Window Installation Instructions for New Construction

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

All products manufactured by Sun Windows must be properly installed following Sun's installation instructions. They must be properly flashed and integrated into a vapor/moisture barrier system. These installation instructions were developed for use in new construction applications with typical wood frame walls. The wall system must be designed to manage water. It is the responsibility of the consumer, architect or construction professional to verify the installation method for your application.

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 their exterior finished wall system.

Most window and door products are heavy and require caution when handling. Always use safe lifting methods. If necessary, have additional help in carrying/handling the product.

Do not store products in direct sunlight. Most Sun products are shipped wrapped in a packaging 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 the product (with the protective clear wrap packing) in direct sunlight. Keep uninstalled products in a safe place, out of direct sunlight and exposure to the weather.

Do not stack or store window and door products flat on top of one-another. Products may be stacked or stored leaning against a vertical support.

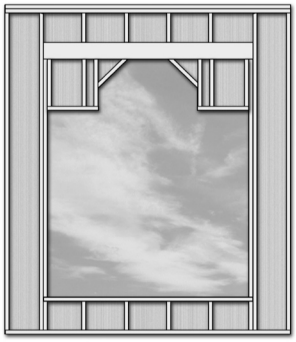
Do not stack or store directly against the glass surface or allow any glass surface to bare weight.

Remove the clear wrap packing before installing the product. Remove the protective plastic wrap and any other packaging materials from the product.

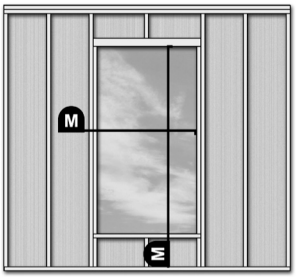
Be careful not to cut the screen cloth (if applicable) or damage the product surfaces. Leave the products in the closed and locked position until later.

1 Prepare the Rough Opening

ATTENTION! Applications that include Radius and Special Shape windows require special 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.

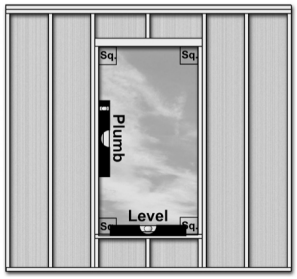


a) Verify rough opening size. The rough opening should provide approximately 1/4" clearance between the sides and top of the product and the framing.



b) Verify that rough opening sill (bottom) is level. The rough opening sill must be level and free of irregularities as the product should 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 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 opening.

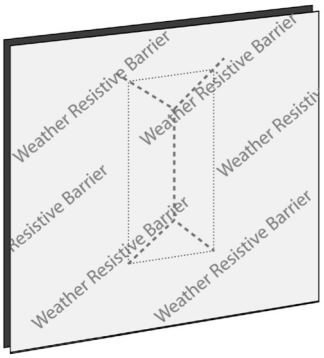
e) Test Fit the Unit. Test fit the unit in the opening to verify that it will fit.

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

2 Preparing a Weather Resistive Barrier

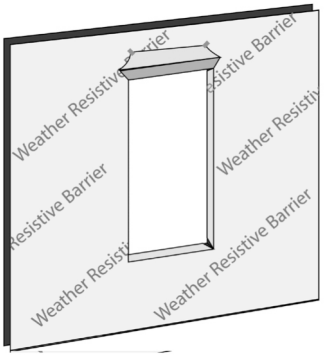
Even if a weather resistive barrier is not used, follow all the steps that incorporate flashing tape.

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).

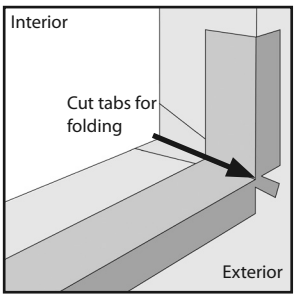


b) Fold weather resistive barrier into the sides and sill. Fold side and bottom flaps into the opening and staple in place.

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 d).

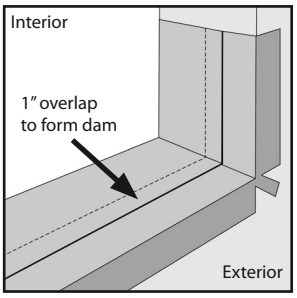


d) Apply sill flashing tape. Cut a piece of flashing tape 12" longer than the width of the opening. Apply to the bottom of the sill as shown. The flashing tape should overhang to the exterior at least 1". The flashing tape should also extend up each side approximately 6".



