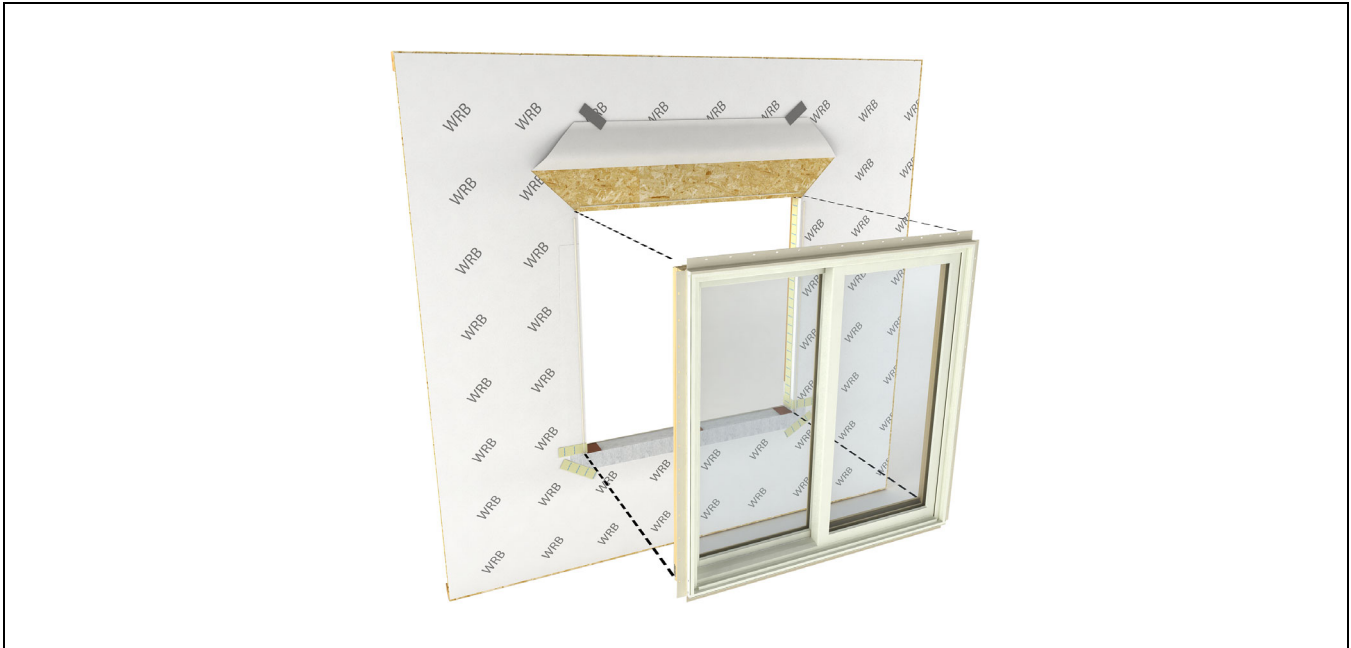


# Clad Window Installation

## New Wood Frame Construction

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These instructions are applicable for the following window products:

- Ultimate Casement Family
- Ultimate Polygon
- Ultimate Tilt-Turn/Inswing Casement/Hopper
- Ultimate Glider
- Ultimate Round Top

**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 wood 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, 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](http://www.astm.org)

Regional standard practices, environmental conditions, and codes may vary and supersede 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.

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

The English language version of this Clad Installation Instruction is the official version and shall take precedence over any translation.

# Table of Contents

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Installer and Builder Information .....	2	Installing the Window .....	8
Protective Film .....	3	Additional Fastening Requirements for Round Tops..	11
After Market Products .....	3	Additional Fastening for Muller Units.....	12
Hazard Notations .....	4	Flashing the Installation - Air Barrier Applications .....	12
You Will Need to Supply .....	4	Insulating and Sealing the Installation-Nailing Fin ....	13
Rough and Masonry Opening Requirements.....	5	Final Installation Procedures.....	14
Rough Opening Preparation .....	6	Technical Installation Specifications.....	15
Preparing the Unit for Installation.....	7		

## Installer and Builder Information

- Always provide a copy of these instructions for the current homeowner.
- 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 the sill). Failure to do so can void the Marvin warranty coverage.
- Refer to the Technical Installation Specifications section for technical specifications regarding the installation of this product. These installation requirements as well as the details in the section must be followed to achieve the advertised performance grade (PG) 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, weather strip 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 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.
- Please refer to the PDF version of this instruction for further information regarding best practices installer and builder information, code, and other legal requirements. The PDF version is the official document of record.

