MARVIN®

High Performance Window Installation

PRESENTER:
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For additional continuing education approvals, please see the continuing education guide in the conference guidebook.

High performance Window Installation

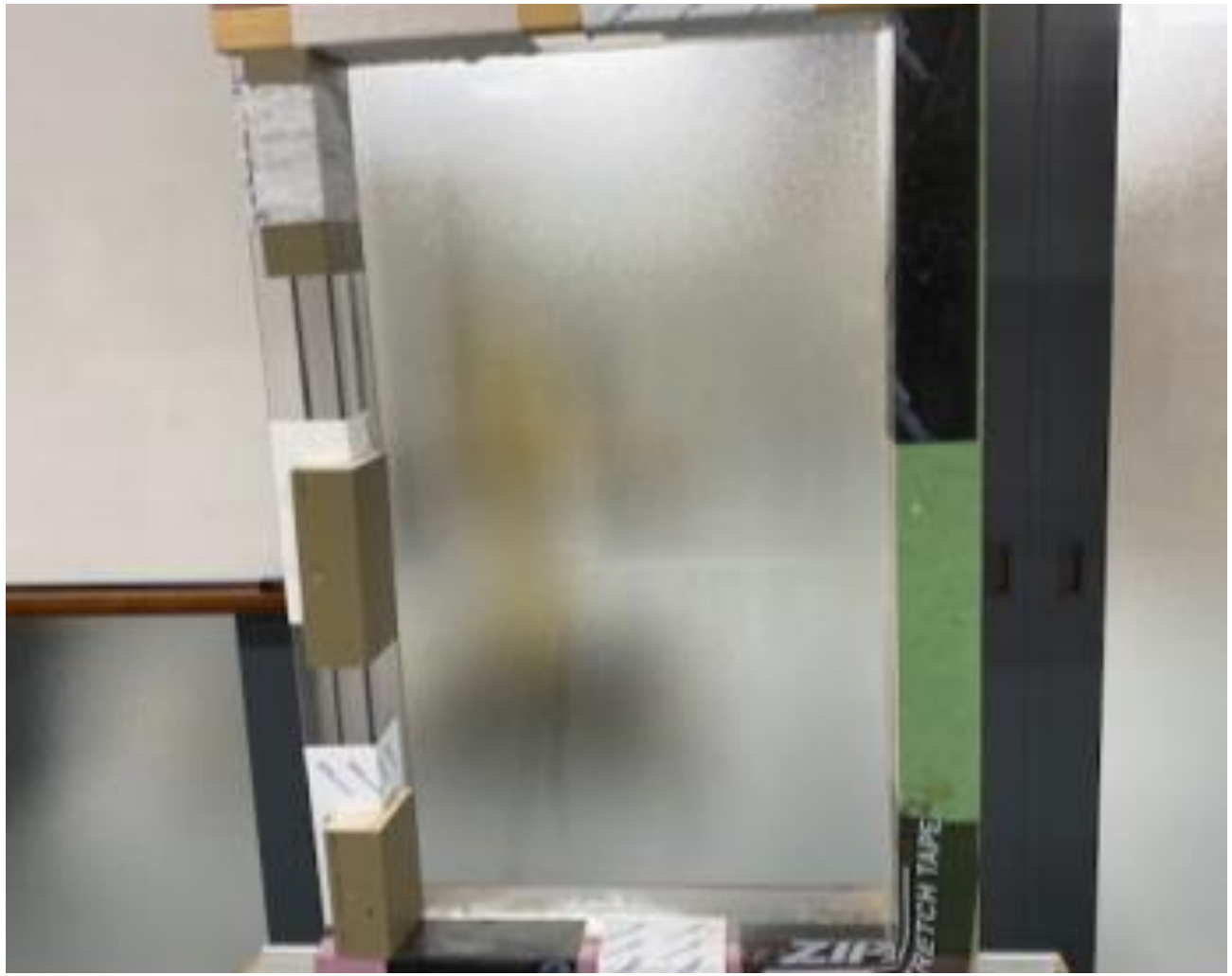
Many concepts based on Thermal

Wall to Window Interface

Structural attachment

Connecting Wall to Window concepts based on barriers Membrane Drainage vs, Surface

Concepts on Safety and Health



High performance Window Installation

- •R-Value and the attention to Detail for the means of expectations of Performance.
- •Wall configuration
- •Window placement
- •Type of Window
- •What type of barrier system are we suing
- •Water management
- •Flashing detail
- •Fastening detail

