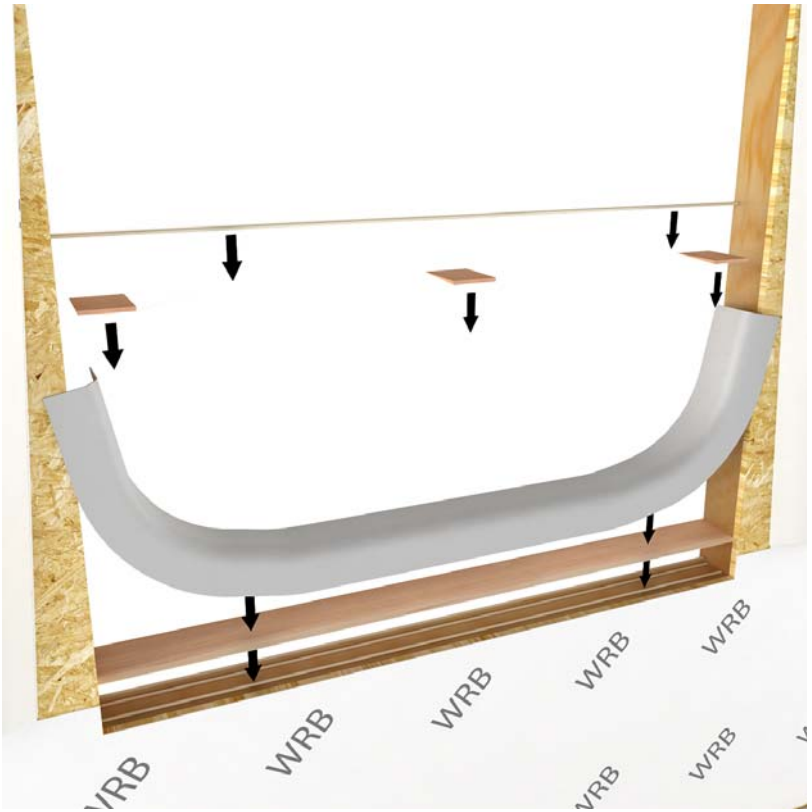
Window Rough Opening Prep and Flashing
Method A1 - Membrane Drainage System



ABSTRACT: Please read these instructions in their entirety before beginning to install your Marvin, Integrity or Infinity window product. These installation instructions demonstrate the proper rough opening preparation (RO prep) in new wood frame construction using an industry approved water management system. For RO prep and 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 suggestions. Information for ASTM E2112 can be found on the ASTM website, www.astm.org. Method A1 applies to non-integral flanged and wood windows. Weather Resistive Barrier (WRB) is to be applied prior to window installation. Head and jamb flashing will be applied over the face of the non-integral mounting flange. The sill pan flash detailed within is a TYPE III (flexible membrane).

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Table of Contents

Note to Installer 2
Trim Weather Resistive Barrier 3
Type III Sill Pan Flash 4
Install the Window 5
Flashing the Installation 6
Insulating the Window Installation 8

Note to Installer

Consideration of the window installation and wall as a system is important. The recommended method in these instructions and referenced elsewhere are intended to do just that. These details follow the concept that stopping air flow into the RO cavity will aid in managing water intrusion. Striving to form a continuous air barrier, water drainage plane, an insulation barrier, and a continuous vapor barrier is best practice; matching the window installation to the design of the actual wall system.

These details show a TYPE III flash pan (flexible membrane) and were based on ASTM E2112. This is one way to prep and flash a sill. Your situation may be different from those shown here. In that case we recommend that you reference other details found in ASTM E2112.

The other three types are:

- TYPE I: Rigid Sheet, 1 piece or multiple piece
- TYPE II: Rigid Sheet, multiple pieces
- TYPE IV: Combination rigid/flexible membrane (multiple pieces)

ATTENTION

Plan your rough opening carefully. The use of pannings will affect the rough opening height clearance.

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).

WARNING

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

You Will Need to Supply	
Safety glasses	Hearing protection
Level	Square
Hammer	Sill pan flash
Insulation	Tape measure
Perimeter sealant	
Plastic or composite shims	
Backing material (foam backing rod)	
Flashing materials	
Weather resistive barrier(WRB)	

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

Materials Used

The following materials were used to develop these instructions:

Weather Resistant Barriers (WRB): DuPont™ Tyvek® HomeWrap

Panning Material: DuPont™ FlexWrap NF®

Flashing Materials: DuPont™ Flashing Tape (butyl)

Insulation: Dow™ Great Stuff Pro™ foam insulation, loose fill fiberglass insulation.

