

## Chapter 13 - Windows and Doors

### Things to Consider

- Windows and doors must be installed properly to prevent air and water leaks.

### Components

Windows  
Exterior doors  
Weather seals

### Timing & Prerequisites

- This phase of the project cannot begin until the framing is complete.
- It is preferred that this phase is not started until the roofing system is complete.
- This phase must be completed before the siding can begin.
- The House/Project Lead will work with the Habitat Superintendent to coordinate these volunteer activities.

### Materials Needed

<i>Windows</i>	<i>Doors</i>
3-0 – 5-0 Windows	3-0 Exterior Doors
6-0 – 5-0 Windows	2 ½" Galvanized Casing Nails
Home Seal(6" & 4")	Shims
Window Pans	Construction Door Hardware /
3" Exterior Screws	Locksets
Window & Door Caulking	2 ½" Brass Screws for Doors Hinges

### Phase Specific Tools Needed

Description:	Quantity:
○ <i>Extension Ladder</i>	2
○ <i>6' Step Ladder</i>	2
○ <i>Nail Set</i>	1
○ <i>Heat Gun (Winter Builds)</i>	1

### Activities (New Builds & Additions)

#### Verifying Windows and Doors Orders

##### Critical Issues

- ◆ If this is a two-story house, one window will be marked

“Drywall”. Both sashes of windows can be removed for drywall delivery. It is important to install this window in the location identified by the Construction Superintendent to ensure access by the delivery truck.

1. Refer to the prints to determine the proper location of the doors based on the swing of the door. If both the front and back doors have the same swing, the doors may be interchangeable.
2. Verify the correct number and size of doors and windows have been received.
3. Store the windows and doors in a secure location until they are ready for installation.

### Installing Windows

#### **Critical Issues**

- ◆ **Notify the HFH Superintendent immediately of any damaged, broken, or missing parts.**
- ◆ **In cold temperatures, the Home Seal will not seal. Heat the tape with a heat gun before applying to the 2x3 build out.**
- ◆ **Install the window with the window locked.**
- ◆ **Install the windows with vanes in the front of the house.**

1. Unpack the windows
  - Remove the packing material.
  - Inspect the window for damage.
  - Remove the screens and store in a safe place for the Cleanup Phase. If the house has a garage, the rafters are a good place to store them.
2. Test fit the window into the opening to ensure the opening is big enough for the window. There should be at least ¼” of clearance on each side and at the top.
3. Install Home Seal on bottom of the opening. (See Figure 13.1)
  - Cut a piece of 6” wide Home Seal which is 6” longer than the window is wide.
  - The strip will extend 3” below the window opening and 3” into the window opening.
  - Center the strip across the bottom of the window opening and attach it to the window opening.
  - Slice a diagonal slit in the Home Seal from each window opening corner extending into the opening at a 45 degree angle.

Wrap the Home Seal into the opening.