# Protective Film

Some products feature a clear protective film adhered to the glass surfaces to protect them from construction debris, dust, dirt, stucco, etc. When construction is complete, simply peel the film off and dispose of it with other construction debris.

## IMPORTANT

Do not use a razor blade to remove the protective film. Do not use a pressure washer to clean debris from the film. The film should be removed within nine months (typical) of application.

The use of high absorption coatings and tints, Neat+® coated glass, LoE-189® and other exposed Low-E coatings could affect adhesion and reduce the amount of time allowed to remove the film. Please refer to the [manufacturer's website](#) and [bulletin](#) for more information on the physical properties and usage of the protective film.

## IMPORTANT

**DO NOT** place suction cups over seams in the protective film.

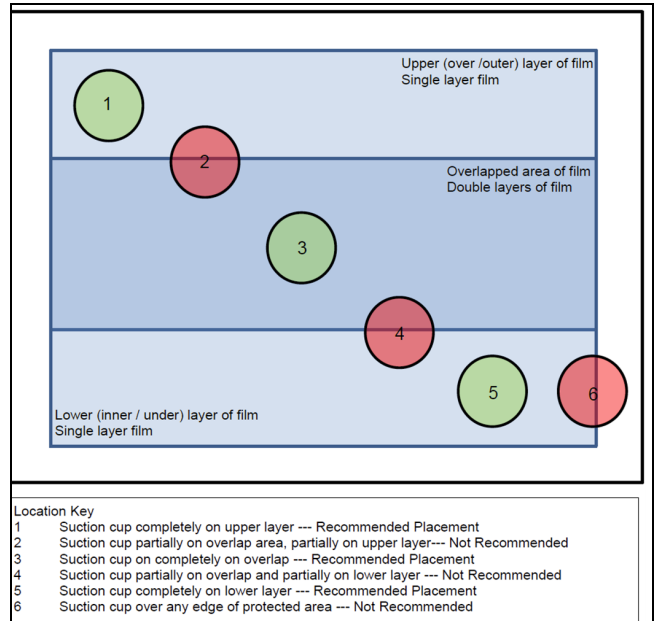


Figure 1 Do not put suction cups on seams or edges

# 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 or doors, contact the manufacturer of after-market 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

### **WARNING!**

This product can expose you to chemicals including titanium oxide, which is known to the state of California to cause cancer. For more information, go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

### **WARNING!**

This product can expose you to chemicals including methanol, which is known to the state of California to cause birth defects or other reproductive harm. For more information, go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

### **WARNING!**

Drilling, sawing, sanding or machining wood products can expose you to wood dust, a substance known to the State of California to cause cancer. Avoid inhaling wood dust or use a dust mask or other safeguards for personal protection. For more information go to [www.P65Warnings.ca.gov/wood](http://www.P65Warnings.ca.gov/wood).

### **WARNING!**

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

### **WARNING!**

Older homes may contain lead-based paint, which may be disturbed when replacing windows or performing renovations. Consult state or local authorities for safe handling, disposal, or abatement requirements. For information, go to [www.epa.gov/lead](http://www.epa.gov/lead).

### **Seek Assistance**

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

## You Will Need to Supply

- Safety Glasses
- Hearing Protection
- Level
- Square
- Hammer
- Composite Shims
- 2" Roofing Nails
- Insulation
- Tape Measure
- Perimeter Sealant
- Sill Pan Flashing
- Backing Material (foam backer rod)
- Low Expansion Foam Insulation
- Flashing Materials
- Weather Resistive Barrier

# Rough and Masonry Opening Requirements

1. Rough openings (RO) should be 1/2" (13) higher and 1" (25) wider than the outside measurement of the frame (1/2" on each side of the frame). See [Figure 2](#).

