info@astroplastics.com / web: www.astroplastics.com

SureSill™ Sloped Sill Pan manufactured by Endura Door Component Systems / 8817 West Market St. / Colfax, NC 27235 / 1-800-334-2006
Web: www.enduraproducts.com

Jamsill Guard™ manufactured by Jamsill Incorporated / P.O. Box 485 / Talent, Oregon 97540 / 1-800-526-7455 / (541) 488-7472
Email: info@jamsill.com / web: www.jamsill.com



STEP

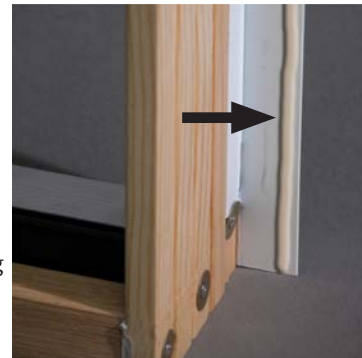
5 Setting the Door

ATTENTION! These steps may require 2 or more people. Doors and windows are heavy objects and can cause serious injury if not handled with caution. Use safety precautions and have plenty of help.

Note: Step 4 must be completed prior to performing the following.

a) **Apply sealant to nail fin.** Move the door unit close to its framed opening. With the unit standing in its upright position and supported so that it will not fall, apply a continuous bead of Polyurethane Window & Door Sealant to the back side of the nailing fins.

b) **Place the door into opening.** From the exterior, place the door into the opening by first setting the bottom edge into position while the top is leaning out. Carefully align the bottom to the opening before standing the unit all the way upright. This is to minimize the amount of shifting of the unit once it is upright, to prevent excessive displacement of the sill Polyurethane Window & Door Sealant (see Step 4). Once, bottom is aligned, stand the door unit upright in the opening.



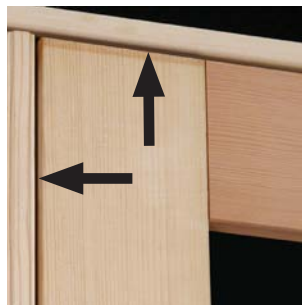
Note: The door threshold (bottom) MUST sit flush on the floor in the opening. It must not be shimmed, and it must have Polyurethane Window & Door Sealant properly applied. See Step 4.

c) **Temporarily fasten.** To temporarily hold the door in the opening, hammer a couple of nails on each side of the unit and bend them over the nail fin. Leave them loose enough to allow the door frame to be shifted (sideways).

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



e) **Check the reveal.** From the inside, carefully examine the reveal (the gap between the door panel and the frame). The gap should be uniform across the top, the bottom and down the strike side (the side opposite the hinges). If it is not, shift the top of the unit sideways until the reveal is uniform.



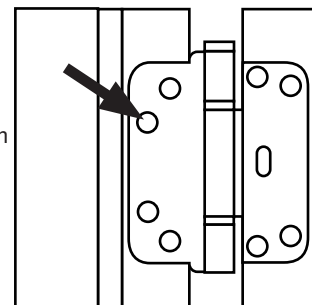
f) **Shim the sides.** Use a level or good straight edge to check the sides for plumb. Apply shims behind the hinges on the hinge side and near the top, the bottom and at the strike on the other side.

ATTENTION! Do not over or under shim the sides. Do not shim above the door or the beneath the threshold. Proper shimming is required for correct operation and optimum performance of the door.

g) **Fasten the nail fin.** Fasten through the nail fin, applying a nail at least every 12".

h) **Apply Long Screws to hinges.** Open the door and replace one of the screws on the jamb side of both the top and middle hinges with a 3" long screw (supplied). This is to anchor the hinge through the jamb into the wall stud. This should pull-tight the upper weight of the door panel to help it hang balanced.

i) **Check operation.** Check the operation of the door. The door panel should open and close freely. It should not rub against the jamb or the wood portion of the threshold. If it doesn't follow the hinge adjustment instructions (see Step 7) to fine-tune the door panel adjustment. Note: the adjustable hinges are designed to make small adjustments to the operating door panel. If the door was properly set, level and plumb following the steps above, small adjustments to the hinges should be all that is necessary to fine-tune the door operation.