4. Install Home Seal on each side of the opening.

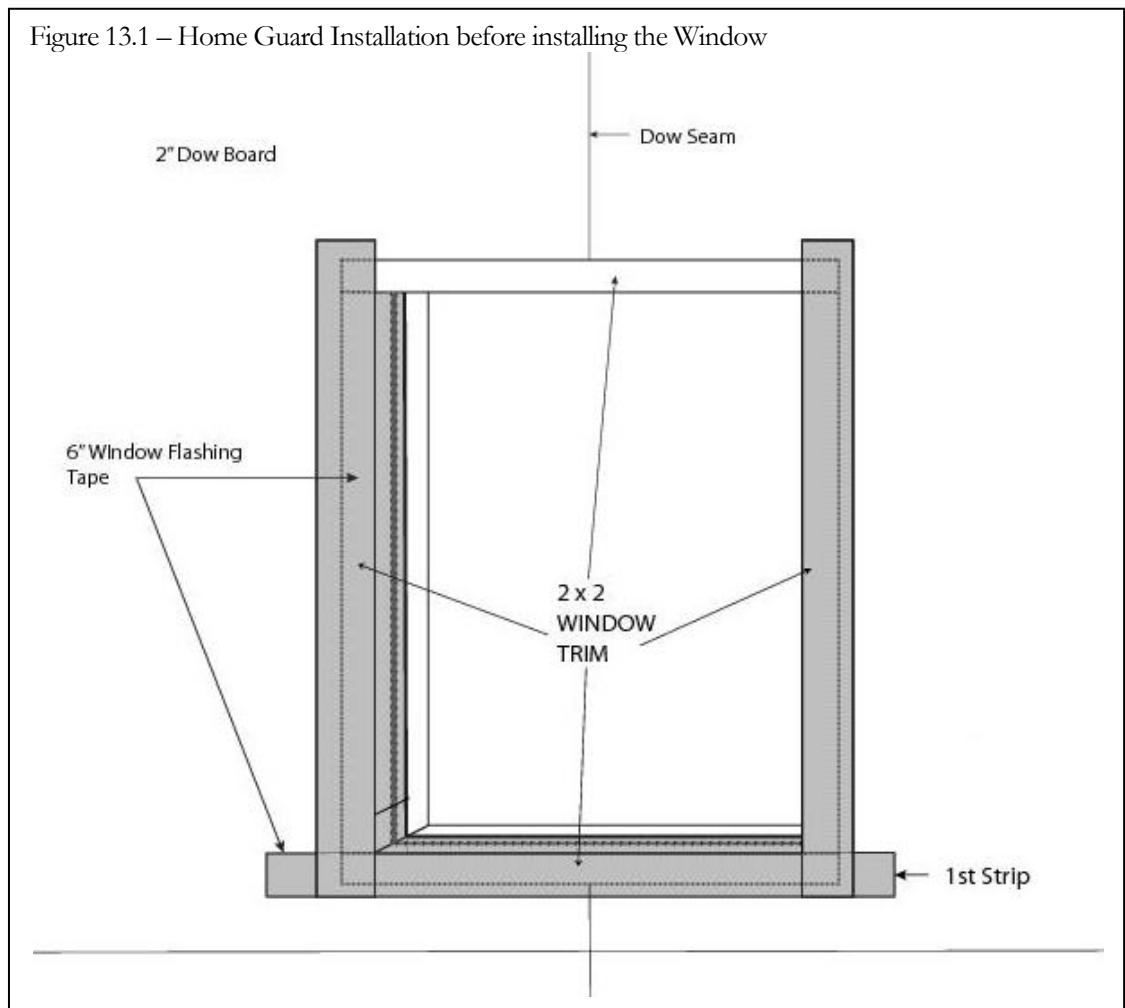
Cut 2 pieces of 6" wide Home Seal which is 6" longer than the window is high.

The strip will extend 3" beyond the window opening and 3" into the window opening.

Center the strips along each side of the window opening and attach them to the window opening.

Slice a diagonal slit in the Home Seal from each window opening corner extending into the opening at a 45 degree angle.

Wrap the Home Seal into the opening.



5. Install the window pans.

- For each single window, install a left and right pan.

- For each double window, in addition to the left and right pan an additional pan needs to be manufactured. Cut the bent end off of either a left or right to form a flat center pan.
  - Insert the pans into the opening with the flange overhanging the outside edge.
  - Apply a bead of caulk in the overlap of the pans.
  - Attach the pans with 1" roofing nails through the flange into the 2x2 build outs.
6. Apply a bead of latex adhesive caulk to the top and 2 sides of the window opening, about 1/4" from the edge.
7. Install the window.

Set window in the opening.

Check the level of the bottom sill of the window. If needed use shims under either side of the window to level the window.

Compare the diagonal dimensions of the window to ensure the window is not racked. Slide the top to the left or right to equal out the diagonal measurements.

Attach the window at the corners using 3" exterior screws through the slots in the nail flange in each of the corners of the window; 1 screw in each corner.

Recheck the window for plumb and level. If necessary, reset the window.

Install shims at the center rail. Do not bow the frame.

Re-check the window. Ensure it opens easily.

Install the remaining 3" exterior screws through the nail flange; 1 screw in every other opening.

8. Apply Home Guard tape over the nailing flanges on the sides of the window.

Cut 2 pieces of 4" wide Home Seal which is 6" longer than the window is high.

The strips will cover the nail flange and extend out over the Home Seal installed before.

Center the strips along each side of the window and attach them to the window's nail flange.

