Integrity All Ultrex® Series Window Installation

New Wood Frame Construction

Read these instructions thoroughly BEFORE beginning to install your Integrity window.

Abstract: These installation instructions demonstrate the installation of All Ultrex Integrity windows in new wood frame construction using an industry approved water management system. For other construction methods such as remodeling, replacements, and recessed openings, refer to **ASTM E2112-01. Standard Practice for Installation of Exterior Windows, Doors and Skylights** for installation suggestions. Information on ASTM E2112-01 can be found on the ASTM website www.astm.org.

For product specific issues, service instructions and field service guides, refer to the Integrity Parts and Service Manual, visit our website at www.integrity.com, or contact your Integrity 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 unit installation procedures contained within these instructions are consistent with the procedures used in testing to achieve the advertised DP rating.

These instructions are applicable for the following products: Single Hung, Double Hung, Glider, Casement, Awning, Polygon and Round Top.

Integrity from MARVIN Windows and Doors

All Ultrex® Series

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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 Integrity 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, 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.
- Contact your Integrity supplier if you have any questions regarding product and materials used in manufacturing or questions on replacement parts.

After Market Products

Alterations to Integrity 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 Integrity Windows and Doors.

Before purchasing or applying any product that may affect the installation or performance of Integrity windows contact the manufacturer of aftermarket product/glazings that are not supplied by Integrity 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.

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

You Will Need to Supply

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

Backing material (foam backing rod)
Marvin SillGuard™ or equivalent sloped sill pan system.

Standard Parts Shipped

Units are sent with 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.

NOTE: Depending on the installation method, other material may be needed to properly prepare and seal the installation such as self sealing adhesive flashing, building paper, and seam seal tape, etc.

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

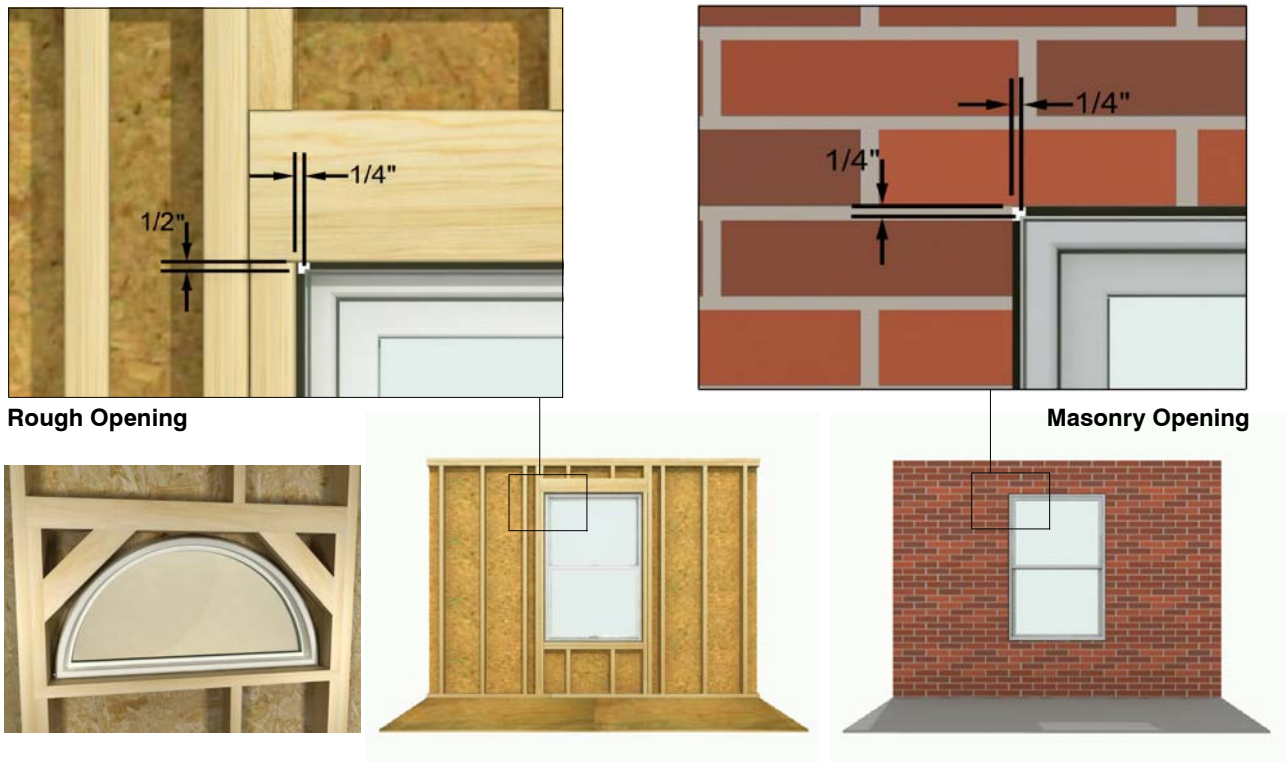

Figure 1: Typical rough and masonry openings.

