Ultimate Wood Window Installation

New Wood Frame Construction

ABSTRACT: These instructions are applicable for the following window products:

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

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 E2112-01, 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 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.

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 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 this section must be followed to achieve the advertised design press (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, 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 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.
- Fill exterior nail holes with an exterior grade wood filler that is compatible with your chosen finish.

Please consult with local authorities to properly dispose and/or recycle all packaging, materials, and waste.

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 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.

Standard Parts Shipped

Units are sent with hardware when applicable.

These products contain chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

Drilling, sawing sanding, or machining wood products generates 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.

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

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 more information, go to www.epa.gov/lead.

You Will Need to Supply:

- Safety Glasses
- Hearing protection
- LevelSquare
- HammerWood shims
- 16D casing nailsInsulation
- Tape measurePerimeter sealant
- Sill pan flashing
- Backing material (foam backing rod)
- Low expansion foam insulation
- Flashing materials
- Weather resistive barrier

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

Rough and Masonry Opening Requirements

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 1.

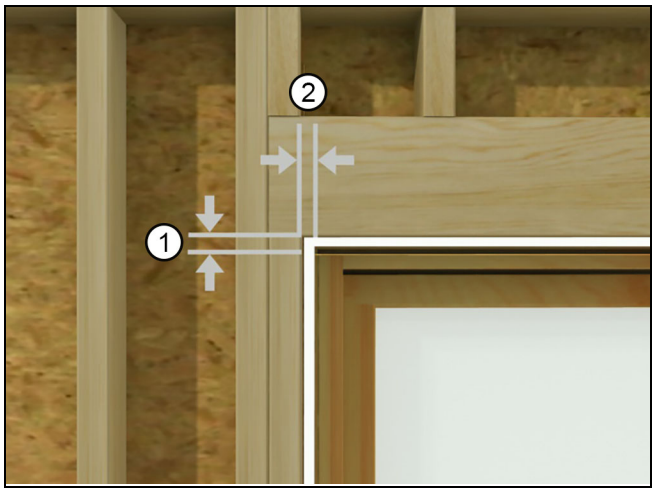

Figure 1

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

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

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.

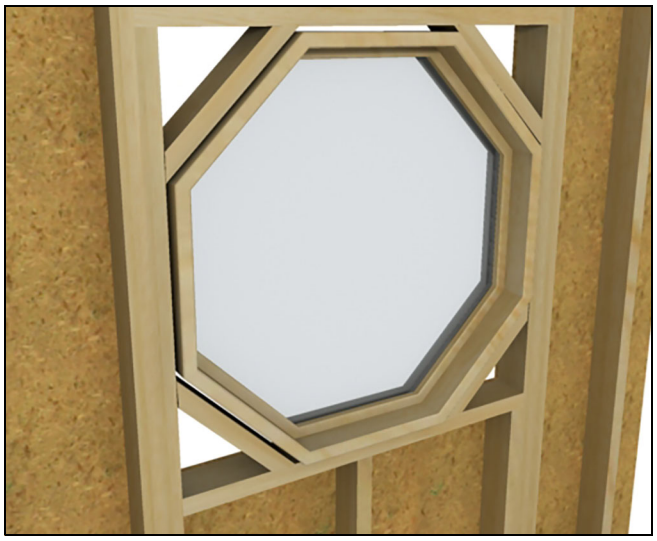

Figure 2 Typical rough opening for octagon.

Figure 3 Typical rough opening for a round top.

NOTE: 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.

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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.

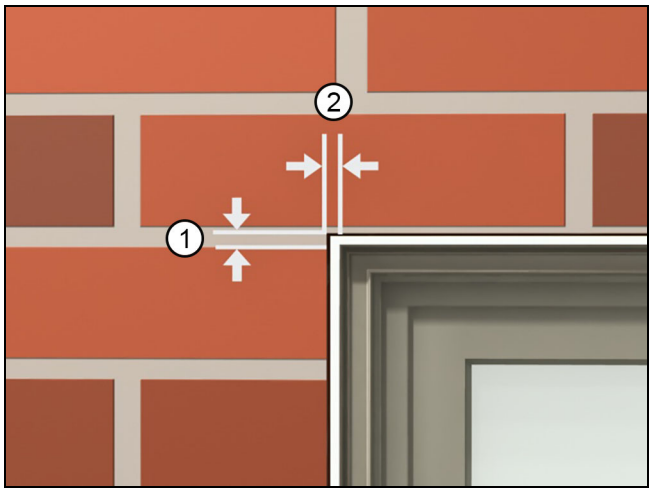

Figure 4 Typical Masonry Opening

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.