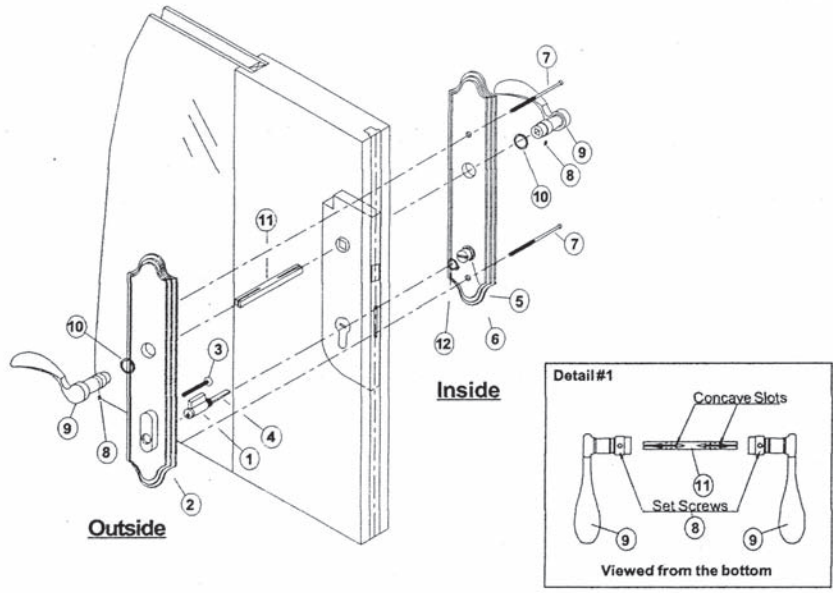
Add long screw on top and middle hinges.



Door Installation Instructions

STEP 6 Installing the Handle Set

- a) Insert locking cylinder #1 into the outside escutcheon plate #2 using the Z-bar #3 to secure cylinder to escutcheon plate.
- b) Insert cylinder and outside escutcheon plate into door by first inserting tail piece #4 through lower slot in lock body as shown.
- c) While holding exterior plate #2 onto door, install inside escutcheon plate #5 making sure the tail piece of cylinder #4 is inserted into the slot on the thumb turn #6.
- d) Attach outside and inside escutcheon plates together with the screws #7 provided. Do not tighten screws all the way.
- e) Insert spindle set screws #8 provided into levers #9 as shown (see Detail #1). Do not tighten.
- f) Place nylon washers #10 over shank of levers #9 as shown.



- g) Attach one lever #9 to spindle #11 making sure the split in the spindle will receive set screw on lever. Note: set screws must be inserted into the concave slots on spindle. Tighten set screw #8 with Allen wrench provided.
- h) With the lever in the horizontal position, insert spindle #11 through outside escutcheon plate #2, through upper square hole on lock body and through inside escutcheon plate #5.
- i) Slide the remaining lever #9, nylon washer #10 and set screw #8 onto spindle #11 and adjust trim as necessary to accept lever.
- j) Engage and disengage the locking points several times. When the handle operates smoothly, tighten the bottom trim screw #7. Next, with the locking points in the engaged position, operate the key and thumb turn several times until both function smoothly. Tighten top trim screw #7 and set screw #8. Do not over tighten as damage can result to the escutcheon plate.

Locking / Unlocking the Handle Set

Locking

- a) Lift the lever upwards to engage the locking points.
- b) Operate the cylinder with a single 90° turn (interior tab or exterior key) to set the lock.



Unlocking

- a) Release the lock by operating the cylinder with a single 90° turn (interior tab or exterior key).
- b) Use the lever to disengage the locking points.





STEP

7 Adjusting the Hinges

2-D Hinge Adjustment

NOTE: Use only a hand screwdriver for adjustments. NEVER use a power screw driver as this will cause severe damage to the hinge.

There are two types of adjustable hinges for each door panel:

Set Hinge: One per panel. This hinge has the vertical (up and down) adjustment.

Guide Hinge: Minimum of two per panel. These hinges have the horizontal adjustment. The guide hinges float up and down with the adjustment of the set hinge to prevent hinge binding.