1. **Rough openings (RO) and Masonry openings (MO)** should be 1/2″ (13) wider than the outside measurement of the frame and 1/2″ (13) higher than the outside measurement of the frame for (RO) or 1/4″ (6) higher than the outside measurement of the frame for (MO). 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.
2. On shapes such as polygons and round tops make sure there is proper bracing. See figure 1.

NOTE: When using a rigid 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.

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 shows a rough opening preparation for both air barrier and building paper scenarios where a flanged, sill pan is used. Refer to the “Rough Opening Preparation–Alternative Method” section if you do not use a sill pan. Refer to ASTM E2112–1 for the other situations not covered in this document.

Air Barrier Applications

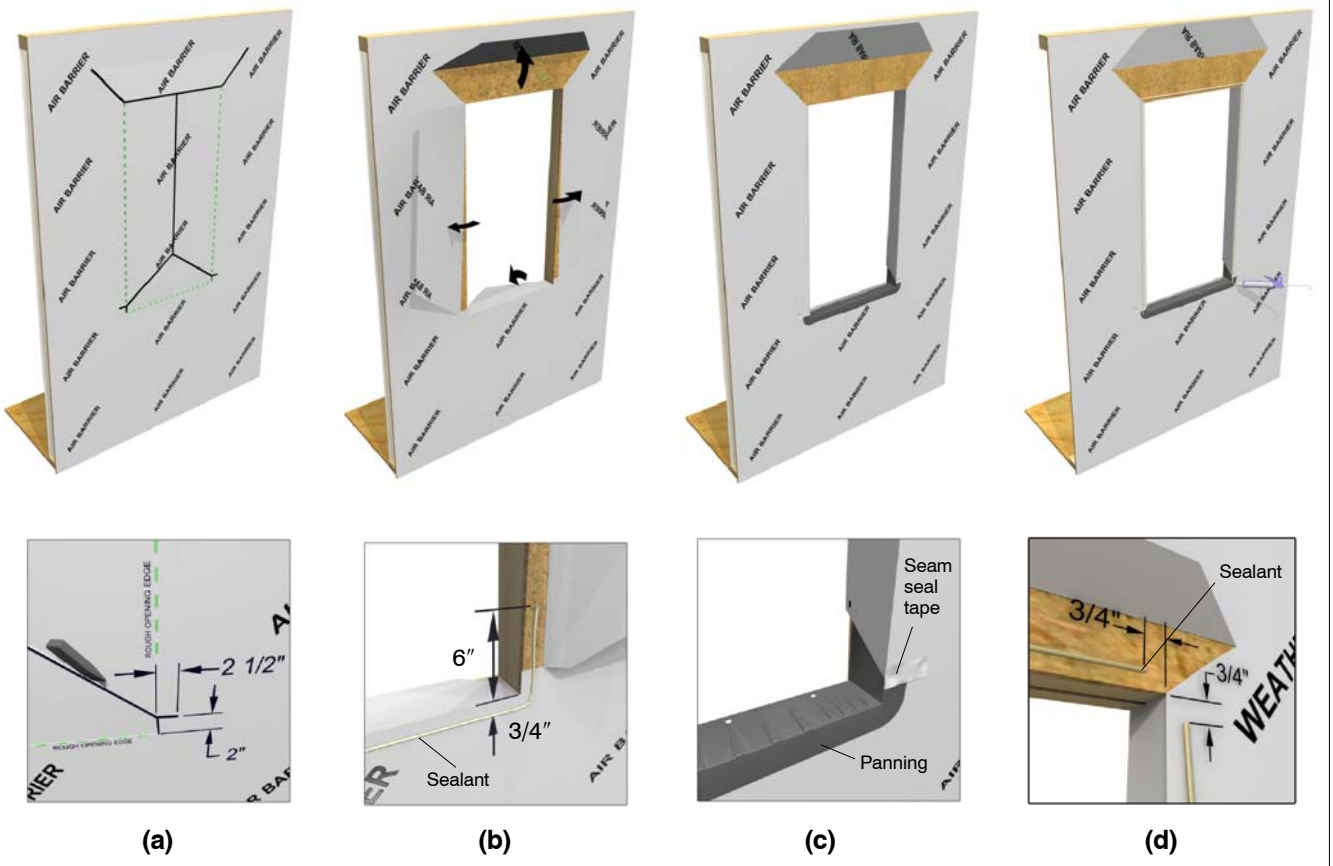

Figure 2: Rough Opening Preparation for construction methods using a continuous air barrier system and sill panning.

