Marvin Doors

General Installation Instructions

The key to proper operation is squaring the frame in relation to the sill.
A GOOD installation has a FLAT sill that is also LEVEL
The BEST INSTALLATION requires a FLAT and LEVEL sill and a SQUARE and PLUMB opening

IMPORTANT

Correcting an out of square opening requires shimming beneath the sill and/or at the corners. These instructions assume an opening is constructed for the BEST installation with a flat and level sill and a square opening

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 door 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 E2112-07, “Standard Practice for Installation of Exterior Windows, Doors and Skylights,” for installation suggestions. The same information for ASTM E2112 can be found on the ASTM website, 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).

These instructions are applicable for the following products:

- Ultimate Inswing French Door
- Ultimate Inswing French Door 2 1/4 inch
- Ultimate Inswing French Door Transom
- Ultimate Inswing French Door Direct Glaze Transom
- Ultimate Sliding French Door
- Ultimate Outswing French Door
- Ultimate Outswing French Door 2 1/4
- Ultimate Sliding Patio Door
- Ultimate Commercial Door
- Ultimate Commercial Door 2 1/4

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

⚠ CAUTION!

Do not direct mull sidelites to your Marvin door. Contact your Marvin distributor or dealer for additional information. Marvin Windows and Doors recommends special care be taken when mulling a transom(s) above the door. Transom installation may require additional support that allows unaffected door operation. Contact your Marvin distributor or dealer for additional information

IMPORTANT

For sliding doors with interior shades, the head jamb and sill must be parallel within 1/8" (3) across the width of the door or interior shades may not function properly.

⚠WARNING!

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

⚠WARNING!

This door is glazed with safety glass (tempered or laminated) and if broken must be replaced with safety glass. This is in accordance with state and federal laws.

⚠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.

IMPORTANT

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

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 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, 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.

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.

Tools and Supplies Needed

- Safety glasses
- Putty knife
- Pry bar
- Square
- #2 Phillips screwdriver
- Utility knife
- Level
- Hammer
- Tape Measure
- Low expansion foam insulation
- Flashing
- Sealant
- #10x 3" screws
- #8 x 3" and #8 x 2" flat head screw
- Construction adhesive
- Shims
- Rags/paper towel
- Fiberglass insulation
- Weather resistive barrier

Suggested Checklist for Installers

BEFORE YOU BEGIN	
Carefully read and follow all installation instructions and codes.	
Before installation inspect unit for any hidden damages or missing components and contact your Marvin representative if any damage is discovered or components missing.	
INSTALLATION	
Proper applicant of construction adhesive under threshold, consisting of a 3/8" bead at the interior and discontinuous bead at the exterior of the door opening. A bead that runs from the interior to exterior about 1/2" away from the ends of the RO. One additional 3/8" bead 2 1/4" from the interior bead in a slight wiggle pattern.	
Plumb, level and square unit into rough opening to ensure proper operation and performance.	
Proper installation of shims, presence of shims, proper locations behind hinges, at strikes, header and jambs.	
Check for proper reveal; adjust shims and screws as needed to get an even/consistent reveal between panels and around perimeter of panels.	
Check weather strip compression to the panel before installing long screws (adjust as needed) and check again after long screws are installed to ensure compression. Use a sheet of paper to check compression- paper should be held in place by the compression of the weather strip once you release it.	
Check for torn or short weather strip on the sill, head, jambs, part stops and stiles. Use a putty knife to raise the part stop if it has slid down during installation.	
On Outswing products, inject pre-drilled screw holes with sealant before installing the 2 1/2" screws into hinges.	
COMPLETION	
Check for operation of handles, thumb turns and locks to ensure that they operate smoothly and that the locks engage securely.	
Check that the drains are clear interior and exterior and that the weeps are not blocked on the exterior.	
Adjust hinges, rollers and keeper as needed to ensure proper operation and performance.	

Rough and Masonry Opening Requirements

IMPORTANT

These steps are crucial to obtain a trouble-free installation. If these conditions are not met, the installer must take corrective actions to alter the opening(s) before proceeding. For typical wood frame construction it is also essential that the wall sheathing be a solid surface to ensure that the unit can be secured firmly to the wall.

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) or casing.

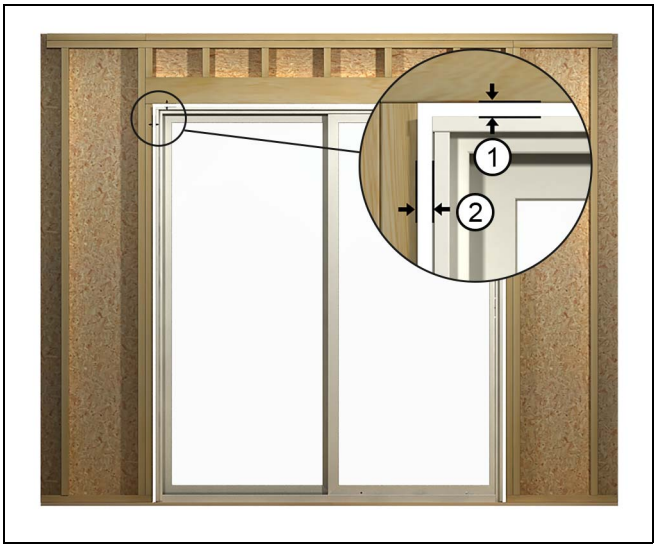

Figure 1 Rough Opening Clearance

1	1/2" RO Height
2	1/2" RO Width (on each side)

2. Masonry openings (MO) should be 1/4" (6) higher and 1/2" (13) wider than the outside measurement of the frame (1/2" on each side of the frame) or casing.