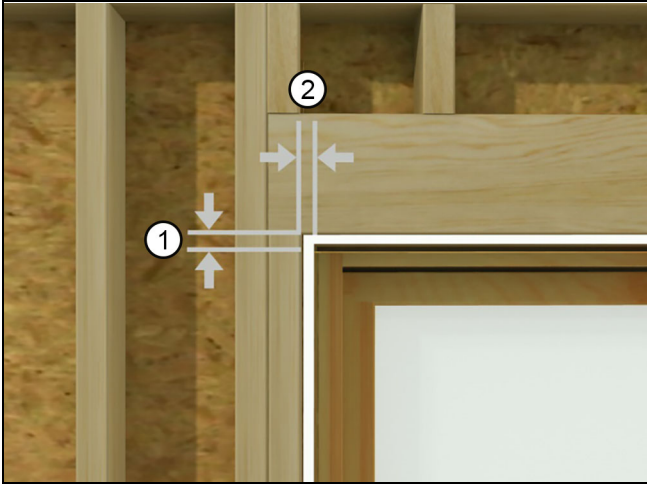


Figure 2

1	1/2" (13)
2	1/2" (13)

**NOTE:** When framing rough opening, care should be taken to ensure the sill plate is level and the opening is square, straight and plumb.

2. On shapes such as polygons, round tops, and octagons, make sure there is proper bracing. See [Figure 3](#).



Figure 3 Typical rough opening.

## IMPORTANT

Using an optional beveled sill wedge or other sill panning to create a positive drainage plane will affect clearance between your window and the header framing. Adjust R.O. height as necessary to maintain a proper gap.

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. See [Figure 4](#).

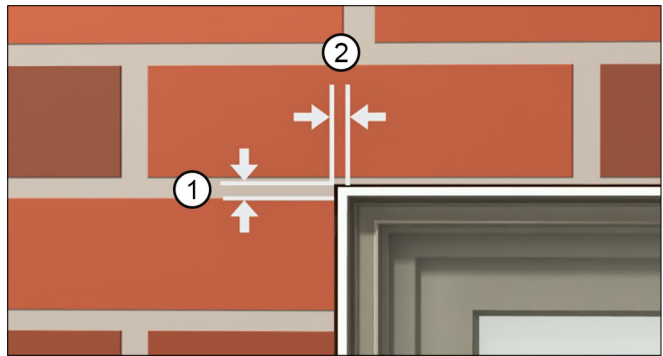


Figure 4 Typical Masonry Opening

1	1/4" (6)
2	1/4" (6)

**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". See [Figure 5](#).

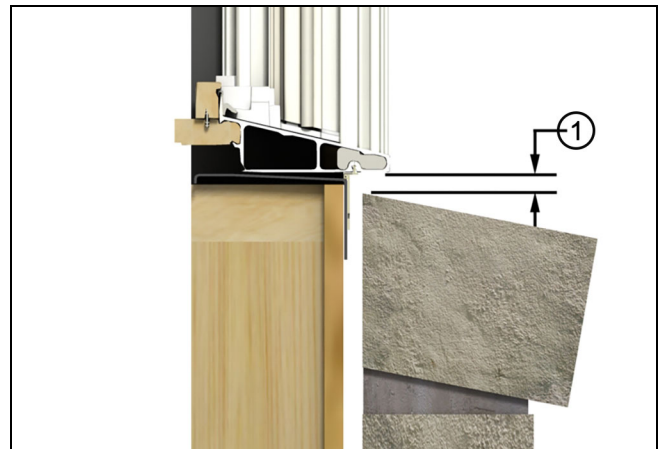


Figure 5 Avoid brick bind, maintain 1/2" gap

1	1/2"
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# ⚠ 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.

## Rough Opening Preparation

1. The method shown below is Method A1 using a TYPE III flash pan. For step by step instructions on how to prepare an opening using this method, refer to [www.marvin.com/f/1019562/x/f88293723e/window-rough-opening-prep-and-flashing-19913776.pdf](http://www.marvin.com/f/1019562/x/f88293723e/window-rough-opening-prep-and-flashing-19913776.pdf) for instructions titled "Window Rough Opening Prep and Flashing Method A1-Membrane Drainage System". Refer to ASTM E2112-07 for other rough opening preparations that are more appropriate for your situation. See Figure 6.

