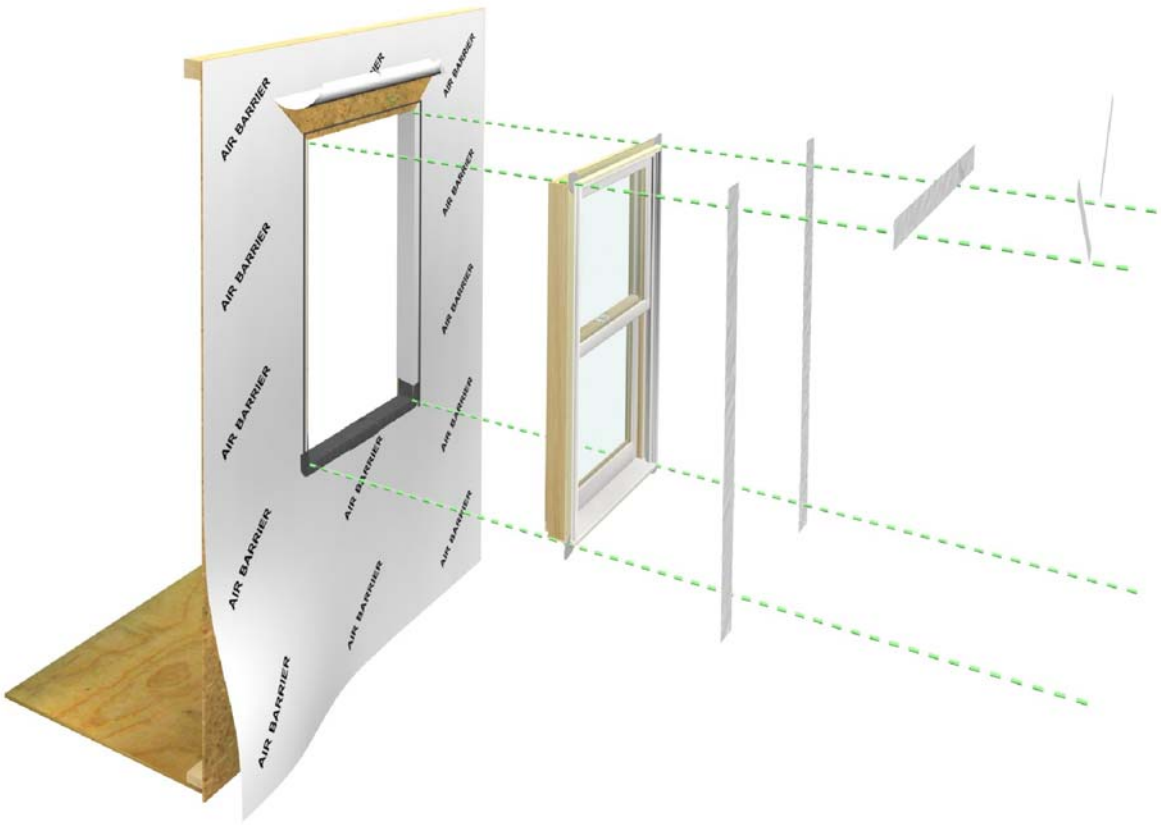
Clad Window Installation

Standard Wood Frame Construction



These instructions are applicable for the following aluminum clad window products:

Clad Casemaster Family
Clad Casemaster Venting Picture
Clad Ultimate Casement Family
Clad Tilt-Turn/Inswing Casement/Hopper
Clad Ultimate Double Hung Family
Clad Round Top
Clad Polygon
Clad Glider

ABSTRACT: Please read these instructions in their entirety before beginning to install your Marvin window product. These installation instructions demonstrate the installation of a Marvin aluminum clad window in new wood frame construction using an industry approved water management system. For installation using other construction methods, such as remodeling, replacement, and recessed openings refer to "ASTM E2112-01, Standard Practice for Installation of Exterior Windows, Doors and Skylights," for installation suggestions. Information for ASTM E2112 can be found on the ASTM website, www.astm.org.

For product specific issues, service instructions and other field service guides, refer to the Marvin Service Manual, visit our website at www.marvin.com, or contact your Marvin representative.

Regional standard practices, environmental conditions, and codes may vary and supercede the procedures contained within. The responsibility for compliance is yours: the installer, inspector, and owner(s).

The procedures within these instructions are consistent with those used in testing to achieve the advertised DP rating.

MARVIN Windows and Doors

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2009-12-22
19970017

Table of Contents

Before You Begin

Installer and Builder Information

- **Always** provide a copy of these instructions for the current or future building owner.
- Plan sizing of rough opening and clearance from exterior finishing systems to allow for normal materials shrinkage or shifting (e.g. wood structure with brick veneer; allow adequate clearance at sill). Failure to do so can void the Marvin warranty coverage.
- Refer to the **Technical Installation Requirements** section for technical specifications regarding the installation of this product. These installation requirements as well as the details in this section must be followed to achieve the advertised design pressure (DP) rating of this product.
- It is the responsibility of the builder, installer and subcontractors to protect the interior and exterior of windows or doors from contact with harsh chemical washes, construction material contamination and moisture. Damage to glazing, hardware, weatherstrip and cladding/wood can occur. Protect with painters tape and/or protective sheathing as required. Follow all guidelines regarding material use, preparation, personal safety and disposal.
- Refer to the enclosed painting and staining instructions on the last page for exterior and interior finish instructions.
- Contact your Marvin supplier if you have any questions regarding product and materials used in manufacturing or questions on replacement parts.

After Market Products

Alterations to Marvin products including window films, insulating or reflective interior window treatments or additional glazings can cause excessive heat buildup and/or condensation. They may lead to premature failures not covered under warranty by Marvin Windows and Doors.

Before purchasing or applying any product that may affect the installation or performance of Marvin windows contact the manufacturer of aftermarket product/glazings that are not supplied by Marvin and request written product use, associated warranties and damage coverage. Provide this information and warranties to the end user and/or building owner for future reference.

Hazard Notations

Please familiarize yourself with the following hazard notations used throughout this instruction.

Icon	Description	Usage
	**Caution**	Mistakes or misuse could cause damage to the window or result in faulty installation and unit performance.
	**Warning**	Mistakes or misuse could result in personal injury and/or severe damage to unit, equipment, and/or structure.
	**Seek Assistance**	Help from another individual is necessary to perform this task safely and correctly.
	**Tips/Hints**	Information on alternative procedures, definitions, helpful hints.

You Will Need to Supply

Safety glasses	Hearing protection
Level	Square
Hammer	Wood shims
Fiberglass insulation	Tape measure
Perimeter sealant	2″ Roofing nails

Marvin SillGuard™ or equivalent sill pan system
Backing material (foam backing rod)
Low expansion foam insulation
Flashing materials
Weather resistive barrier

Standard Parts Shipped

Units are sent with hardware and four (4) nailing fin corner gaskets. Follow installation instructions included with part if applicable.

NOTE: Numbers listed in parentheses ( ) are metric equivalents in millimeters rounded to the nearest whole number.

WARNING: Always practice safety! Wear the appropriate eye, ear and hand protection, especially when working with power tools.

