

## Chapter 19. Interior Finish Work

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### Tools needed by volunteers:

Hammer  
Nail apron  
Tape measure  
Square  
Utility knife  
Pencil

### Tools and equipment needed:

Extension cord  
Chop saw  
Coping saw  
Oscillating saw  
Finish nailer  
Drill driver  
6' Level  
Nail set  
Caulk gun

### Materials needed:

Casing material  
2½" Collated finish nails  
Wood putty  
White finish caulk  
Clear finish caulk  
Air sealing caulk  
Wood glue  
Construction adhesive  
Air sealing tape  
Flashing tape  
Weatherstripping  
Stair grip strips  
[¼" x ¾" Cabinet trim](#)  
[Bathroom mirror](#)  
[Short and long towel bar](#)  
[Toilet paper holder](#)  
[Grab bars](#)  
[Bathrobe holder](#)  
[Shower curtain rod](#)

### Personal Protection Equipment:

Safety glasses (required)

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

## **19.1. INSTALLING FLOOR TRIM**

### **19.1.1. Preparation**

1. Make sure all door trim has been installed.
2. If the studs are not marked on the floor, use an 8d finishing nail to locate one and then use a tape to locate the others at 24" o.c.
  - a. Start on one side of an electrical box, then the other side if no success. Alternatively, start about 23" from the intersection with an exterior wall, or under a window King stud.
  - b. On basement walls that are unfinished on one side, measure on the back side and transfer to the inside.
  - c. Drive the nail into the wall just below the level of the top of the floor trim (beware of steel posts in the basement).
  - d. If a stud cannot be located, do not nail above the bottom plate when installing trim.
3. Scrape away excess plaster on walls near the floor. Pay particular attention to inside corners.
4. In carpeted areas, hold floor trim off the floor the thickness of a scrap piece of floor trim ( $\frac{3}{8}$ "). In areas with hard flooring, install floor trim directly on, and tight to, the finished flooring, making certain the trim contacts the floor along its entire length. Do not install trim that goes over hard flooring until the flooring has been installed.
5. Do not install floor trim in the kitchen or bathroom until cabinets have been installed.

### **19.1.2. General Installation Instructions**

1. In each room, start by installing the floor trim on a wall with two inside corners and cut that piece with straight end cuts. Typically, this is the wall opposite the door. Plan the installation to avoid pieces that have both ends coped, or one end coped and the other beveled.
2. Floor trim should not be cut to fit around cold air return vents. Because return vent covers are installed sufficiently high above the floor, the trim will run under the return vent covers.

**NOTE:** If the trim does not fit under the cold air return vent cover, notify the Construction Supervisor and consider raising the cover if possible.

3. All inside corners must be coped and all outside corners must be mitered. Glue each outside mitered corner.
4. When a splice is required, cut matching 22.5° bevels arranged so the overlap is angled away from the main viewing area of the room with the underlapping piece falling 2” away from the edge of a stud. Nail the underlapping piece along its entire length into each stud. Glue the ends of the splice pieces, place the overlapping trim piece in position, and nail it directly into the stud. The overlapping piece should hold the underlap in position snugly. Clean any glue residue from the splice before it dries.
5. Make sure all nails are set and fill holes with putty.

### 19.1.3. Installing Floor Trim

1. Using 2½” collated finish nails, nail about 1” from the top of the floor trim into studs (24” o.c.). Nail into the bottom plate only if necessary. If nailing into the bottom plate, stay 1” above the bottom of the trim and angle the nail slightly downward to hit the plate.

**NOTE:** Do not nail square cut ends of floor trim at an inside corner. Cut the “coped” piece long enough to hold the square end tight to the wall. (This avoids splitting the square-end piece.)