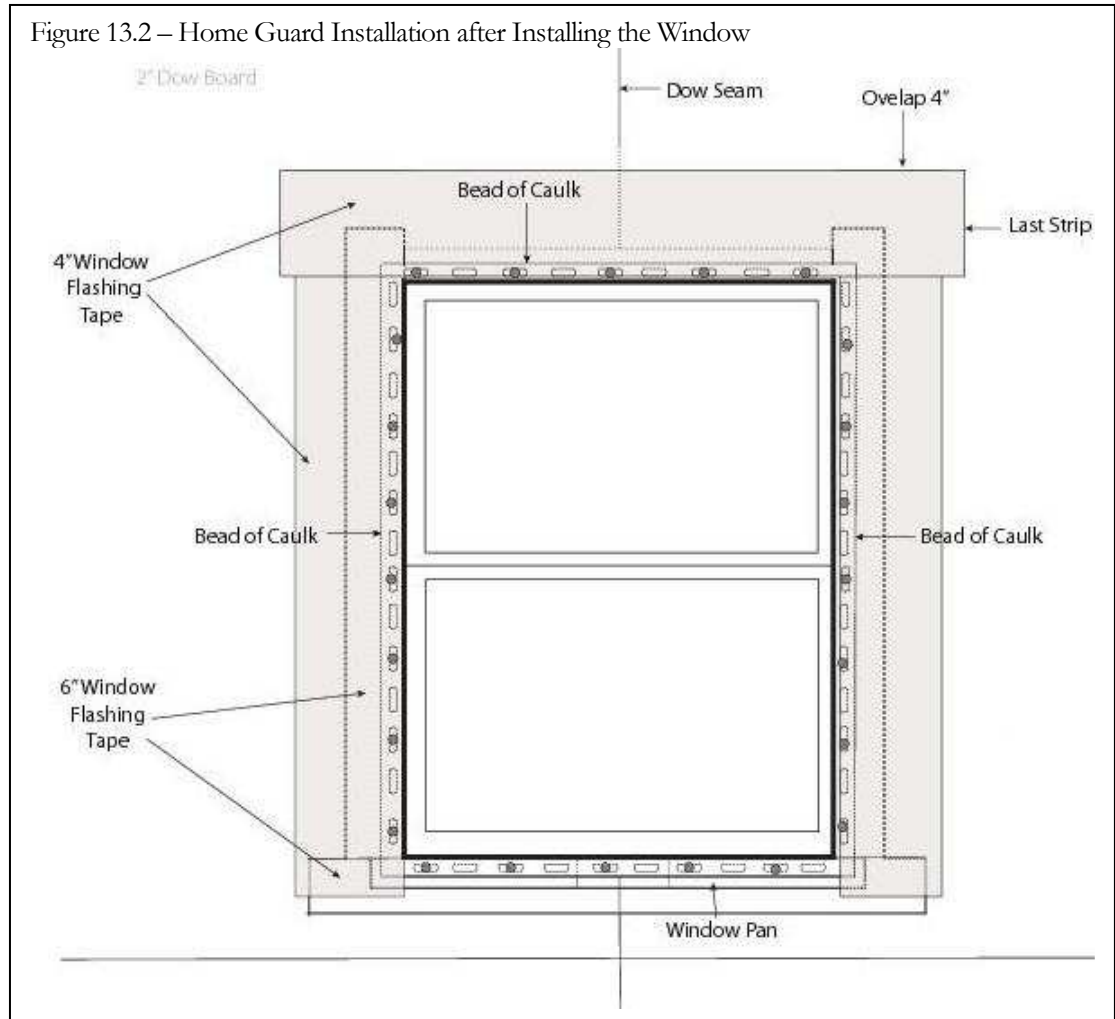
Smooth the Home Seal over the Dow Board.

9. Apply Home Guard tape over the nailing flanges on the top of the window.

Cut a piece of 4" wide Home Seal which is 8" longer than the window is wide.

Center the strips across the top of the window and attach it to the window's nail flange.

Smooth the Home Seal over the Dow Board.



### Egress Windows (Volunteers)

1. When the foundation was poured, the concrete contractor built and installed a window frame for the egress window. The egress window will fit in this opening without any additional framing.
2. Remove the temporary cover and grate from the window well.
3. Install the egress window into the frame and install the T-track which holds it in place. No caulking is required.
4. Install the egress window ladder by hooking it over the window well.