Step 1: Rough and Masonry Opening Requirements

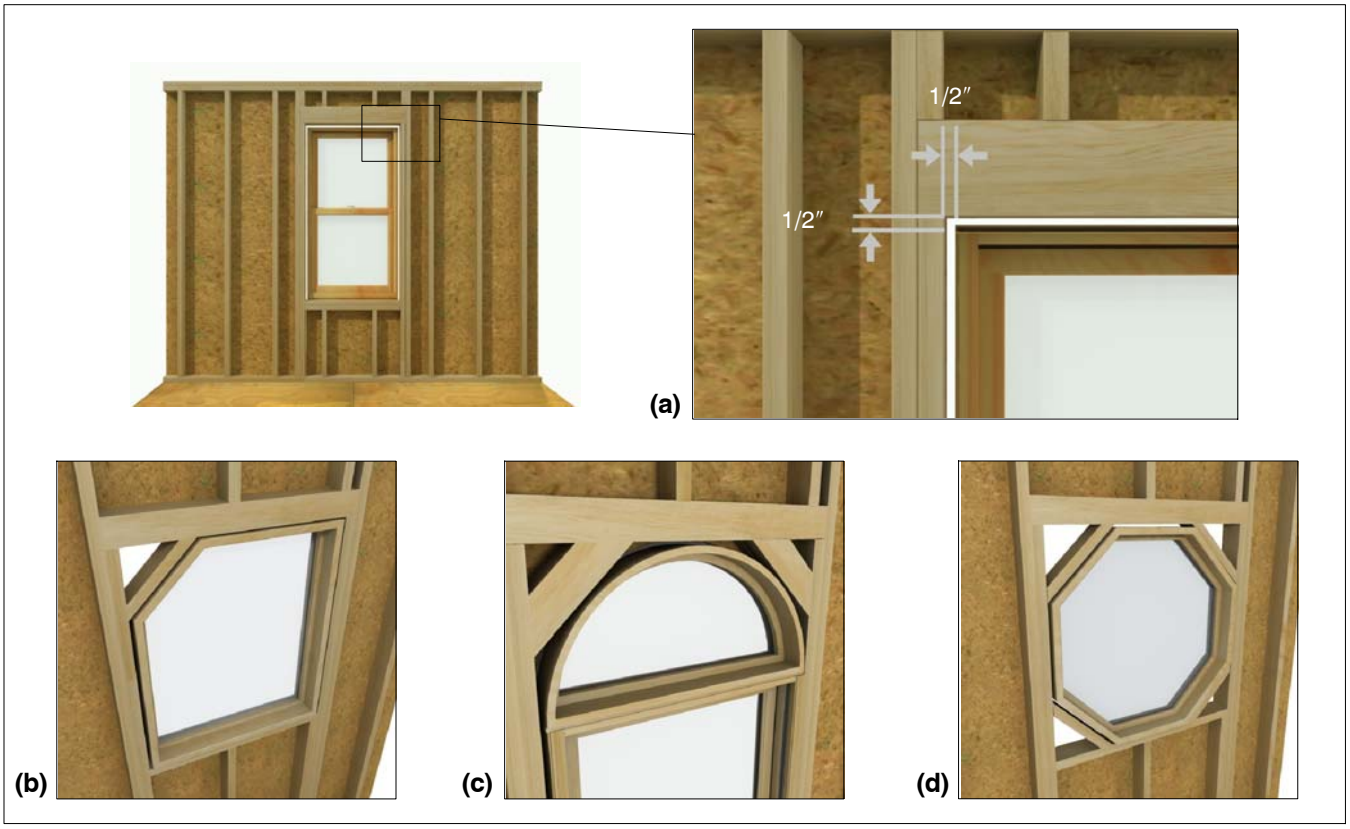


Figure 1: Typical rough and masonry openings.

1. **Rough openings (RO)** should be 1″ (25) wider than the outside measurement of the frame and 1/2″ (13) higher. (When framing rough opening, care should be taken to ensure the sill plate is level and the opening is square, straight and plumb.) See figure 1a.
2. On shapes such as polygons, round tops, and octagons, make sure there is proper bracing. See figure 1b–d.

NOTE: When using a sill panning product you may need to adjust the opening accordingly to account for the height of the panning.

CAUTION! If the previous conditions are not met, the installer must take corrective actions to alter the opening(s) before proceeding. It is also essential that the sheathing behind the wall be a solid surface to ensure that the unit can be secured firmly to the wall.

Step 1: Rough and Masonry Opening Requirements (cont.)

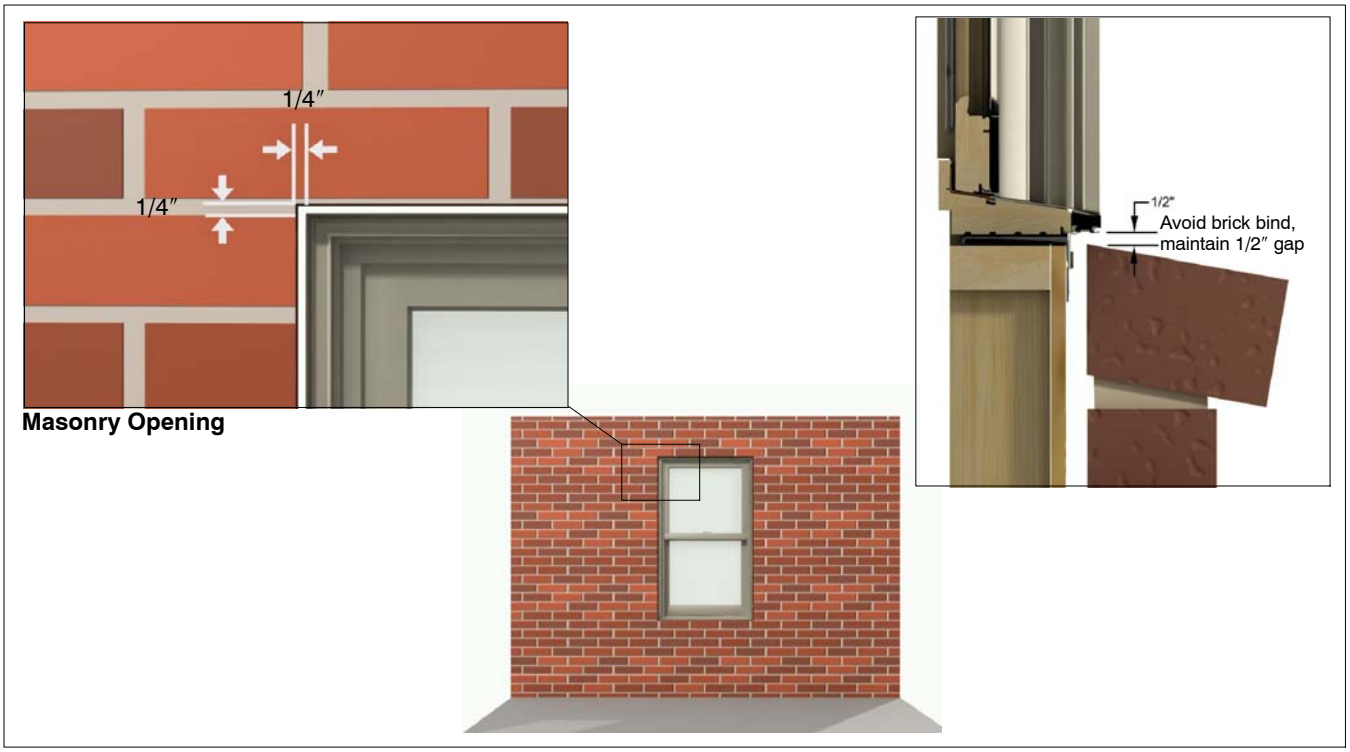


Figure 2: Typical rough and masonry openings.

3. **Masonry openings (MO)** should be 1/2″ (13) wider than the outside measurement of the frame and casing and 1/4″ (6) higher than the outside measurement of the frame or casing.