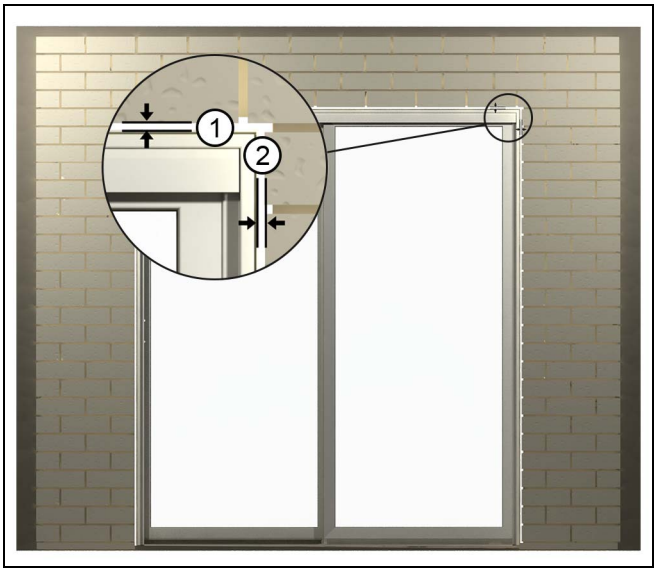

Figure 2 Masonry opening clearance

1	1/4" MO height
2	1/4" MO width (on each side)

3. Check the bottom surface of the opening to ensure it is flat, level, and free from debris. Proper operation of the door requires a sill that is flat and level.

Figure 3 Start with a clean flat sill

NOTE: For doors not on grade and in standard wood frame construction with brick veneer, make sure there is at least 1/2" between the bottom of the door sill (or eventual placement of the door) and the top row of brick to avoid "brick bind".

Rough Opening Preparation-Method A1 (WRB Before Install)

The following section demonstrates best practice for a rough opening preparation for using a weather resistive barrier. Refer to ASTM E2112 for the other situations not covered in this document.

1. When trimming away the air barrier at openings, first cut horizontally across the entire width of the rough opening at the head jamb and sill. Then cut vertically in the center of the opening from sill to head jamb. Finally cut the head jamb corners diagonally away from the opening. The complete cut should be in a “I” fashion. DO NOT cut air barrier diagonally from corner to corner in an “X” fashion. See Figure 4.

Figure 4

2. Wrap barrier at the sides to the interior and tack in place. Do not tack barrier at head jamb. Fold the head jamb flap up and tack in place or tuck beneath. This will allow the top flap to fit over the head jamb flashing after installation of the door.See Figure 5.

Figure 5

Preparing the Door for Installation

IMPORTANT

Inspect the door for any damage or missing parts. Contact your Marvin representative if there are any problems. If possible, provide the original order number and description of door.

NOTE: ***On units with optional aluminum nail fin:*** *Manually fold out the nail fin until it is perpendicular to the frame. Take care during handling and installation not to damage the corner gasket. After the unit is secured in the opening, fold the supplied drip cap to an "L" shape as shown and install per unit flashing instructions. See Figure 6.*

Figure 6

1. Remove the protective packaging from the unit and dispose/recycle properly. Inspect the unit for any hidden damage and report immediately to your sales representative. Provide the customer service number or glass part number etched on one of the top corners of the glass. See Figure 7.

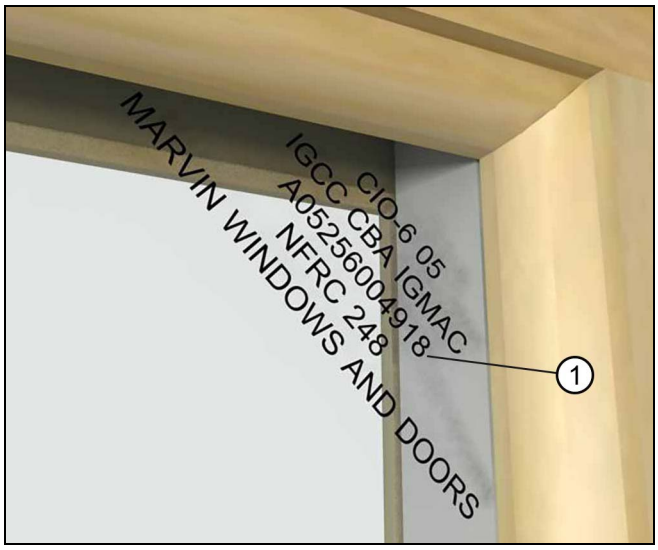

Figure 7

1	Customer service number

2. For Clad Units: position the factory applied nailing fin in the upright position. FOR UNITS WITH VINYL NAILING FINS DO NOT APPLY NAILING FIN CORNER GASKETS AT THIS TIME

NOTE: ***units with flat casing:*** *the flat casing must be installed using masonry clips or screw through the jamb.*

3. If you are installing your door with structural brackets or masonry clips, apply to the door frame once you are ready to place it in the opening permanently. Follow the instructions included with the brackets. See Figure 8.

