

## 10. Vents, Baffle Guard and Blocking

### 10.1 INSTALLING BATH FAN AND END CAP

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#### Tools needed by volunteers:

Hammer  
Nail apron  
Tape measure  
Square  
Utility knife  
Pencil

#### Materials needed:

Scrap 2x lumber  
Scrap OSB  
Proper vents  
1" Foamboard  
Weathermate™ Construction tape  
3" Weathermate™ Straight Flashing tape  
16d Nails  
3" Siding Nails  
1½" Drywall Screws

#### Tools and equipment needed:

Generator  
Extension cords  
Circular saw  
Chop saw  
Stapler  
Paslode nailers  
Torpedo level  
Stepladders

#### Personal Protection Equipment:

Safety glasses (required)

**Safety First! Review the Safety Checklist before performing tasks in this chapter.**

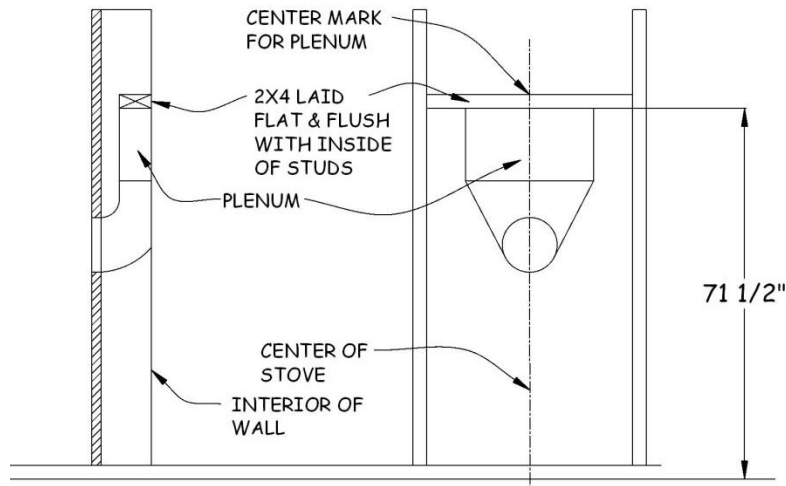
## **10.1. INSTALLING BATH FAN AND END CAP**

1. Check for the location of the bath fan per plan. It must be installed per this plan. These bath fans are activated by a motion detector and will not operate as designed if not installed per plan.
2. First install the fan's end cap. The end cap needs to be a straight run from the fan. It is usually installed above the top cord and next to a vertical 2x4 of the gable truss. This provides framing material to nail the end cap to the house.
3. After establishing the location of the end cap, cut the opening for the short vent pipe on the end cap that goes through the wall. Take care to cut this only big enough for the vent pipe to slide through
4. Slide the pipe through the hole, level the end cap and nail into framing with 3" siding nails.
5. Check that the back draft flap on the bath fan is working correctly by removing the factory-applied shipping tape securing the flap to the fan.
6. Frame out an opening with 2x4's where the fan will go in the bottom cords of the trusses.
7. Secure the fan to the framing with 1 $\frac{5}{8}$ " drywall screws. Make sure the fan's exhaust port is pointing toward the intended gable end. Set the fan body tight to the truss that the exhaust port points away from, to allow as much space as possible for the rigid duct to angle up and over the exhaust side truss's bottom chord.

## **10.2. INSTALLING RANGE PLENUM AND END CAP**

### **10.2.1. Preparing Plenum Location**

1. After sheathing the exterior of the stud bay at the stove location, install the range hood plenum. Measure from the floor up 71 $\frac{1}{2}$ " and mark on both studs. These marks represent the top of the plenum.
2. Cut a 2x4 to fit between the two studs. Install the 2x4 flat with the bottom side at the 71 $\frac{1}{2}$ " marks and the edge flush with the inside edge of the studs.
3. Note the marking on the floor indicating where the center of the stove will be. Measure from the closest end wall to that center mark or, with a 6' level, plumb up from the floor mark. Mark that measurement on the 2x4 installed in Step 2.