NOTE: On standard wood frame construction with brick veneer, make sure there is at least 1/2″ (13) between bottom of window sill (or eventual placement of the window) and the top row of brick to avoid "brick bind".

Step 2: Rough Opening Preparation

The following section demonstrates best practice a rough opening preparation for both air barrier and building paper scenarios using Marvin SillGuard™. Refer to ASTM E2112–1 for the other situations not covered in this document.

Air Barrier Applications

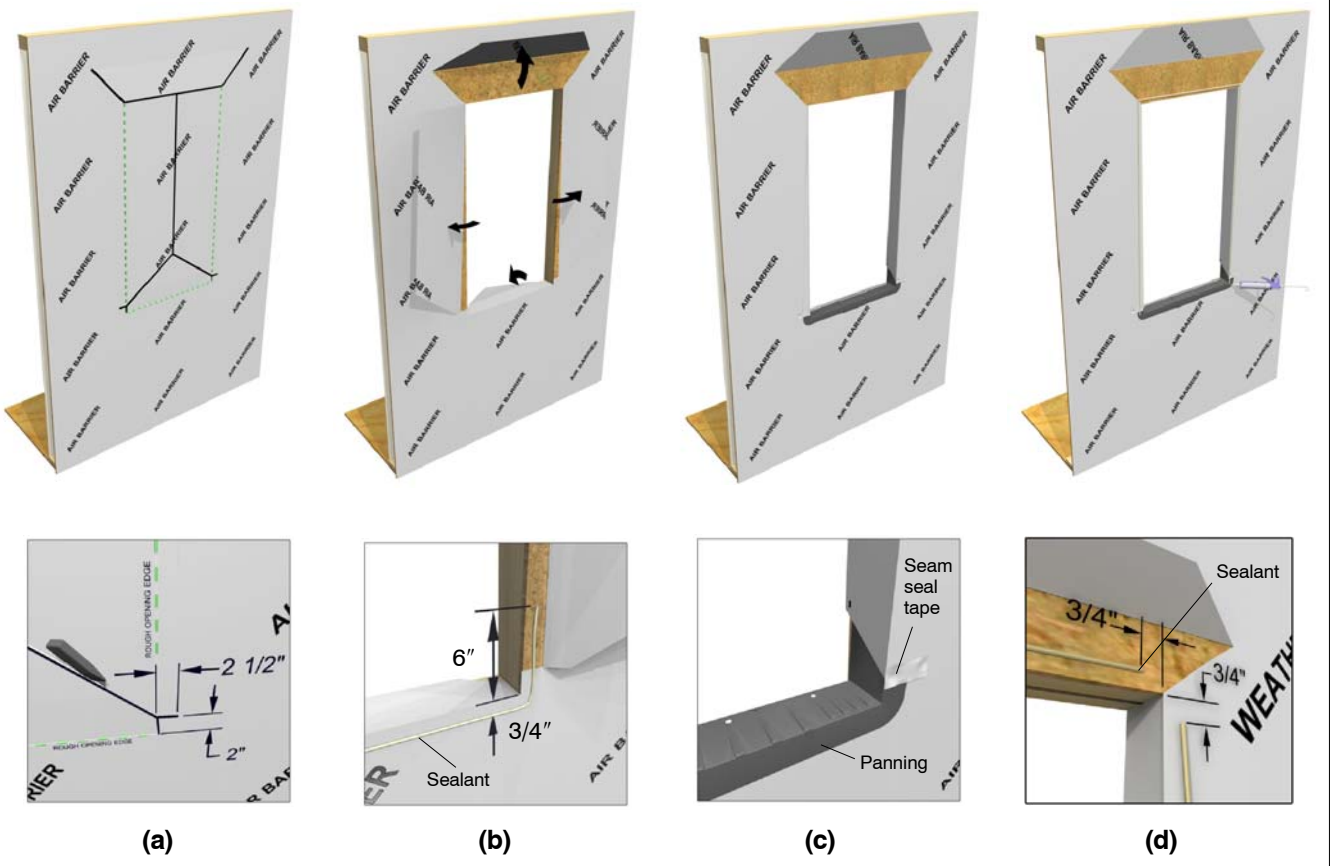


Figure 3: Rough Opening Preparation for construction methods using a continuous air barrier system and sill panning.

1. Trim air barrier across top of head jamb. Trim up from the bottom corners about 2″ (51) (or half the height of the panning flange) and then make an additional horizontal cut about 2 1/2″ (64) wide (or the width of the panning flange). From the horizontal cut, make two 45 degree cuts toward the center. Cut vertically from the head jamb to where the two 45 degree cuts meet. See figure 3a.
2. Flip top flap up and tack in place temporarily. Fold sill portion to the interior and tack in place. The side flaps should be loose until panning is installed. See figure 3b.
3. Run a bead of sealant approximately 3/4″ (19) from the edge of the opening. Start the bead about 6″ (152) up from the sill (or the height of the sill panning).
4. Install sill panning following manufacturer's instructions. See figures 3b and 3c.
5. Wrap side flaps to the interior and tack in place. Seal the horizontal cut in the air barrier with seam seal tape. See figure 3c.
6. Starting in 3/4″ from the side, apply a 1/4″ to 3/8″ bead of sealant 1/2″–3/4″ across the top of the RO stopping 3/4″ in from the end. Apply sealant down both sides of the window opening in the same manner. Do not apply sealant across the RO bottom. See figure 3d.