2. When installing very short pieces, any nail may split the wood. Instead, use construction adhesive to hold a short piece in place.
3. When installing trim at a transition point from hard flooring to carpet, hold the trim tight to the hard flooring section and use a scrap piece of floor trim to hold the trim off the floor in the carpeted section. The depth of the hard flooring equals the thickness of the scrap piece of floor trim so the trim is equal height through the transition point. If a transition strip has been installed over the junction of the hard flooring and carpeted area, use a scrap piece of floor trim placed against the wall as a guide and use the oscillating saw to cut the transition strip away from the wall, making space for the trim to be installed.

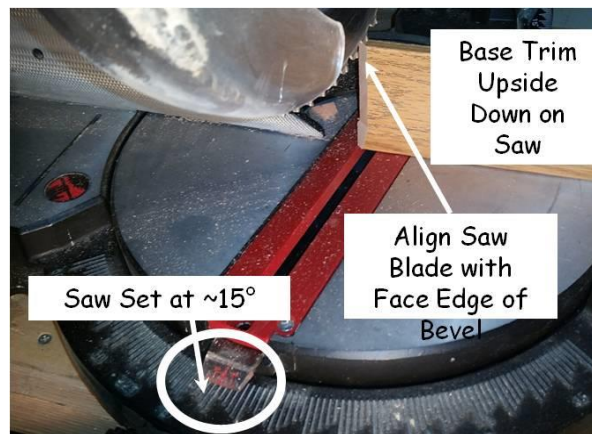
### 19.1.4. Coping

1. Determine which end of trim needs to be coped based on the planning from Section 19.1.2.
2. Bevel cut - Using the chop saw, cut a 45° bevel on the end to be coped so that the back side of the trim is longer than the face side (see Figure 19-1).



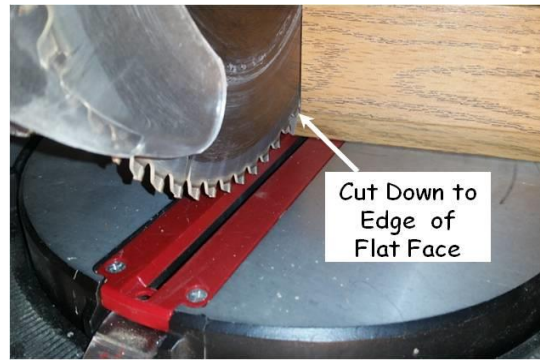
**Figure 19-1. Base Trim Bevel Cut.**

3. Relief cut - Turn the trim piece so the bottom edge is up and the face side is toward the front of the saw. Set the saw at 15°. Align the saw blade at the intersection of the 45° beveled edge and the face of the trim (see Figure 19-2).



**Figure 19-2. Relief Cut Alignment.**

4. Cut down to the edge of the flat face (about ½” from the bottom) leaving the curved edge in place (see Figure 19-3).



**Figure 19-3. Relief Cut.**

5. Coping saw cut - Hold the trim piece on a flat, stable surface. Use a coping saw with the narrowest blade and finest teeth spacing available. Hold the blade at about a 5° back angle (see Figure 19-4). Cut following the uncut, curved edge of the trim. Smooth as needed with a fine, half-round file.



**Figure 19-4. Coping Saw Cut.**

6. Align the coped trim end tightly against the square cut corner trim end (see Figure 19-5). Nail the coped trim piece. Do not nail the square cut trim piece. The coped end should hold the square cut trim piece in place snugly.



**Figure 19-5. Finished Coped Joint.**

## **19.2. INSTALLING CLOSET SHELVES AND POLES**

### **19.2.1. Installing Clothes Closets**

1. Determine the number of shelf brackets needed - typically, one bracket for each stud, except for any studs within 10" of a corner.
2. Make sure the angles of each bracket for a given closet are identical (i.e., they form the same angle between the wall and the shelf).
3. Cut the shelf and the clothes pole for length:  $\frac{1}{4}$ " less than the wall dimension.
4. Starting with the two end brackets, mark the back wall 69 $\frac{1}{4}$ " from the floor to locate the top of the bracket. Using a small finishing nail at a spot that will be hidden by the shelf, verify the presence of blocking about 1" from each corner. Place the top of a bracket at the 69 $\frac{1}{4}$ " mark and mark the center of the top hole. (This will allow later adjustments to level the shelf.) Pre-drill and attach the bracket using a 2" white screw in this hole. Do not drive a screw into the bottom hole at this point.
5. The floor should be marked for location of other studs in the closet. If so, using a 6' level, locate and mark the stud locations 69 $\frac{1}{4}$ " above the floor. Using a small finishing nail, confirm the stud location just above these marks where it will be hidden by the shelf.

