INTRODUCTION

To ensure that a proper seal has been created between the weatherable surface of the window/door unit and the primary surface for shedding water from the exterior surface of the building envelope, one of two basic methods for the installation of your unit should be followed. They include a barrier system and membrane/drainage system. The following are general guidelines. Consult local building codes for specific materials and application procedures.

Surface Barrier System
The "surface barrier type" system establishes the exterior surface of a building envelope as the primary surface for shielding against air and water infiltration. A concrete structure, which has had the exterior surface protected with a paint or sealant, can be used as an example of a surface barrier type system. After the unit has been properly shimmed and secured into the opening, sealant can be applied to the perimeter. Span the sealant from the exterior surface of the concrete structure to the weatherable perimeter of the window or door unit, preventing the infiltration of moisture.

Membrane Drainage System
A "membrane/drainage" system employs a first surface and secondary path for shedding water. Included in this type of installation is a building envelope with a stucco, siding, veneers, panels, shingles (wood, metal panels, tile, etc.) provided on its exterior surface (first water resistive surface). The secondary or back-up surface behind the first surface becomes a barrier to the infiltration of air and water. Building envelopes designed with a cavity between two walls are included in this category. The second (interior) wall is considered the secondary barrier. When installing a unit into this type of system it must be understood that an exterior siding is not the sole method of protecting a structure from moisture.

⚠ CAUTION

The installer must never use the first surface of a "membrane/drainage" system as the only method of sealing between the window/door unit and building envelope.

INSTALLATION OF UNITS IN A MEMBRANE/DRAINAGE TYPE SYSTEM

The following deals only with the "membrane/drainage" type systems.

Select **ONE** of the following methods, which best represents your window installation application.

Method "A" - Sill flashing, window/door, side jamb flashing, head flashing then WRB ***(page 2)***

Method "B" - Sill flashing, side jamb flashing, window/door, head flashing then WRB ***(page 4)***

Method "A1" - WRB first, sill flashing, window/door, side jamb flashing, head flashing ***(page 6)***

Method "B1" - WRB first, sill flashing, side jamb flashing, window/door, head flashing ***(page 8)***

Each method requires strips of an approved flashing material at least 9" in width. ***(Exception: widths other than 9" but no smaller than 4" are acceptable as long as the flashing is self-adhering.)*** Methods "A" and "B" provide procedures for applying weather resistive barrier paper after the window/door and flashing is applied. Methods "A1" and "B1" provide procedures for applying weather resistant barrier paper prior to the window/door installation and flashing application. The flashing shall be applied in a weather-board fashion around the perimeter of the opening.

NOTE

Kolbe & Kolbe requires the application of a drip cap at the head of your wood/clad units (Fig. 1a & 1b).

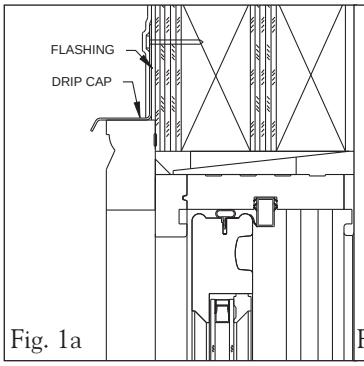


Fig. 1a

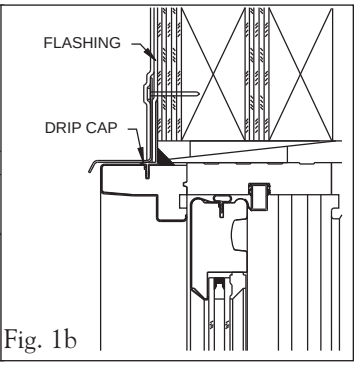


Fig. 1b

NOTE

Material for flashing shall be barrier coated reinforced flashing material and shall provide for 24-hour minimum protection from water penetration when tested in accordance with ASTM D-779. Sealant used in conjunction with the flashing must be compatible. Consult the sealant manufacturer for recommendations.

DETERMINE FLASHING LENGTH & CUT TO SIZE

Use the chart to the right to determine the appropriate flashing length for your window(s)/door(s). Cut the flashing to the appropriate lengths.

Examples using the cut length formulas are available on the next page.

Flashing Lengths & Cut Formulas (FW = Flashing Width)	
Sill Flashing	= RO Width + (2 x FW)
Side Jamb Flashing	= RO Height + (2 x FW) - 1
Head Flashing	= RO Width + (2 x FW) + 2

Cut length formula examples:

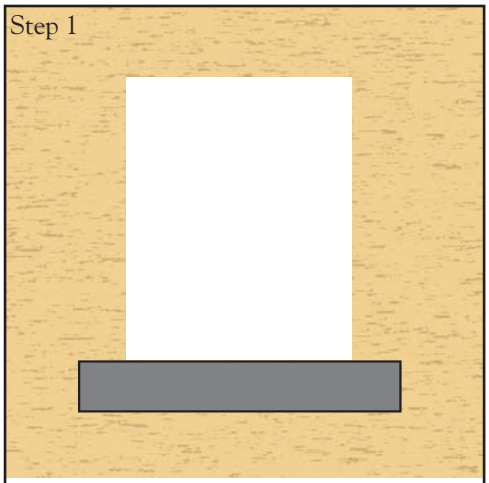
36" W x 60" H unit / using **9" Flashing**
Sill: 36" + 18" = 54"
Head Flashing : 36" +18 + 2 = 56"
Side Jamb: 60" + 18" - 1" = 77"

36" W x 60" H unit / using **4" Flashing**
Sill: 36" + 8" = 44"
Head Flashing : 36" +8 + 2 = 46"
Side Jamb: 60" + 8" - 1" = 67"

METHOD "A" - SIDE JAMB FLASHING APPLIED ***AFTER*** UNIT INSTALLATION

Note: All dimensions used in the instructions are based off the use of 9" flashing. Dimensions will need to be adjusted for flashing widths other than 9".