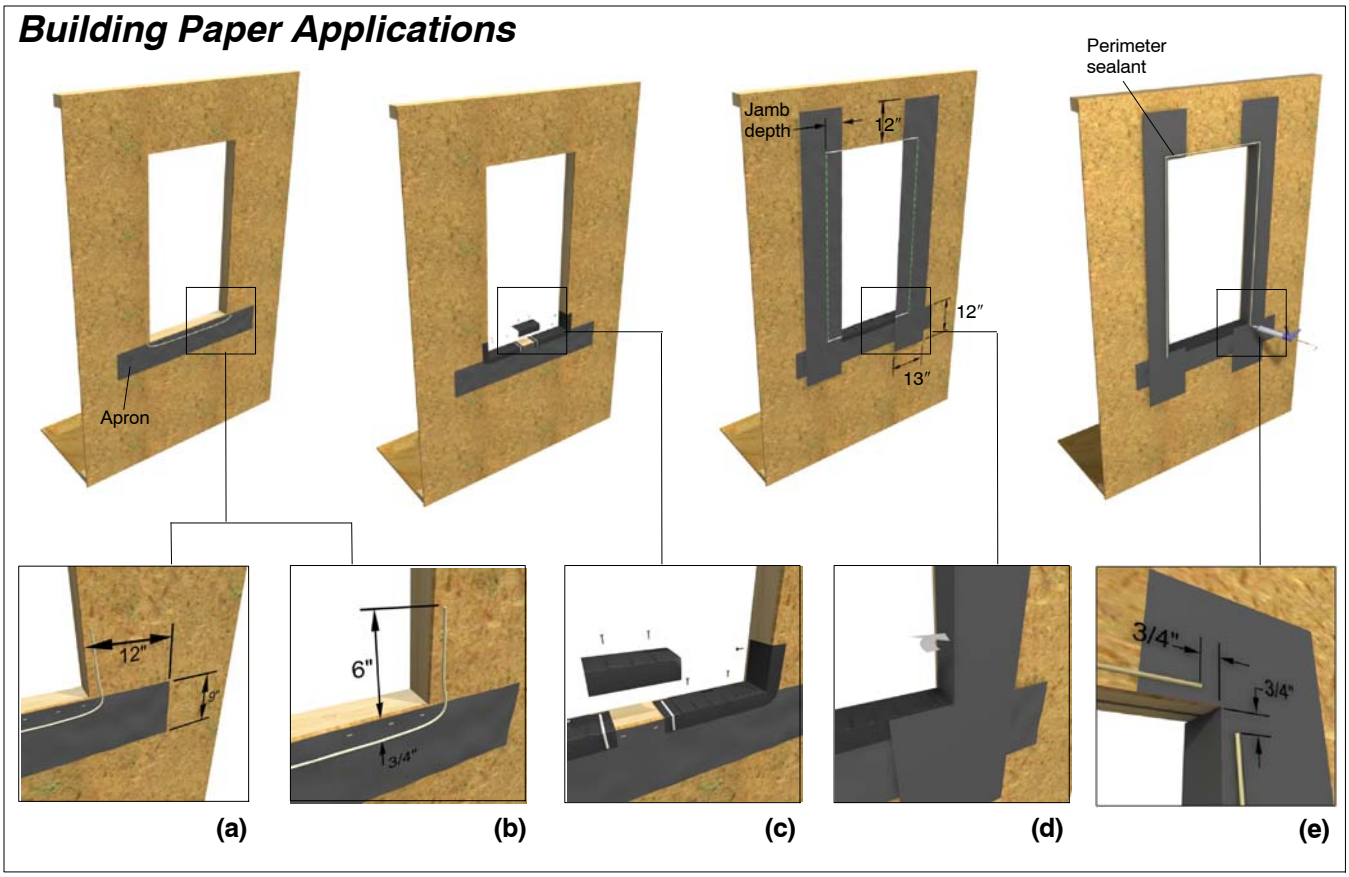


Figure 4: Rough Opening Preparation for construction methods using building paper and sill panning.

1. Make an “apron” by cutting a 9″ (229) wide strip of Grade D building paper approximately 24″ (610) longer than the window rough opening width. Center the apron even with the bottom of the RO and staple along the top edge only. See figure 4a.
2. Run a bead of sealant approximately 3/4″ (19) from the edge of the opening. Start the bead about 6″ (152) up from the sill (or the height of the sill panning). See figure 4b.
3. Install sill panning following manufacturer’s instructions. See figure 4c.
4. Cut a 13″ (330) piece of Grade D building paper 24″ (610) longer than the RO height (adjust width for jamb depth). Tack the pieces in place, overlapping the RO by as much as the jamb depth. Use a utility knife to cut the paper even at the head jamb and sill. Fold jamb flaps to the interior and tack in place. See figure 4d.
5. Starting in 3/4″ from the side, apply a 1/4″ to 3/8″ bead of sealant 1/2″–3/4″ across the top of the RO stopping 3/4″ in from the end. Apply sealant down both sides of the window opening in the same manner. Do not apply sealant across the RO bottom. See figure 4e.

Step 3: Preparing the Unit for Installation

1. Remove the protective packaging from the unit and dispose/recycle properly. Inspect unit for any hidden damage and report immediately to your Marvin representative. Provide the customer service number etched on one of the top corners of the glass. See figure 5.

NOTE: *Do not remove the vinyl shipping blocks from jambs or shipping tube assembly on Ultimate Double Hung units until installation is complete.*

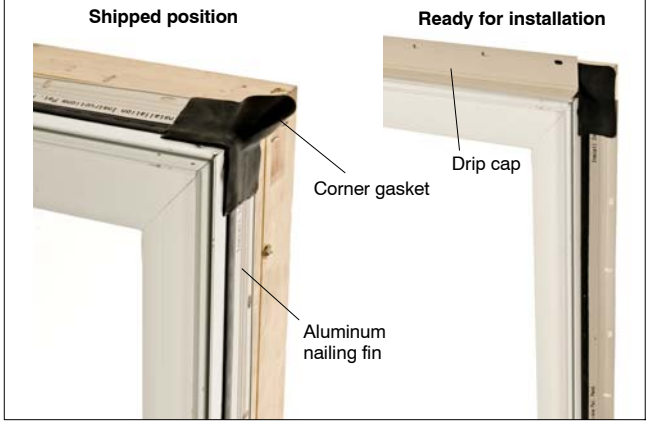
2. If you are installing a window with installation brackets or structural masonry clips, fasten to the window now (if not installed at the factory). Follow the instructions provided with the brackets. See figure 6.

NOTE ON UNITS WITH FLAT CASING: *Units with flat casing must be installed using installation brackets, masonry clips or screw through jamb.*
For more details on structural fastening, refer to the structural installation instructions found online at www.marvin.com or contact your Marvin representative.

NOTE ON SPACE MULL ASSEMBLIES:
Space mull assemblies must be anchored with either #8 sheet metal screws or structural masonry brackets within 4″ (102) of each side of the space mull on both ends of the mull. When using screws, make sure there is at least 1 1/4″ (32) penetration into the framing material

3. Apply jamb extension before installing the window in the rough or masonry opening. Follow instructions provided with the jamb extension.

NOTE ON UNITS WITH OPTIONAL ALUMINUM NAIL FIN: *Manually fold out nail fin until it is perpendicular with the frame. Take care during handling and installation not to damage the corner gasket. After unit is secured in the opening fold supplied drip cap to "L" shape as shown and install per unit flashing instructions.*



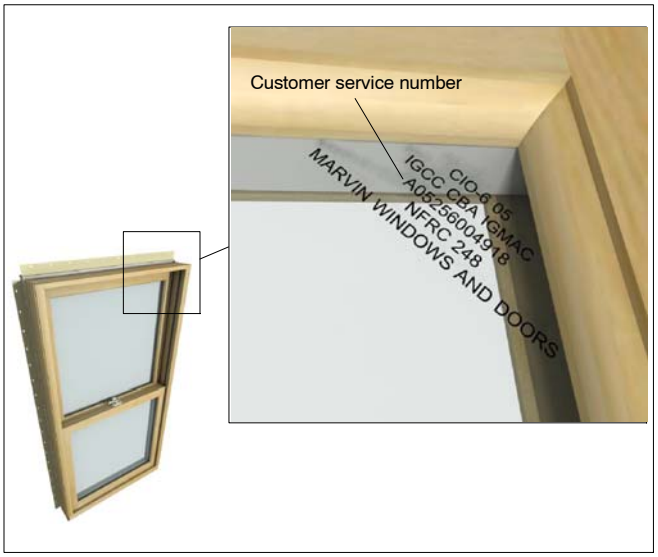


Figure 5: Etching on glass contains customer service number.