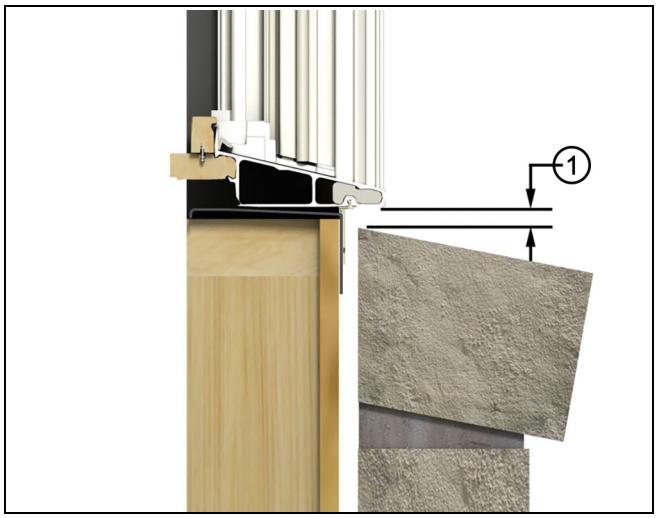

Figure 5 Avoid brick bind, maintain 1/2" gap

1	1/2" (13)

Rough Opening Preparation

NOTE: Step-by-step instructions for Rough Opening Preparation can be found on-line at www.marvin.com/ROPrep.

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/ROprep 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.

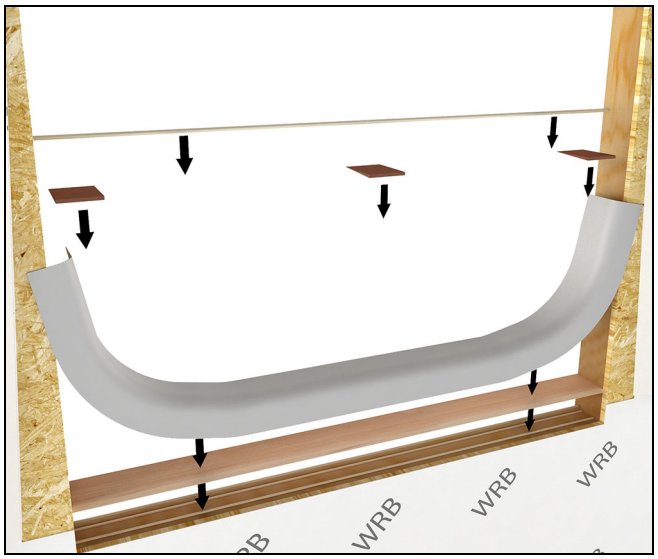

Figure 6

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.

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.