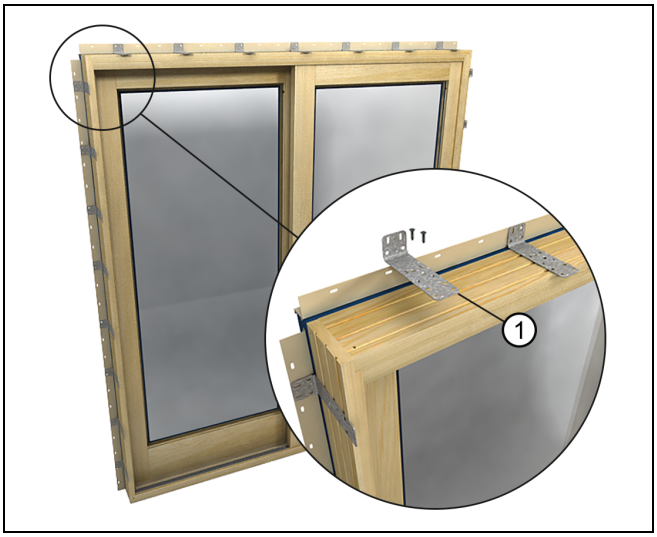

Figure 8

1	Structural bracket

⚠ CAUTION!

Some brackets are sharp. Wear gloves and use care when moving the door if the brackets are installed.

Installing the Door

Seek Assistance

It is highly recommended that you get help from another person/persons when installing the door. These doors are heavy and it will be hard to position or install with just one person.

NOTE: For sliding doors with interior shades the head jamb and sill must be parallel within 1/8"(3) across the width of the door or interior shades may not function properly.

NOTE: If field applying interior jamb extension or mulling transom units, refer to appropriate instructions (as needed) at this time.

1. After the rough opening has been prepped (using either the air barrier or building paper methods), apply a continuous bead of sealant 3/4"(19) from the top and sides of the door opening. See Figure 9.

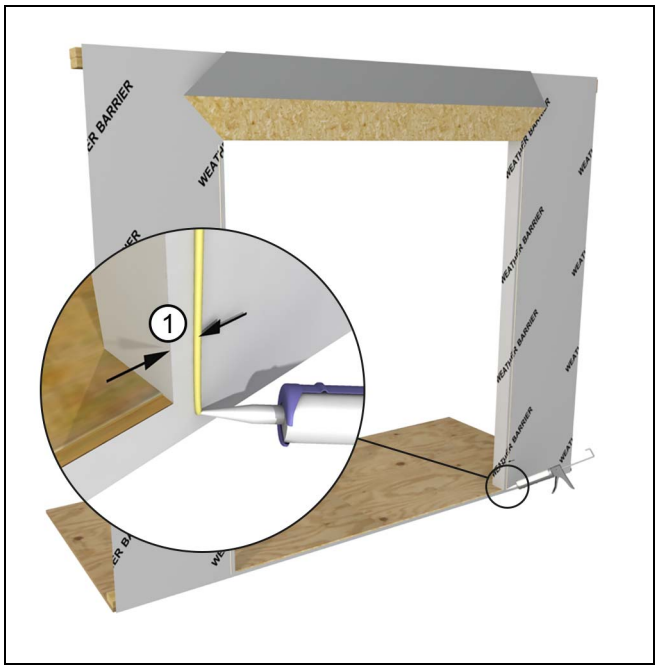

Figure 9

1	3/4" (19)

2. Apply a 3/8" (10) bead of adhesive on the subfloor at the interior edge of the door opening. Apply a bead of sealant 1/2" (13) from both ends of the rough opening that run interior to exterior. Apply a discontinuous bead at the exterior. Gaps should be about 1-2" (25-51) wide and start 2-4" (51-102) from the ends. Finally, lay another bead approximately 2 1/4" (57) from the interior bead in a slight wiggle pattern. Adhesive beads should contact the interior and exterior flat portions of the sill as well as the center rib. See Figure 10.

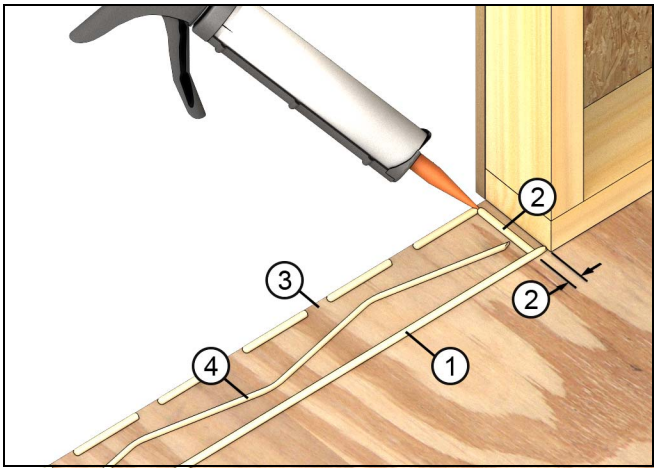

Figure 10

1	Interior bead
2	Interior to Exterior bead 1/2" from end of RO
3	1-2" gap in exterior bead
4	Center bead

3. Tip the door into the opening and center it. For clad units, temporarily nail the upper corners of the nailing fin with a 2" (51) roofing nail. Do not drive the nail all the way in. See Figure 11.