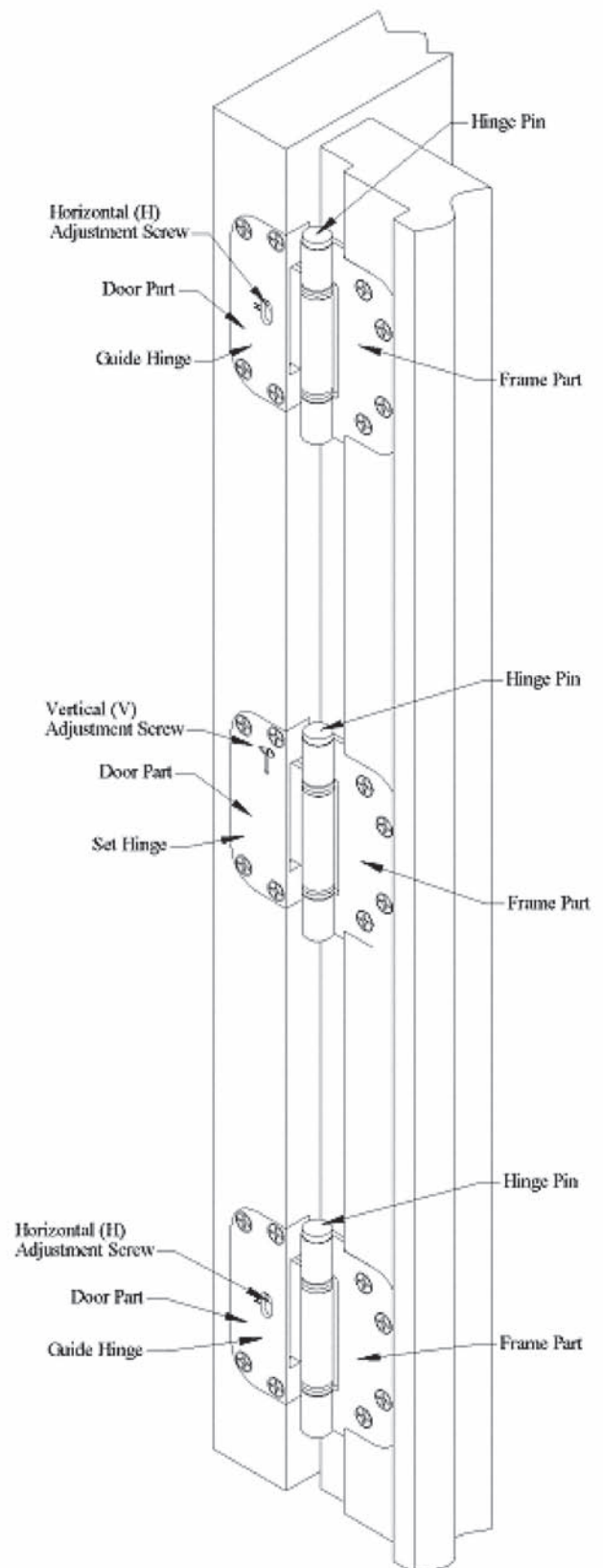
Normal hinge placement has the set hinge spaced between the top and bottom guide hinge.

Adjust the door panel up or down by turning the screw marked (V) on the set hinge with a Phillips screwdriver. When the (V) vertical adjustment is at the top and you turn the screw with the arrow, the door panel moves up. When the (V) vertical adjustment is at the bottom of the hinge and you turn the screw with the arrow, the door panel moves down. The vertical adjustment has 32 turns from its extremes, 16 turns on center to either vertical extreme. A center line "mark" is located near the hinge knuckle on the door part leaf to aid in adjustment.

Adjust the door panel in or out by turning the screw marked (H). Turn clockwise to increase margins, and counter clockwise to decrease margins. The horizontal adjustment has 7 turns, 3 1/2 turn from center to either horizontal extreme.

Attention

Do not dismantle the hinge by banging out the pin. This will seriously affect the unique, smooth running of the maintenance-free slide bearings.





Door Installation Instructions

STEP 8 Mulling a Window to the top of the Door

1) Remove the nail fins.

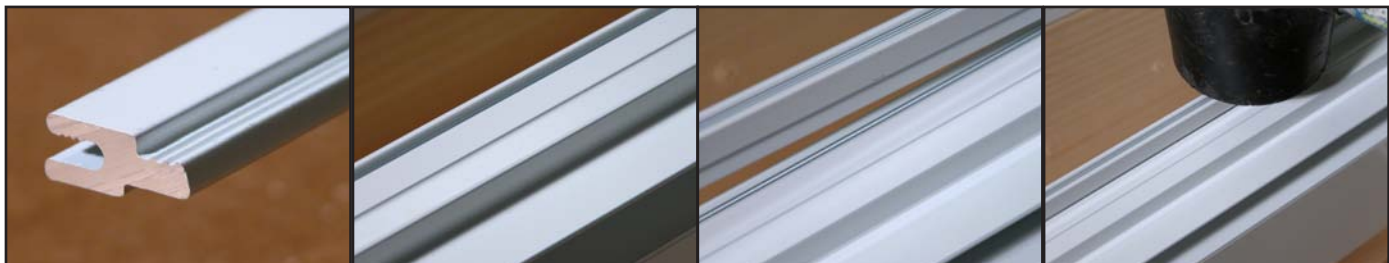
Snap-off the nailing fin from the top of the door and from the bottom of the window. The nail fins are pre-scored and should snap-off by bending them forward and backward a few times. Use pliers to assist in this process.