5. Re-install the window grate and temporary cover.

## Installing Exterior Doors

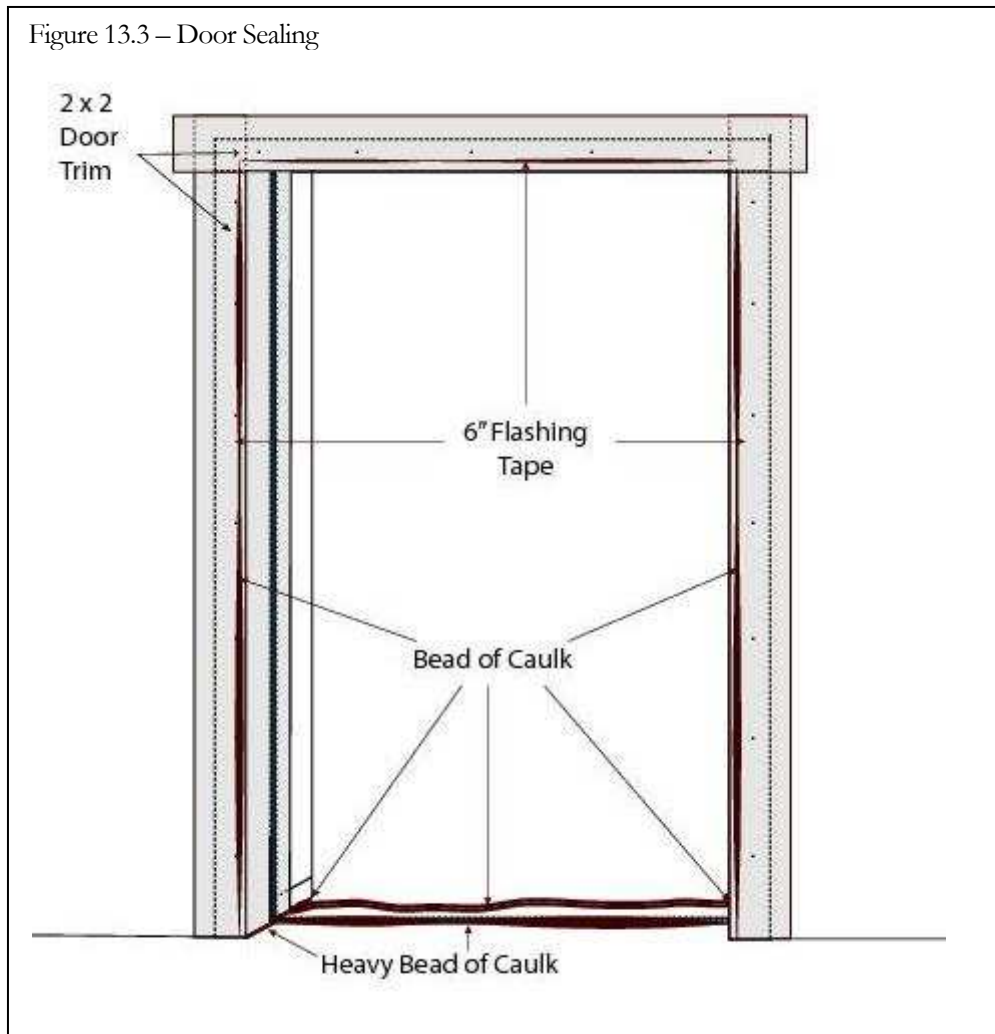
### **Critical Issues**

- ◆ **All exterior doors will be zero step entry doors.**

1. Unpack the door.
  - Remove the packing material. Do not remove the lock block which holds the door to the jamb.
  - Tap in staples in the jamb to allow the door to fit into the opening.
2. Test fit the door into the opening to ensure the opening is big enough for the door. There should be at least ½" of clearance on each side and at the top. Adjust the opening if needed. Check the threshold to make sure it is level. If the threshold is not level, shims will need to be added under the jamb when the door is installed.
3. Install 6" Home Seal on the sides of the opening. Apply 3" inside the opening and 3" outside; covering the seam between the 2" Dow board and the 2x2 trim boards. (See Figure 13.3)
  - Cut 2 pieces of 6" wide Home Seal which is 3" longer than the door is tall.
  - The strips will extend 3" above the door opening and 3" into the door opening.
  - Starting at the porch floor, attach the Home seal to the door opening. Slice a diagonal slit in the Home Seal from each door opening corner extending it into the opening at a 45 degree angle to allow it to wrap into the opening.
  - Wrap the Home Seal into the opening.
4. Install Home Seal on the top of the opening.
  - Cut a piece of 6" wide Home Seal which is 6" longer than the door is wide.
  - The strip will extend 3" beyond the opening and 3" into the opening.
  - Center the strip across the top of the door opening and attach it to the opening.
  - Slice a diagonal slit in the Home Seal from each door opening corner extending into the opening at a 45 degree angle.
  - Wrap the Home Seal into the opening.
5. Caulk the door opening.

- Apply a wide bead of silicone caulk to the subfloor just inside of the opening where the door will sit.
  - Apply a bead of silicone caulk to the seam between the subfloor and the door framing.
  - Apply a bead of silicone caulk to the front edge of the opening where the brick mould will be attached.
  - Apply a heavy bead of silicone caulk to the front edge of the subflooring along the porch deck.
  - Apply a bead of silicone caulk to the seam between the 2x2s and the porch deck.
6. Install the door.
- Set the door into the opening.
  - Check the level of the door's threshold. If needed, insert shims under the threshold to bring it to level.
  - Plumb and set the hinged side of the door by inserting a pair of shims just above or below each hinge. Adjust the shims to get the hinged jamb plumb. Using a pneumatic nailer, insert a 2" finish nail through the casing just below the shims. Do not nail through the shims at this time, they will need to be adjusted again later.