### IMPORTANT

Using an optional beveled sill wedge or other sill panning to create a positive drainage plane will affect clearance between your window and the header framing. Adjust R.O. height as necessary to maintain a proper gap.

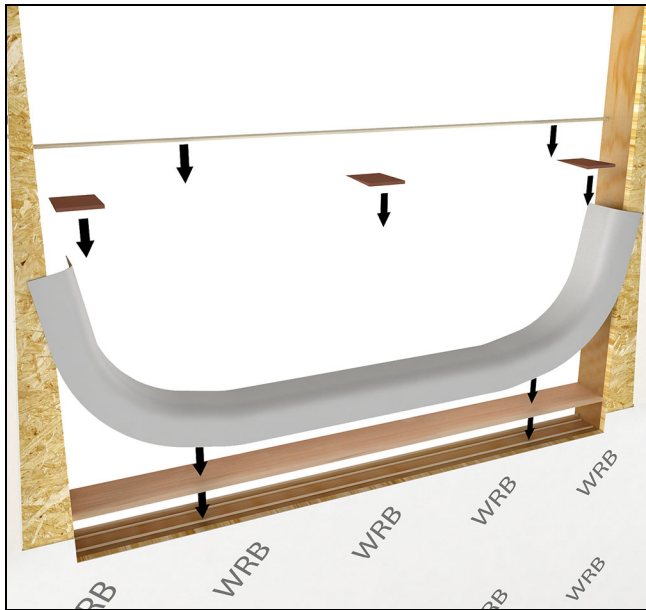


Figure 6

2. Starting in 3/4" from the side, apply 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 7.

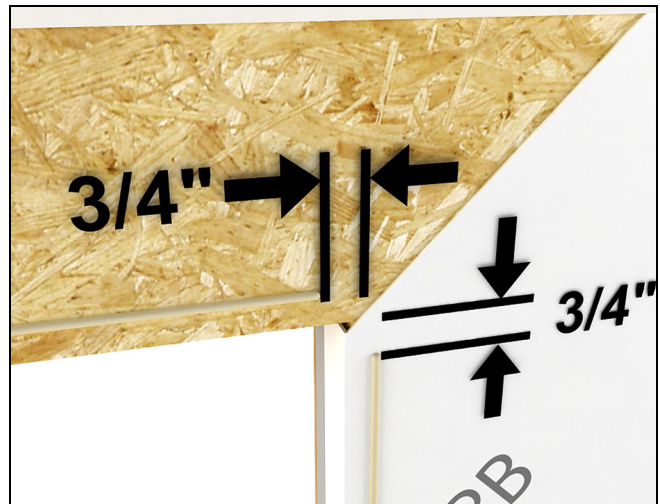


Figure 7

3. Place a bead of sealant 1/4"- 3/8" from interior edge of the RO sill. See Figure 8.

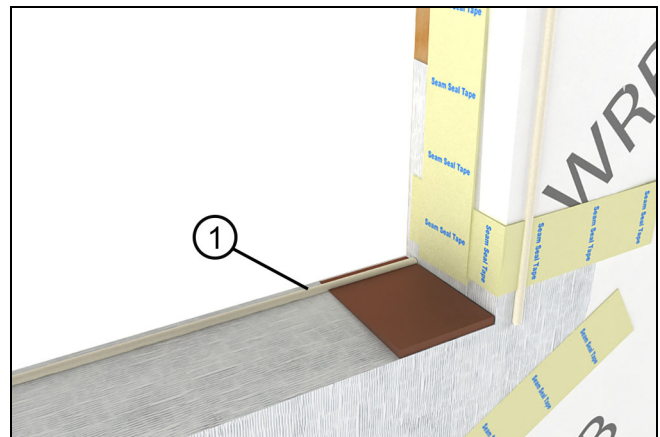


Figure 8

1	Sealant bead
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## 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 9](#).