Snap off nail fin from top of door frame and bottom of window.

2) Apply Mull Extension & Spacer Shim (for SunClad Inswing and True French Doors only)

Locate the Mull Extension piece (see detail photo). The Mull Extension is right side up when the ridges on the male edge are facing up (see detail photo). Insert the male edge of the mull extension into the female receptor on the door frame (see photos). Use a rubber mallet or hammer and wood block to tap the piece into the receptor. The Mull Extension may be a little loose when in place, but it will tighten up once the Mull Cap is applied.



Mull Extension

Fits in groove (female receptor) at Top of Door Frame.

Insert Extension in groove

Tap into place

Note: Never use a hammer without a wood block to tap this piece in place. The Mull Extension, as well as the frame is aluminum, and will bend, dent and distort if impacted by a regular hammer.

SunClad Inswing and True French Doors should have a 1/16" continuous wood shim applied to the top of the unit. This serves as a spacer for the mull cap. If it is not on the unit, apply 1/16" shims about every 12" across the top of the door frame.

3) Set the Window

First, test fit the window to be sure it fits in the opening.

Apply a continuous bead of [Polyurethane Window & Door Sealant](#) to the back of the window nail fins (remaining nail fins on sides and top) . Position the window on top of the door, carefully aligning edges of the units so that they are even. **Note: the interior face of the window sill should be flush with the interior face of the door head.** Clamp in place.

4) Fastening the Window to Door

Fasten (wood to wood) the top window unit to the top of the door frame with wood screws or nails. Nails or screws can be applied from either the top side down or the underside up (installers preference). Counter-sink the heads and fill for finishing.

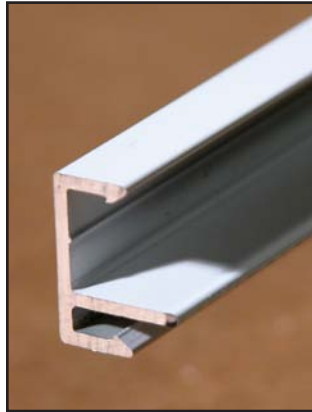
Now fasten the window to wall opening by nailing through the nail fins.



5) Applying the Mull Cap

Type 1 (for Transom windows)

Locate the Mull Cap (see detail photo). Mull Cap type 1 is right side up when the wider gap is toward the top (see detail photo). Apply a bead of clear silicone sealant to the exterior face of the transom frame at the bottom of the window. This is the portion of the window frame that is covered by the mull cap. This helps prevent water from penetrating through the mull cap. Insert the Mull Cap with the bottom tab fitting into the receptor on the door frame, the middle tab fits between the door and the window, and the top tab fits over the receptor on window frame (see photos). Working from one end of the unit to the other, tap the Mull Cap into place with a rubber mallet or hammer and wood block. Fill the open ends between the door and the window with expanding foam. Seal the ends of the mull cap with silicone sealant.



Mull Cap (type 1)



Position the window on top of the door frame.



Insert the Mull Cap



Tap into place

Type 2 (for Radius windows)

Position the door and window together, carefully aligning edges of the units so that they are even. Locate the Mull Cap (see detail photo). Mull Cap version 2 is symmetrical and will work with either edge up. Insert the Mull Cap into the receptors on the door and window frames (see photos). Working from one end of the unit to the other, tap the Mull Cap into place with a rubber mallet or hammer and wood block. Seal the ends of the mull cap, as well as the end seams between the door and the window, with silicone sealant.



Mull Cap (type 2)



Position the window on top of the door frame.



Insert the Mull Cap



Tap into place

Note: Never use a hammer without a wood block to tap this piece in place. The Mull Extension, as well as the frame is aluminum, and will bend, dent and distort if impacted by a regular hammer.



Door Installation Instructions

STEP 9 Flashing the Unit

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 to the bottom of the opening and 2" to 3" above the top of the opening.