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.



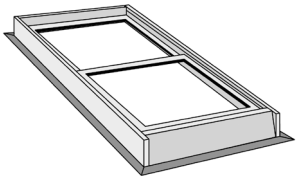
f) Apply sill dam. Cut a second piece of flashing tape the same length as the one used in Step 2d. This will function as a dam against water flowing to the inside if it somehow reaches the sill. Apply to the sill overlapping the first piece 1", with the remainder of the flashing tape extending to the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

3 Applying Jamb Extensions

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

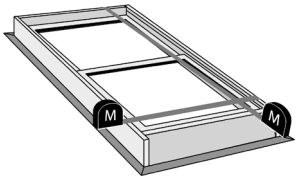
All Sun products are available with factory applied jamb extensions to meet various wall thickness requirements. If your products requires jamb extensions, and you ordered them "not applied", apply them now as follows:

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.

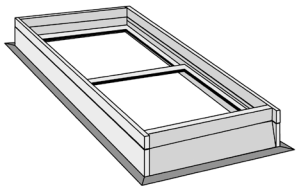
c) Cut the extensions to length. Cut the jamb extensions so that when they are applied the outer face of the extensions will b the window jamb. Extensior corners.



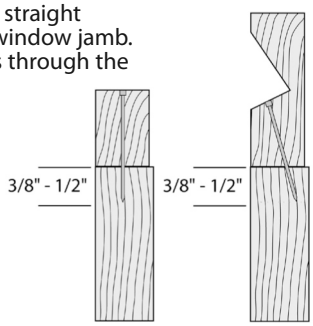
Note: Depending on the thickness of your jamb extension the jamb material will either be:

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).

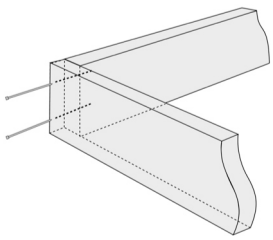


Using appropriately sized Brad Nails (see note below), fasten 1" thick or less extensions straight through the extension into the window jamb. Fasten 2" thick or less extensions through the fastening groove into the window jamb.
Fasten approximately every 8".



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)

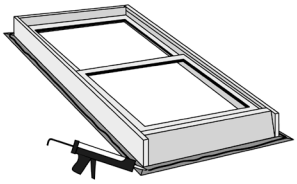
e) Fasten the corners. Fasten all four sides as described above and then fasten the butt joint corners through the lapping extension into the end of the joining extension.



4 Setting the Window

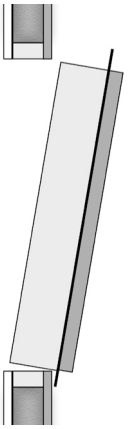
ATTENTION! These steps may require 2 or more people.

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.

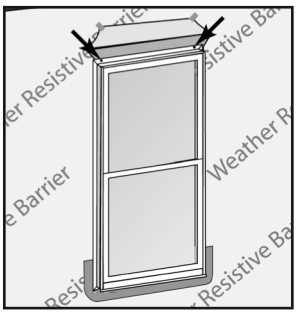


Note: High Grade Exterior Sealant should conform to AAMA 808 specification.

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! Place shims under the bottom corners and at each mull point on multi-wide units. Shimming anywhere else under the bottom rail may cause it to bow.

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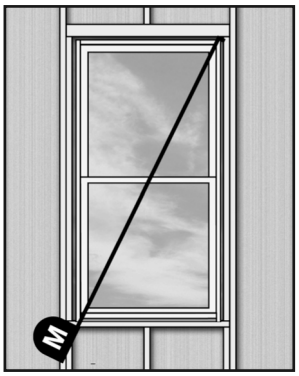
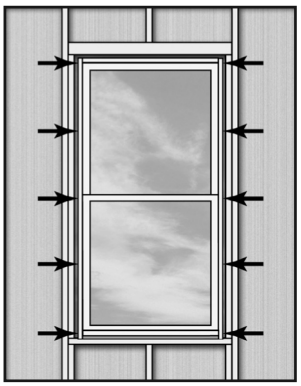
e) Square the sides. Working from the interior side of window, measure diagonally from one top corner of the window frame to the opposite bottom corner. Next, measure the other corners. These measurements should be equal. If they are not, the window is not square. Shift the bottom of the window until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