**Figure 10-1. Range Plenum Location.**

### 10.2.2. Preparing for Installation of the Plenum and End Cap

1. At the top of the plenum, measure and mark the center. Line up the plenum center mark with the 2x4 center mark.
2. Slide the plenum toward the exterior until the 6" diameter sleeve touches the wall sheathing.
3. Trace around the exterior of the sleeve marking a 6" circle on the interior side of the sheathing.
4. Cut out this circle in the sheathing.

### 10.2.3. Plenum and End Cap Installation

1. Line up the plenum and 2x4 center marks. While holding plenum flush to the interior side of the wall framing and the 6" duct protruding out the wall, secure the plenum to the 2x4 using four 1 5/8" screws through plenum flanges.

**NOTE:** Make sure the top end of the plenum is flush with the interior side of the wall framing.

2. Put a line of caulk around the inner diameter of the vent cap. From outside the house, slide the vent cap over the interior plenum (there should be a minimum of 1 1/2" overlap). Make sure the vent cap is tight to the exterior sheathing AND the bottom end of the plenum is flush with the interior side of the wall framing.

**NOTE:** The entire plenum needs to be flush or slightly shy of the interior side of the wall framing so it does not cause an issue with wall rock installation

3. With a torpedo or other short level, ensure the top of the vent cap is level. Secure the vent cap in place by taping (shingle style) the flanges with Weathermate™ Straight Flashing tape.
4. From the inside, caulk or spray foam, as required, around the penetration through the exterior sheathing to completely seal the opening.
5. Seal the connection between the plenum sleeve and the 6” duct using Weathermate™ Straight Flashing tape. After sealing, make sure the plenum remains flush or slightly shy of the interior side of the wall framing.

**NOTE:** The connection needs to be **completely** sealed in order to prevent ANY warm exhaust air from getting into the wall cavity.

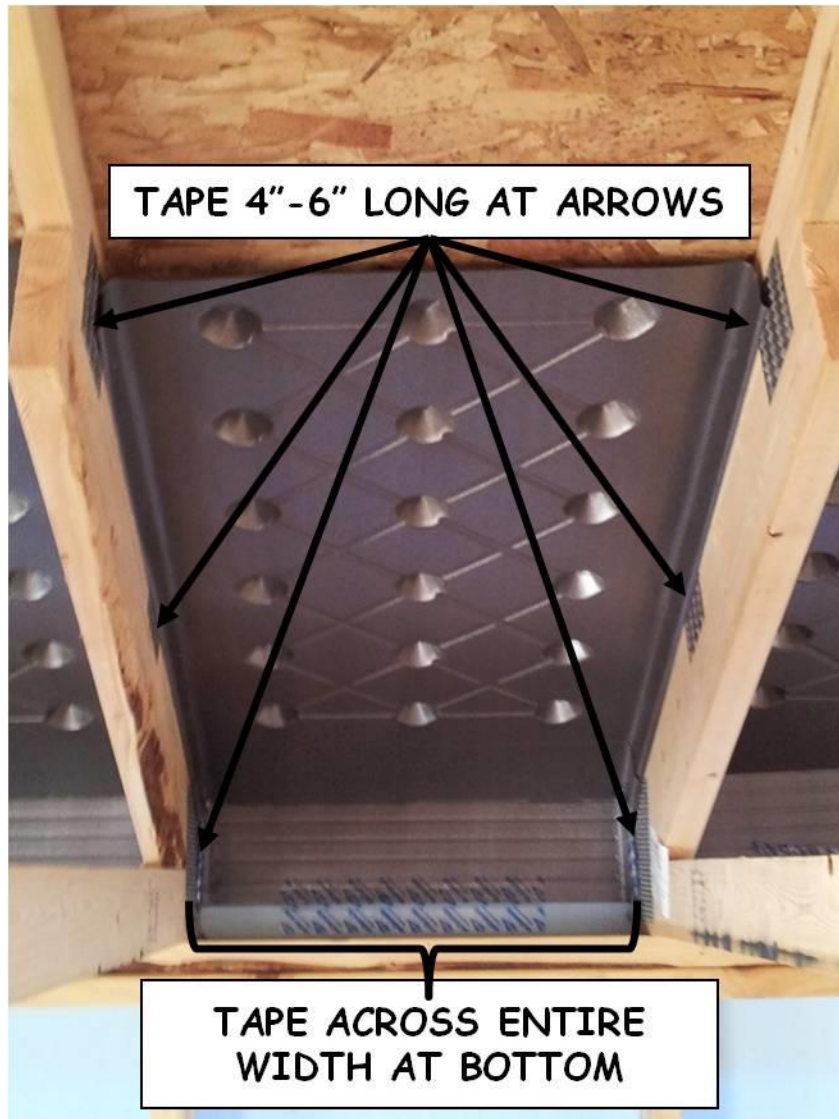
6. Cut 2” of foamboard to match the width of the space between the studs and from the TOP of the 2x4 supporting the plenum to the bottom of the plenum notching out for the 6” duct sleeve. Cut this notch about ½” larger than needed so spray foam can be used to provide another layer of protection at this joint later on (Section 12.3 Air Sealing). Install this foamboard between the 2x4 and the wall sheathing, flush with top of the 2x4.