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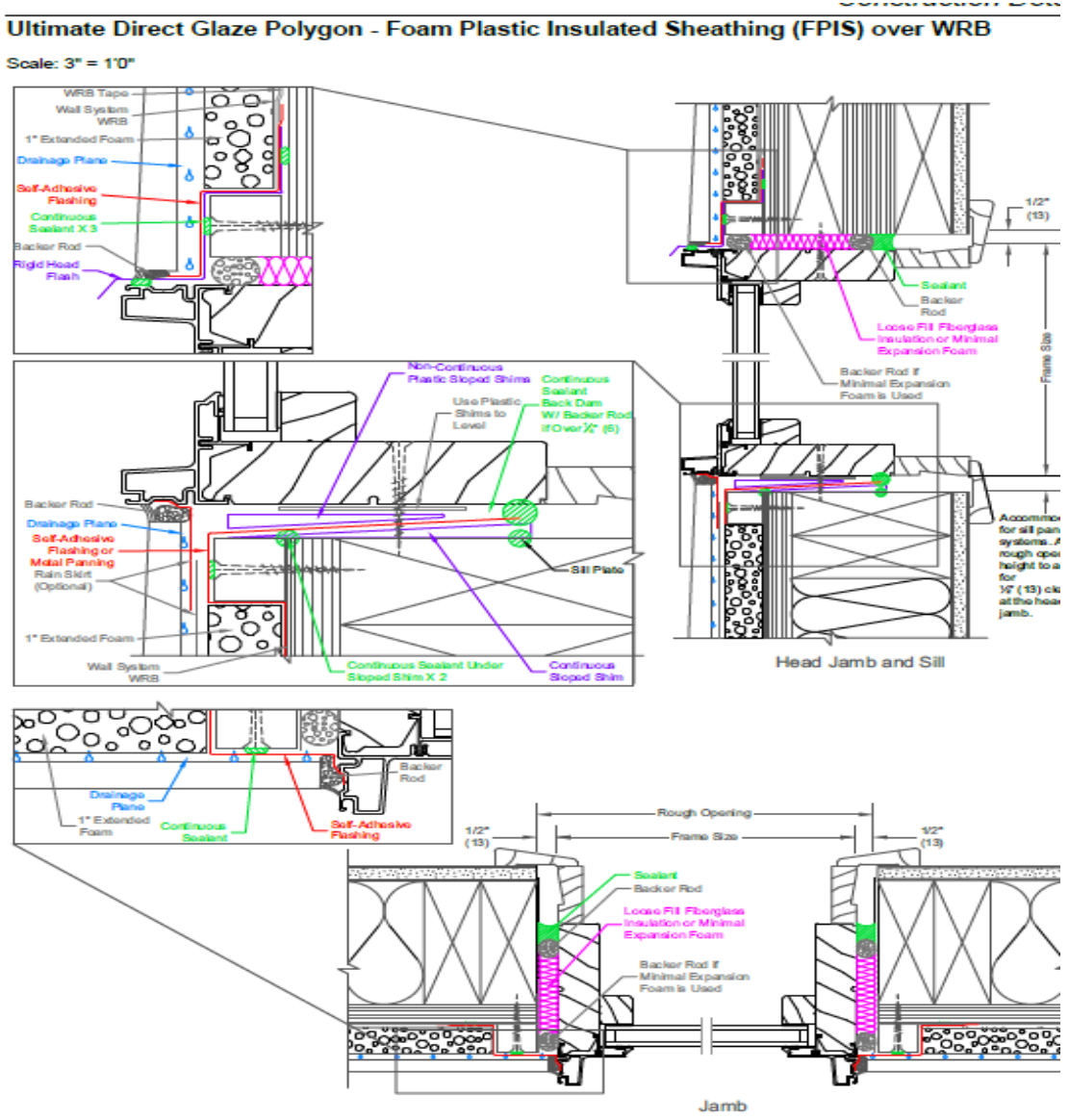
High Performance Window Installation