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 45s meet. See figure 2a.
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 2b.
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). Install sill panning following manufacturer’s instructions. See figure 2b.
4. Wrap side flaps to the interior and tack in place. Seal the horizontal cut in the air barrier with seam seal tape. See figure 2c.
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 2d.

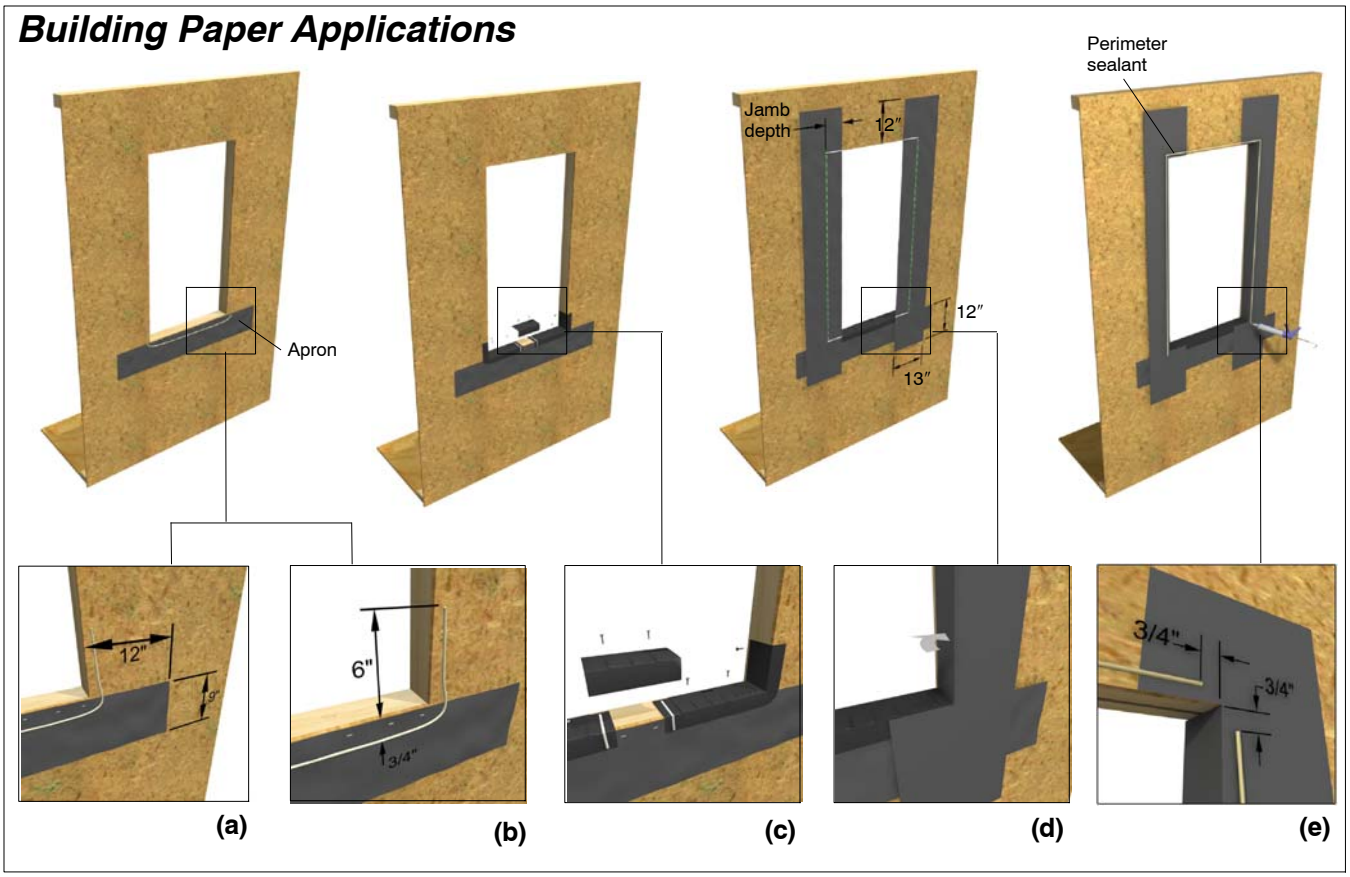

Figure 3: Rough Opening Preparation for construction methods using building paper and sill panning.

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 3a.
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 3b.
3. Install sill panning following manufacturer’s instructions. See figure 3c.
4. Cut a 13″ (330) wide 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 3d.
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 3e.