### **10.3. INSTALLING PROPER VENTS**

1. Proper vents are placed between every truss on each side of the house. The proper vents have a flap on the bottom that is secured to the wall foamboard to prevent windwashing of the insulation.
2. To install, place the vent between the roof trusses and slide the vent toward the outside until the vent touches the foamboard. Make sure that the bottom of the flap is held 3” above the top plate. Doing this will allow proper air flow above the vent and will prevent windwashing.

**NOTE:** It is recommended to do this install from a plank set up on brown, heavy duty non-folding sawhorses, with a short stepladder to get up to and down from the plank.

3. Staple (four per side) the sides of the vent to the trusses and tape the flap to the foamboard. Tape any openings, using Weathermate™ Construction tape, as shown in Figure 10-2.



**Figure 10-2. Proper Vent Installation.**

#### **10.4. INSTALLING WIND WASHING BAFFLE GUARD**

1. A wind washing baffle needs to be installed on houses where the porch roof is on the eave side of the house. This prevents wind from entering through the porch soffit and blowing the attic insulation away from the exterior walls.
2. Install sheets of 1" foamboard between the trusses above the foamboard on the exterior wall. The sheets must extend up 24" or to within 2" of the roof sheathing (whichever is shorter). Seal all joints and gaps with Weathermate tape. This baffle diverts the wind up and over the insulation and also allows ventilation of the underside of the roof.

## 10.5. INSTALLING BLOCKING

### 10.5.1. Safety Instruction

1. ALL blocking in stud bays MUST be installed by either hand nailing using 16d nails or secured using 2½” drywall screws.

**WARNING:** Using Paslode nailers to install this blocking is dangerous as an improperly aimed nailer can fire a nail that misses or passes through the wood and potentially strikes a fellow worker.

### 10.5.2. Blocking For Shower Stall

1. Blocking may be needed to attach the flange of the shower stall to the wall, and also for sheetrock. Block as needed.

### 10.5.3. Blocking For Handicap Grab-Rail

1. Grab-rail blocking must be installed adjacent to the shower and toilet with the top of the blocking 36” above the floor. Install the blocking between all studs that will NOT be covered by cabinets or the shower stall.
2. First, install the 2x6 blocking in a corner stud bay by nailing through the open stud bay into the blocking with three 16d nails. Secure the other end of the blocking to the corner stud by toenailing two 16d nails through the top and bottom of the blocking into the corner stud. Successively install blocking into the adjacent stud bays by first nailing with three 16d nails through the open stud bay into the end of the blocking. Then, attach the opposite, common end, of the blocking by toenailing two 16d nails through the stud into the top and bottom of the blocking.