Figure 9

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 10](#). On mullled units, you must apply four additional brackets at both ends of a mull (8 total). Apply 2 brackets on each side within 6" of the mull. See [Figure 11](#)



Figure 10

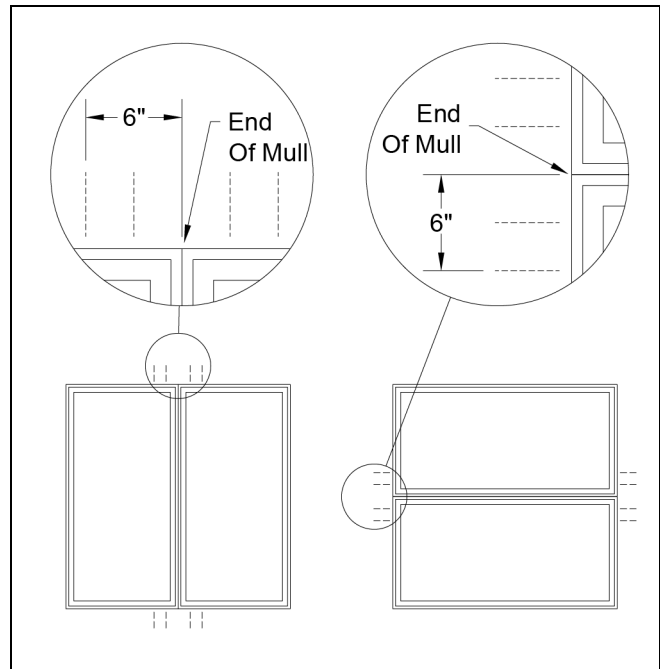


Figure 11

**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 on-line at [www.marvin.com](http://www.marvin.com) or contact your Marvin representative.

**NOTE: ON SPACE MULL ASSEMBLIES:** space mull assemblies must be anchored with #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 1 1/4" (32) or more 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.

### IMPORTANT

**STOOL HEIGHT:** On Ultimate Casement units, the 8° and 14° frame bevel option max stool height is 3/4" (19). For the flat frame options the max stool height is 15/16" (24). It may be necessary to shim under the unit to reduce the stool height. This will decrease the Inside Opening Height measurement for the replacement unit. This specification is required for proper operation of the crank handle. Field application of stool material will need to follow these guidelines for proper clearance and operation of the crank handle.

## Installing the Window



### 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 12](#).



Figure 12

2. Once level, tack the jamb nailing fin with 2" (51) roofing nails within in 4" (102) from the head jamb (or fasten top brackets if applicable, follow instructions sent with brackets). If fastening through the exterior casing, use 16d casing nails. See [Figure 13](#).

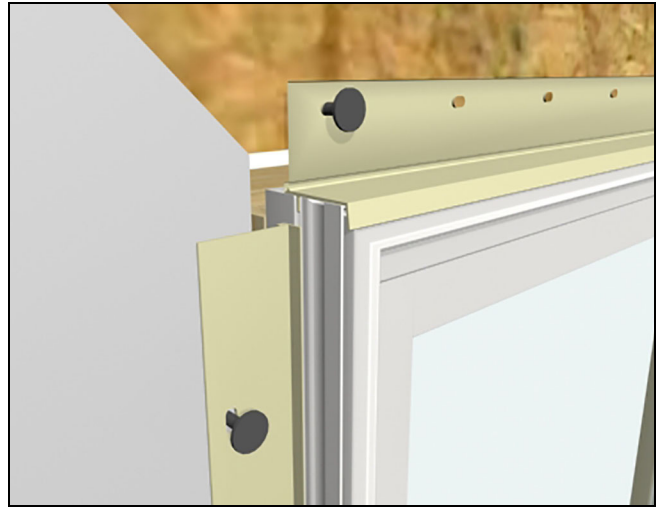


Figure 13

## ⚠ 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 jamb and framing shim 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 14](#)



Figure 14

4. Once square fasten 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 15](#).



Figure 15

## 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° away from the window. Always shim above or below brackets. See [Figure 16](#).