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 Integrity representative. Provide the customer service number etched on one of the top corners of the glass. See figure 4.
2. Position the factory applied nailing fin in the upright position. DO NOT APPLY NAILING FIN CORNER GASKETS AT THIS TIME.
3. If you are installing a window with installation brackets apply a 3/16″ diameter 1 1/2″ long bead of heavy duty construction adhesive in the exterior jamb channel. The sealant is to be placed 6″ in from each corner and spaced 12″ apart along the perimeter of the unit. See figure 5. Press the installation bracket firmly into place over the sealant and secure with the two provided screws. See figure 5.
4. When installing factory mulled units apply structural brackets on both sides of all mullion joints. See figure 5.
5. Install jamb extension before installing the window in the rough or masonry opening. Follow instructions provided with the jamb extension.

Installation Tip: Keep the window locked until fastened in the opening.

Figure 4:

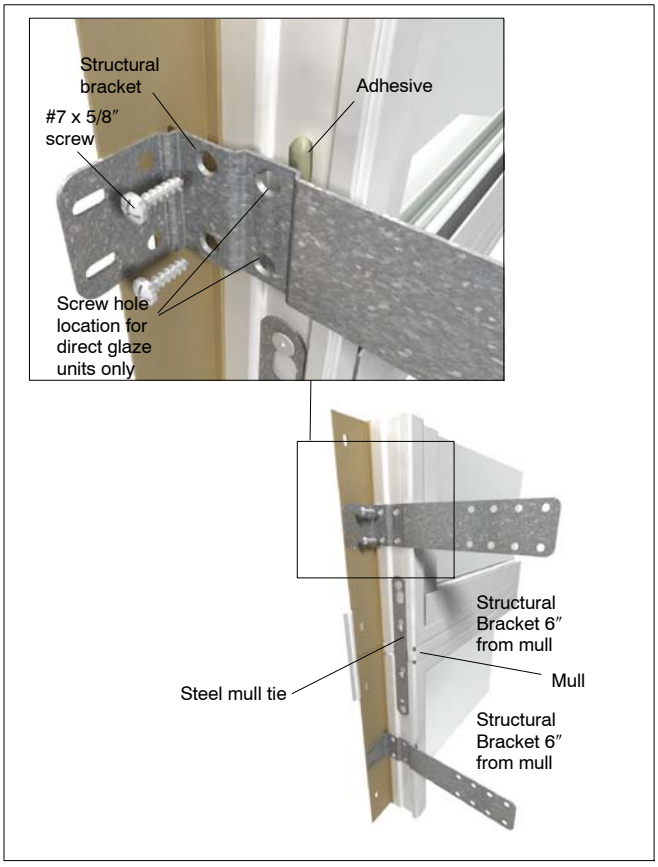

Figure 5: Attach structural brackets to mull joints.