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

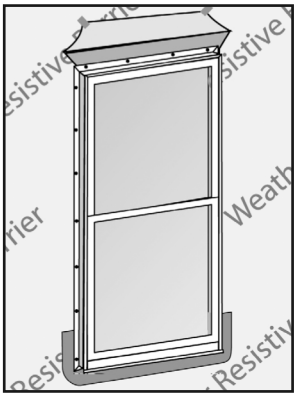
g) Shim the window sides. Use a level or good straight edge to check the sides for plumb. Apply shims (on both sides of the window) at the top and bottom corners, the midpoint, and halfway between the corners and the midpoint. Shim to achieve plumb.



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.

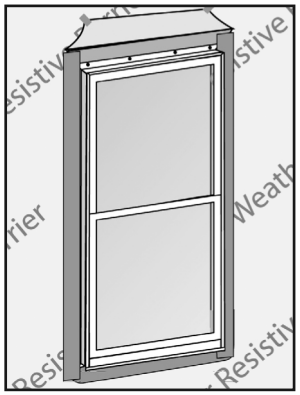
h) Check operation. Check the operation of the window. Unlock the sash and check its full operation. Sashes should open and close completely without binding. Tilt-in sash windows should tilt-in and close without excessive force. Hung sash windows midpoint meeting rails should be parallel with each other. 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 4e 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".



5 Flashing the Window

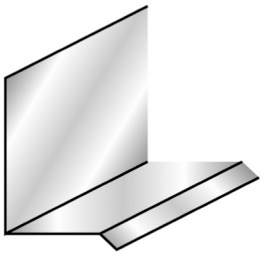
ATTENTION! All products manufactured by Sun Windows must be properly flashed and a complete vapor barrier applied to seal the product opening. Proper installation of drainage systems, flashing, water and vapor barriers are the sole responsibility of the owner or their agents.



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.

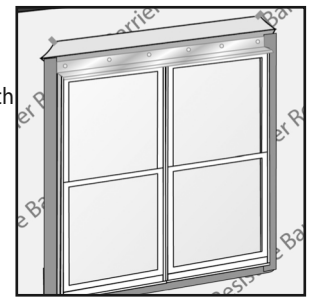
If your window is a single unit (one unit wide) skip to step 6 c)

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 from Sun Windows SunClad Drip Cap) or it may be made or purchased from another supplier.

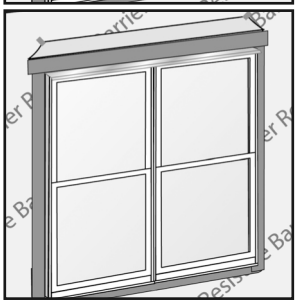


b) Install the drip cap on top of the window and fasten it to the wall sheathing with galvanized roofing nails.

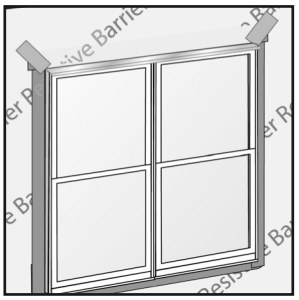
c) Apply top flashing tape.
Cut 1 piece of flashing tape long enough to go across the top of the window and extend at least 1″ past each piece of side flashing tape. Apply the tape so that it covers the nail fin and seals against the exposed sheathing (left exposed in step 2 c).



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.

6 Insulating & Applying Interior Seal

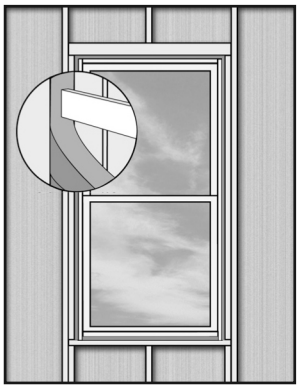
a) Apply fiberglass insulation. Loosely fill the space between the window and the rough opening with fiberglass insulation. Be careful not to pack the insulation too tightly. Over packing may cause the window to bow.

