

## Chapter 13. Ceiling Sheetrock

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#### Tools needed by volunteers:

Nail apron  
Tape measure  
Utility knife  
Pencil

#### Materials needed:

½” Sheetrock  
1¼” Sheetrock screws  
Air sealing tape  
1” or 2” Foamboard

#### Tools and equipment needed:

Extension cord  
Lighting  
Driver  
Screw gun  
Sheetrock bit (dimpler bit)  
RotoZip Spiral Saw  
4½” Hole saw  
Sheetrock T-square (2’ and 4’)  
Sheetrock rasp  
Sheetrock hand saw  
Sheetrock lift  
Step ladders/stool  
Putty or drywall knife  
Ratcheting T-driver  
Black felt-tipped pen  
Chalk line  
Shop-vac

#### Personal Protection Equipment:

Safety glasses (required)  
Dust mask (recommended)

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

### **13.1. PREPARATION**

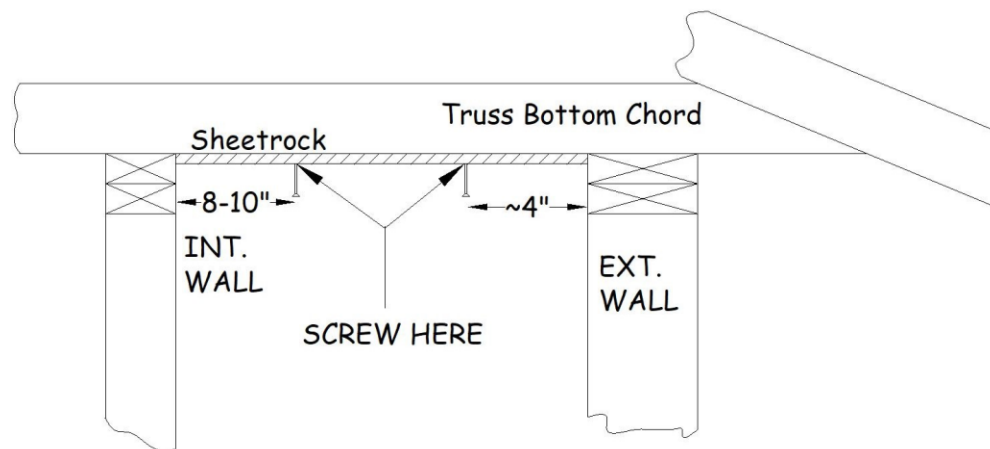
1. Verify that ceiling blocking has been installed where required. Install where missing. See Section 10.5.5 for blocking requirements.
2. Verify that the poly vapor barrier in the corners is not bunched up. Poly should be neatly tucked into corners to allow sheetrock to fit squarely into corners. Refold and re-staple if necessary and tape any holes that develop with air sealing tape. Also, verify that all taped areas will not prevent sheetrock from fitting tight to the trusses and blocking. Re-cut and retape any problem areas.
3. Where ceiling trusses cross interior walls, mark the truss center locations on the wall top plate with a felt-tipped pen. Where ceiling trusses cross exterior walls, no mark is necessary - they will be aligned with wall studs.
4. Verify that a starting point for sheetrock has been identified in the kitchen/dining/living room area. If not, check with the Construction Supervisor or Site Leader for help in making this determination (see Section 13.4.2).

### **13.2. PLANNING**

1. Develop an installation plan to maximize efficient use of people and material to minimize building costs. When considering the installation plan, keep in mind these general requirements:
  - The desired minimum sheetrock width is 12” along exterior walls and 16” along interior walls; however, the wider the better along interior walls.
  - Factory ends should butt to factory ends.
2. Divide the task of installing sheetrock into two functions, with a separate team for each function. For example, one team conducts the measuring and cutting, and installs each sheet with enough staggered 1¼” drywall screws to secure the sheet to the ceiling. Another team pencil marks the truss centerlines using a 4’ T-square, completes sheetrock securement, and conducts quality checks of all the screws (see Section 13.5.4 for quality check instructions).
3. Determine the best individual sheetrock lengths required to complete each row (see Section 13.5.2 and accompanying note).
4. Determine the sheetrock width for the first and last rows. For kitchen/dining/living rooms, this will typically be completed before the start of the workday. Check with the Site Leader or Construction Supervisor for the marked-up floor plan drawing showing the location of full width sheets. If this layout has not been completed, use the house floor plan or make a sketch of the rooms and add dimensions as instructed in Section 13.4.2 below.

### 13.3. GENERAL INSTALLATION RULES

1. All sheetrock pieces must be attached to at least three trusses or two trusses and end blocking (i.e., each sheet must have at least three rows of screws).
2. Each full width sheet must be fastened with seven screws on each end and five in the field.
3. Factory edges of sheetrock should butt to factory edges of adjacent pieces wherever possible. Keep cut edges toward the walls.
4. End joints on each successive row should be staggered a minimum of two and preferably three trusses.
5. After cutting sheetrock, measure and record the length on the drop and set the drop aside. To maximize efficiency, always check the drop pile first before cutting from a longer sheet.
6. Undercut sheetrock pieces  $\frac{1}{4}$ " -  $\frac{1}{2}$ ". For fitting between a factory end and a truss center or end blocking, undercut the length by  $\frac{1}{4}$ " versus the measured gap. However, if the entire sheet will be installed between two short walls, (e.g., a closet or pantry), undercut the sheet by  $\frac{1}{2}$ ".
7. When fastening sheetrock to trusses that cross interior or exterior walls, hold the screws 8"-10" away from interior walls, and about 4" away from exterior walls (see Figure 13-1).