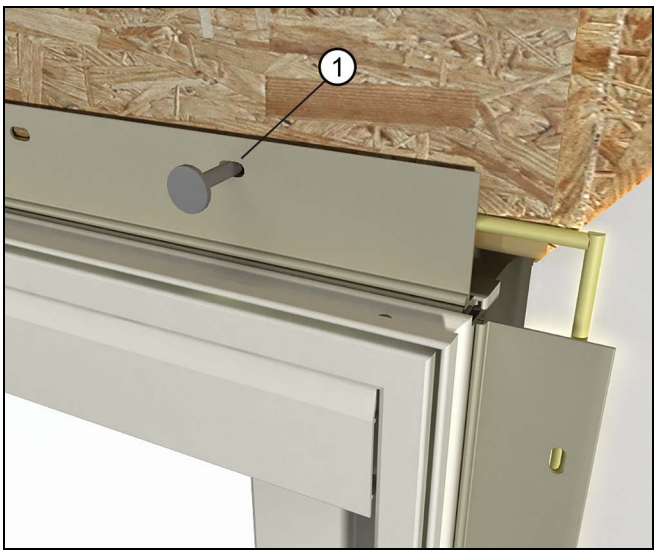

Figure 11

1	2" Roofing nail

4. If the wood door unit has exterior casing, apply sealant at the back (interior side) where the casing contacts jambs and head jamb and also at the top corners where head and side casings join. See Figure 12.

Figure 12

5. Before the adhesive is allowed to set up, ensure the jambs are straight and plumb (interior/exterior and left/right). The sill must be level and straight. See Figure 13.

Figure 13

6. Check diagonal measurements for the entire frame. Adjust as necessary by applying shims to the corners 6" (152) from the sill and head jamb. See Figure 14.

Figure 14

Hint

For steps on how to permanently secure the unit, refer to the supplemental instruction included with this door.

IMPORTANT

To meet the advertised Structural Design Pressure Ratings, doors must be installed with masonry clips, jamb screws or structural brackets spaced a maximum of 6" (152) from the corners and 12" (305) on center.

7. For Swinging Doors: Place a shim at each hinge and on each side of jamb and head jamb strike plates. Place additional shims a maximum of 12" (305) apart. Be careful not to bow the jambs. See Figure 15.

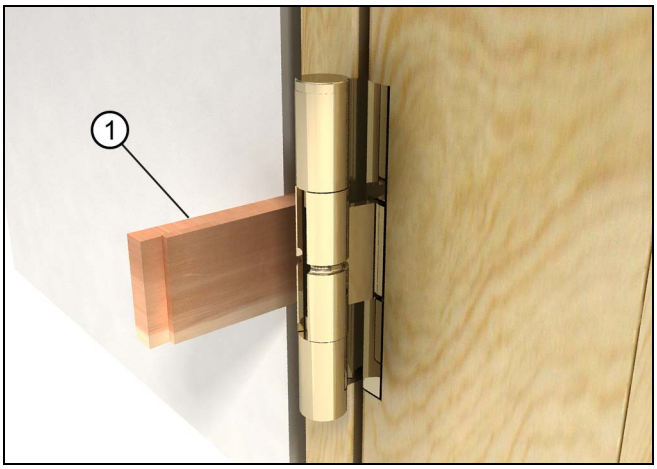

Figure 15

1	Shim behind all hinges

8. For Sliding Doors: Place shims at or near keepers or jamb strike. Place additional shims a maximum of 12" (305) apart. Be careful not to bow the jambs.See Figure 16.

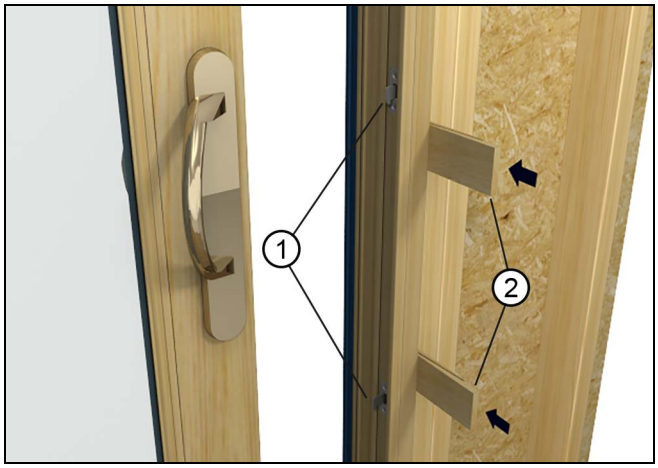

Figure 16

1	Keepers (or strikes)
2	Shim near keepers and strikes

NOTE: Proper shimming is extremely important. Under shimming can cause the unit to sag out of square, over shimming will result in bowed jambs and/or head jamb. Both conditions can contribute to improper operation of the door panels.

9. For Swinging Panels: If one panel is further to the exterior than the other (or on a single operating panel door the panel does not align parallel to head jamb) check sides of frame for plumb. If correct and the panel(s) still do not align, move the top of one or both sides of the frame slightly in or out. On a multiple panel unit check to make sure top corners of the panel locking stiles are aligned and flush with each other. On a single operating panel unit check to make sure the margin along panel top and head jamb are even. See Figure 17. If one panel is higher/lower move the top of the frame horizontally until the panels align.