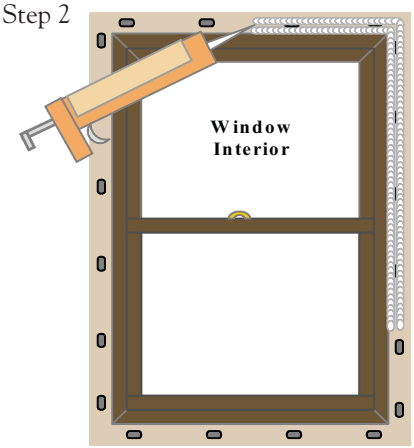
Step 1



Sill Flashing: Apply a horizontal strip of flashing flush with the rough opening sill.

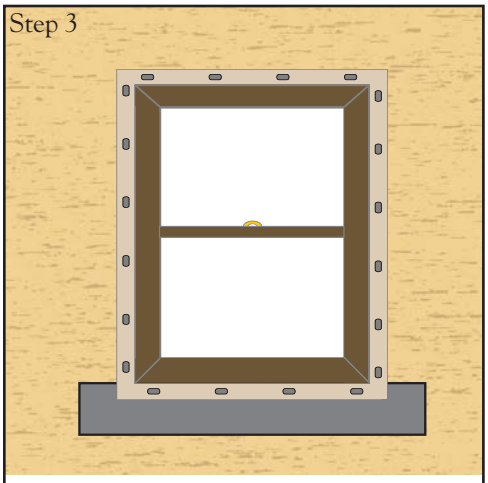
Sill flashing is omitted on doors installed at ground level.

Step 2



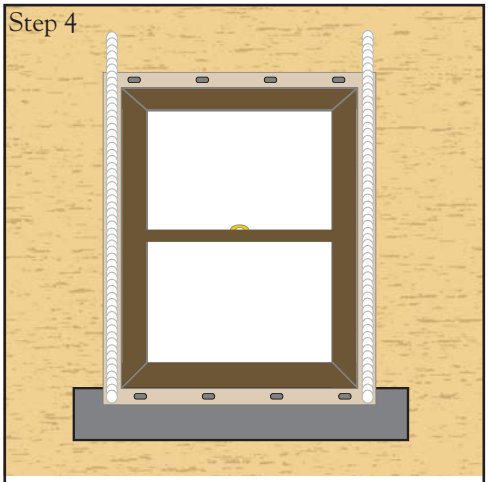
On the backside of the nail fin, run one 3/8" bead of sealant around the perimeter of the unit where the nailing fin and frame meet and a second 3/8" bead around the perimeter on the nailing fin over the pre-punched holes. (On wood units the second bead of sealant is placed 3/8" in from the outer edge of the trim.)

Step 3



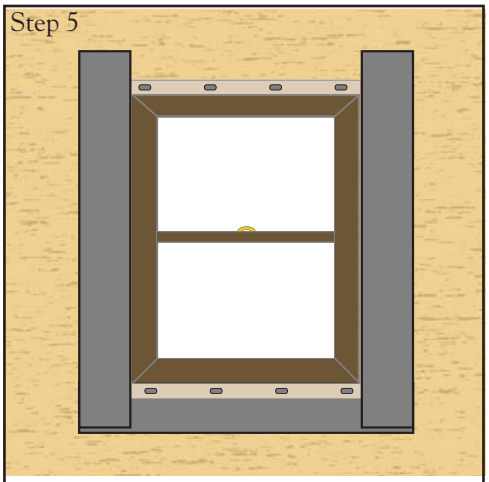
Place window/door in opening. Tack it in place by nailing through the nail fin (if available). (Follow Kolbe's Installation Instructions to permanently secure window/door in opening).

Step 4



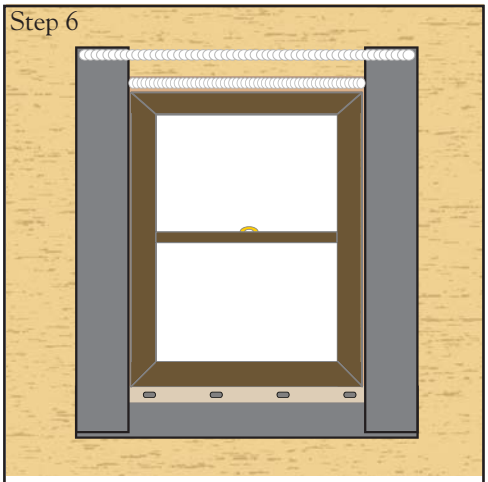
Run a 3/8" bead of sealant up each side jamb. The bead of sealant should extend above the window 1/2" less than the width of the flashing. *(Sealant is not required when using self adhesive flashing)*

Step 5



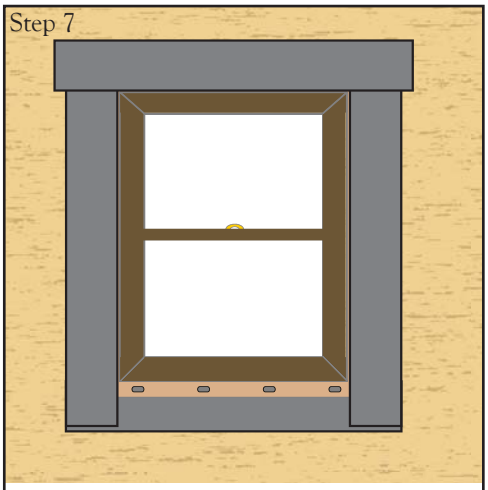
Apply side jamb flashing on each side of the window/door. Start the bottom of the side jamb flashing 1/2" above the bottom of the sill flashing. Do not fasten the last 9 inches (part that overlaps sill flashing) of each end yet.