Construction Details

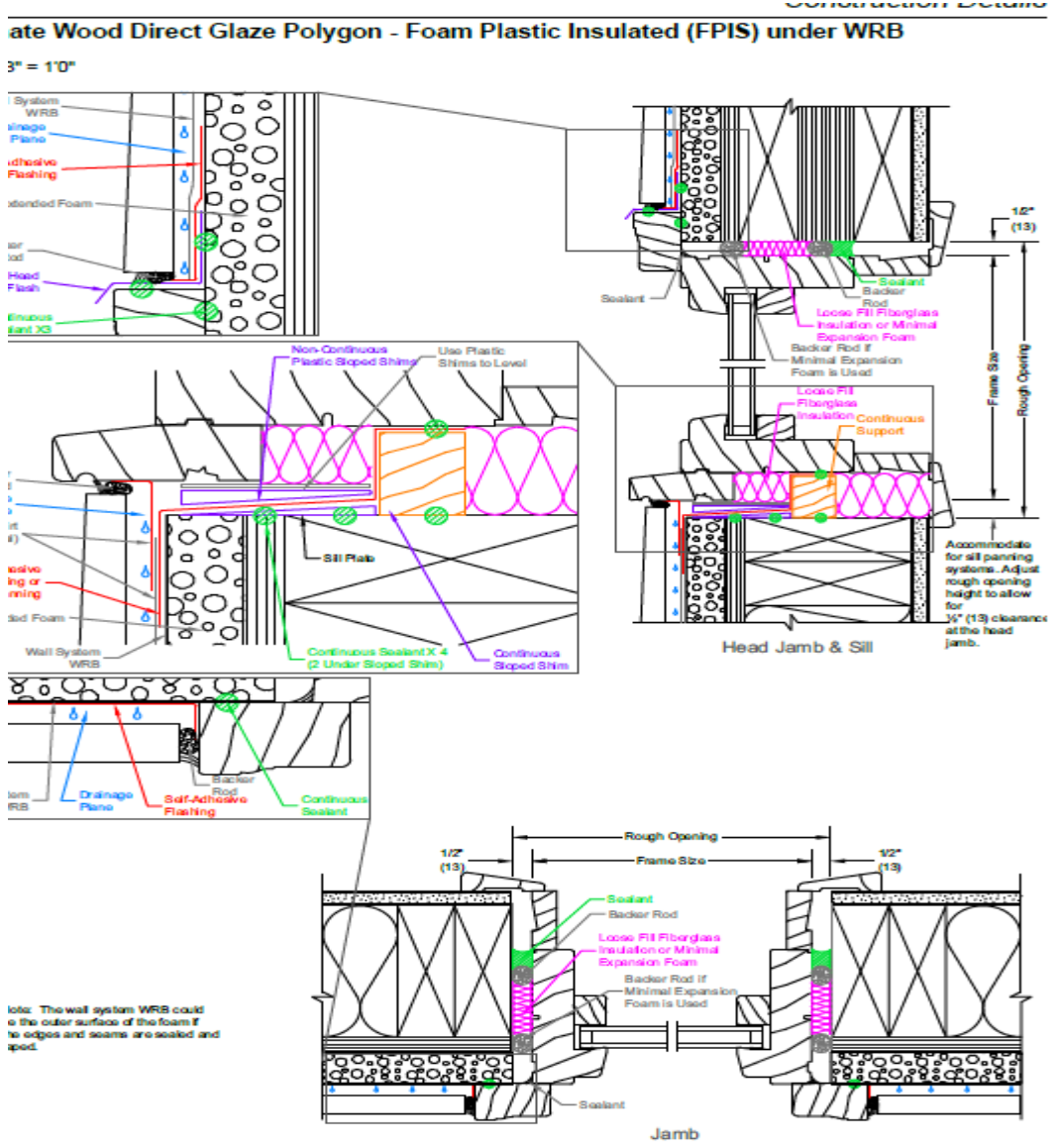
- Direct Glaze Polygon –
- Foam Plastic Sheathing (EPIS) over WRB