Figure 6: Apply brackets/clips to units with flat casing (if applicable)

Note: UCA/UCAWN impact units must be installed in one of two ways:

1. *Installation brackets (see instruction sent with brackets for application) in addition to the steps noted in supplemental installation instruction.*
2. *Fasten through jamb with screws in addition to the steps noted in the supplemental installation instruction.*

Step 4: Installing the Window

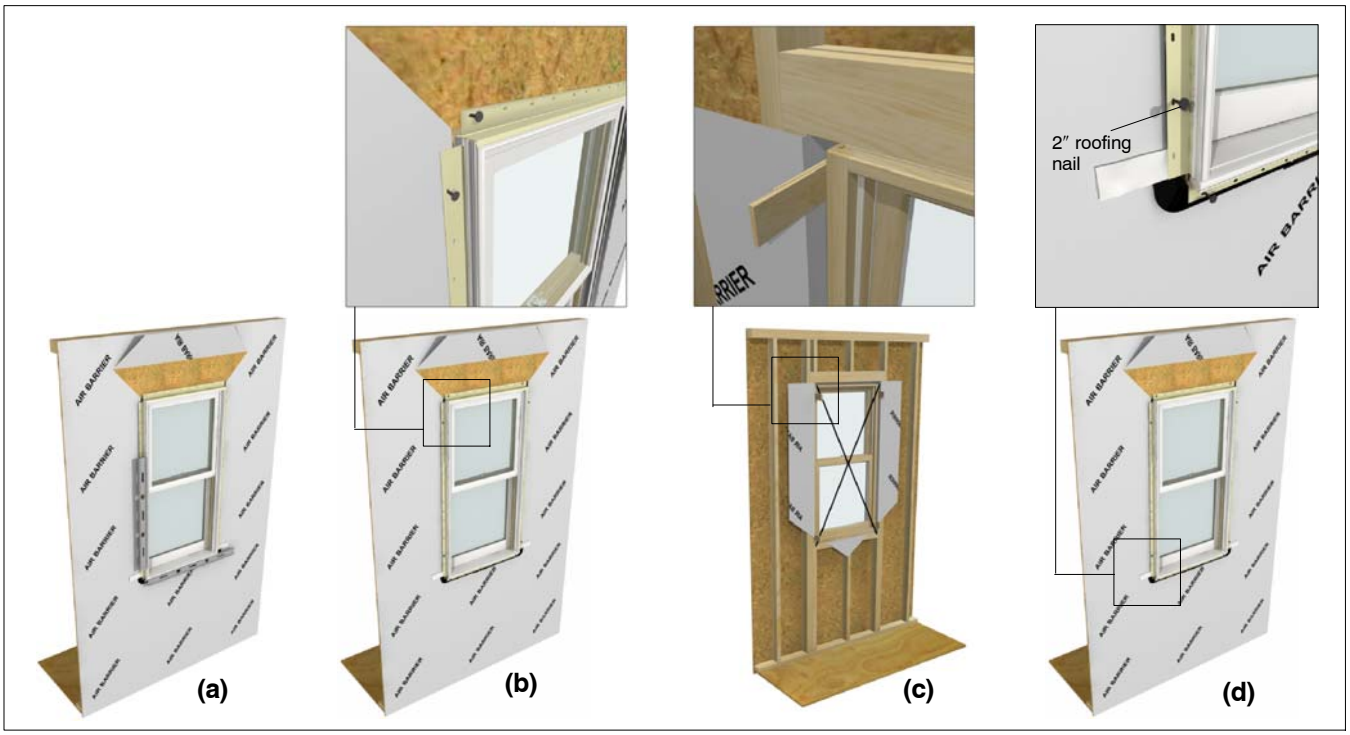


Figure 7: Positioning the window in the opening

Seek Assistance: Some large windows and/or assemblies are very heavy. Avoid injury by getting help to lift and position the window into the rough opening.

NOTE: For Round Top operator supplemental installation and squaring methods, proceed to the last section of this instruction.

1. Center the window in the opening. Level at the sill and plumb the frame (interior/exterior). Shim under the jambs to bring to level if necessary. See figure 7a.
2. Once level, tack the jamb nailing fin with 2″ (51) roofing nails within 4″ (102) from the head jamb (or fasten top brackets if applicable, follow instructions sent with brackets. See figure 7b.

CAUTION: Proper shimming is extremely important. Under-shimming or over-shimming will result in bowed jambs and or head jamb. Both conditions can contribute to improper window operation.

3. From the interior, square the frame in the opening by installing shims between the jambs and framing 4″-6″ (102-152) from the head jamb and sill. Measure the diagonals and adjust shims until the unit is square in the opening. See figure 7c.
4. Now tack the lower corners of the nailing fin and recheck for square. If necessary remove the nails and adjust shims until the unit is square. See figure 7d.
5. Shim 4″-6″ (102-152) from the bottom corners.

ATTENTION: For units installed with masonry clips or installation brackets.

Bend bracket around framing member and attach with the #8 x 1 5/8″ screws. Angle screws approximately 15 degrees away from the window. Always shim above or below brackets. See figure 8.

NOTE: Depending on construction method or wall type, you may need to modify the clip/bracket to fit the opening. Fastening holes should be no more than 1/4″ from the bend in the bracket. If necessary , drill two 5/32″ (3) holes in the bracket.

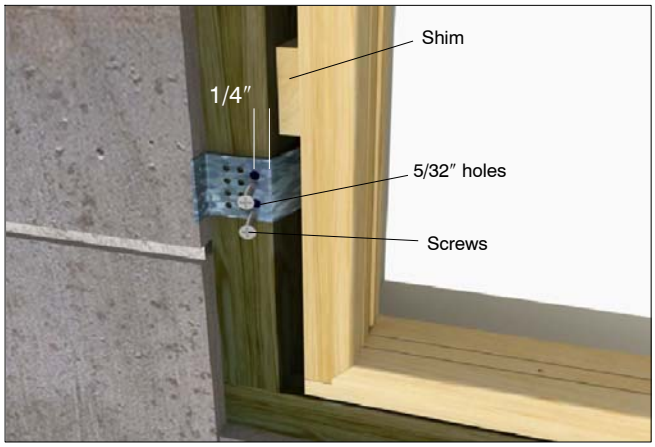


Figure 8: Attaching window with masonry clips or installation brackets.

Step 4: Installing the Window (cont.)