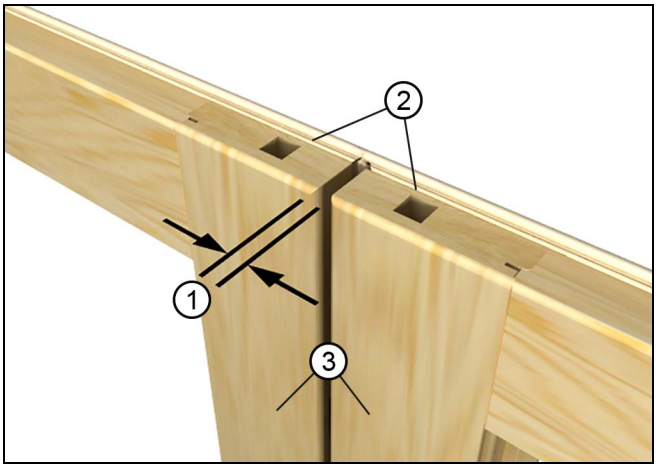

Figure 17

1	Allow 1/8" gap (1/4" gap for commercial doors)
2	Flush panels across the top
3	Flush panels to the interior/exterior

Securing the Sill

NOTE: For instructions on how to secure the Commercial Door sill, refer to the Commercial Door Supplemental instructions (part number 19970877).

1. For sliding and swinging pre-2011 sills, figure 6(a): Install a sill nose support block under the sill. Fabricate from treated lumber and attach to underside of the sill with construction adhesive. Nail the block to the sheathing to hold it in place. Apply generous amount of sealant along the underside of the sill as shown. See Figure 18.

Securing the pre-2011 sill: At the center of the oak sill pre-drill a 3/16" hole, without penetrating the subfloor, vertically through the oak sill liner and sill. Secure the oak sill liner to the subfloor with a #10 x 3" sheet metal screw. For masonry applications, pre-drill a 3/16" x 3" concrete anchor 3 1/2" deep hole through oak liner and into concrete. Fasten with a 3/16" x 3" concrete anchor. See Figure 19.

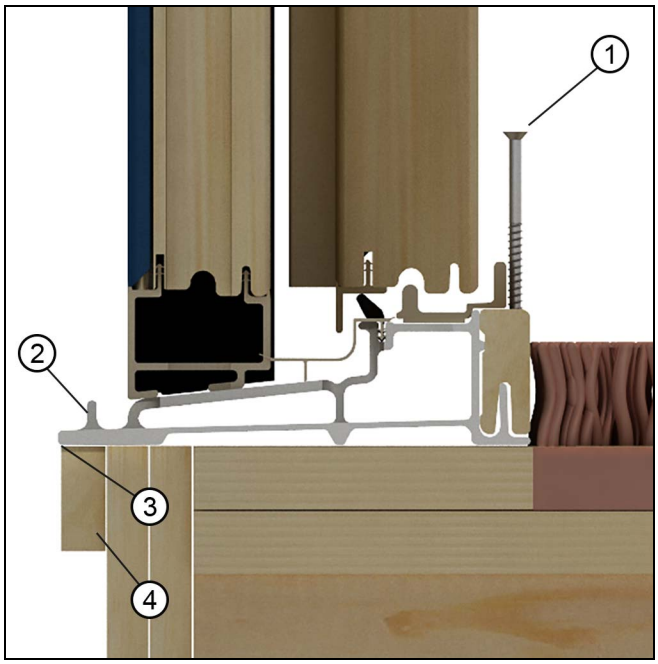

Figure 18 Pre-2011 Platform sill

1	#10 x 3" sheet metal screw
2	Sill
3	Sealant
4	Sill nose support block

NOTE: Sill nose support is not necessary for the 2011 or low profile sill.

2. Securing the 2012 Swinging Door sill: Secure the sill to the subfloor with #8 x 1" pan head screws through the pre-drilled holes in the sill lip. In masonry applications, pre-drill 3/16" x 1" deep holes through the pre-drilled holes in the sill lip and into the concrete. Fasten with #8 x 1" pan head concrete anchors. See Figure 19.

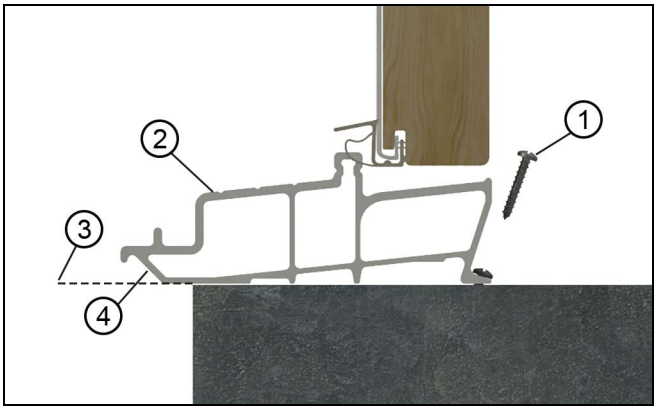

Figure 19 2012 Swinging door sill

3. Optional: Secure the low profile sill by applying 1/2" x 3/8" foam tape to the bottom and fastening with 1 1/2" pan head screws. Center the screws in the slot. See Figure 20