### 10.5.4. Blocking for Mirror

1. Blocking for the bathroom mirror must be installed above the vanity area (see House Plan). This will provide solid backing for mounting the mirror clip hardware positioned along the bottom and the top of the mirror.
2. Install 2x6 blocking between all studs where the vanity will be installed. Position the tops of the blocking at 40” and 76” from the floor.

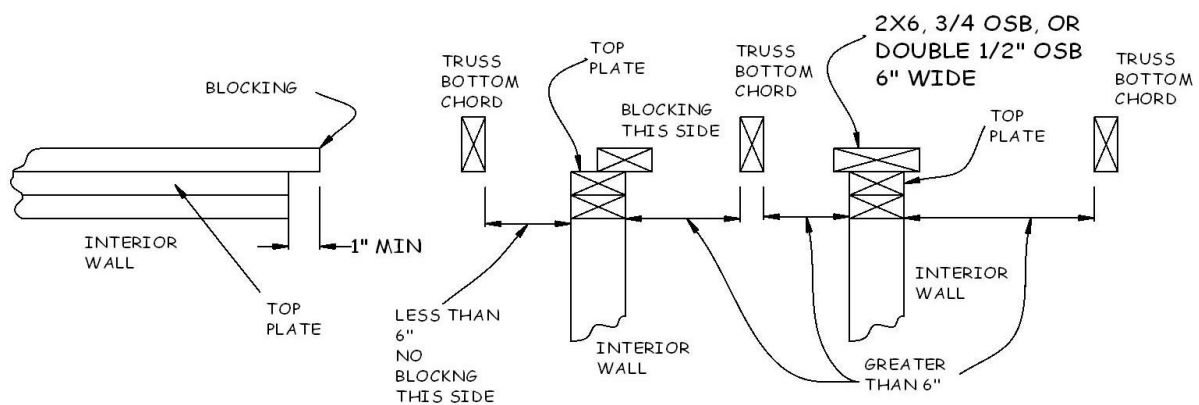
### 10.5.5. Blocking For Sheetrock

1. Blocking for sheetrock must be installed in three areas within the house: 1) Along the top plates of walls parallel to trusses for ceiling rock; 2) at the end of all interior walls where they intersect with an **exterior** wall; and, 3) at the end of all interior walls where they intersect with another **interior** wall.

- Inspect the tops of all walls for areas where blocking may be needed for ceiling rock (see Figure 10-3). For interior walls that are greater than 6" from a truss, make sure that blocking extends at least 1" beyond both ends and sides of any interior wall top plates. Blocking should be continuous at the top of each wall where required.