Step 6



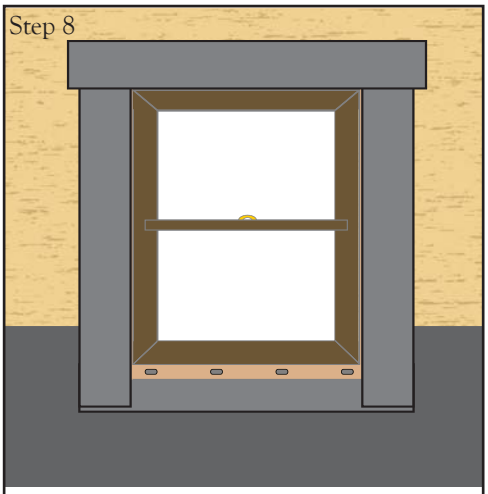
Run two 3/8" beads of sealant at the head. The first bead should be placed over the holes in the nailing fin and the second bead should be placed 8-1/2" above the rough opening. *(Sealant is not required when using self adhesive flashing)*

Step 7



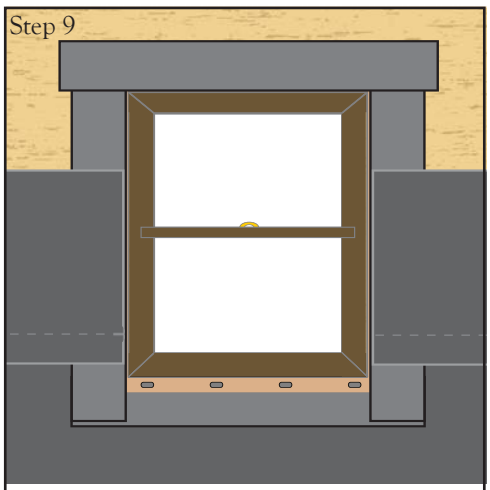
Apply head flashing. The head flashing should extend 1" past the side jamb flashing on each side.

Step 8



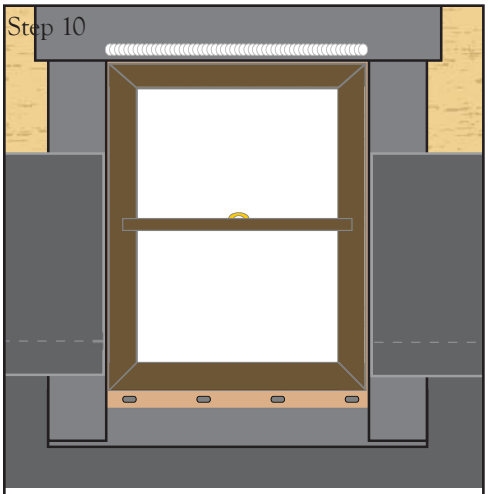
Apply first layer of WRB. Slide WRB under sill flashing and side jamb flashing and secure. The unsecured flaps of flashing can now be secured. WRB must be applied in weather board fashion (top layers must overlap lower layers).

Step 9



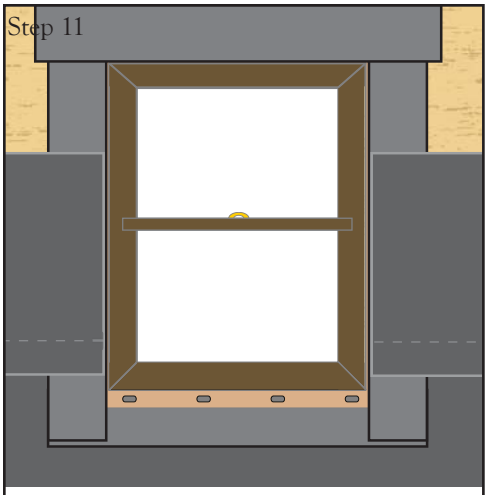
Apply the second layer of the WRB over the side jamb flashing, making sure to overlap the first layer of the WRB with the bottom of the second layer.

Step 10



At the head, run a 3/8" nominal bead of sealant on the head flashing the width of the unit.

Step 11

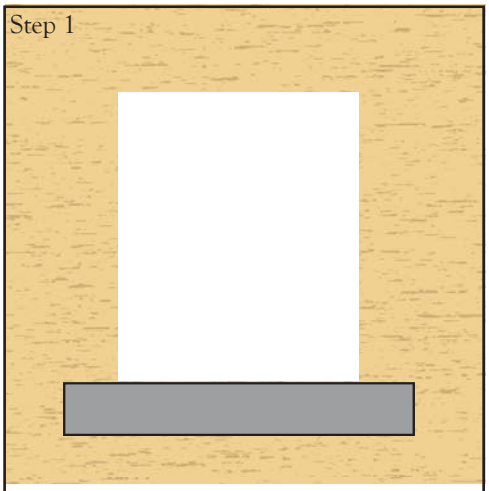


Apply the third layer of the WRB over the side jamb flashing and head of the window/door, making sure to overlap the second layer with the bottom of the third layer.

METHOD "B" - SIDE JAMB FLASHING APPLIED ***BEFORE*** UNIT INSTALLATION

Note: All dimensions used in the instructions are based off the use of 9" flashing. Dimensions will need to be adjusted for flashing widths other than 9".

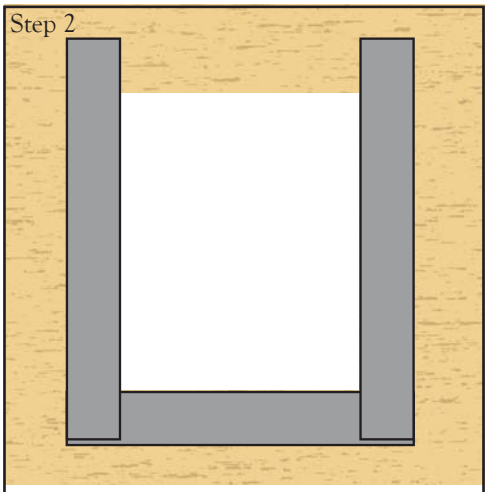
Step 1



Sill Flashing: Apply a horizontal strip of flashing flush with the rough opening sill.

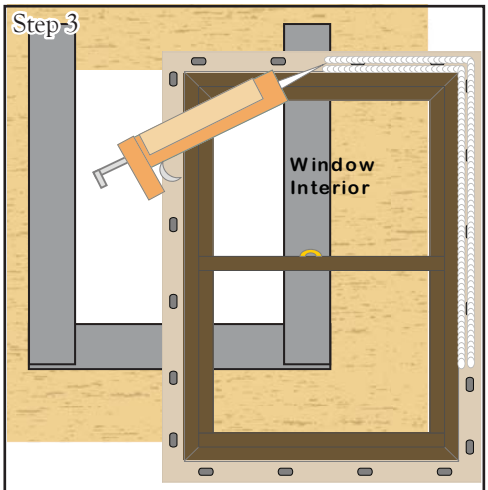
Sill flashing is omitted on doors installed at ground level.