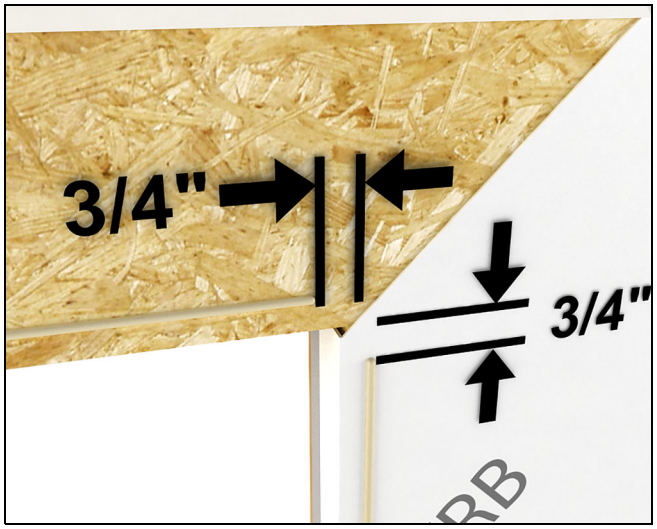

Figure 7

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

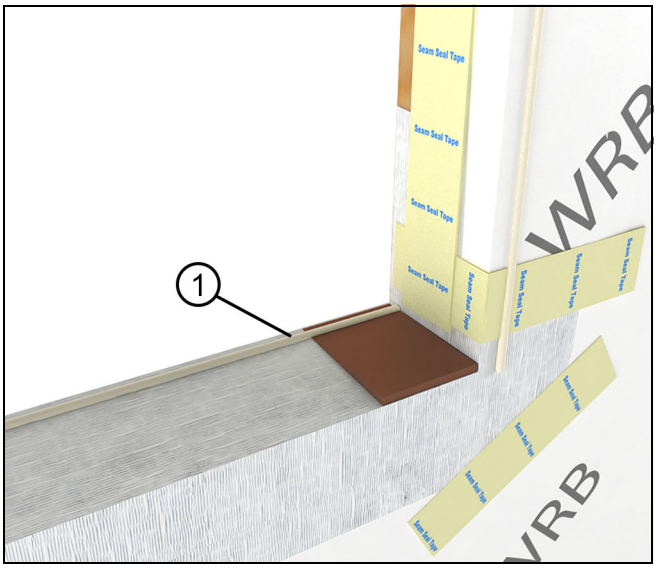

Figure 8

1	Sealant

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. Figure 9 .

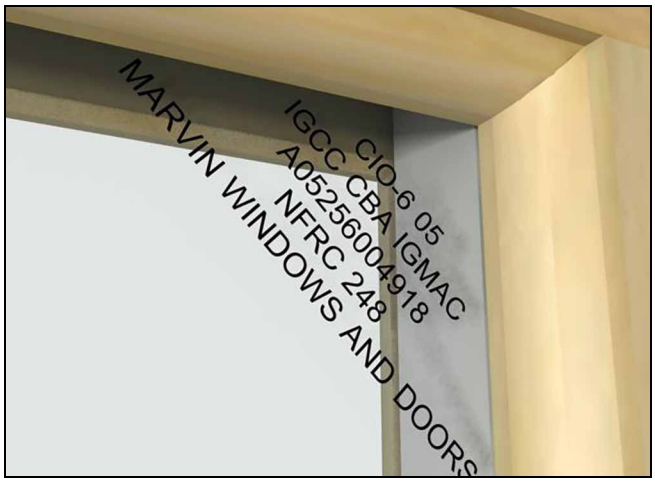

Figure 9

Remove the vinyl shipping blocks from jambs or shipping tube assembly on Ultimate Double Hung units on 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 10.

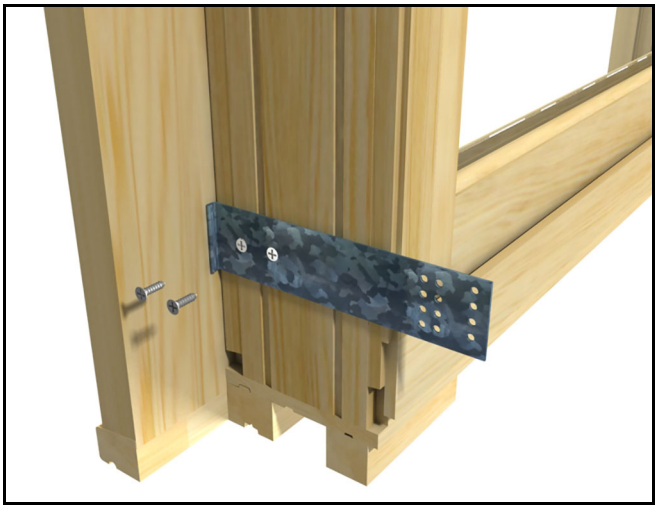

Figure 10 Apply brackets/clips to units with flat casing (if applicable).

NOTE: For more details on structural fastening, refer to the structural installation instructions found on-line at www.marvin.com or contact your Marvin representative.

ON UNITS WITH FLAT CASING: units with flat casing must be installed using installation brackets, masonry clips or screw through jamb.

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.

4. For window units with casing, remove any factory applied excess sealant squeeze out and then apply sealant on the back side of the casing to the joint where the casing and window meet. Apply additional beads of sealant between the casing ends, the sill horn, and the mitered corners at the top of the casing and 6" (152) from the bottom of the jamb on the blind stop to wood jamb joint. See figures Figure 11 and Figure 12. Tool sealant to ensure a proper seal between parts.