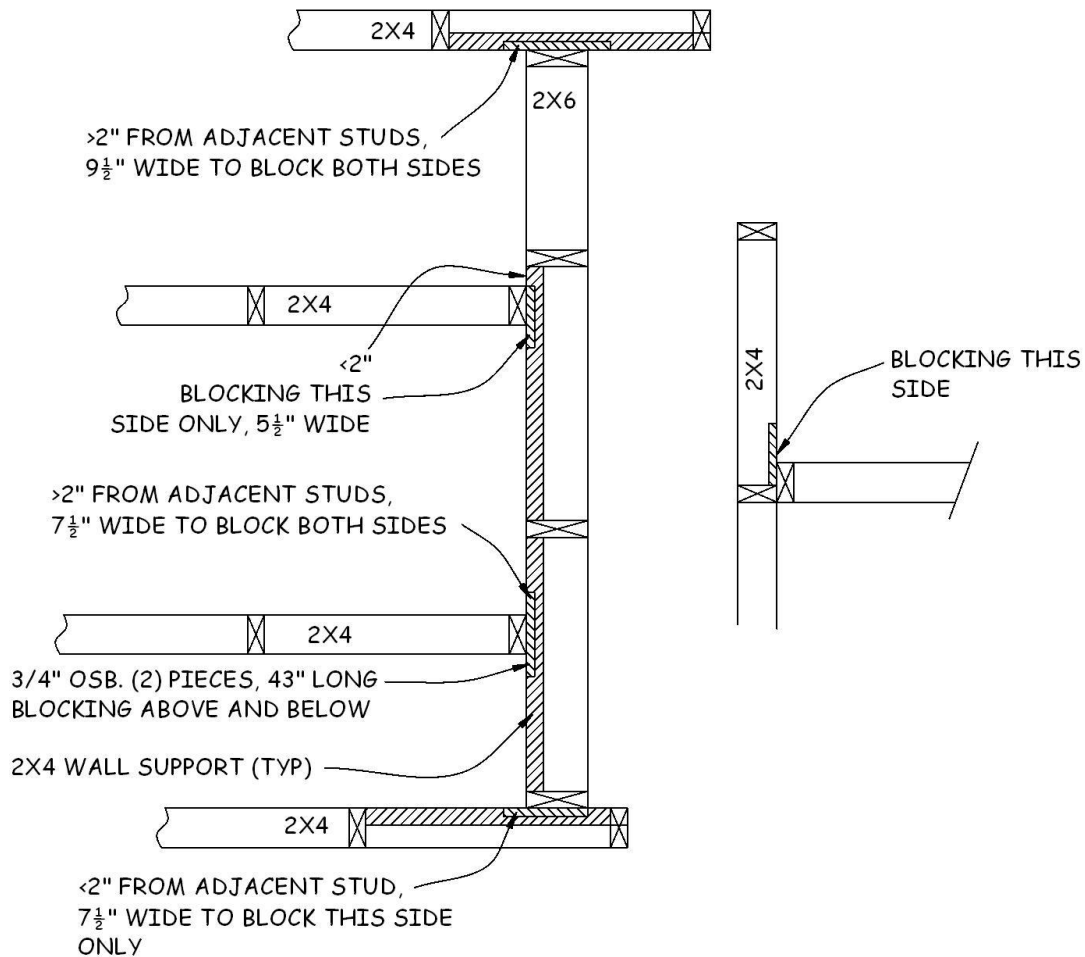
**NOTE:** Blocking is only required on one side of the top of interior walls that are within 6" of a truss.

- Use scrap 2x6, side-by-side 2x4's, 3/4" OSB, or two layers of 1/2" OSB. Nail the pieces to the top of the wall with 16d nails.



**Figure 10-3. Blocking For Ceiling Rock.**

- Install two 43" long pieces of 3/4" OSB blocking at the ends of any interior walls that intersect an exterior wall – one above the 2x4 ladder block and one below the 2x4 ladder block. The blocking must extend at least 2" beyond the edges of the stud, so cut the OSB to a width of 5 1/2" or 7 1/2" for a 2x4 wall and 7 1/2" or 9 1/2" for a 2x6 wall. Pre-drill four pairs of 3/16" holes, spaced evenly vertically, through the stud (about 1/2"-3/4" in from each edge). To attach the blocking, hold the piece of OSB in place, making sure it is tight (no gaps) to the outside of the end stud (use a clamp, if necessary). Attach the OSB blocking by screwing 2" screws through the holes in the 2x4 into the OSB, turning the screw until it is buried about 1/4" into the stud. If there is access to drive screws from the blocking side of stud, it is acceptable to use two layers of 1/2" OSB. See Figure 10-4.
- Where an interior wall intersects an interior wall (See Figure 10-4), install blocking using 2x4's, 3/4" OSB, or two layers of 1/2" OSB. Secure the blocking to the end stud using 16d nails for 2x4 blocking and 2" screws for OSB blocking.
- Install blocking around the perimeter of the stair landing platform to support the bottom of the wall sheet rock, since there is no bottom plate present at that level. Nail or screw 2x4s between the wall studs with the bottom at the level of the landing floor deck.