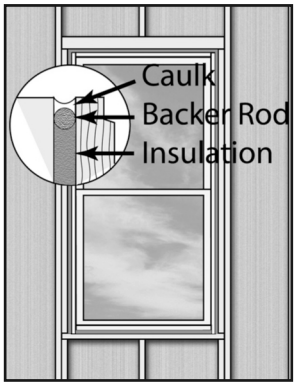
b) Apply backer rod. Apply 1/4″ backer rod over the fiberglass insulation and press in place so that it is recessed approximately 3/8″ to 1/2″.

c) Apply sealant. Apply High Grade Exterior Sealant (AAMA 808 Compliant) 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.

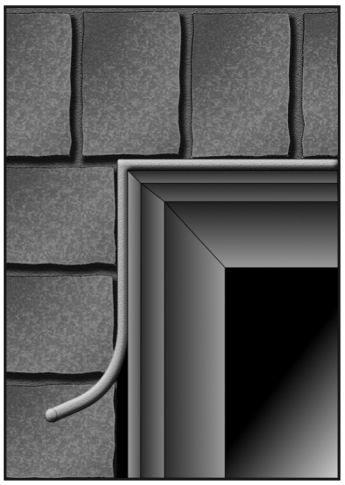




7 Applying Exterior Seal

ATTENTION! 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. 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.

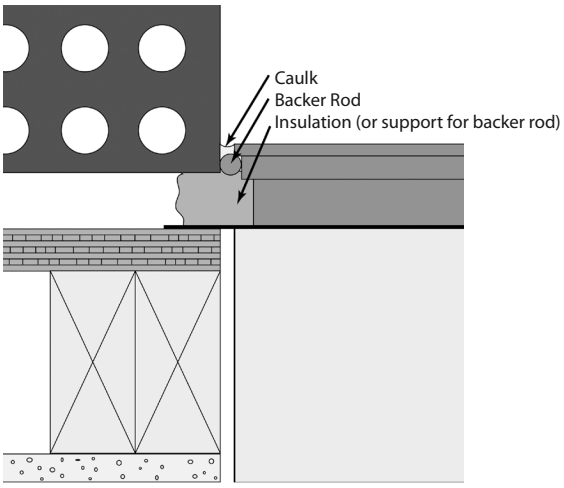
a) Exterior perimeter space. Typical siding applications and other wall finish systems that are attached to the wall structure do not require an expansion joint. Masonry applications and other wall finish systems that are set separately on a foundation require a 3/8" space between the product perimeter 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 (AAMA 808 Compliant) 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.



8 Interior Finishing

SunClad Wood Products
Wood surfaces must be painted or stained and sealed. Follow your finish manufacturers instructions for application of the finish.

Although the wood on SunClad Wood windows and doors is suitable for painting or staining, unfinished wood is highly susceptible to dirt and debris or contamination from handling as well as exposure to humidity and the elements. Proper finish preparations should always be made prior to applying a finish. This includes removing any dirt, debris, dust, handling stains, etc. that may have collected on the surface. Nail holes should be filled and sanded. Any raised grain or rough surfaces should be properly sanded using step sanding principles. All wood surfaces should have a final, fine sanding to prepare the wood for the application of the finish.

Do not paint or stain vinyl windows or vinyl window surfaces or components. Carefully inspect the window for any residue from building and painting finishes. Remove any spots or debris with a damp cloth and mild soap solution. Do not use abrasives or any type of chemical to clean the window. These items can scratch the vinyl or cause it to chemically break down.

9 Exterior Finishing

SunClad Wood Products
Sun uses high durability powder coating as the finish of our SunClad products. It is tougher than conventional painted finishes. The powder is electrostatically applied to aluminum extrusions that have been washed and prepared in a multi-stage pre-treatment process. The applied powder is baked on to the extrusion which is ready for production shortly after leaving the oven. Our standard finish meets AAMA 2604 requirements and allows us to provided a 20 year warranty against peeling, flaking, blistering, cracking, checking and loss of adhesion and a 10 year warranty against chalking and color change. 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.

10 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 cloth.

Chemicals and Cleaners
Do not allow any chemicals, chemical vapors, acids, cleaners, brick or masonry cleaners, 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 product 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.

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