High Performance Window Installation

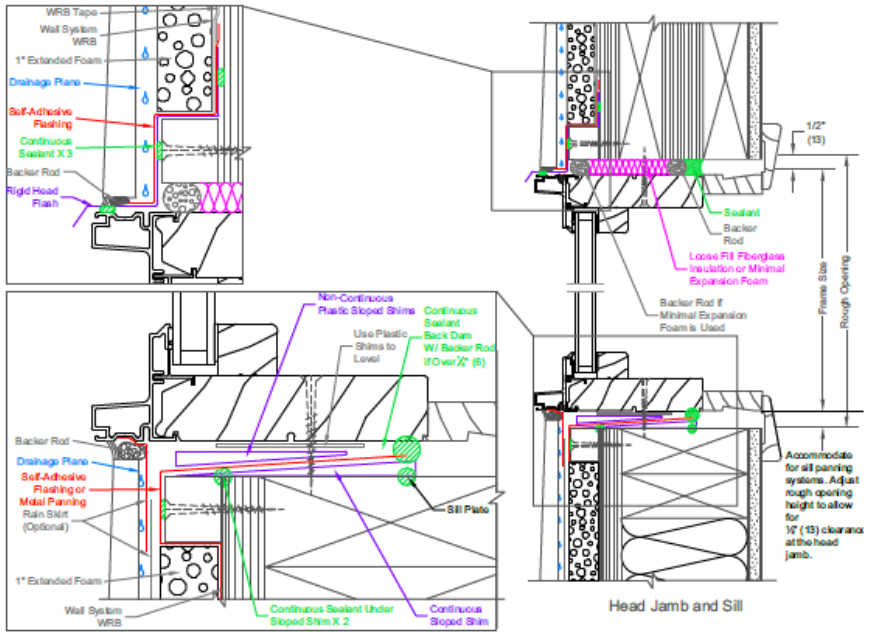
Construction Details

- Wood Direct Glaze Polygon –
- Foam Plastic Insulated (FPIS) under WRB

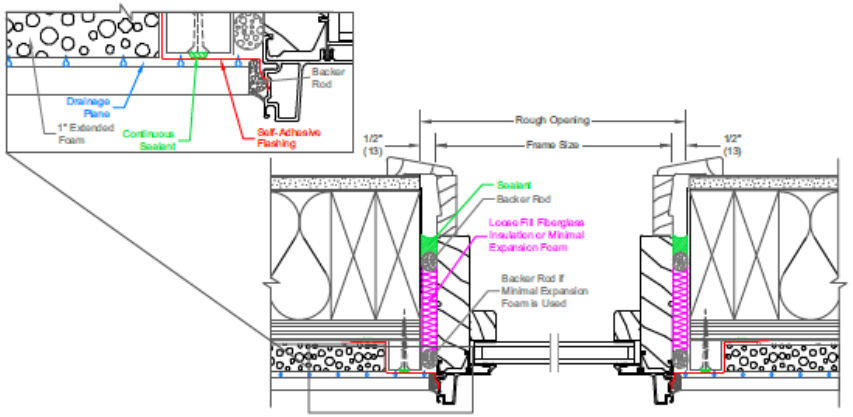


Ultimate Direct Glaze Polygon - Foam Plastic Insulated Sheathing (FPIS) over WRB

Scale: 3" = 1'0"



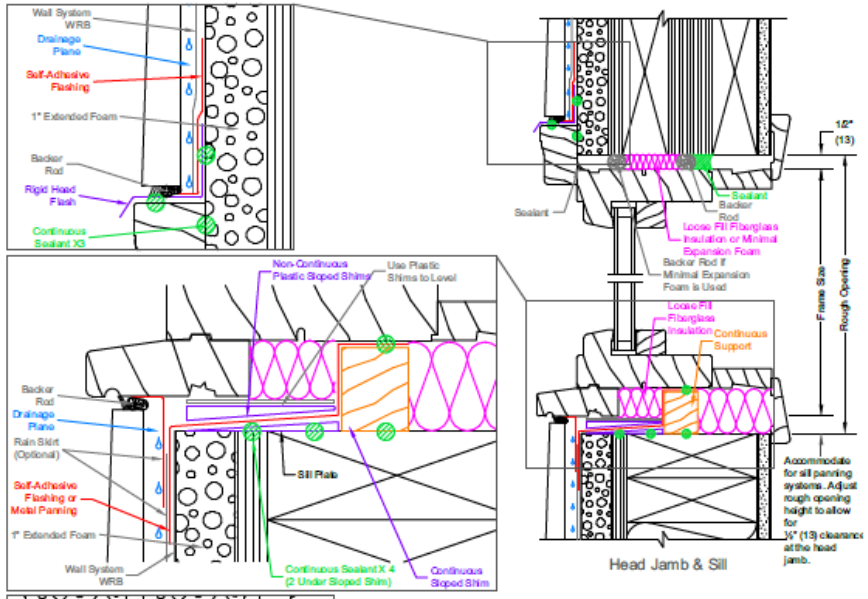
Head Jamb and Sill



Jamb

Ultimate Wood Direct Glaze Polygon - Foam Plastic Insulated (FPIS) under WRB

Scale: 3" = 1'0"