NOTE: Foam should be minimal expanding, low compression, closed cell foam and compliant with ASTM E2112-07, sec. 5.9.2.

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

NOTE: Sealant must be compliant with ASTM C920 Grade NS Class 25.

Other Materials: DuPont™ Seam Seal Tape®, beveled siding product, and various fasteners noted within.

IMPORTANT

Other materials may be used but must be compatible with one another. Refer to each product's technical specifications for compatibility and usage.

Trim Weather Resistive Barrier (WRB)

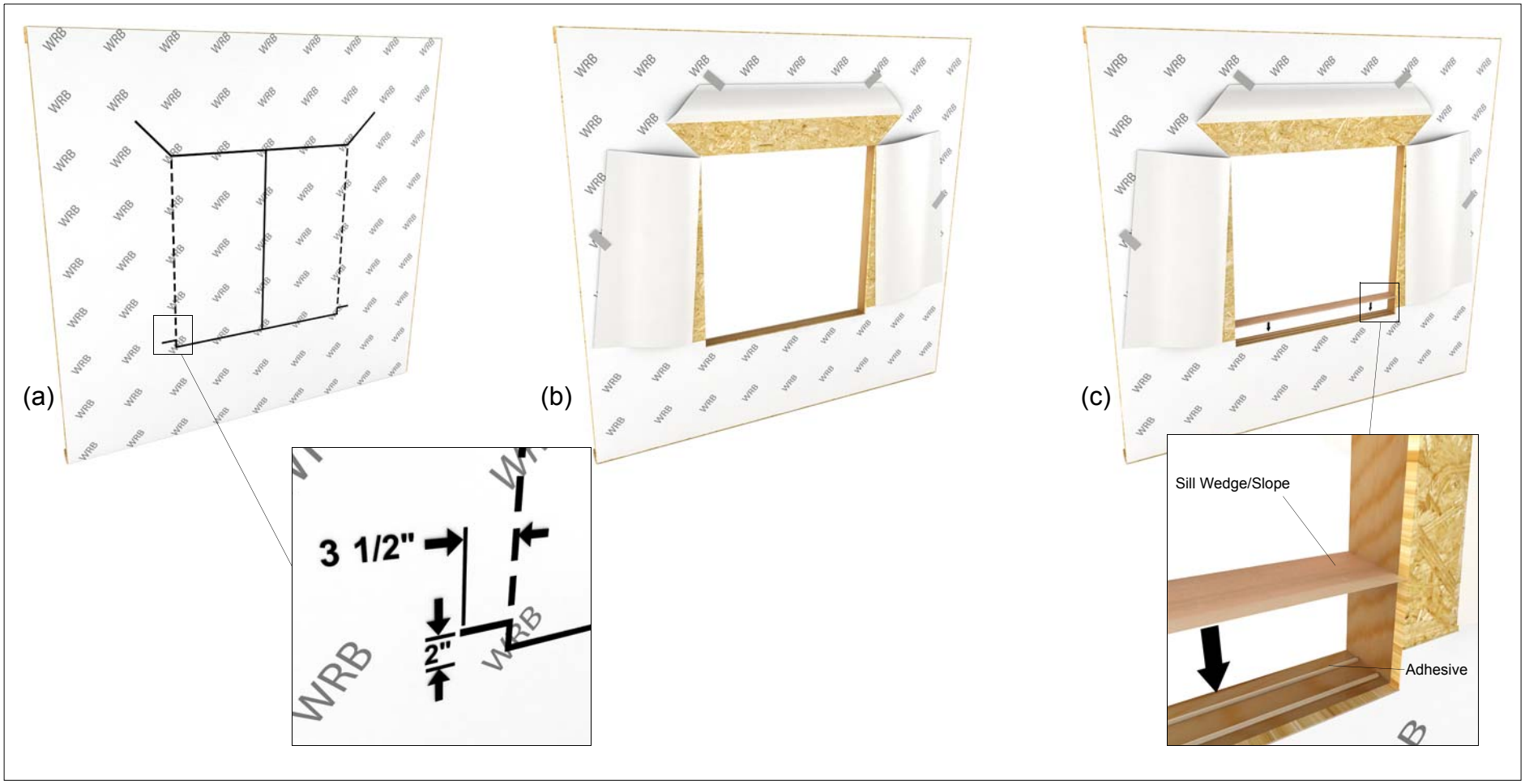

Figure 1

1. Make horizontal cuts across the top and bottom of the RO.

2. Trim up from the bottom corners about 2″ (51) and then make an additional horizontal cut about 3 1/2″ (89) wide.

3. Make a vertical cut down the center of the RO. Then make 45 degree cuts away from the corners of the top of the RO. See figure 1b.