Step 4: Installing the Window

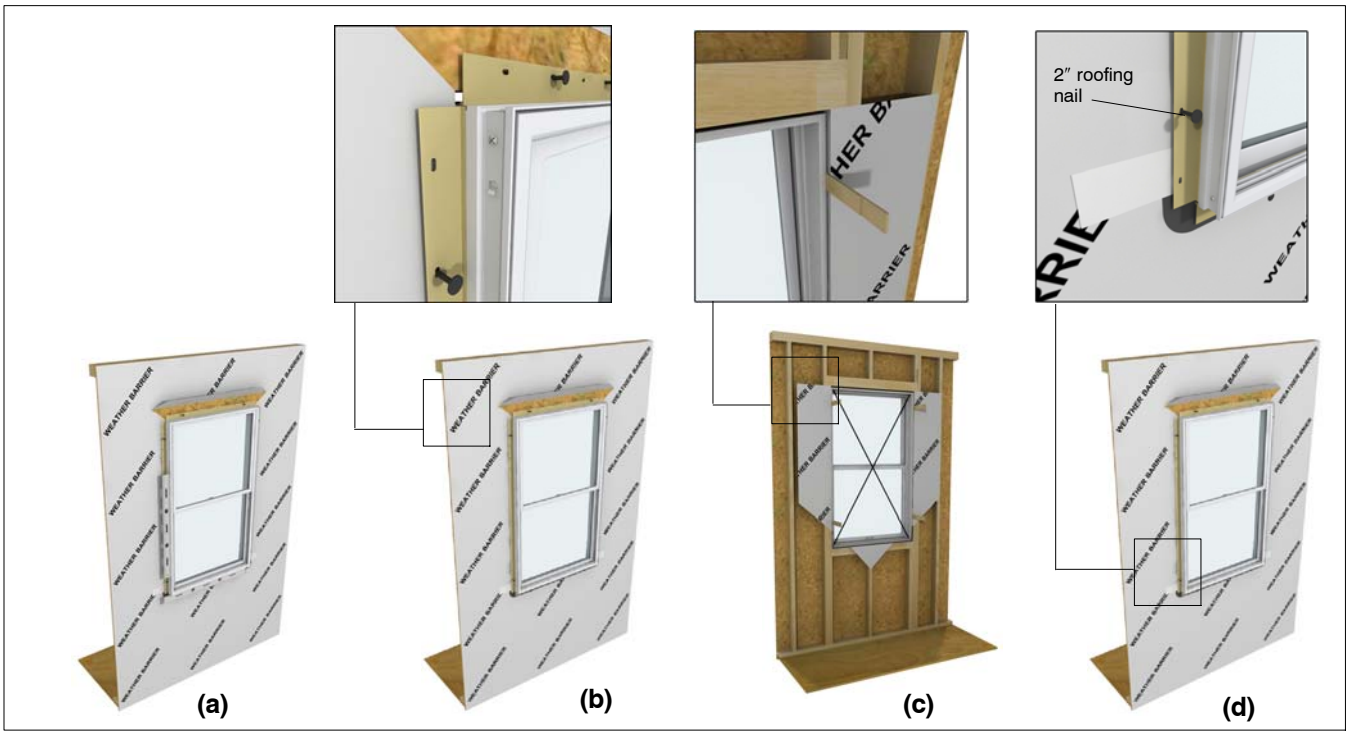

Figure 6: Positioning the window in the opening

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.

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 6a.
2. Once level, tack the jamb nailing fin with 2″ (51) roofing nails within 6″ (152) from the head jamb (or fasten top brackets) if applicable, follow instructions sent with brackets. See figure 6b.

CAUTION: Do not screw or nail through the Ultrex frame. Damage will occur and may void your warranty.

ATTENTION: For units installed with structural brackets.

Bend bracket around framing member and attach with #8 x 1 1/4″ minimum length screws. Angle screws approximately 15 degrees away from the window. Always shim above or behind brackets. See figure 7.

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.

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 6c.
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 6d.
5. Shim 4″-6″ (102-152) from the bottom corners.

Figure 7: Attaching window with structural brackets.

Step 4: Installing the Window (cont.)

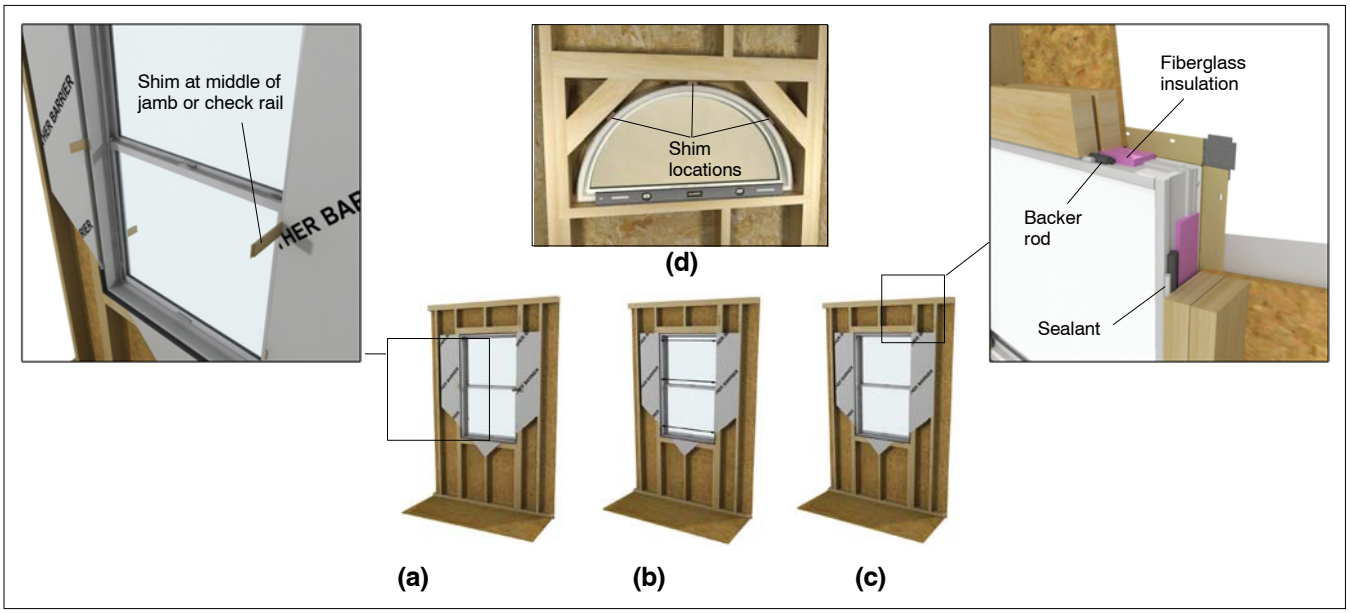

Figure 8: Shimming and squaring the window

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 check rails and meeting stiles. See figure 8a.
7. On round tops and other non-rectangle shapes, make sure to shim at bracing locations. See figure 8d.
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 8b.
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 6″ (152) from each corner and spaced every 6″-8″ (152-203) on center (or fasten remaining structural brackets).