Figure 11 Seal casing joints

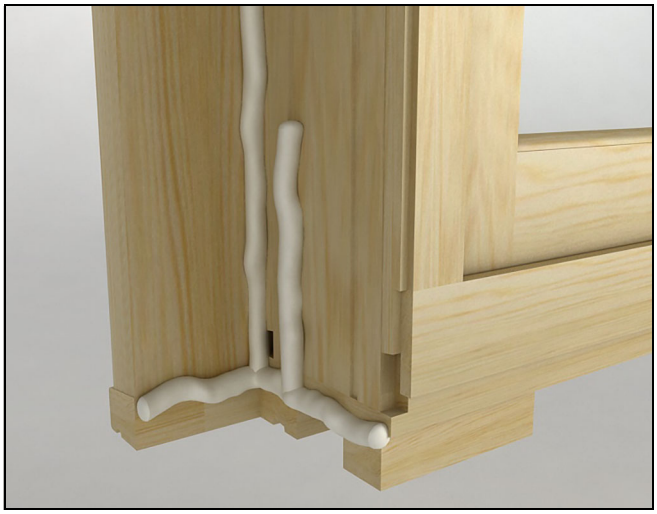

Figure 12 Seal casing joints (brick mould casing showing)

STOOL HEIGHT: On Ultimate Casement units, the 8º and 14º frame bevel option mas 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 th 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

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 13.

Figure 13 Leveling window, use shims if necessary

2. Once level, tack the jambs within 4" (102) from the head jamb. If fastening through the exterior casing, use 16d casing nails.See Figure 14.

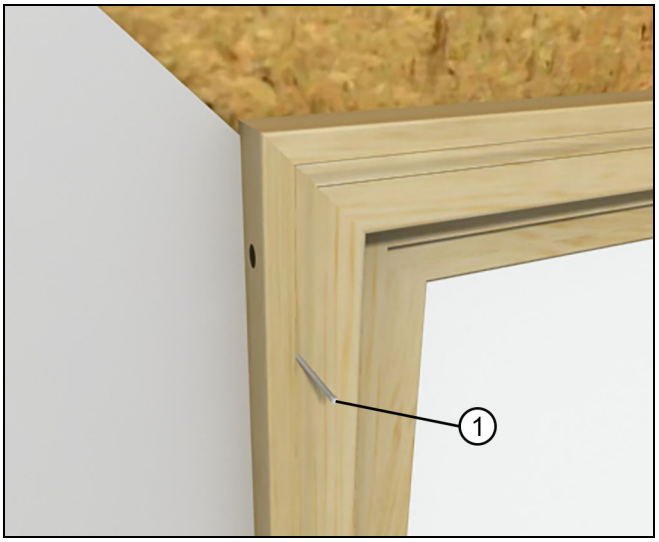

Figure 14 Tacking jambs within 4" of head jamb

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, shim about 4"(102) from the bottom to square the unit in the opening. Take diagonal measurements of the window. When equal, the window is square in the opening. Adjust the shims until the unit is square in the opening. See Figure 15.

Figure 15

4. Once square fasten the lower corners and recheck for square. See Figure 16.

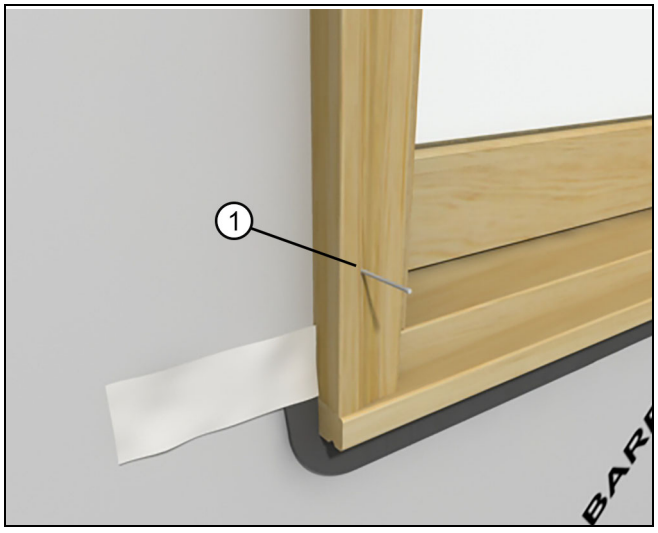

Figure 16

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 17.