**Figure 10-4. Blocking For Wall Rock.**

### 10.5.6. Blocking For Stairskirt

1. Use a piece of 2x6 or two pieces of 2x4 at the bottom of the stairs and one piece of 2x4 at the top of the stairs to install blocking for the stairskirt (see Figure 10-5.). At the bottom of the stairs, block from the end of the stringer to at least 5" past that point. At the top of the stairs, block where the ¾" subfloor ends at the stair, at least 3" both above and beyond the subfloor.



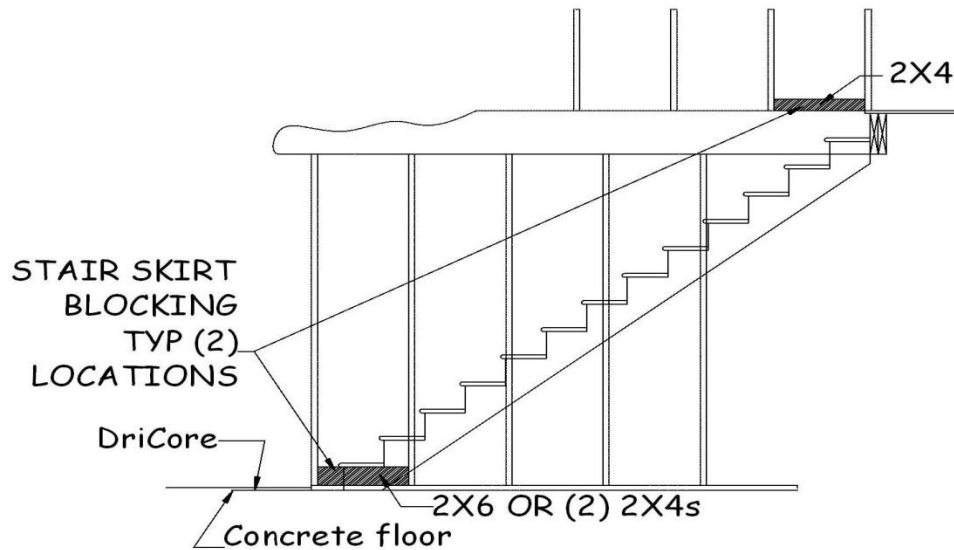
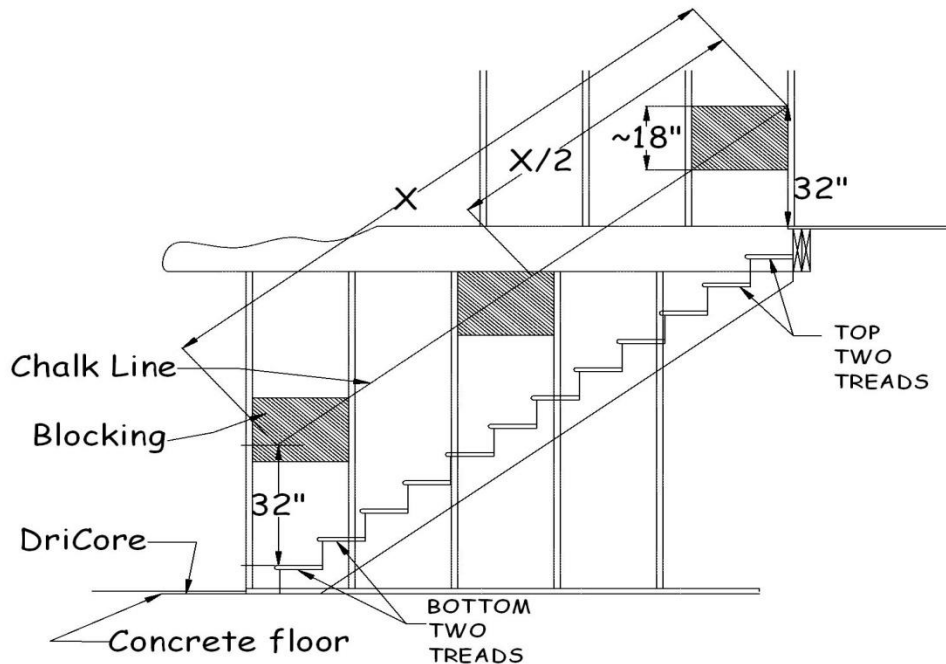