4. Flip top flap up and tack in place temporarily. Tack the side flaps away until sill flashing is installed. See figure 1b.

5. Add a continuous "Sill Wedge" out of cedar siding or similar water resistant material to create a positive drainage slope. Glue to the RO sill with two beads of sealant or adhesive and screw in place. See figure 1c.

NOTE: This will affect your RO height, plan accordingly.

Type III Sill Pan Flash

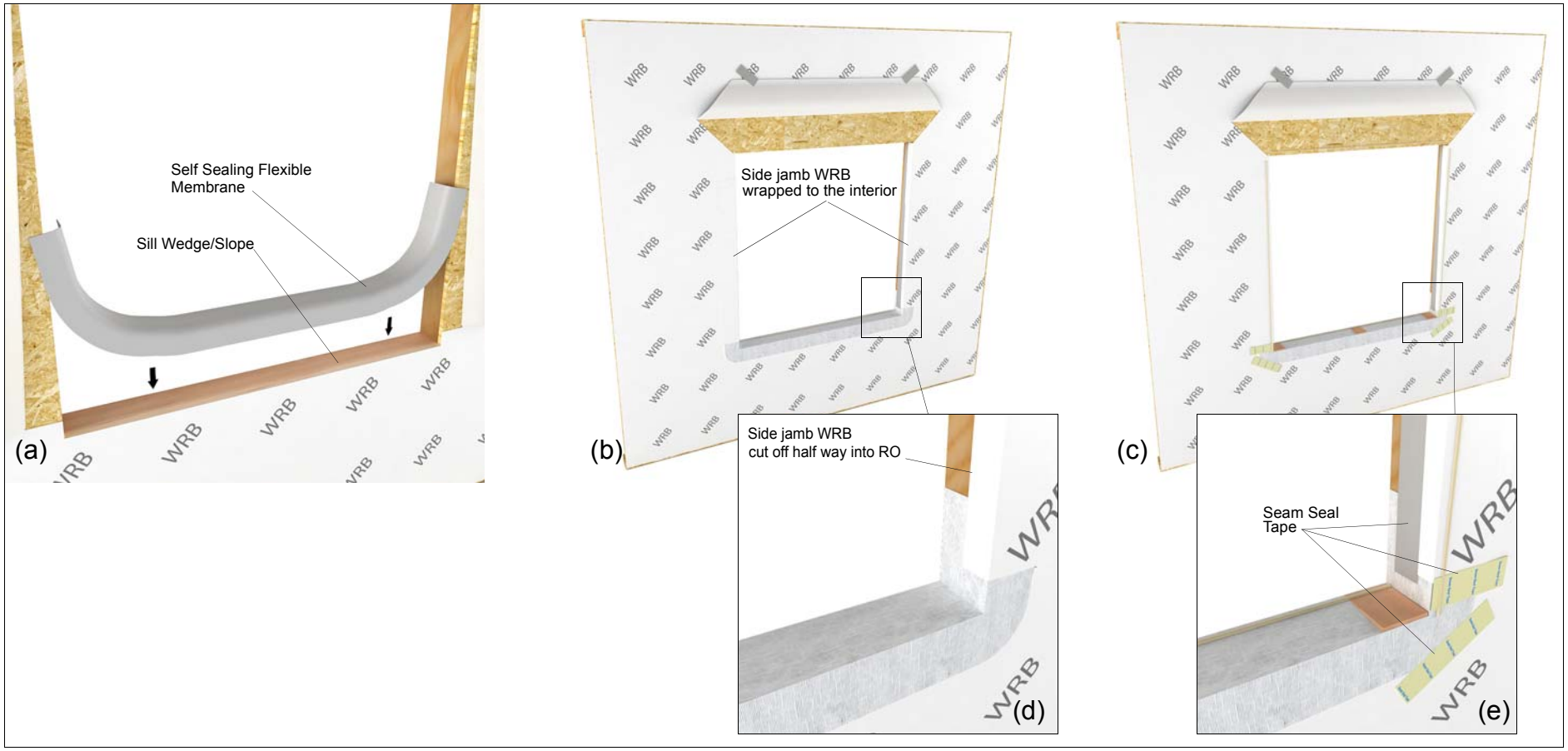

Figure 2 Type III Sill Pan Flash using a sill wedge and flexible membrane.

6. Apply self sealing flexible membrane to the sill. Attach to sill plate and wedge, out over the WRB and underneath the jamb flaps. See figure 2a.

NOTE: Some situations call for an upturned leg at the interior. If that is the case, do so using the excess sill flashing membrane to the interior.