**NOTE:** If the floor is not marked, search for a stud by driving a finish nail into the wall along the floor. (Test at less than 2" above the floor so that any holes will be covered by the floor trim.) Once located, continue as above.

6. Stand the shelf on its long edge on the two corner brackets and against the back wall. Place a level on the top of the shelf and use this "straight edge" to adjust the two corner brackets for level. It can then be used to establish the height of the remaining bracket(s).

**NOTE:** In basement closets, the floor may not be sufficiently level at the back of the closet to allow the above procedure to work. Instead, mark both corners at 69 $\frac{1}{4}$ " but install only one bracket to start. Using two people, again stand the shelf on edge on that single bracket. Place the level on the shelf as above, hold the second bracket against the wall at the opposite end of the level, and adjust until the shelf is level. Mark and attach intermediate brackets as above.

7. Hold any additional brackets tight against the shelf edge where studs have been located and mark the center of the top hole in each bracket. Attach these additional bracket(s) using a 2" white screw in the middle of the top hole.

8. Lay the shelf down on all the brackets. Step back and look at the shelf to confirm that it is level (e.g., Is it parallel to the door header? Does it have any dips or rises?). Adjust bracket heights as needed and recheck.
9. Use a speed square (NOT a level) against the bottom of the shelf and the vertical edge of the bracket to ensure the bracket is vertical. Secure the bracket to the wall stud with a 2" white screw through the bottom hole of the bracket.
10. Use a speed square against the front edge of the shelf and along the side of the top edge of the bracket to ensure that the bracket is square to the wall/shelf. Secure the bracket to the shelf with two ¾" white screws.
11. Install the clothes pole with a ¾" white screw into the hole in the back side of each bracket. Be sure the "best" side of the pole is facing forward in order to hide any defects or blemishes on the pole.

### 19.2.2. Installing Linen Closet

1. Shelf heights and depths are specified in Table 19-1.

**Table 19-1. Linen Closet Shelf Dimensions.**

Height of Cleat (top)	Shelf Depth
24" (bottom shelf)	23"
40"	23"
56"	23"
72"	12"

2. Cut strips of 2" wide cleats from ¾" pine for both sides and back walls. Bevel the front corners of the side cleats to avoid catching linens, towels, etc.
3. Cut side cleats so they fit the full depth of the closet (ensuring overlap with a stud or blocking on both ends). Cut back cleats to fit snugly between installed side cleats.
4. Find location of side and back wall studs.
5. Measure and mark all cleat heights. Use a level to confirm that shelves will be level from front to back and across the front and back edges.
6. Install side cleats first to ensure they firmly catch the corner studs since these will carry the majority of the weight. Secure with one 2½" screw into each end.
7. Install the back cleat with one 2½" screw into each end. Be sure to drive the screw with enough of an angle to catch the stud.
8. Paint cleats to match wall color