If your unit is a single unit (one unit wide) skip to step 9 c)

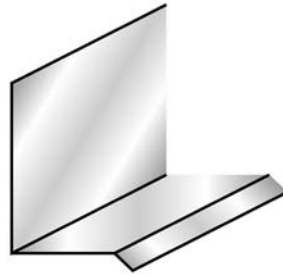
Note: On multi-wide units a separate drip cap must be installed. This drip cap must run the entire width of the multi unit. It must form a drip edge that extends beyond the top, outer most face of the unit. It must form a 90° angle at the back and cover the nailing fin. This cap may be purchased pre-formed 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 unit** 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 unit 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 3 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 3 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.



STEP 10 Applying Jamb Extensions

If you do not need jamb extensions, or your jamb extensions were factory applied skip to Step 10.

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) **Measurements.** Measure the width and height of the unit.

b) **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 unit jamb. Extensions should form butt joints at the corners.

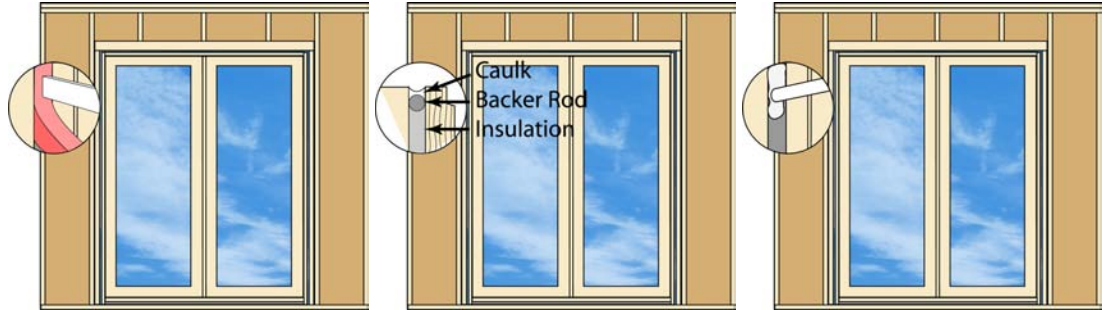
c) **Fasten the extensions.** Set the extension, on the corresponding face of the unit frame. Using appropriately sized Brad Nails, fasten extensions straight through the extension into the unit frame. Fasten approximately every 8".



STEP

11 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".

Alternate: Apply Low-Expansion Foam

c) **Apply sealant.** Apply High Grade 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 frame 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 use 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.

The seam between the product perimeter and the exterior wall finish material must be sealed around the

STEP

12 Applying Exterior Seal

entire product. Failure to apply this seal may result in water penetration around the product.



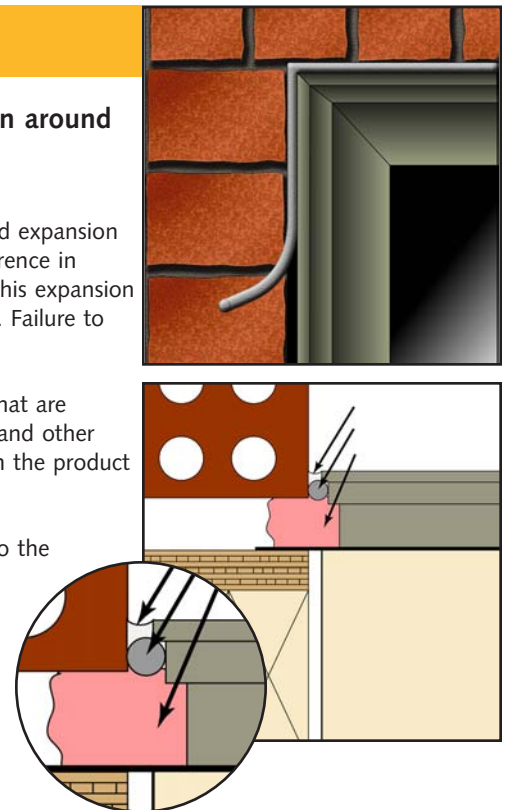
ATTENTION! Masonry Applications. All masonry applications require a 3/8" sealed expansion joint between the product perimeter and the masonry surfaces. This allows for the difference in expansion and contraction of wall/building structure and the masonry. Failure to apply this expansion joint may result 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 High Grade 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.





Door Installation Instructions

STEP 13 Installing the Screen

Install the screen (if applicable) in the exterior screen track. Insert the top rollers into the upper track. Set the lower rollers on the lower screen rail. If necessary, tighten the adjusting screws.

STEP 14 Interior Finishing

SunClad Wood Products

All wood surfaces 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 product has removable wood grilles, remove them and paint them separately. Failure to finish the wood voids the Warranty.



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



STEP 15 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.



STEP 16 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.

Aluminum & 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 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.