Step 2



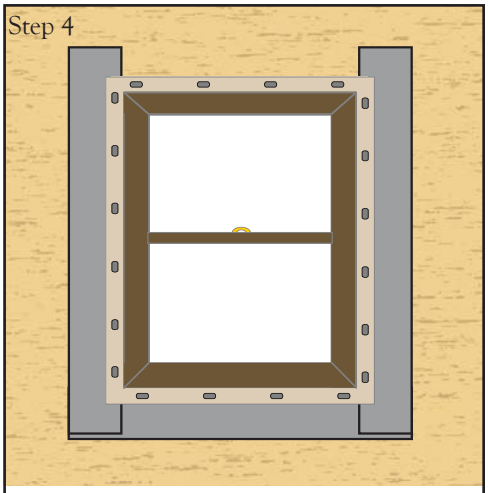
Apply side jamb flashing on each side of the rough opening. Start the bottom of the side jamb flashing 1/2" above the bottom of the sill flashing. Do not fasten the last 9 inches (part that overlaps sill flashing) of each end yet.

Step 3



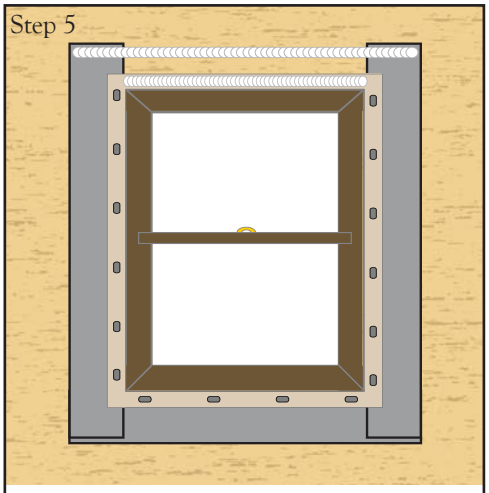
On the backside of the nail fin, run one 3/8" bead of sealant around the perimeter of the unit where the nailing fin and frame meet and a second 3/8" bead around the perimeter on the nailing fin over the pre-punched holes. (On wood units the second bead of sealant is placed 3/8" in from the outer edge of the trim.)

Step 4



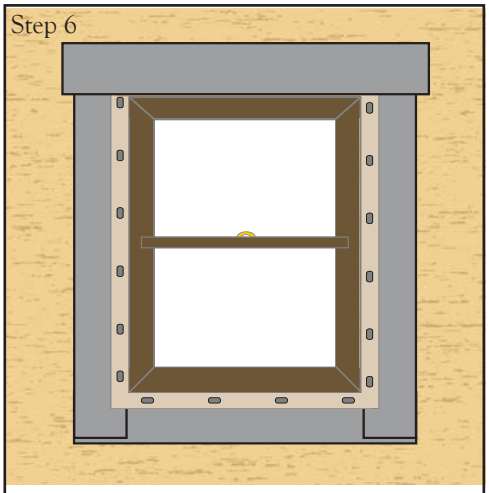
Place window/door in opening. Tack it in place by nailing through the nail fin (if available). (Follow Kolbe's Installation Instructions to permanently secure window/door in opening).

Step 5



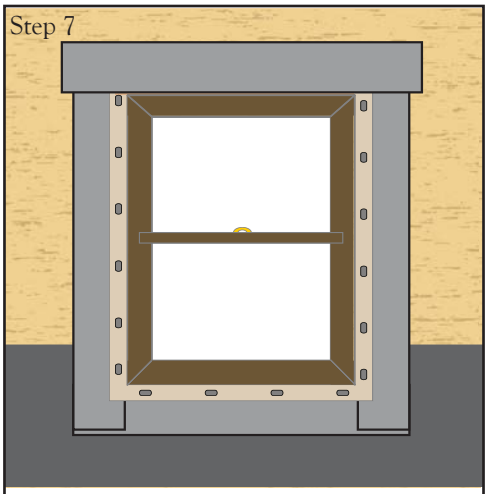
Run two 3/8" beads of sealant at the head. The first bead should be placed over the holes in the nailing fin and the second bead should be placed 8-1/2" above the rough opening. *(Sealant is not required when using self adhesive flashing)*

Step 6



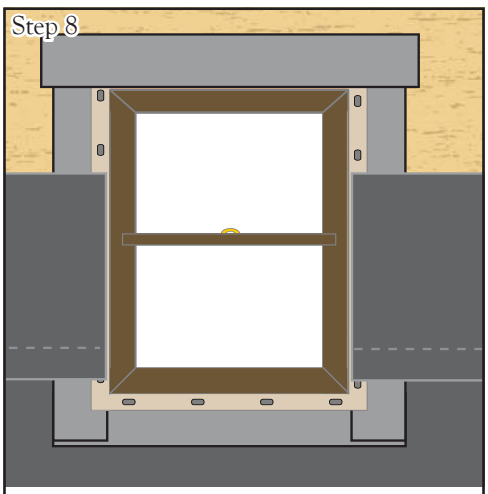
Apply head flashing. The head flashing should extend 1" past the side jamb flashing on each side.

Step 7



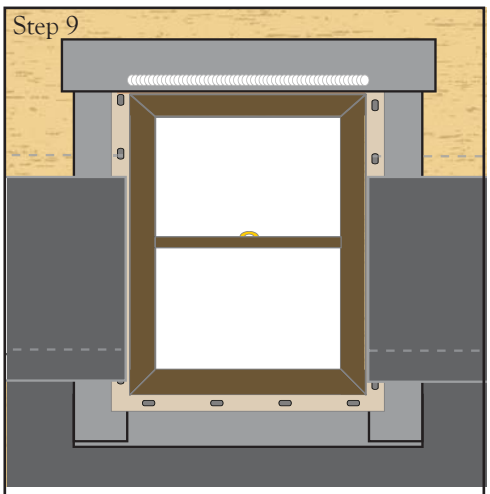
Apply the first layer of the WRB. Slide the WRB under the sill flashing and side jamb flashing and secure. The unsecured flaps of flashing can now be secured. WRB must be applied in weather board fashion (top layers must overlap lower layers).