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.

11. Insulate loosely around the window with fiberglass insulation.
12. Integrate the unit with the interior air barrier of the structure by inserting backer rod into the RO and applying a continuous bead of sealant around the interior perimeter of the unit. See figure 8c.

Step 5: Flashing the Installation

Air Barrier Applications

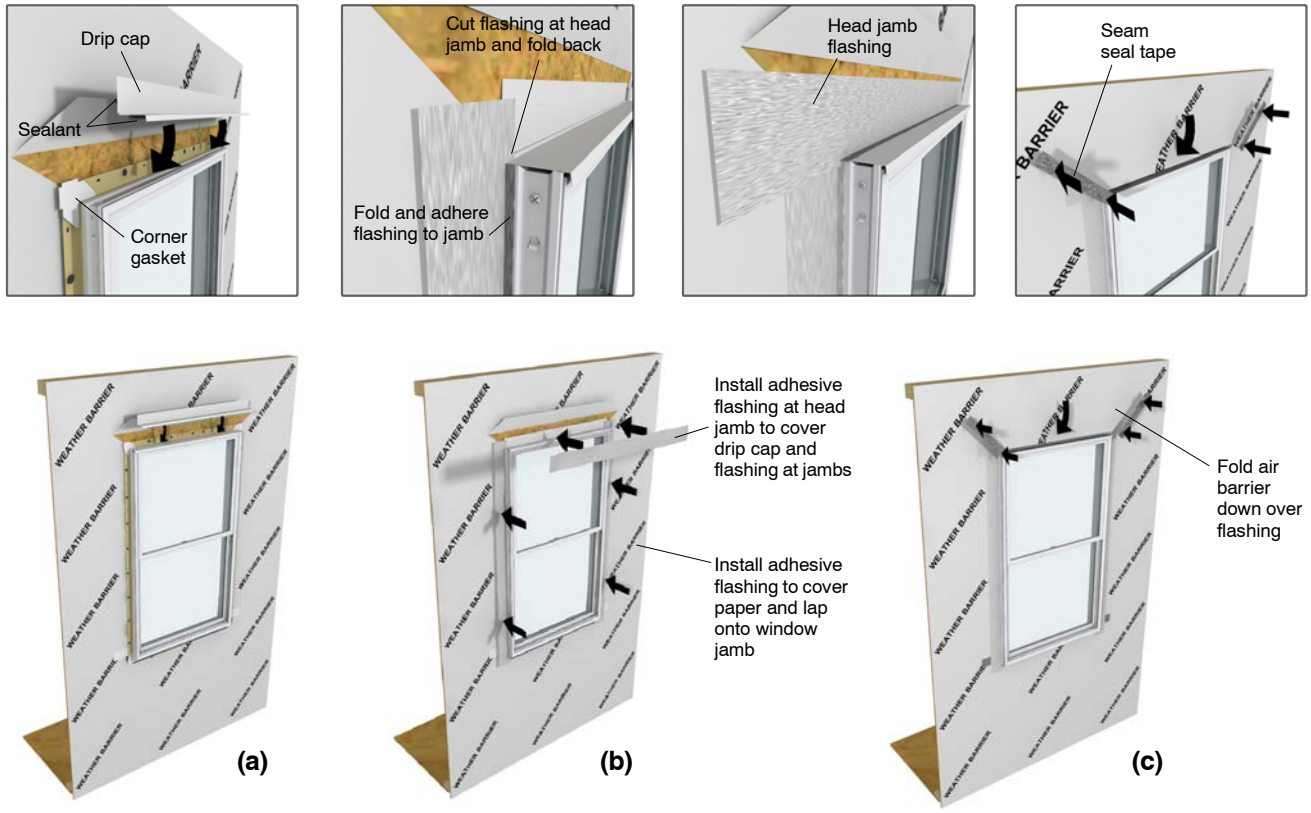

Figure 9: Sealing the Installation in air barrier applications

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.

NOTE: If applying the optional J-Channel, skip step 2 and proceed to step 3.