7. Wrap side flaps to the interior and staple in place about 1 1/2" from the interior edge of the opening. Cut the excess off near the staple so that a 1-1 1/2" strip of bare wood is exposed. Tape this edge with seam seal tape. See figure 2b and d.

8. Apply seam seal tape over the corners and cut off excess on the interior if applicable. See figure 2c and e.

9. Place plastic or composite shims at the ends and in the middle of the RO to counter the slope of the sill wedge and support the unit. Fasten with adhesive or finish nails. If using finish nails, place adhesive under shim where nail will penetrate. See figure 2e.

Install the Window

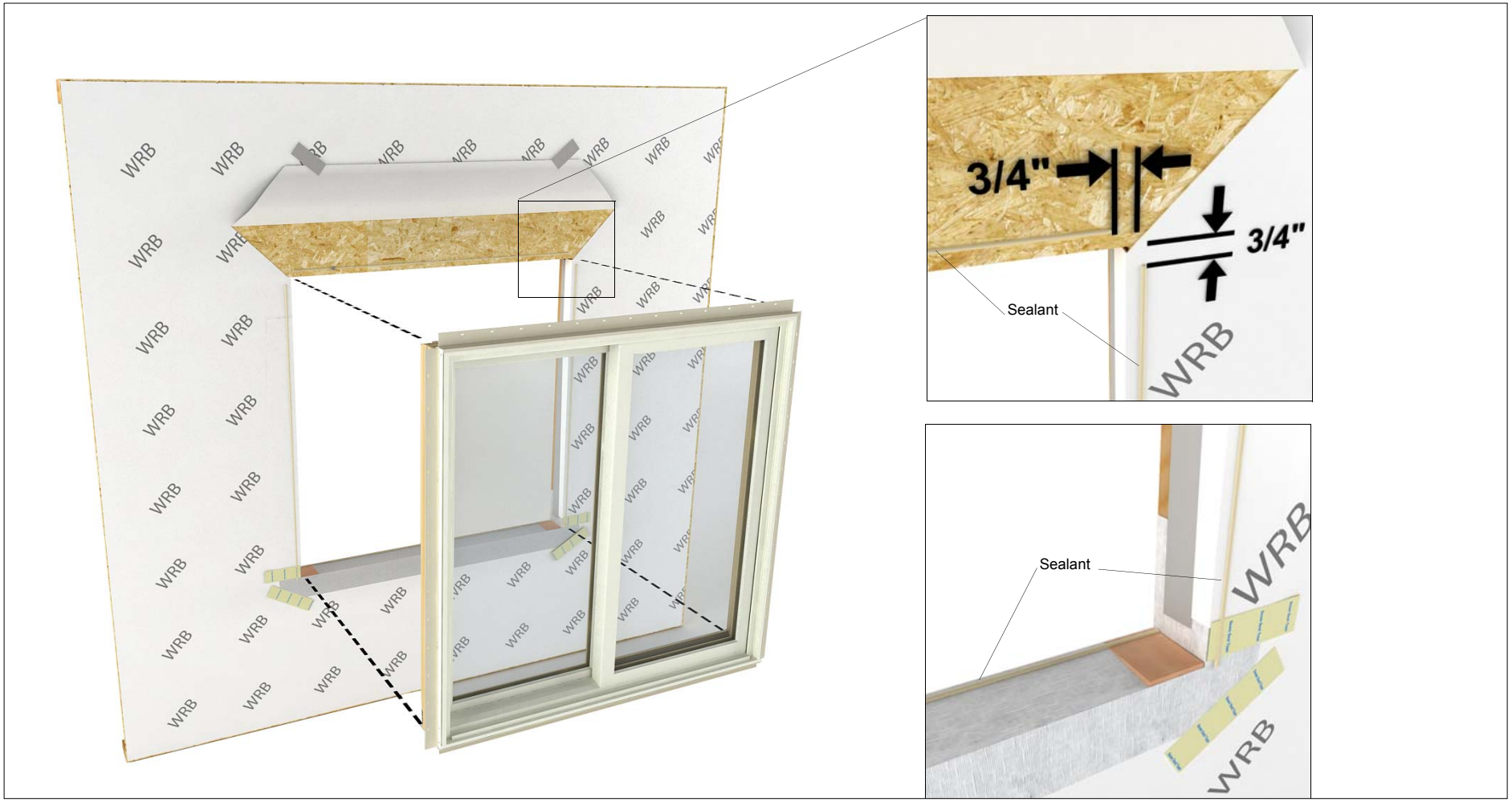

Figure 3 Install the window per installation instructions sent with the unit.