Step 8



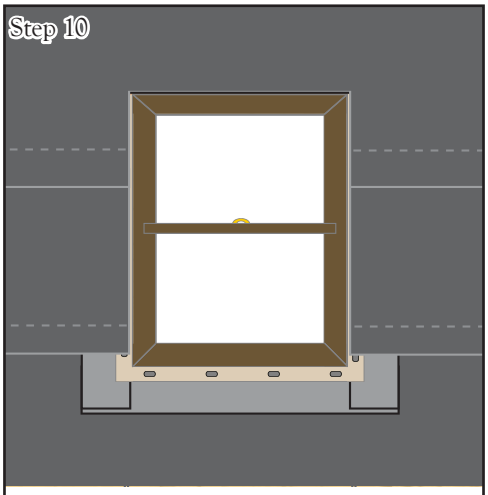
Apply the second layer of the WRB over the side jamb flashing, making sure to overlap the first layer of the WRB with the bottom of the second layer.

Step 9



At the head, run a 3/8" nominal bead of sealant on the head flashing the width of the unit.

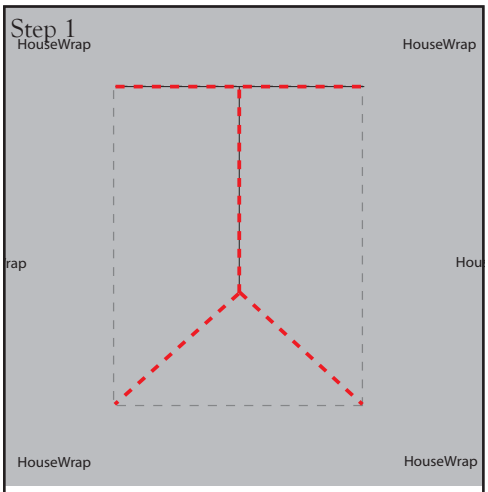
Step 10



Apply the third layer of the WRB over the side jamb flashing and head of the window/door, making sure to overlap the second layer with the bottom of the third layer.

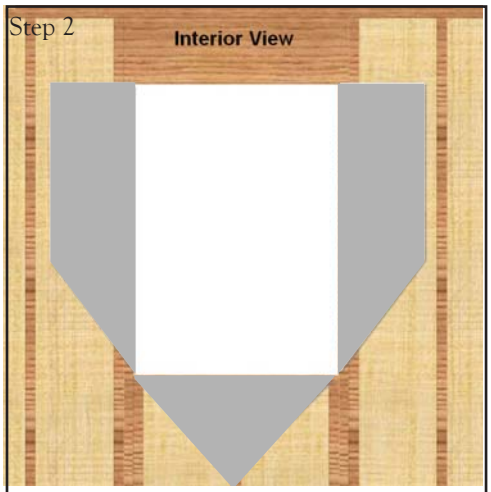
METHOD "A-1" - SIDE JAMB FLASHING APPLIED ***AFTER*** UNIT INSTALLATION

Note: All dimensions used in the instructions are based off the use of 9" flashing. Dimensions will need to be adjusted for flashing widths other than 9".

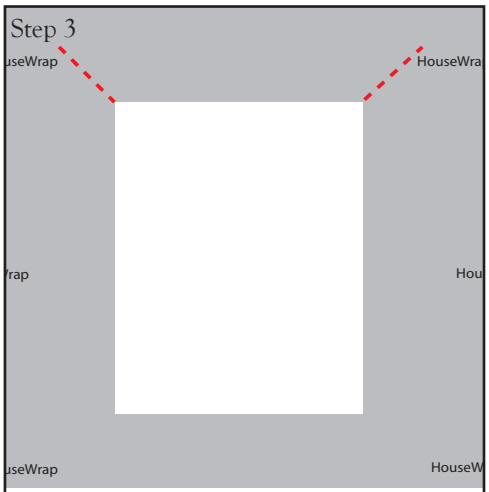


Windows: Cut a "modified I" in the WRB that covers the window opening.

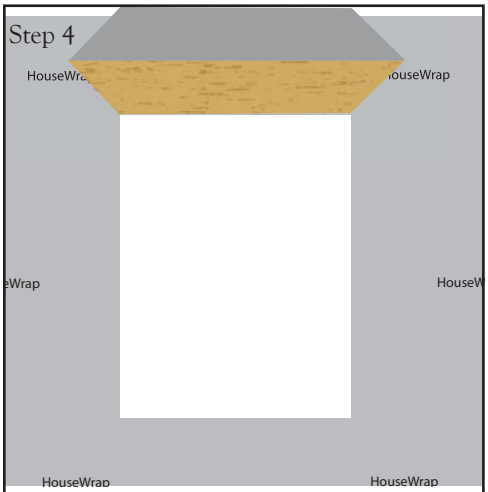
Doors: Cut a "true I" in the WRB that covers the door opening.



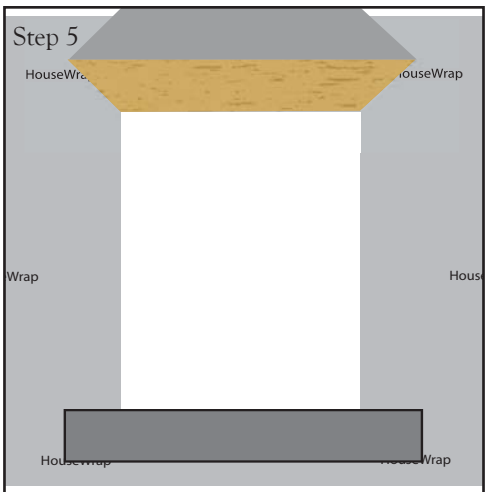
Fold flaps of WRB to the interior of the building and tack in place as shown in picture above.