2. Install a drip cap to the head jamb of the window. 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 and sheathing. See figure 9a.
3. Lap vertical strips of self sealing adhesive flashing onto the jamb and out over the air barrier. Make small cuts at the head jamb to allow the flashing to fold back onto the exterior. See figure 9b.
4. Install another layer of adhesive flashing lapping onto head jamb of unit and over sheathing. Flashing at head jamb should extend and cover flashing previously installed at jambs. See figure 9b.
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 9c. 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 lap the flexible flashing over the vertical flashing. See figure 10.

Figure 10: Use flexible flashing for radius head jambs

Step 5: Flashing the Installation (cont.)

Building Paper Applications

IMPORTANT: If installing Integrity J-Channel, do not apply drip cap.

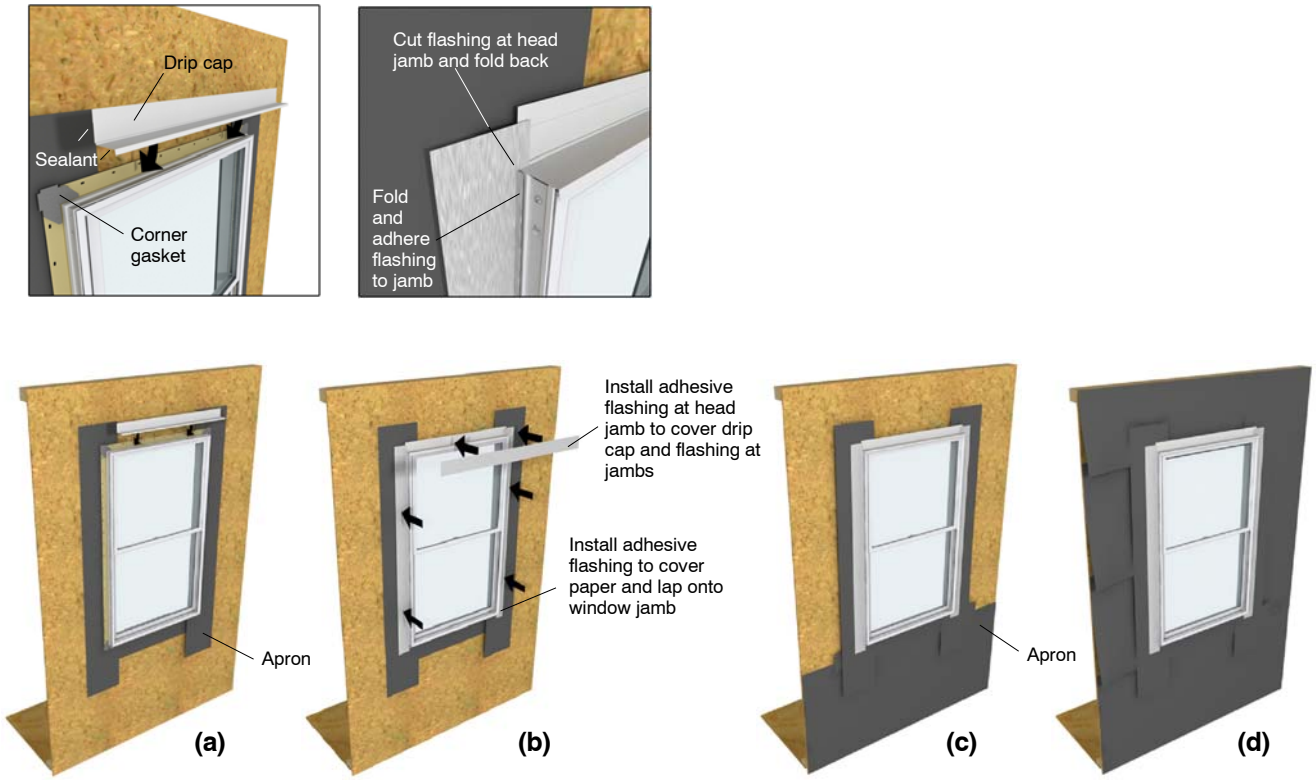

Figure 10: Sealing the Installation in building paper applications

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.

NOTE: If applying an exterior accessory do not install drip cap. Proceed to step 3.

2. Install a drip cap to the head jamb of the window. 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 and sheathing. See figure 10a.
3. Lap vertical strips of self sealing adhesive flashing onto the jamb and out over the air barrier or building paper. Make small cuts at the head jamb to allow the flashing to fold back onto the exterior. See figure 10b.
4. Install another layer of adhesive flashing lapping onto head jamb of unit and over sheathing. Flashing at head jamb should extend and cover flashing previously installed at jambs. See figure 10b.
5. Tuck a double ply layer of building paper under the sill apron. See figure 10c.
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 10d. Proceed to the **"Final Installation 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 lap the flexible flashing over the vertical flashing.

Step 6: Final Installation Procedures

NOTE: Sash must be raised at least 1″ (25) before tilting.