1. 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 3.

2. Place a bead of sealant ¼-3/8" from interior edge of the RO sill.

3. Install the window according to the Marvin installation instructions provided with the product. Use of composite/plastic shims may be necessary to counter the slope and level unit or lift above selected panning method as well as provide support.

Flashing the Installation

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

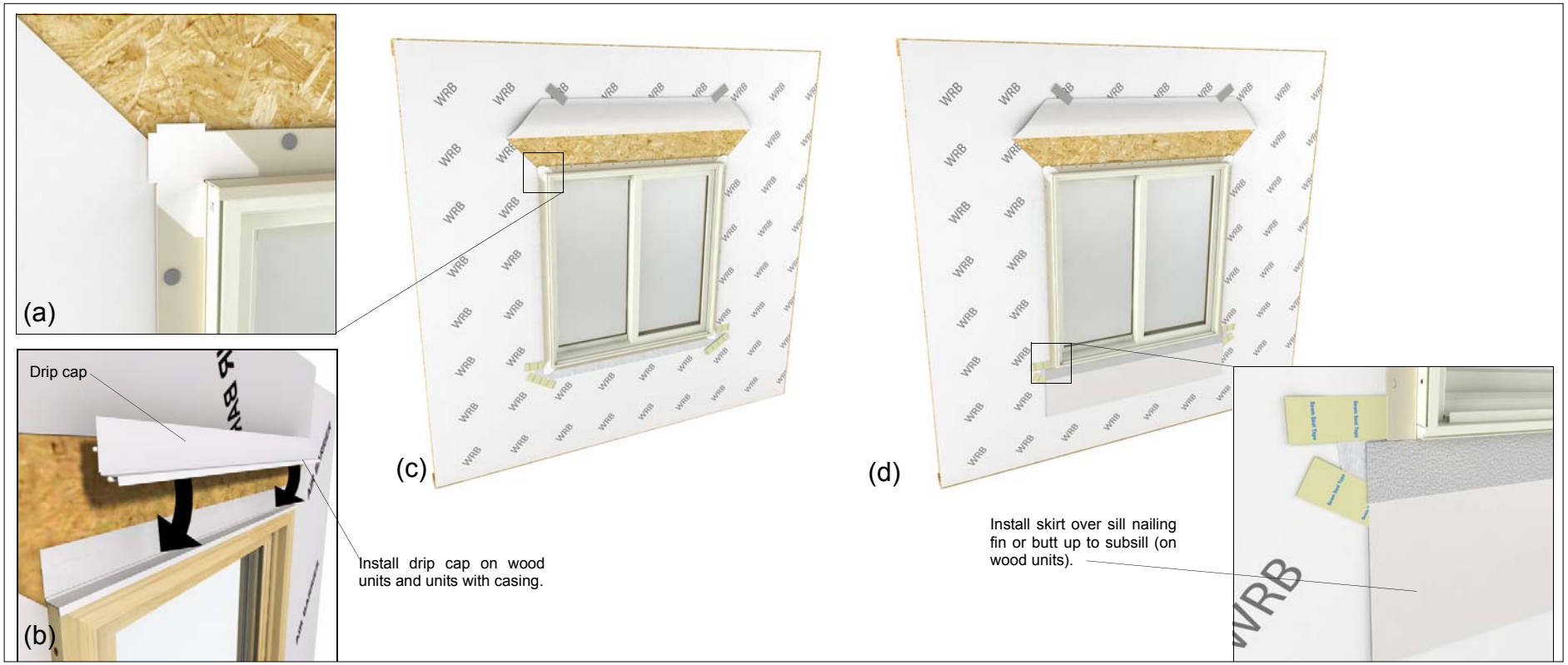

Figure 4 Flashing the installation.

IMPORTANT

Nailing fin is not designed to be a weatherproof flashing.

1. On clad units, apply nailing fin corner gaskets to each corner of the nailing fin. Follow instructions on back of gasket. **(Wood units and units with clad casing do not use corner gaskets.)** See figure 4a.

NOTE: If a drip cap is not already installed on the head jamb or head jamb casing of the window, do so now. The drip cap should extend about 1/8" (3) *beyond the edge of the window on each side. Be sure to apply a bead of sealant along the back sides of both vertical and horizontal surfaces of the cap that come in contact with the window, window casing, and sheathing. See figure 4b.*

NOTE: Follow the flashing manufacturers' recommended instructions for attaching to the building materials under the WRB. For example, priming wet or frozen wood, application temperature, etc

2. **Install a "Skirt."** Use flashing material or a 12" strip of WRB and attach to the sill of the window with seam seal tape or flashing tape.