*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.*

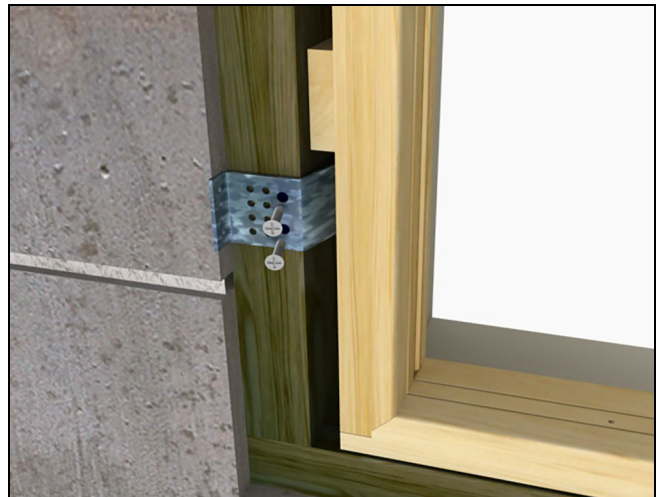


Figure 16

5. Shim 4"- 6" (102-152) from the bottom corners and at 15" (381) intervals on center as well as at every lock point. Always shim at check rails and meeting stiles. See [Figure 17](#).



Figure 17

6. 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 18](#).



Figure 18

*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. 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.



### 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.

8. Complete fastening of the nailing fin around the perimeter of the unit with 2" (51) roofing nails 4" (102) from each corner and spaced every 6"- 8" (152-203) on center.

9. 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.

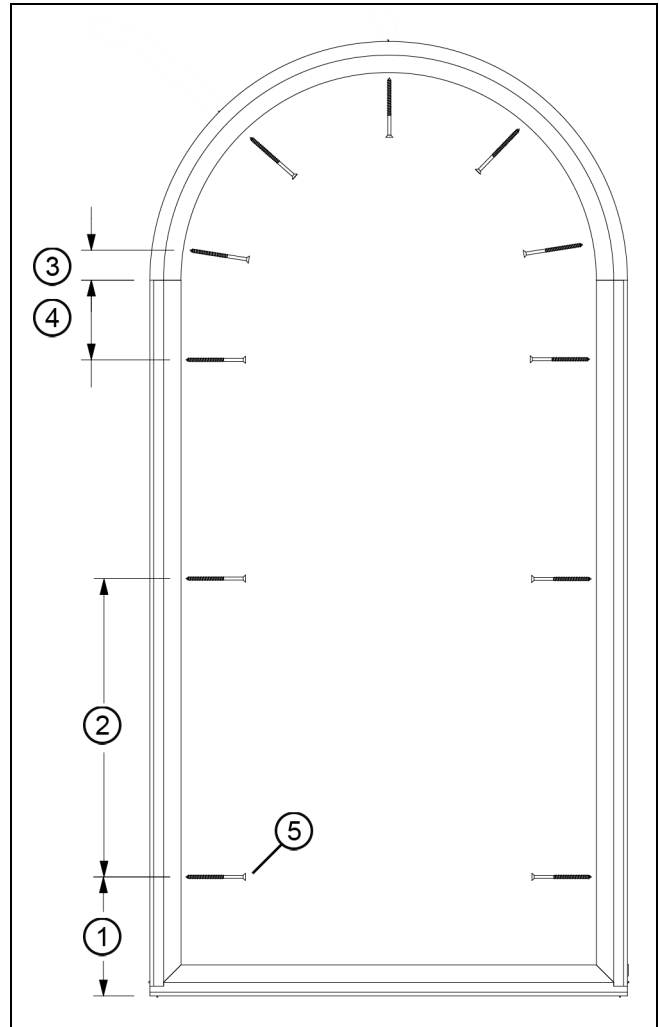
### **Additional Fastening Requirements for Round Tops**

1. Round Tops require additional fastening in addition to the normal 6-8" spacing for nailing fin. Install 2 1/2" installation screws, structural brackets, or masonry brackets in the following places:

- 6" from each corner
- 15" on center around the perimeter including the radius.
- 1 1/2" (38) above the springline
- 4"(102) below the springline

### **IMPORTANT**

Be sure to shim at every fastener location. Do not over-shim.



**Figure 19**

1	6" from each corner
2	15" on center around perimeter including the radius
3	1 1/2" above the springline
4	4" below the springline
5	2 1/2" screw, structural bracket, or masonry bracket

## Additional Fastening for Mulls

1. At **both ends** of any mull, fasten within 6" on each side of the mull with either of two ways: See Figure 20

- Two screws on each side of the mull through the window frame and into the rough opening (8 total per mull). Screws must penetrate into the framing by at least 1" (25).
- Two brackets (structural or masonry) on each side of the mull (8 total per mull).