Make a 45 degree diagonal cut in the WRB at the head of the window/door opening on each side. Measure 9" up and 9" over from the corner and make a mark. Cut diagonally from the mark down to the corner of the opening.

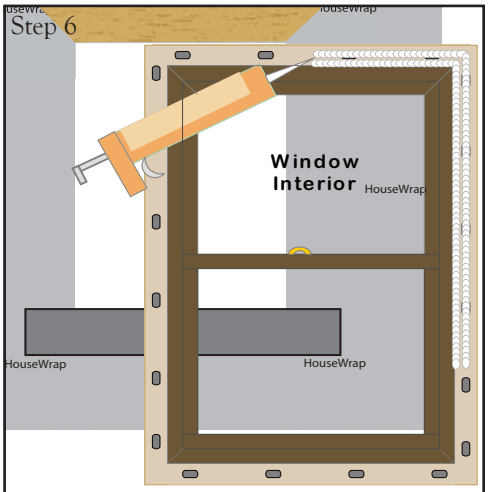


Take the flap of WRB at the head and flip it up out of the way. Tack it up so it stays out of the way until you are ready to flip it back down.



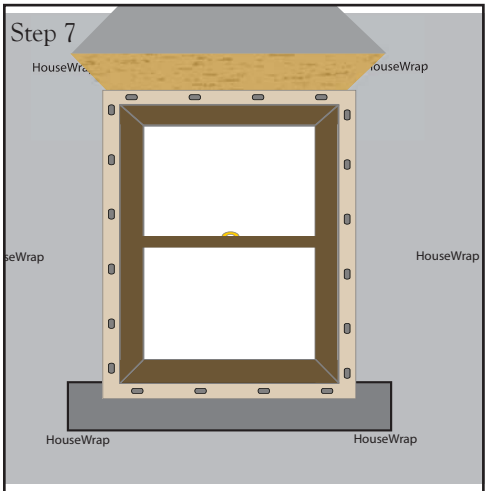
Sill Flashing: Apply a horizontal strip of flashing flush with the rough opening sill.

Sill flashing is omitted on doors installed at ground level.



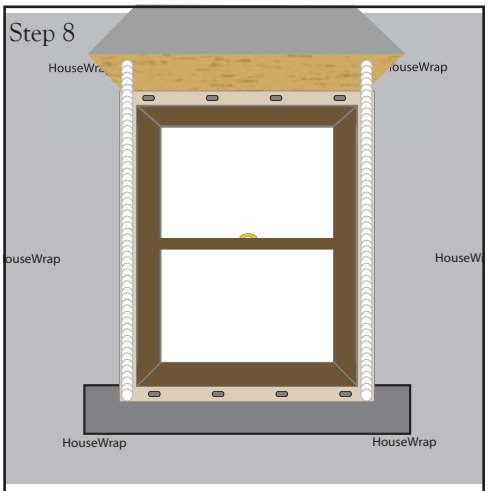
On the backside of the nail fin, run one 3/8" bead of sealant around the perimeter of the unit where the nailing fin and frame meet and a second 3/8" bead around the perimeter on the nailing fin over the pre-punched holes. (On wood units the second bead of sealant is placed 3/8" in from the outer edge of the trim.)

Step 7



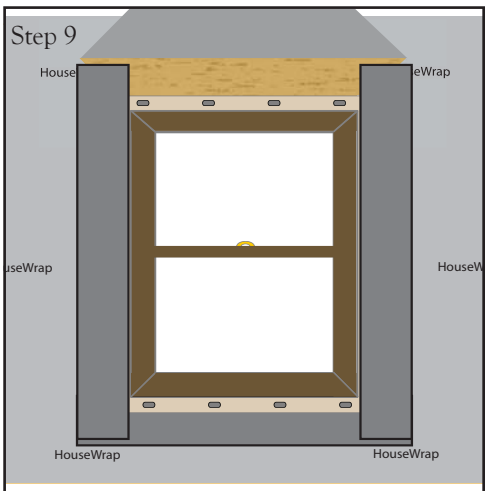
Place window/door in opening. Tack it in place by nailing through the nail fin (if available). (Follow Kolbe's Installation Instructions to permanently secure window/door in opening).

Step 8



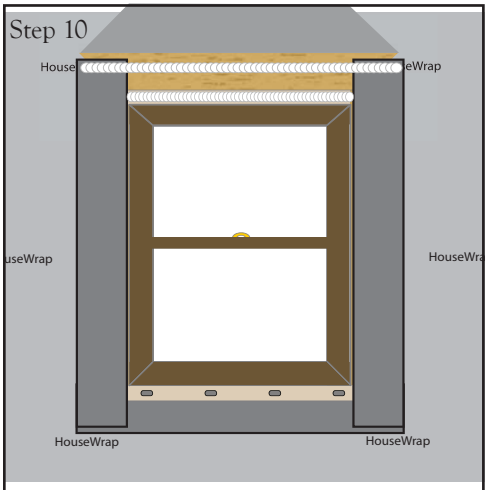
Run a 3/8" bead of sealant up each side jamb. The bead of sealant should extend above the window 1/2" less than the width of the flashing. *(Sealant is not required when using self adhesive flashing)*

Step 9



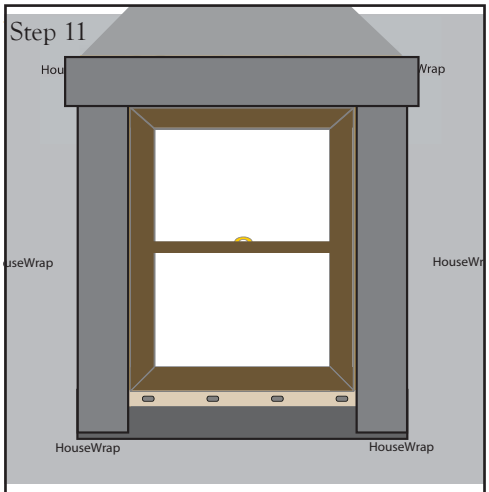
Apply side jamb flashing on each side of the window/door. Start the bottom of the side jamb flashing 1/2" above the bottom of the sill flashing.