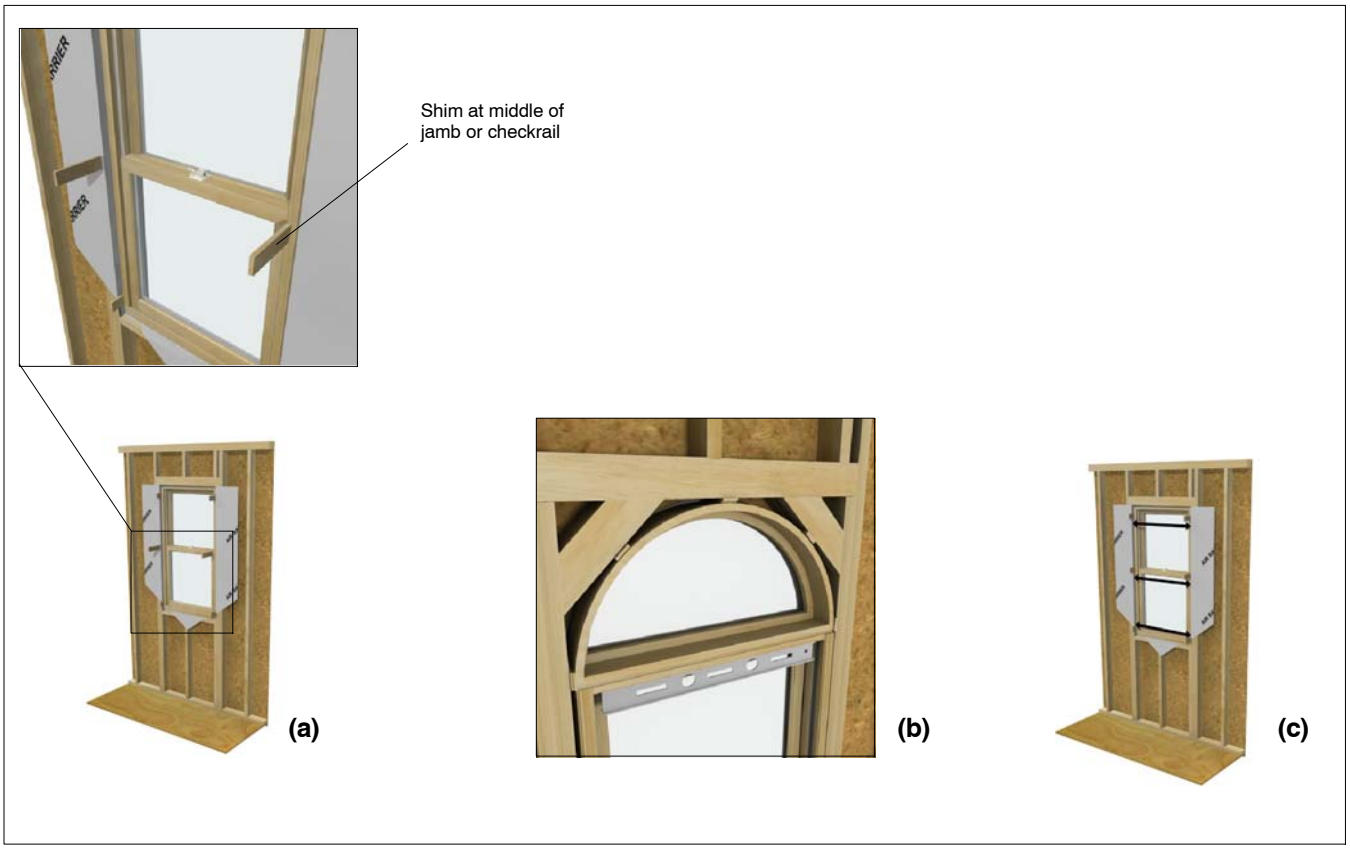


Figure 9: Shimming and squaring the window

6. Recheck the diagonals one more time to make sure the unit is square in the opening. If square install additional shims at 15″ intervals on center and at each lock point. Always shim at checkrails and meeting stiles. See figure 9a.

Note: For units installed with installation screws through the framing members, be sure to shim at each fastening location to avoid bowing/distorting jambs.

7. On round tops and other non-rectangular shapes, make sure to shim at bracing locations. See figure 9b.
8. Measure at head jamb, center of unit, and sill to make sure all dimensions are equal. If they are not, you will have to adjust the shims accordingly. See figure 9c.
9. Once the unit is square and plumb in the opening, operate the sash (on operable units) to make sure it is operating properly. If not, you may have to make some adjustments to the shims.

Installation Tip: On operating units, one way to make sure that the unit is installed square is to check the reveal (gap) between the operating sash and the frame. An even reveal around the entire sash generally means a squarely installed unit and will ensure smooth operation.

10. Complete fastening of the nailing fin around the perimeter of the unit with 2″ roofing nails 2″ from each corner and spaced every 6″-8″ (152-203) on center.
11. **Interior and mullion trim:** Install mullion trim after interior trim or casing is applied. On Ultimate Double Hung units, be sure to use nails and staples that are no longer than 3/4″ (19). Place fasteners at least 1″ (25) from the edge of interior jamb liner.

Step 5: Flashing the Installation

Air Barrier Applications

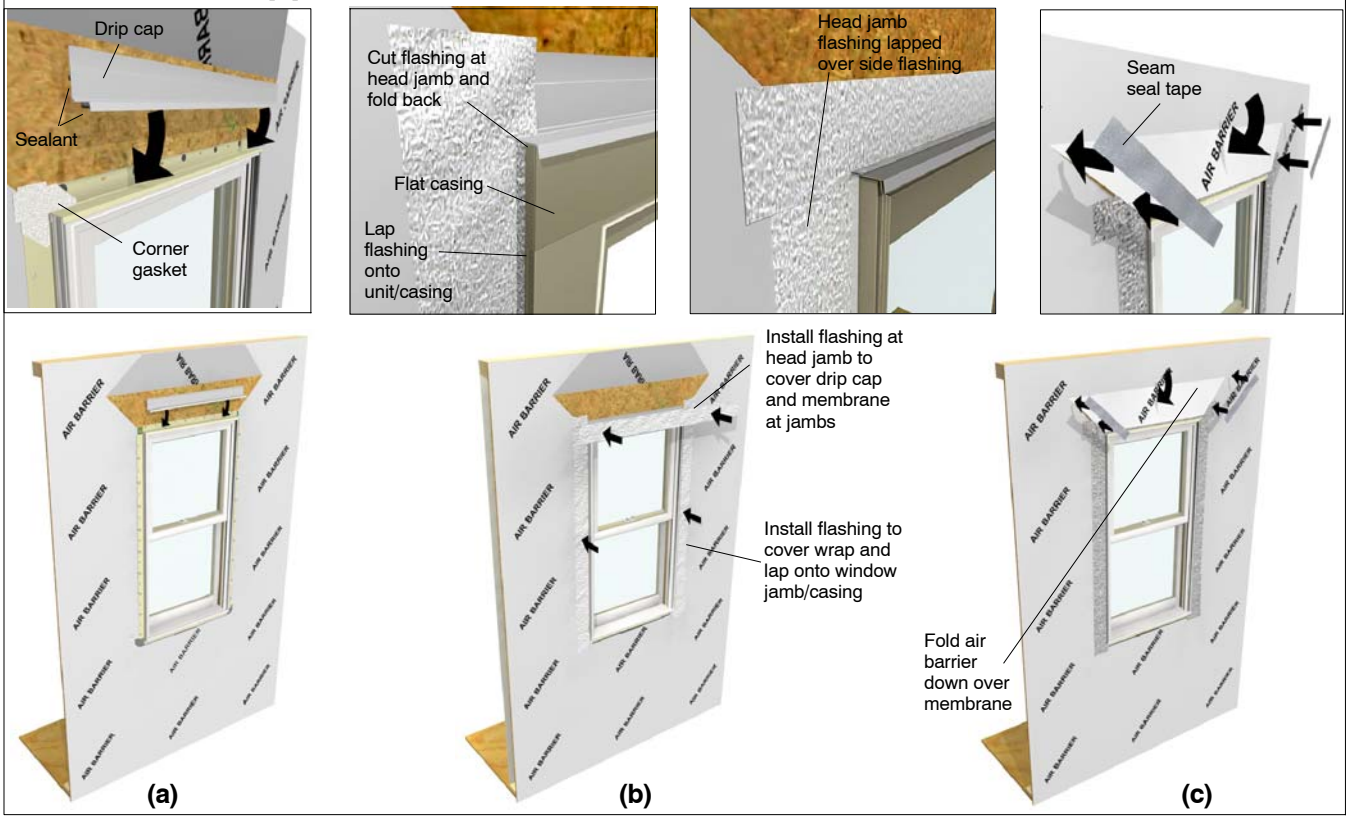


Figure 10: Sealing the Installation in air barrier applications

*NOTE: Some illustrations and text in this section refer to units built **without** brick mould casing or flat casing. Procedures are identical for windows with casing unless noted.*

IMPORTANT: Nailing fin is not designed to be a weatherproof flashing.

1. Apply nailing fin corner gaskets to each corner of the nailing fin. Follow instructions on back of gasket. **(Units with clad casing do not use corner gaskets.)**
2. If a drip cap is not already installed on the head jamb or head jamb casing of the window, do so now. The drip cap should extend about 1/8″ (3) beyond the edge of the window on each side. Be sure to apply a bead of sealant along the back sides of both vertical and horizontal surfaces of the cap that come in contact with the window, window casing, and sheathing. See figure 10a.
3. Lap vertical strips of self sealing adhesive membrane onto the unit or casing and out over the air barrier. Make small cuts at the head jamb to allow the membrane to fold back onto the exterior. See figure 10b.
4. Install another layer of adhesive membrane lapping onto head jamb of unit and over sheathing. Membrane flashing at head jamb should extend and cover flashing membrane previously installed at jambs. See figure 10b.
5. Fold head jamb air barrier down over the head jamb flashing. Apply seam seal tape over the diagonal cut in air barrier. Make sure the tape laps onto the unit or casing. Tape and seal any seams and fasteners directly above the unit. See figure 10c. Proceed to the **"Final Sealing Procedures"** section.
6. **Round Top Applications:** Flexible adhesive flashing is one way of flashing units with radius head jambs. Flash the vertical legs of the window first and then then over lap the flexible flashing onto the vertical flashing See figure 11.