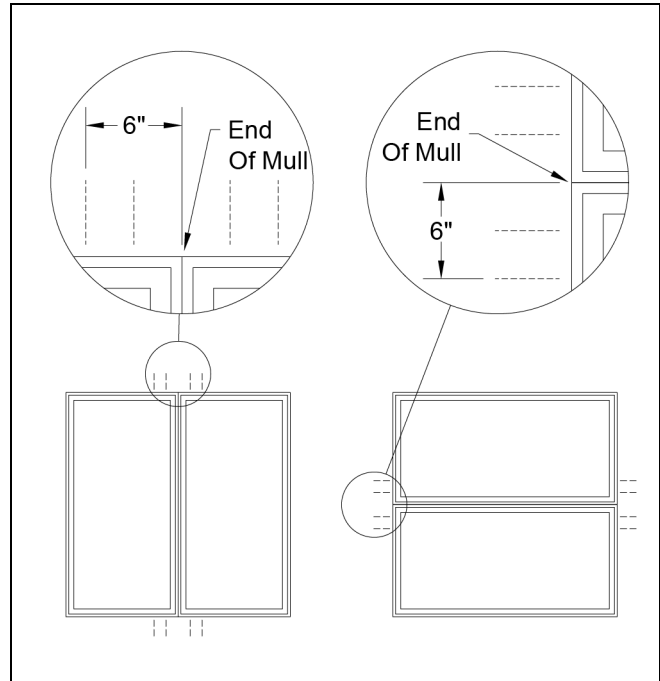


Figure 20 Mulls require additional fastening.

## Flashing the Installation - Air Barrier Applications

1. Flash the installation in a weather board fashion. For step by step instructions refer to [www.marvin.com/ROprep](http://www.marvin.com/ROprep) for instructions titled "Window Rough Opening Prep and Flashing Method A1-Membrane Drainage System". See Figure 21.



Figure 21 Sealing the Installation in air barrier applications.

## Insulating and Sealing the Installation-Nailing Fin

We recommend two ways of insulating and sealing the rough opening cavity. Both follow the principle that stopping air intrusion will aid in managing water intrusion into the RO.

**1. Loose Fill Fiberglass Insulation.** Insulate the RO cavity with loose fill fiberglass insulation. Install a backer rod and sealant at the interior plane of the RO to create a continuous air seal. See Figure 22.

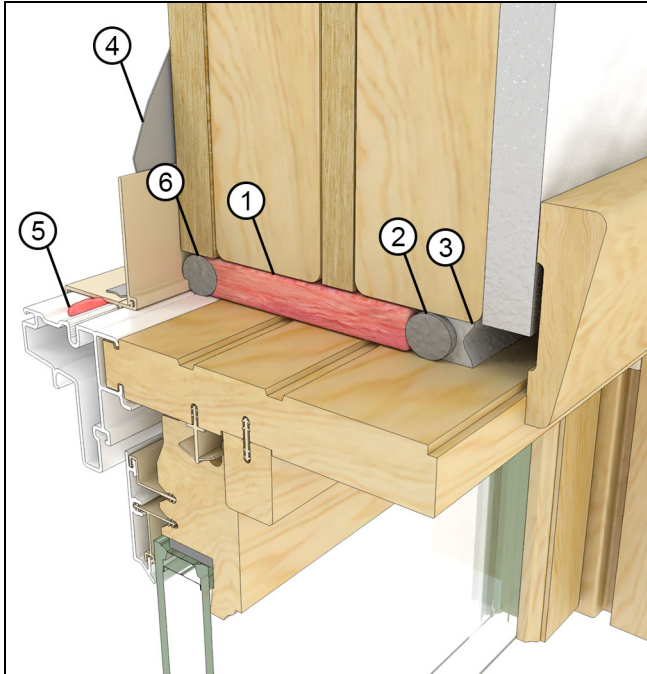


Figure 22

1	Loose fill fiberglass insulation
2	Backer rod
3	Continuous air seal (sealant)
4	Flashing
5	Sealant underneath drip
6	Backer rod

**2. Low Expansion Foam.** Install a backer rod at the exterior plane of the RO. Apply a low expansion/low compression closed cell foam in the cavity. Install a backer rod and sealant at the interior plane of the RO to create a continuous air seal. See Figure 23.