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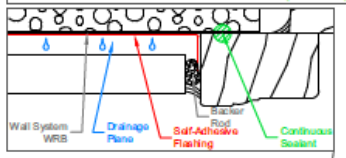
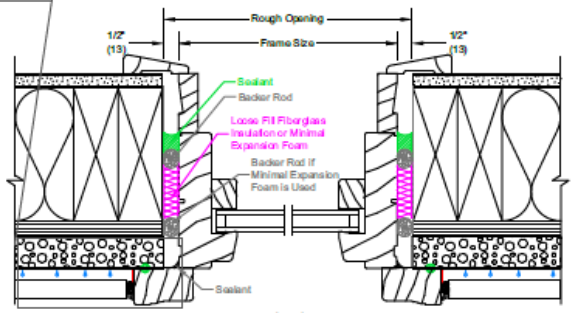




Note: The wall system WRB could be the outer surface of the foam if the edges and seams are sealed and taped.

Jamb

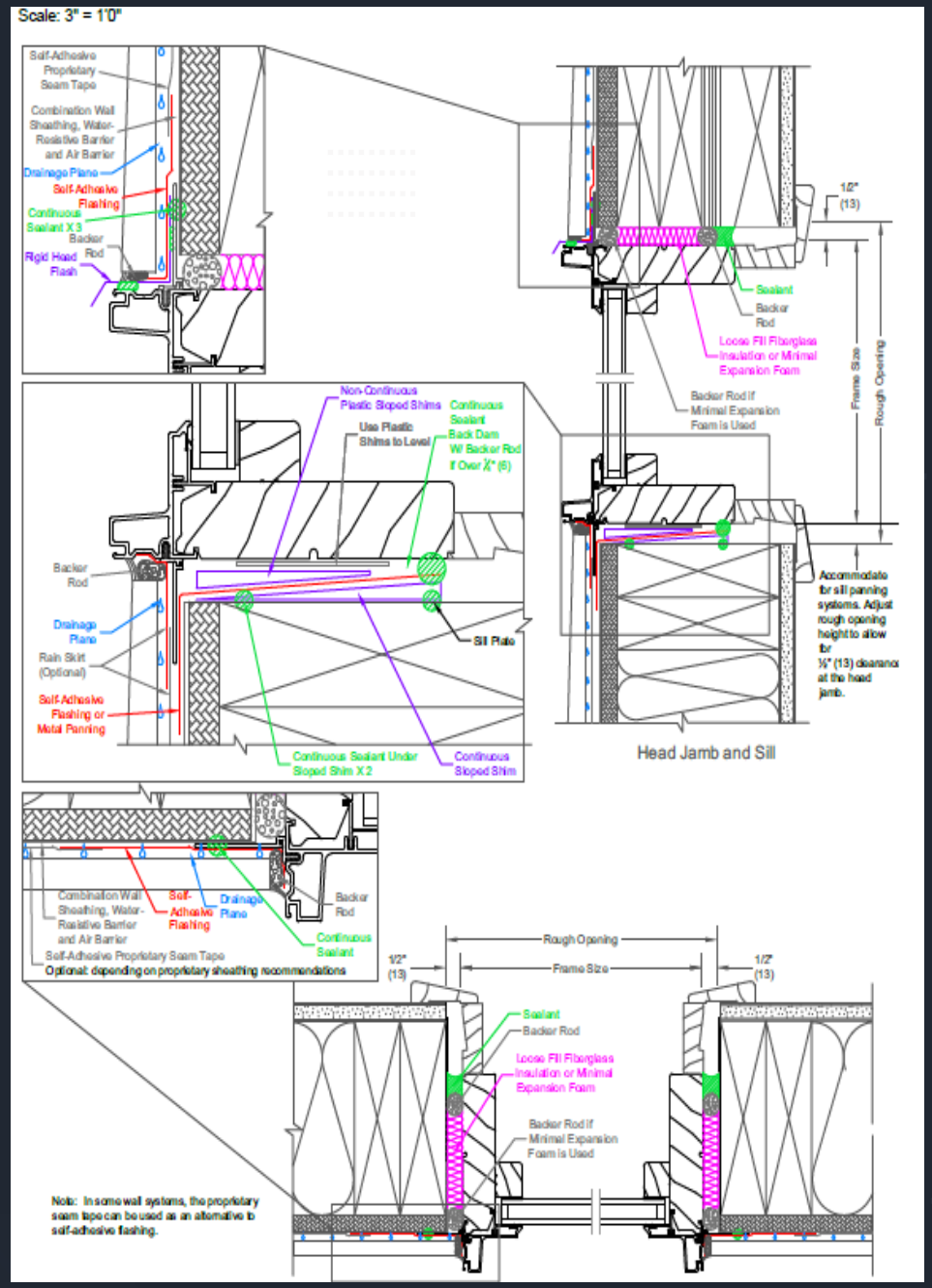
High Performance Window Installation

- •Rigid Foam
- •R-Board
- •Pre-manufactured foam elements
- •Window extensions
- •Window Accessories
- •Bracketing for both Installation and Structural
- •Through Jamb applications
- •Size and length of Fasteners
- •Flange
- •Foam insulation
- •Loose fit insulation
- •Shim and support

High Performance
Window Installation

Common Zip

Construction Detail



Cut out the opening

Roll the house wrap, or WRB (Weather Resistant Barrier), over the entire window opening. Then slice down the center of the WRB and cut it flush at the top and bottom of the opening.

Angle-cut the corners

Cut at an angle about 6-in. up and away from all four corners.

Note: The bottom angle cuts are not required by all window manufacturers

Fold back the flaps

Fold back the side-flaps and hold them in place temporarily with seam seal or house wrap tape, not staples. Use a small piece of tape so it doesn't tear the WRB when it's removed. Patch any tears that do occur with seam seal tape. If there are no fasteners in the way, fold the WRB back under itself.

Slope the sill with siding

Even with a perfect install, water can still find its way into the opening. It’s a good idea to slope the sill in the rough opening to help unwanted water find its way out again. One easy way to achieve a slope is to rip down and install a beveled piece of weather resistant siding. Plan ahead and build the rough openings about 1/2” taller to account for the width of the siding. Shim under the siding if the opening is super out of level, but avoid raising the window higher than other windows nearby. The difference in height will be noticeable and unsightly.

Install the sill pan flashing