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.

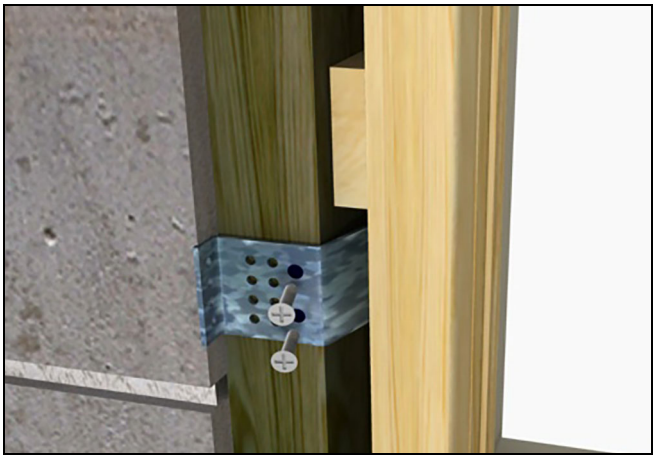

Figure 17 Attaching window with masonry clips or installation brackets.

1	Shim
2	5/32" hole
3	Screws

5. Add additional shims 15" (381) intervals on center as well as at every lock point. Always shim at check rails and meeting stiles. See Figure 18.

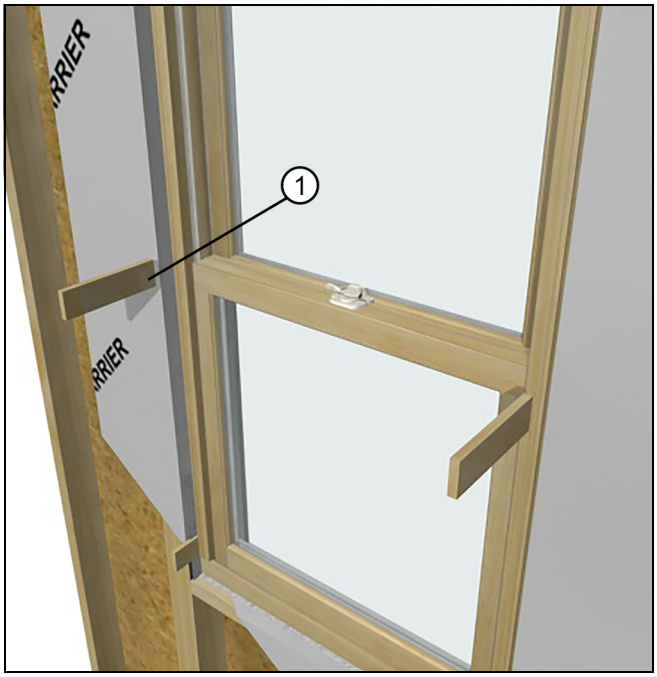

Figure 18 Shim at middle of jamb or check rail

1	Shim at check rails or center of window and all lock points

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

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 19.

Figure 19 Measure at 3 points and adjust shims until equal.

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.

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 casing around the perimeter of the unit with 16D casing nails 4" (102) from each corner and spaced every 8"- 10" (203-254) 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.

Flashing the Installation - Air Barrier Applications

1. Flash the installation in a weather board fashion. For step by step instructions refer to marvin.com/ROprep for instructions titled “Window Rough Opening Prep and Flashing Method A1-Membrane Drainage System”.

Figure 20 Sealing the Installation in air barrier applications.

Insulating and Sealing the Installation

1. We recommend two possible ways of insulating the RO cavity. Both follow the principle that stopping air intrusion will aid in managing water intrusion into the RO. The first method uses a combination of one bead of low expansion/low compression/closed cell foam at the exterior plane of the RO in conjunction with loose fill fiberglass insulation. The second method uses two beads of low expansion foam (one at the exterior plane of the RO and another at the interior plane of the RO).

Figure 21 Apply low expansion foam between frame and rough opening.

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.

Figure 22

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 casing 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.

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.

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.
- 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/ft2 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.