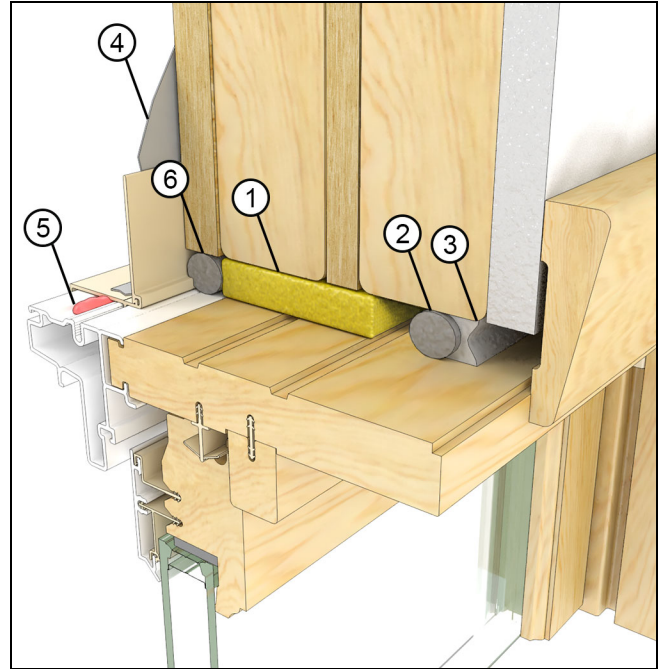


Figure 23

1	Low expansion foam
2	Backer rod
3	Continuous air seal (sealant)
4	Flashing
5	Sealant underneath drip cap
6	Backer rod

## 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. See [Figure 24](#) and [Figure 25](#).

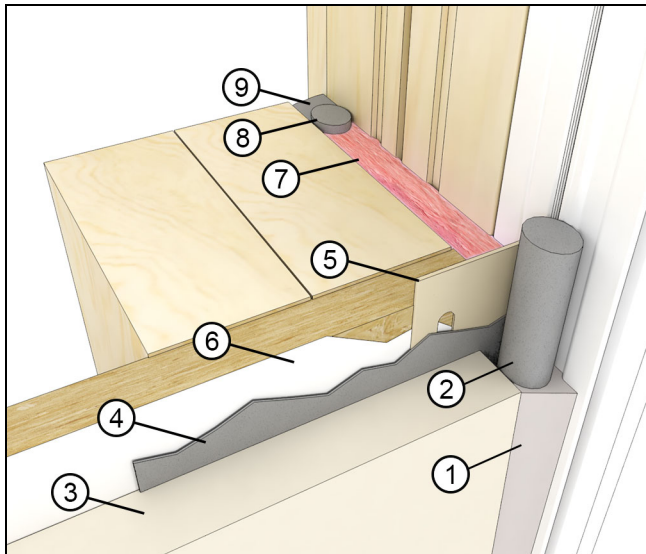


Figure 24

1	Exterior sealant
2	Backer rod
3	Exterior cladding/finish
4	Flashing
5	Nailing Fin
6	Weather resistive barrier
7	Insulation
8	Backer rod
9	Interior air seal



Figure 25 Apply sealant between window and exterior finish.

## ⚠ 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.

# 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.

## ATTENTION

**Architectural Detail Manual Specifications:**

Rough Opening: Width 1" (25); Height 1/2" (13).

Masonry Opening: Width 1/2" (13); Height 1/4" (6).

- The panning must drain water to the exterior of the cladding OR the exterior surface of a concealed weather resistive barrier.

## ⚠ CAUTION!

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.
- Properly flash and/or seal all windows at the exterior, perimeter.

## IMPORTANT

Flashing material must not contain asphalt and must be compatible with flexible PVC (vinyl).

- 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.
- 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.
- Shims 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 check rails 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<sup>2</sup> 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.