9. Cut shelves for length and install. Do **not** nail the shelves to the cleats.

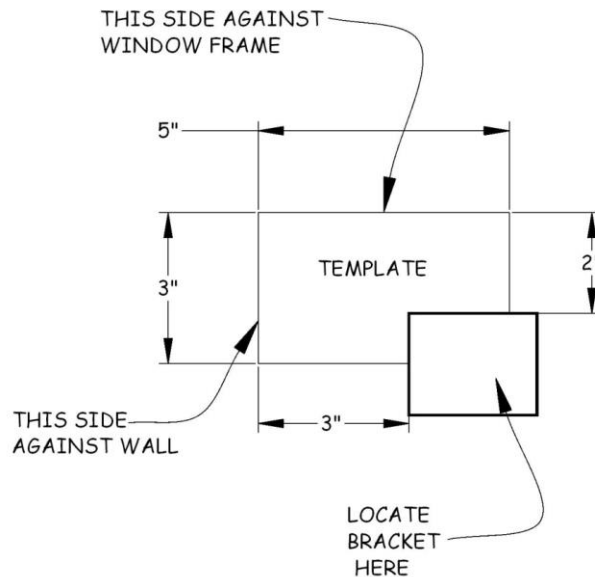
### **19.3. INSTALLING BATHROOM ACCESSORIES**

1. All bathroom accessories should be fastened to previously installed blocking whenever possible. The location of bathroom accessories blocking is specified in Section 10.5.2 and should be indicated on the bathroom floor in black marker. Consult Construction Supervisor if blocking is not indicated.
2. **Towel Bars:** Install the short (18") towel bar 58" above the floor on the wall alongside the vanity. If this is not possible, consult the Construction Supervisor. Install the long (24") towel bar next to the shower 58" above the floor. If it is not possible to install it next to the shower, it can be installed under the window, 3" below the window sill.
3. **Toilet Paper Holder:** Install the toilet paper holder on the wall next to the toilet so the top of the holder is 24" above the floor with the center of the holder 32" out from the wall behind the toilet.
4. **Mirror:** Install the mirror above the vanity, centered over the sink, with the bottom of the mirror 2" above the counter back splash. Position the short sides of the mirror at the top and bottom. Fasten the mirror using three plastic support clips at both the top and bottom of the mirror.
5. **Grab Bars:** Check with the Construction Supervisor whether grab bars are to be installed. If yes, install them adjacent to the shower and toilet, each positioned 33" above the floor (see the House Plan for the size and specific location of the bars).
6. **Bathrobe Holder:** Install the bathrobe holder at the end of the tub wall, 65" above the floor.
7. **Shower Curtain:** Install shower curtain rod.

### **19.4. HANGING MINI-BLINDS**

1. Create a template from a piece of 3"x5" cardboard as shown in Figure 19-6.
2. Hold the template against the top of the window frame (against the header) and install the blind mounting brackets on each side of the window (see Figure19-6). For cordless mini blinds, adjust the mounting brackets left or right to avoid interfering with the mini blind's raise/lower mechanism
3. Install mini blind by snapping it into the brackets, being sure to center the mini blind in the opening. Secure by tightening the bottom screw to "clamp" the mini blind into the bracket.





**Figure 19-6. Miniblind Installation Guide.**

## **19.5. INSTALLING APPLIANCES**

1. When sliding appliances into position, be very careful not to mar the floor.
2. Remove the stove from its shipping container. Install the anti-tip equipment per the manufacturer's directions found in the container. Plug in the power cord and slide the stove into position between the kitchen cabinets, being sure to engage the anti-tip equipment. If necessary, adjust the leveling legs so the appliance is level side-to-side and front-to-back, and flush with the counter top.
3. Remove the refrigerator from its shipping container. Install shelving and clean the outside of the appliance. Plug in the power cord and slide the refrigerator into position between the kitchen cabinets. If necessary, adjust the leveling legs so the appliance is level side-to-side and slightly elevated in the front so the door swings.

## **19.6. INSTALLING BASEMENT STAIR GRIP STRIPS**

1. If the basement is unfinished there will be no flooring on the stair treads. Instead, install a grip strip to each stair. Consult the Site Leader or Construction Supervisor for installation instructions.

## **19.7. COMPLETING CAULKING**

1. Cut only a small opening in the caulk tube and take care not to apply too much caulk. Clean up any excess caulk immediately (acrylic/latex with wet rag, silicone with mineral spirits).