Flashing the Installation (continued)

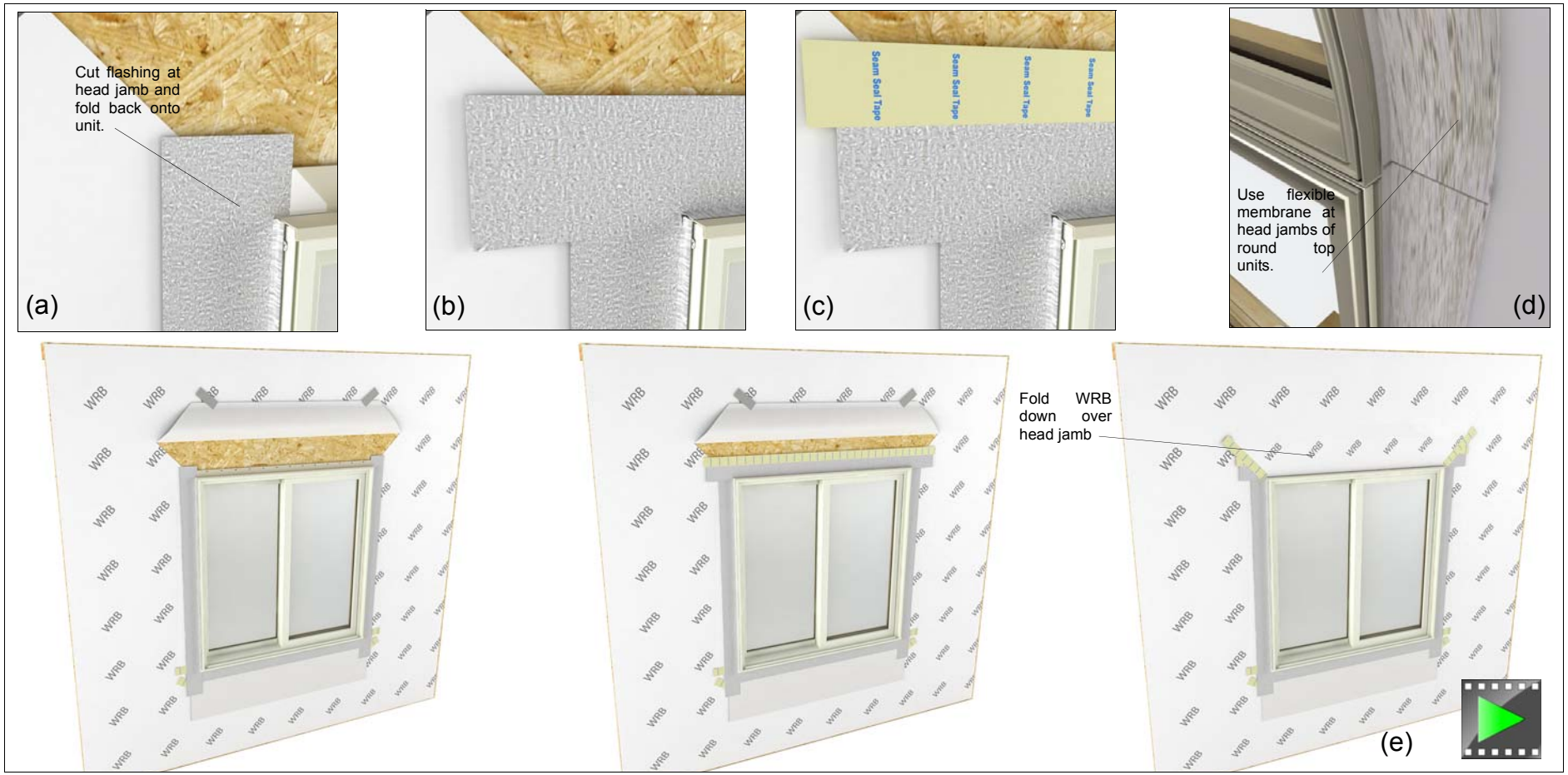

Figure 5 Click anywhere within the illustration above to watch a video on flashing techniques.

3. Lap vertical strips of self sealing adhesive membrane onto the unit or casing and out over the air barrier. Make small cuts at the head jamb to allow the membrane to fold back onto the exterior. See figure 5a.

NOTE: On Round Top units flash the head jamb using a flexible membrane. See figure 5d.

4. Install another layer of adhesive membrane lapping onto head jamb of unit and over sheathing. Membrane flashing at head jamb should extend and cover flashing membrane previously installed at jambs. See figure 5b.