We’re installing Dupont FlexWrap on this window. There are other acceptable products on the market, but FlexWrap has a great track record and is recommended by the folks at Marvin. Tear the 6-in. backing off the flashing tape and lay the tape down over the sill flush with the interior framing. Run the tape a minimum of six inches up the sides of the opening. **PRO TIP**: *Eric pushes the tape tight into the corners with a speed or rafter square.*

Roll out the flashing

Remove the smaller strip of backing and push the tape down onto the wall. This flashing is pressure sensitive and needs to be pressed in place with a roller. PRO TIPS: *On super cold days the stretched corners of the FlexWrap can curl back just a bit. Eric holds them down in place with a strip of seam seal tape.*

Install shims on the sill

Set the lower shims (preferably composite) in place before setting the window. **PRO TIP**: *Eric dabs a little sealant under the shims. That helps keep them in place when setting the window but keeps them loose enough, so they can be moved for minor adjustments later.* Space the shims near the edges, in the center, and for larger windows one no more than 14”inches apart.

Fold in sides

Wrap the two side WRB flaps inside, around, and on to the inside framing. Staple or tape it in place.

Seal the sides and top before setting the window

Run a 3/8-in. bead of sealant about one-half inch in from the edge of the opening. Leave a 3/4-in. gap on each side of all four corners. Leaving the corners free of caulk ensures the corner gaskets have a clean, smooth surface to adhere to. Don’t caulk under the bottom nailing flange. Most exterior grade “Window, Door, and Siding” sealant will work.

Align the inside of the window

There is no reason to plumb the window because if the wall is out of plumb, so goes the window. But do the trim carpenters a favor, and double check that the window jambs are as even with the framing as possible. If one side of the window protrudes in further than another, installing casing can be a difficult proposition. Only make minor adjustments. Over-twisting the window could cause the sashes to jam or stick instead of operating smoothly.