  - Close the door and check the spacing between the door and the top jamb. If the gap is not equal across the top of the door, adjust the shims at the bottom of the jambs until it is equal.
  - Plumb and set the latch side of the door by placing shims above the strike plate; below the strike plate; at the top of the door; and at the bottom of the door. Adjust the shims to get the jamb plumb; the gap along the door even; and the edge of the jamb flush with the face of the door. Using a pneumatic nailer, insert a 2" finish nail through the casing just below the shims.
  - After all of the shims are installed, recheck that the jambs are still straight and plumb. Adjust the shims as needed. Then place 2 more finish nails through the jamb and shims.
  - Set 2 ½" casing nails through the jamb behind the weather strip.
  - Set casing nails through the brick mold into the 2x2s.
  - Remove one screw from each hinge and set a 2 ½" screw in its place.
  - Install construction locks.

Figure 13.3 – Door Sealing



### Install Door Hardware

#### *Critical Issues*

- ◆ The long screws for the dead bolt strike plate must be installed into the 2x4 framing.

- Install per manufacturer's instructions.

### Cutoff Window Pans

- After the windows have been installed, cut off the window pan along the back of the window. Seal the bottom edge of the window where the pan has been cutoff with non-expanding insulating foam.

## Activities (ReBuilds)

The floor plans for new constructions do not include basement windows and the porches are set for zero step entries; therefore, glass block windows and kick plates will only be needed on ReBuilds.

### **Glass Block Windows (Contractor)**

Habitat will also hire a contractor to install the basement windows. Note – If the sump pump is still running off of the temporary power pole, it is likely the extension cord is routed through the basement window. Be sure to re-route the cord before the contractors install the windows. They will likely not reconnect the sump pump when they are done.

### **Install Door Kick Plates**

#### ***Critical Issues***

- ◆ **Most exterior doors will have a zero step entrance. No kick plate will be needed.**

1. If required, create a kick plate for each door from 2” Dow and a 1x6; cut to fit under the door threshold. Keep off the cement by at least ½”.
2. Place the Dow and kick plate in the area below the door holding it up flush to the bottom of the threshold and attach it with 4” exterior screws; 1 screw in each corner.
3. Countersink the screws and fill the holes with wood putty.

## **Tips & Techniques**

### **Quality Assurance Checklist**

- Ensure the windows operate properly.
- Ensure the doors close and latch. Ensure there are no gaps in the seals around the door.