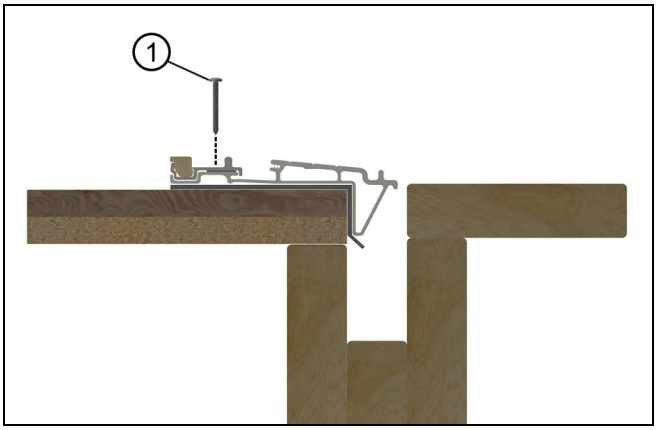

Figure 20 Low profile sill

1	1 1/2" pan head screw

IMPORTANT

For IZ3 units, refer to the provided Certified IZ3 Fastening Details (19970071) or visit www.marvin.com for proper placement of additional screws.

IMPORTANT

DO NOT seal drain holes. Make sure drain holes are kept clear of dirt and debris.

Flashing the Installation-Method A1 (Flashing After Installation)

IMPORTANT

Nailing fin is not designed to be a weatherproof flashing.

NOTE: For units with an integral nail fin/rigid head flash proceed to step 2 on page 13.

1. For clad units (if applicable): Apply nailing fin corner gaskets to each corner of the nailing fin. Follow instructions on back of gasket.

For all units: Install a rigid head flash at the head jamb. 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 door, door casing, and/or sheathing. See Figure 21.

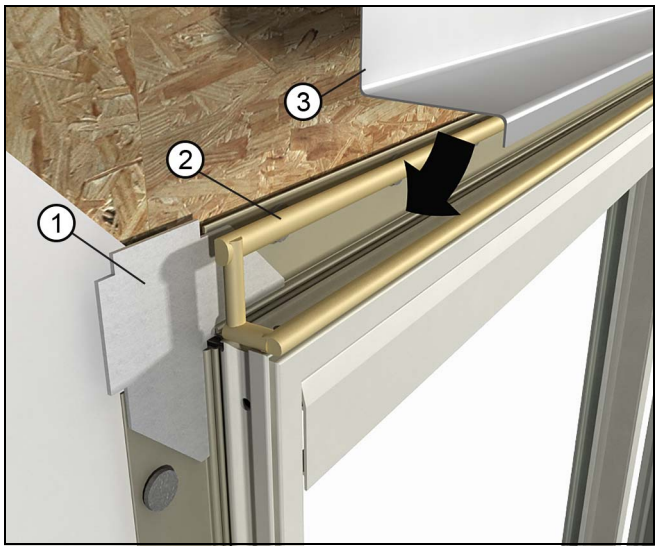

Figure 21

1	Corner gasket
2	Sealant
3	Rigid head flash

2. Lap vertical strips of flashing onto the unit or casing and out over the weather resistive barrier. Make small cuts at the head jamb to allow the flashing to fold back onto the exterior. See Figure 22.

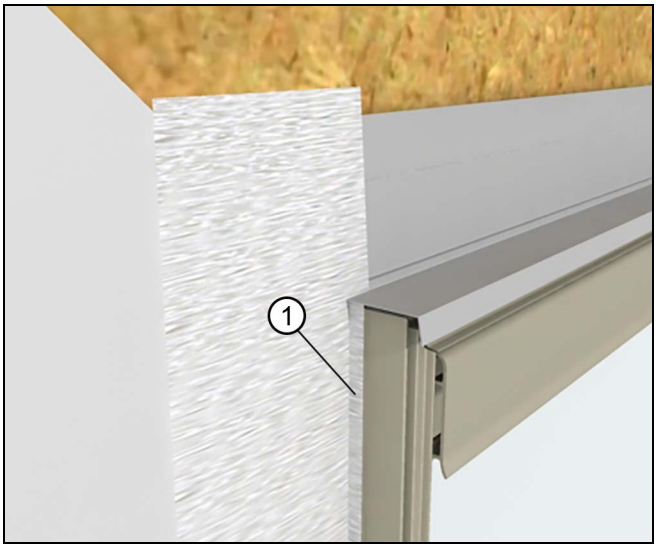

Figure 22

1	Lap onto unit (or casing if applicable)

3. Install a layer of flashing over the vertical leg of the rigid head flash and lapped onto the horizontal leg. The flashing should extend past the jamb flashing installed earlier.See Figure 23.

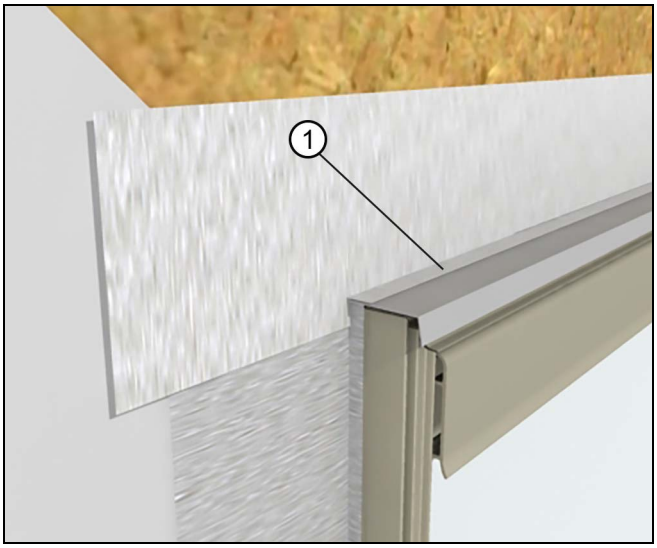

Figure 23

1	Lap head jamb flashing onto rigid head flash

4. Fold the head jamb air barrier down over the head jamb flashing. Apply seam seal tape over the diagonal cut in the air barrier. Make sure the tape laps onto the unit or casing. Cut 3" (76) strips of tape and install every 12" (305) along the head jamb. Tape and seal any seams and fasteners directly above the unit. See Figure 24.