1. Install exterior finish or siding per manufacturer's instructions.
2. After exterior finish or siding is installed, apply sealant around the exterior perimeter of the unit frame or casing. As needed, insert backing material between the frame or casing and the structure to provide a proper sealant joint. Sealant depth must be equal to width between unit and exterior finish material (brick and masonry apply). Always refer to the manufacturers' recommendations for proper surface preparation and application. See figure 11.

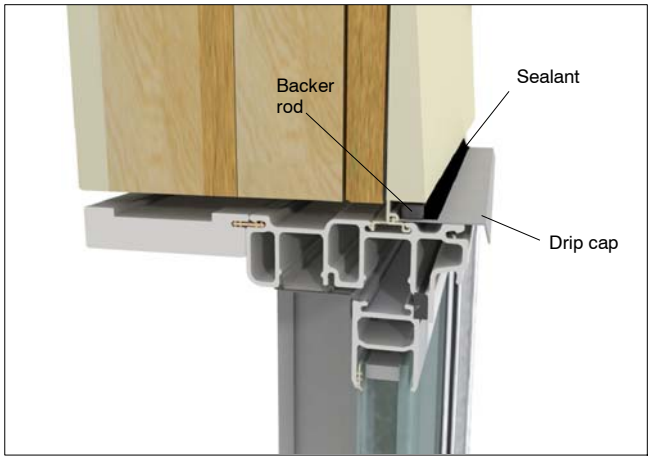

Figure 11: Apply perimeter sealant between window and exterior finish

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.

3. **On Single and Double Hung units:** Raise the bottom sash and tilt in. Remove the vinyl shipping blocks from each side. See figure 12.

   On Casement units: Open the sash and remove the shipping blocks from the frame. See figure 13.

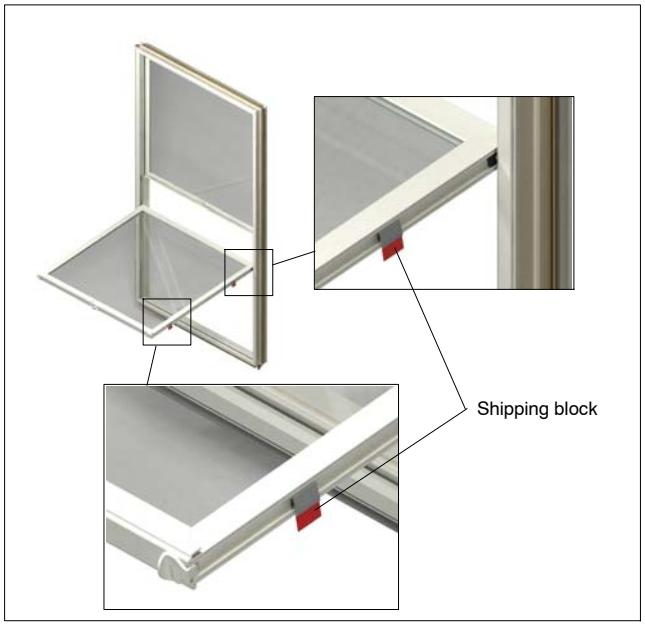

Figure 12: Double Hung unit shipping block removal.

Figure 13: Casement unit shipping block removal.

J-Channel Installation

For J-Channel installation refer to installation instructions included with the J-Channel.

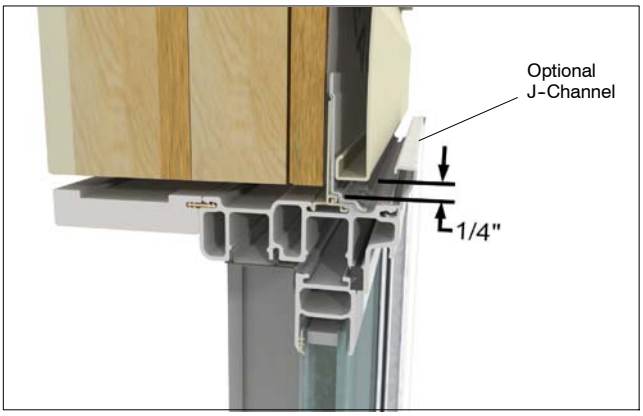

Figure 14: Unit with optional J-Channel applied.

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 1/2″ (13); 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.
- 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.
- 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 6″ (156) from each corner and spaced no more than 7″ (178) on center around the entire perimeter.
- 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.
- 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.
- Fasteners penetrating pressure treated lumber must be a minimum of 0.90 oz/ft^2 zinc hot dipped galvanized or stainless steel type 304 or 316.

NOTE: The unit was finished with a wood trim to simulate a finished installation during certification testing.

Warning: 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 protections. California Health and Safety Code Section 25249.6.