Step 10



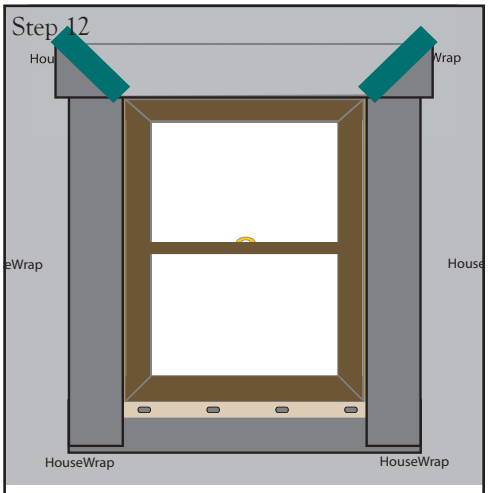
Run two 3/8" beads of sealant at the head. The first bead should be placed over the holes in the nailing fin and the second bead should be placed 8-1/2" above the rough opening. *(Sealant is not required when using self adhesive flashing)*

Step 11



Apply head flashing. The head flashing should extend 1" past the side jamb flashing on each side.

Step 12

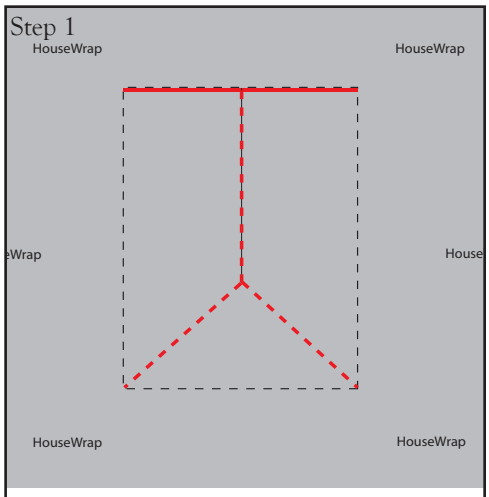


Take flap of WRB at head and flip it down over the head flashing. Use sheathing tape over the diagonal cut in the WRB.

METHOD "B-1" - SIDE JAMB FLASHING APPLIED ***BEFORE*** UNIT INSTALLATION

Note: All dimensions used in the instructions are based off the use of 9" flashing. Dimensions will need to be adjusted for flashing widths other than 9".

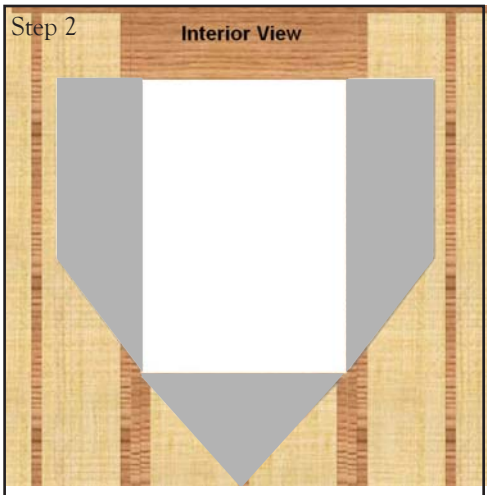
Step 1



Windows: Cut a "modified I" in the WRB that covers the window opening.

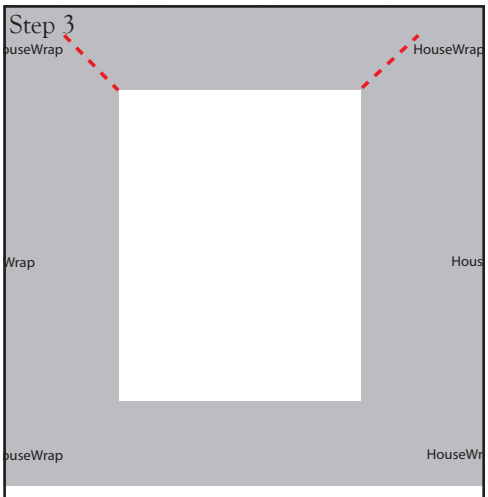
Doors: Cut a "true I" in the WRB that covers the door opening.

Step 2



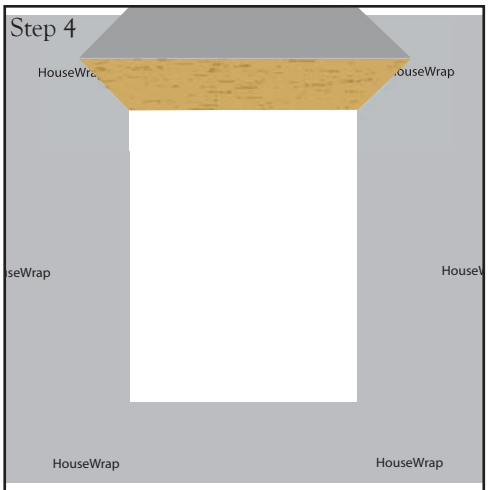
Fold flaps of WRB to the interior of the building and tack in place as shown in picture above.

Step 3



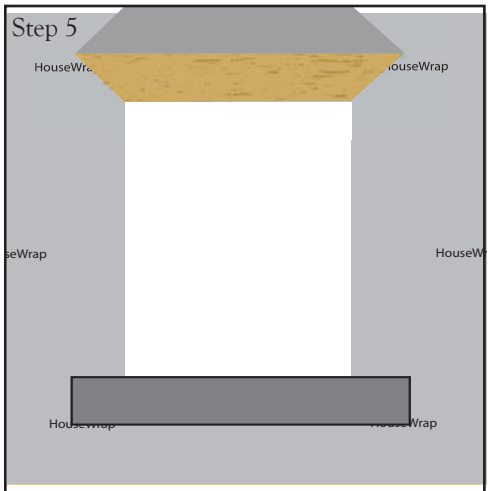
Make a 45 degree diagonal cut in the WRB at the head of the window/door opening on each side. Measure 9" up and 9" over from the corner and make a mark. Cut diagonally from the mark down to the corner of the opening.

Step 4



Take the flap of WRB at the head and flip it up out of the way. Tack it up so it stays out of the way until you are ready to flip it back down.