Figure 10-5. Blocking for Stairskirt.

### 10.5.7. Blocking For Stair Handrail

1. Straight stairways will have handrails (and require blocking) on the wall opposite the angled wall. Stairs with landing will have the handrail on the wall opposite the lower section of stairs, or the “outside” of the stairwell. The section below the landing will also require blocking.
2. The handrail bracket bottom screws will be mounted approximately 31” above a line that is defined by the nose of the treads. This will place the top of the handrail between the required 34” and 36” above the nose of the treads. To provide some latitude in the placement, measure up 32” from the decking, vertically at the edge of the floor deck, and mark the wall at that height. At the bottom of the stairs, again measure up 32” from the nose of the bottom stair tread. Snap a chalk line between the top and bottom marks. The blocking must be installed so that the top corner toward the top of the stairs is even with the line, and the bottom corner toward the bottom of the stairs is even with the line. (See Figure 10-6.)
3. For blocking, use a combination of scrap 2x12’s, 2x10’s or 2 x6’s to equal a minimum height of 18” (see Figure 10-6). The extra height helps to ensure that handrail brackets will be secured to the blocking after drywall is installed.
4. Install blocking between the bottom two treads, the middle two treads, and the top two treads. Find the location of the middle blocking by measuring the length of the chalk line made in Step 2, then dividing that in half. For stairs below a landing, omit the middle blocking.



**Figure 10-6. Blocking For Handrail.**

5. Mark location of the blocks on the temporary stair treads to facilitate finding the blocks after plastering.

### 10.5.8. Blocking For Closet Pole Hangers

1. In each corner of every closet that will receive a closet pole, install a scrap piece of 2x4, at least 16" long, so there is something to attach the hanger to.
2. At the corner, make a mark 70" off the floor. Hold the piece vertically, place the top at that mark, and nail it flush to the 2x4 closet stud.

### 10.5.9. Blocking for Mailbox

1. Blocking is only needed if there is no OSB on the wall where the mailbox will go. In some houses, it will be difficult to get the blocking where it is called for, so check with the Construction Supervisor for options.
2. Install the top of a 2x6 block 48" above the porch concrete. Beginning at the King stud on the doorknob side of the storm door opening, extend the blocking horizontally at least 18" from the stud. This may require installing blocking in more than one stud bay.
3. Since the mailbox blocking will be hidden when it comes time to install the mailbox, note the location in the site leader log.

### 10.5.10. Blocking for Porch Rail

1. Blocking is only needed if there is no OSB on the wall where the porch rail will be secured to the house.
2. Install 2x6 blocking for the top and bottom rails, positioning the tops of the blocking 9” and 39” from the porch concrete. Keep in mind that the outside edge of the porch rail will be installed 3” in from the edge of the porch concrete.

### 10.5.11. Blocking for Cold Air Returns

1. Blocking is required next to cold air returns to provide support for the register installation screw opposite the stud side.
2. Install blocking extending between each cold air return and the adjacent stud. Use a 9” high stack of six 2x4s on top of the bottom plate as shown in Figure 10-7.



**Figure 10-7. Cold Air Return Blocking.**