Level and fasten the bottom

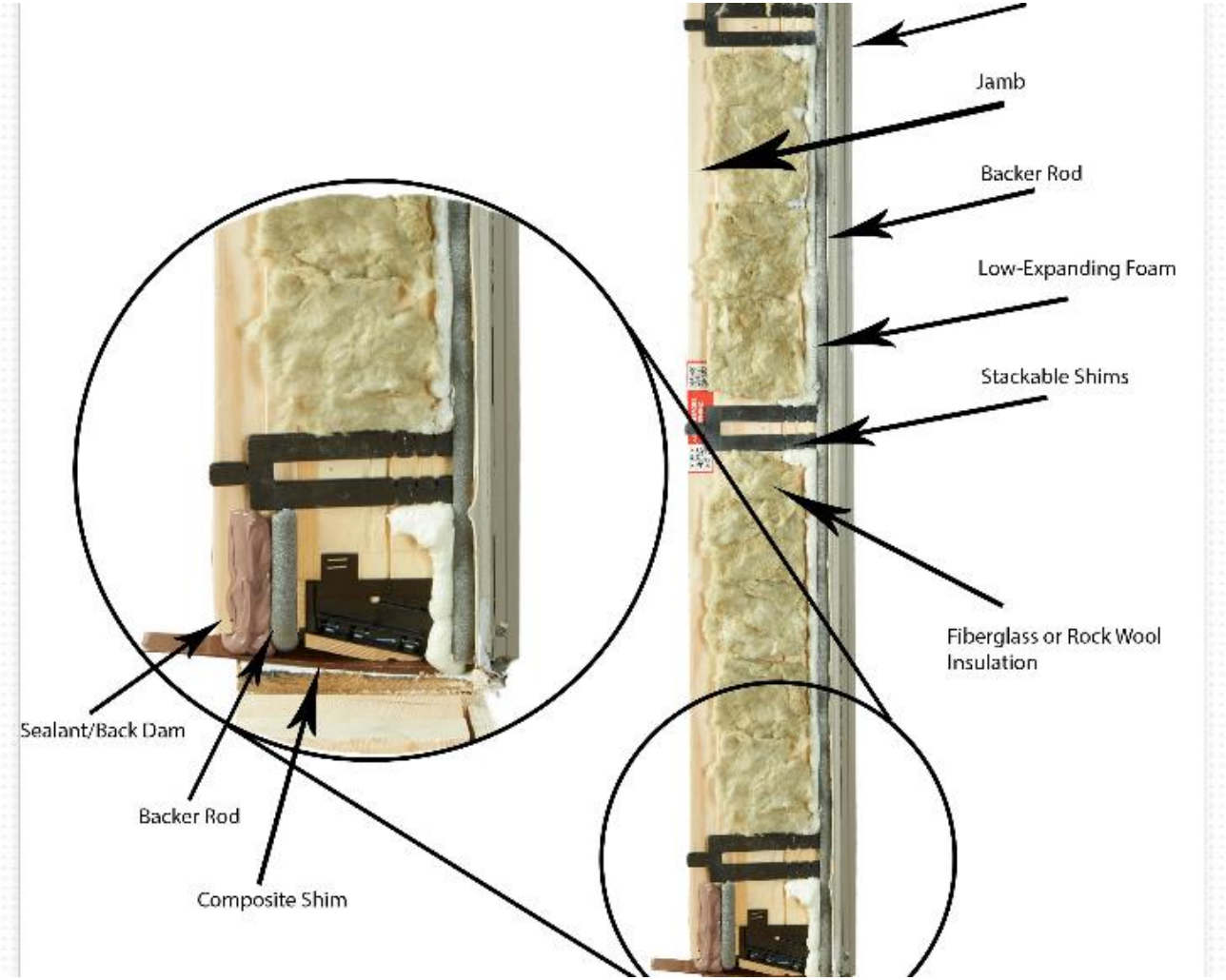
Have your helper on the inside center the window in the opening. Adjust the shims so that the bottom of the window is level and so that each one is in contact with the window. Install two 2-in. exterior grade fasteners on each side near the bottom of the window, and then check the bottom again with a level. **PRO TIP:** *Eric prefers screws to nails because it's easier to readjust the window if something gets out of whack. GRK cabinet screws are his favorite.*

Square and fasten the top

Check that the window is square by measuring diagonally both ways. Adjust the top of the window one way or the other until the measurements are the same. **PRO TIP:** *To ensure an accurate measurement, always hooks the tape under the vinyl drip cap. The drip cap also helps hold his tape measure in place.* Install two fasteners at the top near the corner, and then check for square again. Don’t install any more fasteners until the window is shimmed and sealed on the inside.