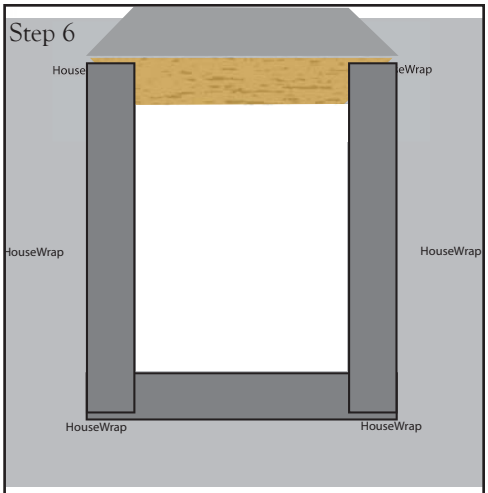
Step 5



Sill Flashing: Apply a horizontal strip of flashing flush with the rough opening sill.

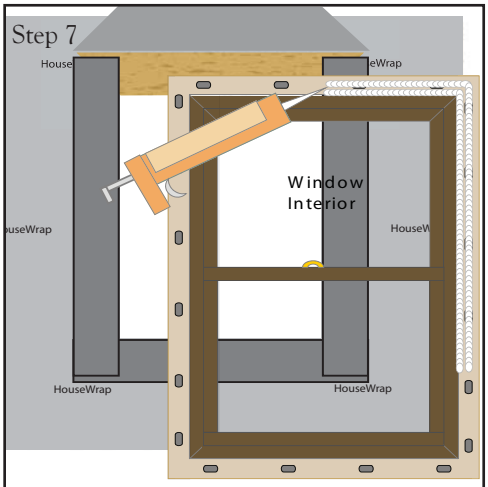
Sill flashing is omitted on doors installed at ground level.

Step 6



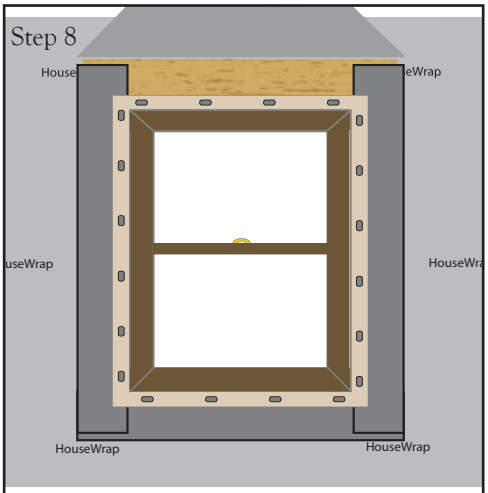
Apply side jamb flashing on each side of the rough opening. Start the bottom of the side jamb flashing 1/2" above the bottom of the sill flashing.

Step 7



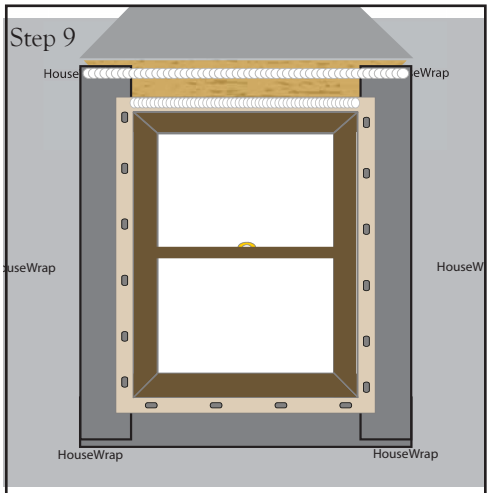
On the backside of the nail fin, run one 3/8" bead of sealant around the perimeter of the unit where the nailing fin and frame meet and a second 3/8" bead around the perimeter on the nailing fin over the pre-punched holes. (On wood units the second bead of sealant is placed 3/8" in from the outer edge of the trim.)

Step 8



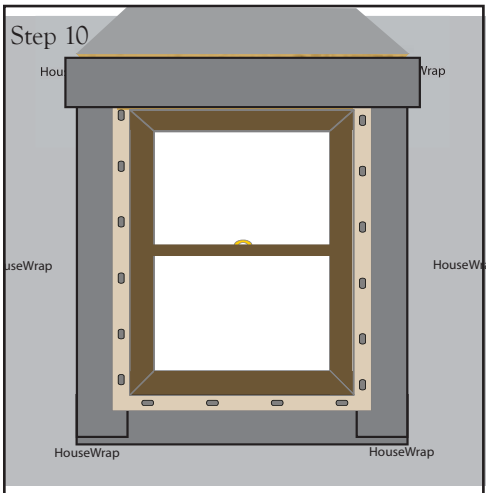
Place window/door in opening. Tack it in place by nailing through the nail fin (if available). (Follow Kolbe's Installation Instructions to permanently secure window/door in opening).

Step 9



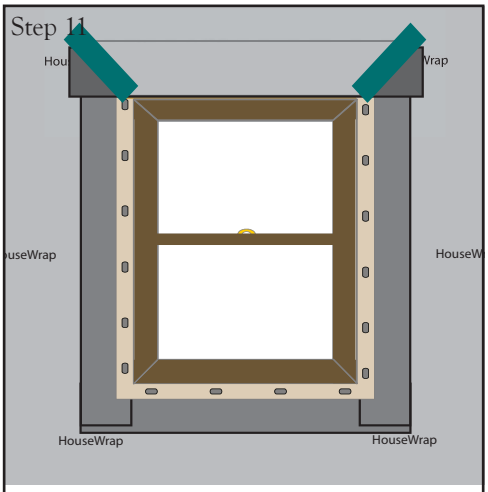
Run two 3/8" beads of sealant at the head. The first bead should be placed over the holes in the nailing fin and the second bead should be placed 8-1/2" above the rough opening. *(Sealant is not required when using self adhesive flashing)*

Step 10



Apply head flashing. The head flashing should extend 1" past the side jamb flashing on each side.

Step 11



Take flap of WRB at head and flip it down over the head flashing. Use sheathing tape over the diagonal cut in the WRB.