2. Make sure all surfaces to be contacted by caulk are clean and dry. Remove all plaster, paint, dust, etc.
3. Caulk all around each window frame where it meets the plaster with white finish caulk.
4. Caulk all around the shower/tub frame where it meets the plaster with white finish caulk.
5. Caulk around all countertops, in both kitchen and bathrooms, where they meet a wall or cabinet. Use white finish caulk against a wall and clear finish caulk against a cabinet. Keep the caulk to about 1/8" on both the counter back splash and the wall.

### **19.8. COMPLETING AIR SEALING**

1. Verify that all the following air sealing has been completed. If not, complete it as per the instructions in Section 12.3.
2. Seal gaps around the top and sides of cold air return boot and duct joints with flashing tape.
3. Seal gaps between cold air return frames and plaster with air sealing caulk. If needed, use a putty knife to push the caulk into the gaps and smooth the caulk flush to the wall or ceiling surface. See Figure 19-7.



**Figure 19-7. Sealing Plaster Gaps Around Cold Air Returns**

4. Seal gaps around basement ceiling heat ducts and plaster with air sealing caulk.
5. Caulk all holes around electrical boxes on the main floor with air sealing caulk. Uncoil wires from inside the box and caulk wire holes from inside.
6. Using air sealing caulk or spray foam, fill all penetration areas around the sill box where foam was fully or partially cut out. This must be completed after all sub-contractor work is done.

## 19.9. INSTALLING HVAC VENT COVERS

1. Before installing HVAC vent covers on cold air returns and basement ceiling warm air registers be sure all air sealing in Section 19.8 has been completed. Main floor warm air vent covers will be installed after carpeting has been installed.
2. Verify openings for cold air return vent covers are the correct size and covers will fit. Clear any plaster that prevents cold air return vent covers from lying flat against the wall. Reshape the metal, if needed. Cold air return vent covers should sit on top of floor trim as shown in Figure 19-8. If the floor trim has not been installed, use a scrap piece of trim to determine the height of the cold air return vent covers. The vent cover should fully cover the opening; if it does not, notify the Construction Supervisor.



**Figure 19-8. Positioning Cold Air Return Vent Covers.**

3. Verify openings for basement ceiling heat vent covers are the correct size and the covers will fit properly. Clear any plaster that prevents the covers from fitting flat against the ceiling. Make sure air flow adjusters operate easily.
4. Install HVAC vent covers using the provided installation screws being sure the screws go into studs or blocking.

## 19.10. INSTALLING SCUTTLE COVER

1. Verify the scuttle cover has been assembled and finished per the instructions in Sections 7.6.3 and 13.6, and the plastered side has been painted. If not, complete the assembly per these two instructions and paint it.
2. Cut two pieces of fiberglass insulation for the poly/foam side of the scuttle cover assembly. The fiberglass insulation should extend ½" past each edge. Fiberglass insulation for this purpose can be found under the basement stairs.

3. Trim and smooth the ceiling rock and plaster flush with the top of the scuttle hole framing. Clean the 2x4 framing in preparation for weatherstripping. Install two rows of weatherstripping all around the top edge of the 2x4 scuttle box framing. The first row should be flush with the side of the frame and the second row about ½” away from the first. Make sure there are no gaps in the weather stripping where pieces meet. This needs to be tightly air sealed.
4. Place the fiberglass insulation pieces and the cover assembly into the attic making sure the plastered/painted side of the cover is on the bottom. Lay the two pieces of fiberglass insulation side by side on top of the cover and loosely tape them to the top of the cover with two pieces of air sealing tape using a cross-wise pattern. Do not compress the fiberglass insulation. Set the cover onto the frame and weatherstripping so that the attic opening is sealed.
5. Install trim around the edges of the scuttle hole.
  - a. Cut ¼”x ¾” cabinet trim to fit around the upper scuttle hole edge. Position the rounded bull nose of the trim downward. Cope corners as needed.
  - b. Position trim against the scuttle cover (do not move scuttle cover) and nail to the edge of the opening, NOT to the scuttle cover itself, using 2½” collated finish nails. Set all nails and fill with putty.