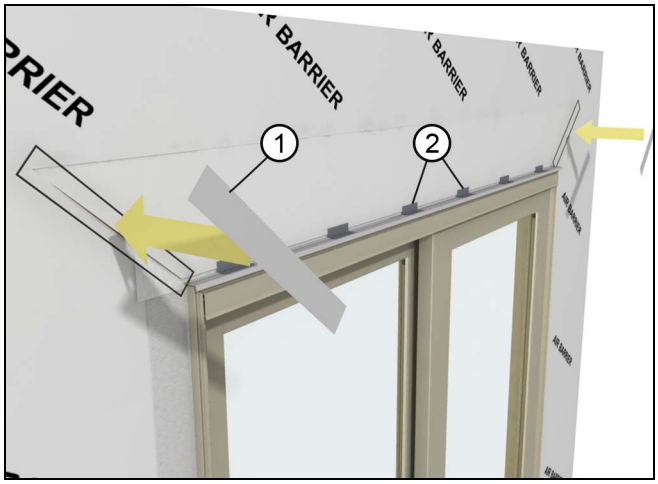

Figure 24

1	Seam seal tape over diagonal cuts, lap onto unit
2	3" seam seal every 12" along head jamb

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 25.

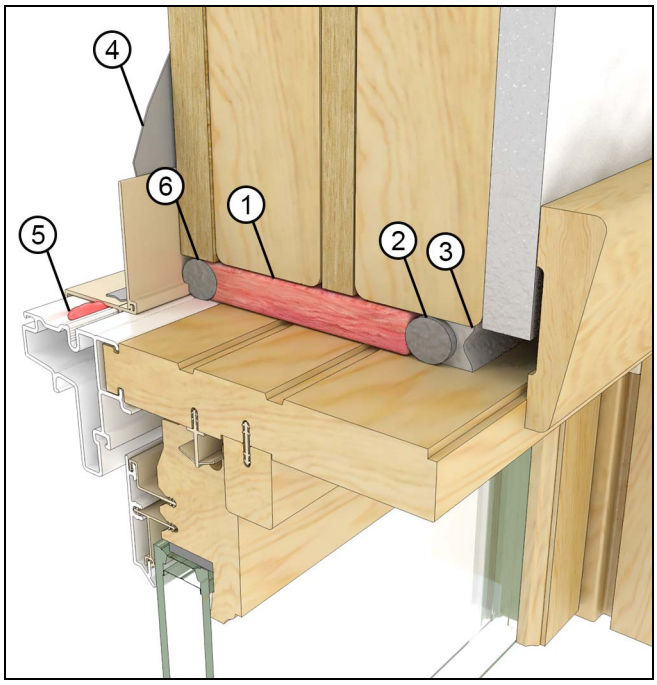

Figure 25

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 26.

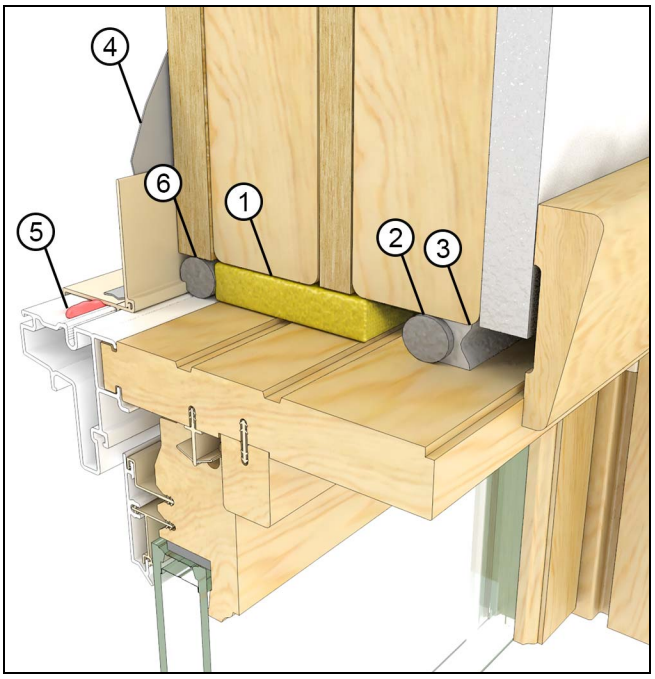

Figure 26

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

Insulating and Sealing the Installation-Casing

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 25.