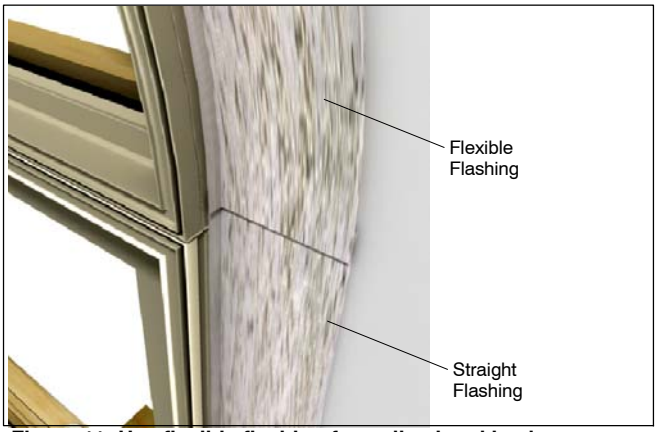


Figure 11: Use flexible flashing for radius head jambs

Step 5: Flashing the Installation (cont.)

Building Paper Applications

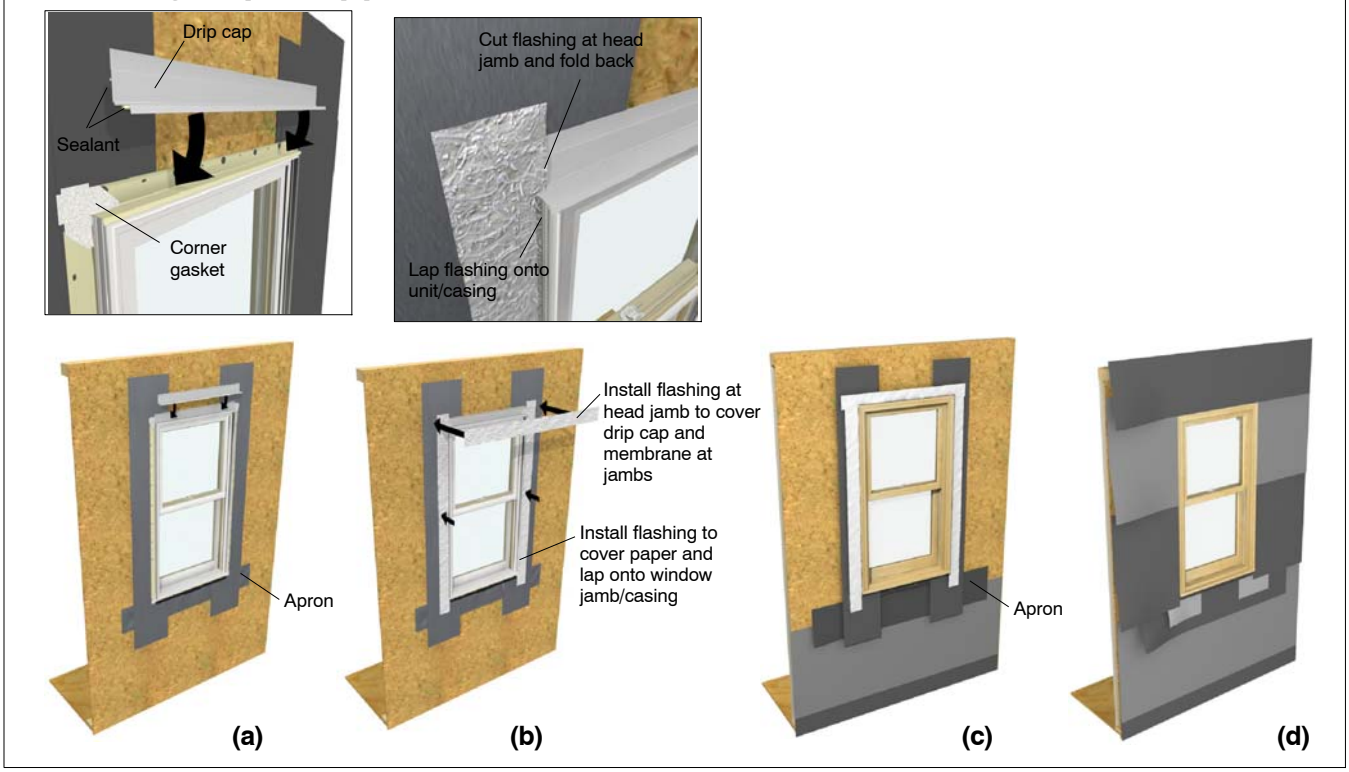


Figure 12: Sealing the Installation in building paper applications

*NOTE: Illustrations and text in this section refer to units built **without** brick mould casing or flat casing. Procedures are identical for windows with casing unless where noted.*

IMPORTANT: Nailing fin is not designed to be a weatherproof flashing.

1. Apply nailing fin corner gaskets to each corner of the nailing fin. Follow instructions on back of gasket. (**Units with clad flat casing do not use corner gaskets.)**
2. If a drip cap is not already installed on the head jamb or head jamb casing of the window, do so now. The drip cap should extend about 1/8″ (3) beyond the edge of the window on each side. Be sure to apply a bead of sealant along the back sides of both vertical and horizontal surfaces of the cap that come in contact with the window, window casing, and sheathing. See figure 12a.
3. Lap vertical strips of self sealing adhesive membrane onto the unit or casing and out over the air barrier or building paper. Make small cuts at the head jamb to allow the membrane to fold back onto the exterior. See figure 12b.
4. Install another layer of adhesive membrane lapping onto head jamb of unit and over sheathing. Membrane flashing at head jamb should extend and cover flashing membrane previously installed at jambs. See figure 12b.
5. Tuck a double ply layer of building paper under the sill apron. See figure 12c.
6. At the jambs, install a double ply roll beneath the jamb flashing overlapping the previous course by at least 2″ (51). Continue installing courses beyond the height of the window unit as shown. Size and cut a double roll of building paper to bridge the opening between the paper courses at the sides. This course should extend past the paper previously installed by at least 6″ (152). See figure 12d. Proceed to the **"Final Sealing Procedures"** section.
7. **Round Top Applications:** Flexible adhesive flashing is one way of flashing units with radius head jambs. Flash the vertical legs of the window first and then overlap the flexible flashing onto the vertical flashing See figure 13.