5. Tape the top edge of the head jamb flashing with seam seal tape. This will help to avoid the edges of the flashing from curling up over time. See figure 5c.

6. 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 5e

Insulating the Window Installation

NOTE: We recommend two possible ways of insulating the RO cavity. Both methods 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).

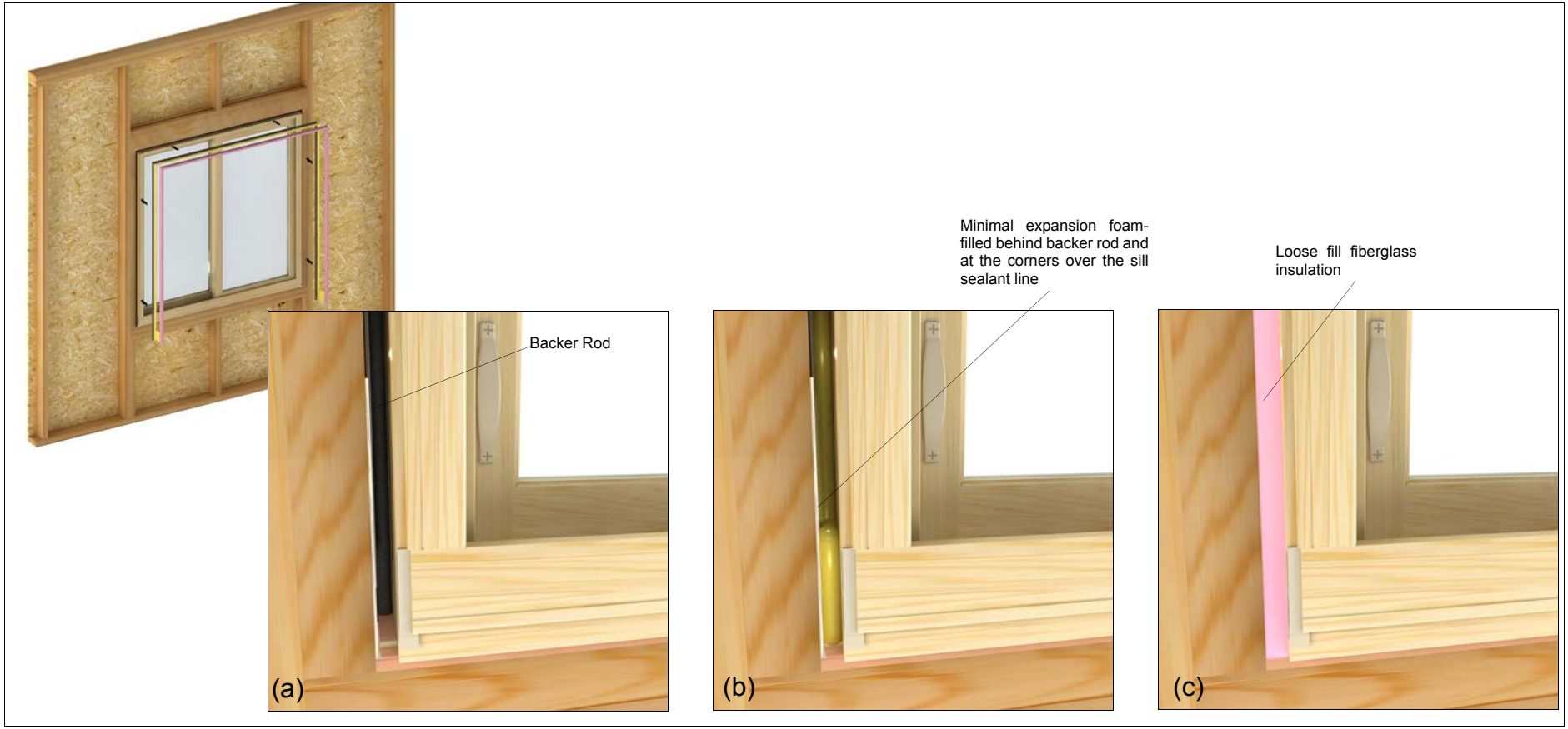

Figure 6 Insulating the RO using a combination of minimal expansion foam and loose fill insulation (Method 1)

Insulating the RO (Method 1)

1. Insert backer rod around jambs and head jamb. Push backer rod to the back of the cavity so it contacts casing or nail fin (or in the case where neither are used, exterior flashing material). See figure 6a.
2. Apply one bead of minimal expansion, low compression, closed cell foam against the backer rod. See figure 6b.
3. Fill the bottom corners with foam out to the sill sealant line. See figure 6b.
4. When the low expansion foam has set, fill the cavity with loose fill fiberglass insulation. See figure 6c.