Seal up the inside

The next several pages will walk you through the process of sealing around the window. Here is what it should look like when you are all done. *Note: Again, this is an approved method for installing Marvin windows. Other manufacturer's methods will vary.*



Install backer rod on the sides and top

Before installing any more shims, insert a backer rod on both sides and the top, but not the bottom. Push the backer rod tight up against the back of the nailing flange. **PRO TIP**: *Eric uses his speed/rafter square to make several passes pushing in only a couple inches at a time.* The idea behind this backer rod is to eliminate thermal bridging and water infiltration. It prevents the side shims from butting up against the nailing flange, which could channel heat and water.

Straighten the jambs

There are three ways to check that the jambs are straight before installing the side shims:

Inspect the reveals (space) between the jambs and the sashes. They should be even.

The distance between the two side jambs should be equal at the top, center, and bottom. This can be checked simply by measuring. **PRO TIP:** *Instead of measuring, Eric uses the top stop as a story pole and compares the gaps between the stop and the jamb at the top, bottom, and center.* Create your own story pole if the window you're installing does not have a top stop, and you have a bunch of them to install.

Open and close both sashes to ensure they operate smoothly.

Install the side shims

Install shims on the sides of the window in the center, and about 4 inches down from the top and up from the bottom. Some windows have dedicated holes to fasten the jambs to the framing (see next page). Place shims in those locations. Often times, the center of the side jambs will have to be pushed in a bit. **PRO TIP**: *Eric nudges the jambs over with an Air Shim bag to the exact position he wants, and then installs the shims.* Don't shim the top of the window. If the building settles, the window could get compressed, which will likely cause the window to stop working properly and could even result in broken panes of glass.

Install the inside screws

In addition to the fasteners in the nailing flange, this window is held in place with screws run through a bracket called the receiver block. It’s located in the checkrail and can be accessed by removing the lower sash. The shims should be located at these locations. **PRO TIP:** *A long bid holder will make it easier to avoid scuffing the window with the drill chuck.*

Foam the sides and top

Run a bead of low-expanding foam in the gap along side the backer rod. Don’t over do it. Just dispense enough foam to create a 1 or 1-1/2-n. bead that bridges the entire gap between the window and the framing. Run the bead out a little ways along each side of the shim. Don’t fill the whole space in because even low-expanding foam can expand enough to distort the jambs. **PRO TIP:** Lay out a p*ractice bead on a piece of cardboard, so you can adjust the gun, and gauge how fast to move the tip along inside the gap.*

Install the bottom backer rod

Starting at one of the lower shims, push in a backer rod around the bottom and up to the other shim. Don’t push it all the way in like you did with the other backer rod. Just push in almost to the point where the jamb meets the window unit. (*see “Seal up the inside”*).

Create a back dam

Fill the gap from the lower backer rod almost all the way to the inside edge of the framing. Tool in the sealant with your finger or a small chunk of backer rod to ensure that the whole gap gets filled. This back dam will prevent any water that gets past the other lines of defense from getting inside the house. If the window is installed properly there should be nothing stopping the water from escaping back to the great outdoors.

Add insulation

Fill in the rest of the gap on the sides (above the lower shims) and the top with fiberglass or rock wool insulation. Fill the whole gap, but keep it loose and fluffy. Insulation loses its effectiveness the more tightly packed it gets.

Add corner gaskets

If the window you’re installing requires corner gaskets, now’s the time to install them.

Tape the flanges

Some windows have a nailing flange that is an integral part of the window (usually vinyl windows), but this window does not. So in order to seal the area where the flange meets the window, the flashing tape needs to be run up onto the side of the window at least 1/4-in. Install the tape on the sides first, about four inches past the bottom of the window and about an inch higher than the upper nailing flange. Run the flashing tape at the top at least six inches past the window on each side.

Tape the top flap

Fold down the top flap of WRB and cover the two angled cuts with seam seal tape. Don’t tape the entire bottom of the flap. Instead, just use a few small strips of tape to hold it in place. Yep, you guessed it. The gaps between the tape are there to create an escape route for any water that gets behind the WRB above the window opening.

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QUESTIONS?