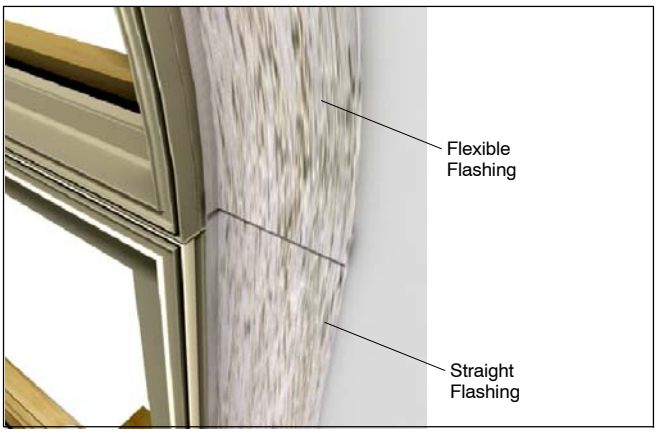


Figure 13: Use flexible flashing for radius head jambs

Step 6: Insulating and Sealing the Installation

1. From the interior apply a 1″ – 2″ (25–151) thick bead of low expansion foam insulation on the back side of the exterior casing. See figure 14**. Don't apply too much as it is possible to bow the jambs.**

NOTE: Instead of low expansion foam, you can loosely pack fiberglass insulation between the window and framing.

CAUTION! Some building codes require foam type insulation to form an infiltration seal. Use only low expansion type foam in combination with fiberglass insulation. Foam and foam application must conform to ASTM E2112-01, sec. 5.9.2. Follow all instructions and warnings from the foam manufacturer.

2. To integrate the unit with the structure's interior air barrier, apply a bead of sealant between the jamb and interior finish prior to trim installation. See figure 14. The installation is now ready for interior trim application.

Figure 14: Apply low expansion foam between frame and rough opening

Step 7: Final Installation Procedures

1. **For ALL applications:**
Once the exterior finish such as siding or brick veneer is installed, apply bead of sealant between the finish and the frame exterior or casing along the sides. Apply additional beads approximately 1″–2″ (25–51) at the ends on top of the drip cap. Use a backer rod when necessary.

CAUTION! Perimeter sealant must be Grade NS Class 25 per ASTM C920 and compatible with the window product and the finished exterior(s) of the building. Using improper sealant could result in sealant failure causing air and water infiltration.

2. **Interior and mullion trim:** Install mullion trim after interior trim or casing is applied. On Ultimate Double Hung units, be sure to use nails and staples that are no longer than 3/4″ (19). Place fasteners at least 1″ (25) from the edge of interior jamb liner.

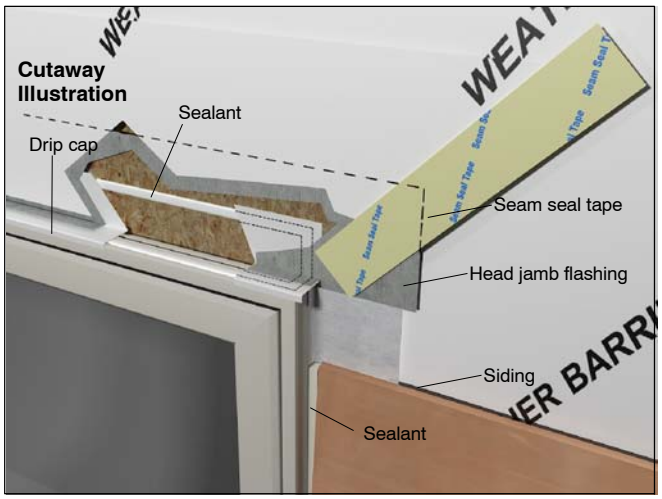


Figure 15: Apply perimeter sealant between window and exterior finish

Supplemental Round Top Operator Installation Instructions

1. Center the unit in the opening and level the sill. Shim and fasten side jambs approximately 2″ (51) up from the sill.
2. Use the level to plumb the left side jamb, shim and fasten approximately 2″ below the springline. See Figure16 (A).
3. Measure up from the sill to the point where the left jamb is fastened. Measure up from the sill and mark an exact point on the right jamb directly across from where the left jamb is fastened. Shim and adjust the right side jamb at this mark until the Frame OSM at this point is equal to the sill OSM. Once the measurements are equal fasten frame at the marked point. See figure16.

Hint: If it is necessary to move the right jamb away from the left jamb shim at the apex of the unit.

4. Take diagonal measurements across the unit from sill to the marks on the frame to ensure that the frame is square. If not, repeat steps 1 through 3 until diagonal dimensions are equal.
5. Shim and secure at the apex of the unit frame. See figure 16 (C). Return to page 9 to complete installation of the window.

IMPORTANT: Ultimate Casement Round Top operating units need to be fastened directly to the structure with a #10 x 3″ screw driven through the top hole of each butt hinge directly into a framing member. Depending upon installation method, structures with exterior insulation may require modification to the R.O.

Note: Do not remove shipping blocks until unit has been installed and secured in the opening.

6. For Ultimate Casement Round Top operating units, open the sash and install a #10 x 3″ screw through the top hole of each hinge directly into a framing member. See figure 17.

Figure 16: Shim and secure

Figure 17: Install screw

Technical Installation Specifications

The following details are specified for proper installation and for the unit to meet the advertised design pressure (DP) rating.

- Rough Opening Width: 1/4″–1″ (6–25) wider than window/door frame outside measurement.
- Rough Opening Height: 1/4″–1/2″ (6–13) higher than window/door frame outside measurement.
- Masonry Opening Width: 1/4″–1/2″ (6–13) wider than window/door frame outside measurement.
- Masonry Opening Height: 1/8″–1/4″ (3–6) higher than window/door frame outside measurement.

Architectural Detail Manual Specifications:

- Rough Opening:Width 1″ (25); Height 1/2″ (13).
- Masonry Opening:Width 1/2″ (13); Height 1/4″ (6).

- A sloped sill pan integrated with the weather resistive barrier. The panning must drain water to the exterior of the cladding OR the exterior surface of a concealed weather resistive barrier.

Be aware that the use of sill pans and other barriers will decrease the rough opening height clearance. Adjust opening dimensions accordingly.

- The panning system used in these instructions is one component in a structure's overall water management system. It should be used in conjunction with an appropriate drainage plane compatible with the exterior cladding.
- Flashing materials must comply with ASTM E2112–01, section 5.13 and be compatible with all materials used in installation including panning systems, air barriers and building papers, sheathing, and the window unit. **Flashing material must not contain asphalt and must be compatible with flexible PVC (vinyl).**
- Fasten units installed with nailing fin to the sheathing with 2″ (51) galvanized roofing nails spaced no more than 4″ (102) from each corner and spaced no more than 8″ (203) on center around the entire perimeter.
- Properly flash and/or seal all windows at the exterior perimeter.
- Sealants used for installation must be Grade NS Class 25 per ASTM C920 and compatible with the building exterior, window exterior surface, and flashing/water management materials.
- The following materials were used to develop these instructions:

  Weather Resistant Barriers: DuPont™ Tyvek® HomeWrap or Grade D building paper.

  Flashing Materials: DuPont™ FlexWrap or DuPont™ Straight Flash, DuPont™ Tyvek® Tape.

  Sealant: OSI® Quad Pro–Series®; solvent release butyl rubber sealant or DAP DynaFlex230™.

  Panning System: Marvin SillGuard™.

  Other materials may be used but must be compatible with one another. Refer to each product's technical specifications for compatibility and usage.
- Optional foams used for installation must be low expansion only. Foam and foam application must comply with ASTM E2112–01, SEC 5.9.2.
- For units with flat casing install with installation brackets, structural masonry brackets, or jamb screws.
- Shim 4″–6″ (102–152) from each corner on jambs and head jambs. Install additional shims at 15″ (381) on center and at all locking points. Always shim at the checkrails and meeting stiles.
- Do not use chemically treated products for shim material.
- Fasteners penetrating chemically treated lumber must be a minimum of 0.90 oz/ft^2 zinc hot dipped galvanized or stainless steel type 304 or 316.
- The window frame must not come into direct contact with chemically treated wood products.