Insulating and Sealing the Window Installation (continued)

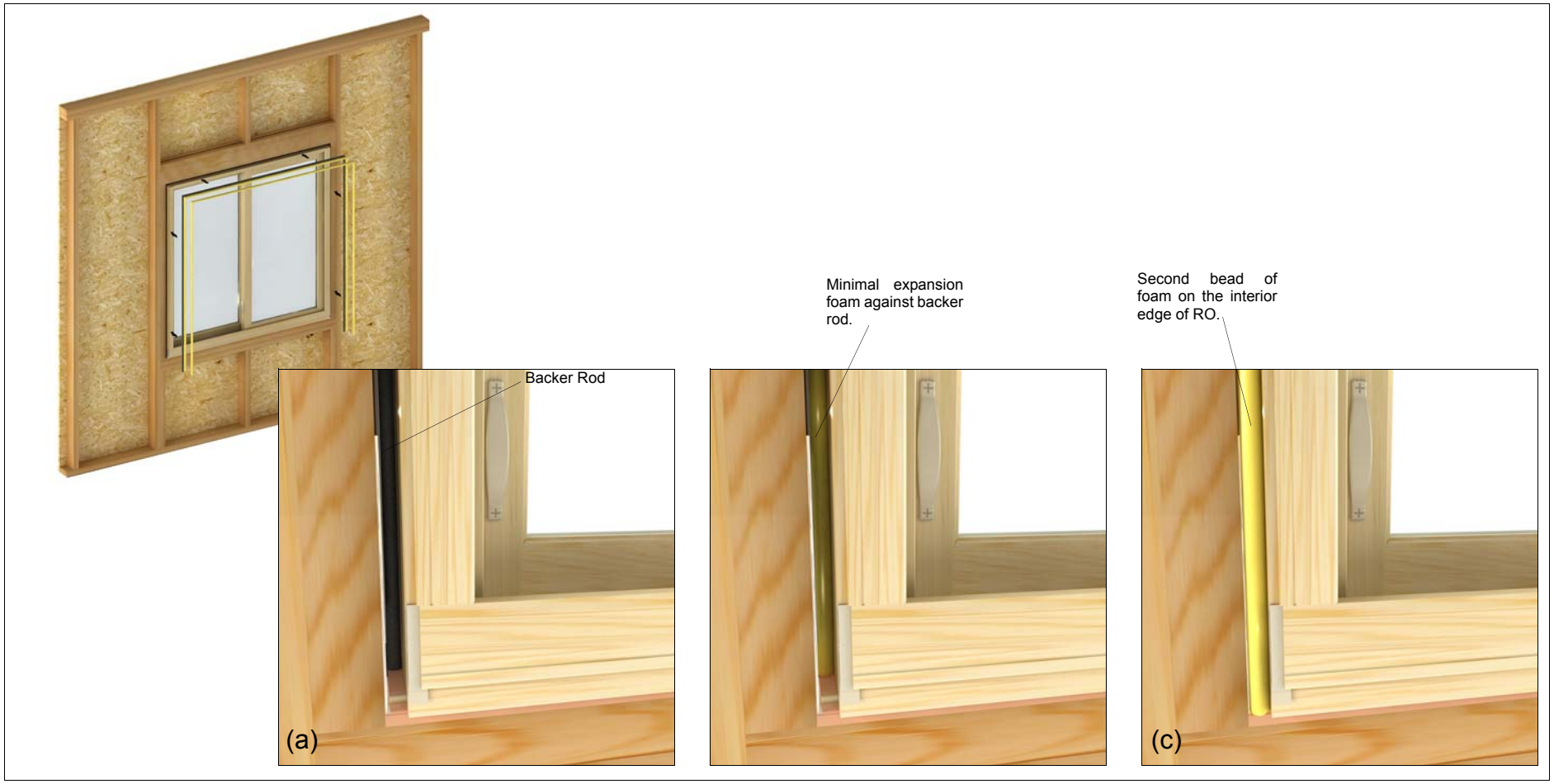

Figure 7 Insulating the RO using two beads of minimal expansion foam (Method 2).

Insulating the RO (Method 2)

1. Insert backer rod around jambs and head jamb. Push backer rod to the back of the cavity so it contacts casing or nail fin (or in the case where neither are used, exterior flashing material). See figure 7a.
2. Apply one continuous bead of low expansion, low compression, closed cell foam against the backer rod. See figure 7b.
3. Apply a second continuous bead of foam at the interior plane of the RO around the jambs and head jamb. This bead should contact the sill sealant plane. See figure 7c.
4. Once foam has cured, trim excess as needed.