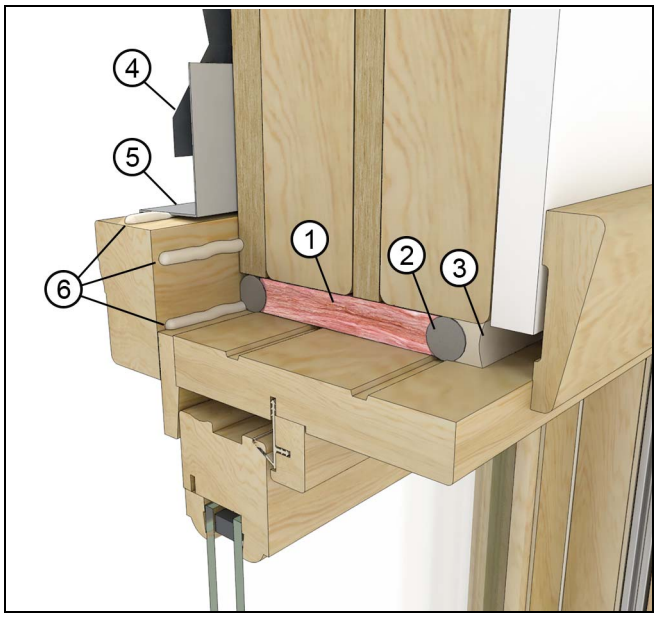

Figure 27

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

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 26.

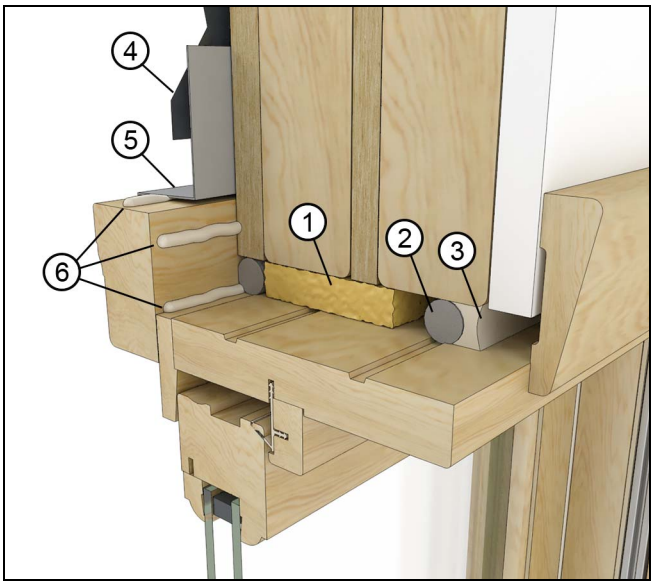

Figure 28

1	Low expansion foam
2	Backer rod
3	Continuous air seal (sealant)
4	Flashing
5	Rigid head flash
6	Sealant

Exterior Sealing 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 29 and Figure 30.

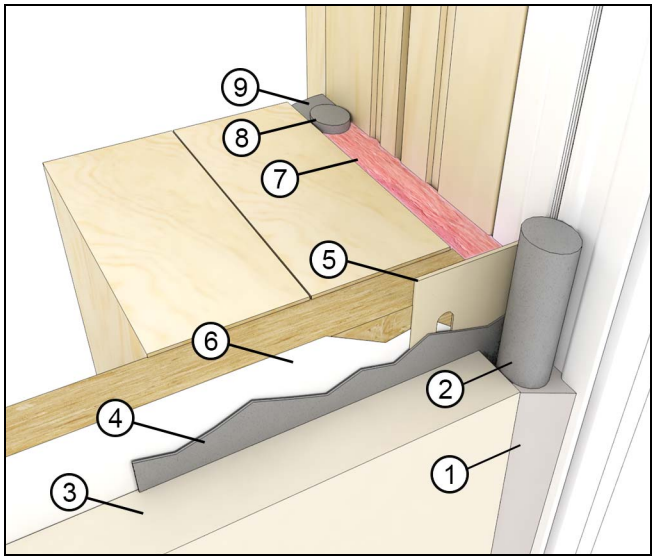

Figure 29

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 30 Apply sealant between window and exterior finish at head jamb.

⚠ 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 casing air and water infiltration.

Technical Installation Specifications

The following details are specified for proper installation and performance of a Marvin door.

- Rough Opening Width: 1/4"-1" (6-25) wider than door frame outside measurement.
- Rough Opening Height: 1/4"-1/2" (6-13) higher than door frame outside measurement.
- Masonry Opening Width: 1/4"-1/2" (6-13) wider than door frame outside measurement.
- Masonry Opening Height: 1/8"-1/4" (3-6) higher than door frame outside measurement.
- Properly flash and/or seal all doors at the exterior perimeter.
- Sealants used for installation must be Grade NS Class 25 per ASTM C920 and compatible with the building exterior, door exterior surface, and flashing/water management materials.
- Construction adhesive must be APA rated AFG-01 SPEC.
- Flashing materials must comply with ASTM E2112, section 5.13 and be compatible with all materials used in installation including panning systems, air barriers and building papers, sheathing, and the door unit.
- Optional foams used for installation must be low expansion only. Foam and foam application must comply with ASTM E2112-01, SEC 5.9.2
- 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.
- Shim 4"-6" (102-152) from each corner, and at every point of attachment.

The following materials were used to develop these instructions:

- **Weather resistant barriers:** DuPont™ Tyvek® Homewrap
- **Flashing Materials:** DuPont™ FlexWrap or DuPont™ Straight Flash, DuPont™ Tyvek® tape.
- **Sealant:** OSI® Quad Pro-Series® solvent release butyl rubber sealant or DAP DynaFlex 230™