**Figure 13-1. Screw Locations for Ceiling Sheetrock.**

8. Where the trusses run parallel to the walls, screw into blocking on top of the walls unless a truss is less than 6" from the wall. In this case, screw into the truss since there should be no blocking on the top of the wall. This process helps to prevent plaster from cracking if roof trusses move with changes in the weather.

9. Use a RotoZip Spiral Saw to cut out all ceiling electrical boxes (see Section 13.5.7 for roto-zipping instructions). Sheet rock pieces covering the scuttle access can be roto-zipped or cut with a hand saw. Prior to sheet installation, cut the fan opening with a hand saw so the perimeter of the cut is flush with the inside edge of the fan duct, or up to ½" larger.

**NOTE:** Do not use a RotoZip to cut openings for bath fans.

10. When roto-zipping, run a vacuum cleaner to reduce spreading the dust generated by the cutting tool. This will result in a cleaner work environment.
11. Use a 4⅛" hole saw to cut an access for basement HVAC adjustment dampers. See Section 13.5.9 for cutting instructions.

## **13.4. CEILING ROCK LAYOUT**

### **13.4.1. Bedroom and Bathroom Layout.**

1. Measure the room width (parallel to the trusses) from the exterior wall to the opposite interior wall (ignore walls inside closets).
2. Determine the total number of full 4' wide sheets that will fit into the measured length.
3. Subtract the total full sheet width from the room length. If the result is 12" or greater, continue with Step 4. Otherwise, proceed to Step 5.
4. If the result is 12" or greater, start the installation along the interior wall with a full 4' wide sheet. The row width along the exterior wall will meet the 12" minimum requirement.

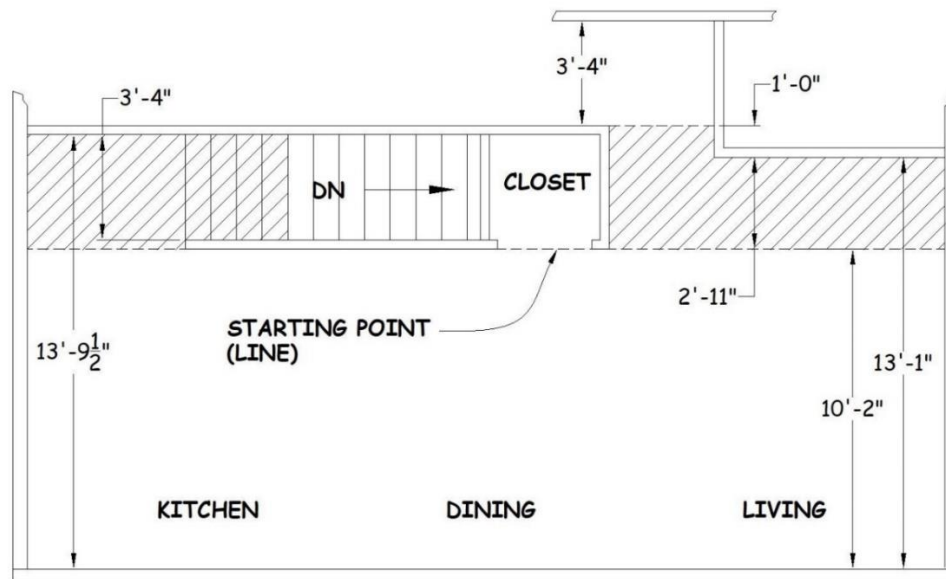
**EXAMPLE:** If room width is 13'-2", three 4' wide sheets will fit into the ceiling area of the room for a total sheet width of 12', leaving a  $13'-2" - 12' = 1'-2"$  or 14" wide row above the exterior wall.

5. If the result is less than 12", trim the first row of sheets to ensure the row above the exterior wall is at least 12" wide.

**EXAMPLE:** If room width is 12'-6", three 4' wide sheets will fit into the ceiling area of the room for a total sheet width of 12'. Since  $12'-6" - 12' = 6"$ , trimming 6" off of the first row will provide a 12" wide final row above the exterior wall.

### 13.4.2. Kitchen/Dining/Living Room Layout.

1. If these rooms have off-set and parallel interior walls, determining the optimum sheetrock widths can be difficult. The challenge is to determine the starting point. The starting point is a line parallel to the exterior wall that defines the end of the interior wall pieces and the beginning of the first full width row of sheetrock. If a starting point has not been pre-determined, follow the instructions below as they relate to the example provided in Figure 13-2 (where the cross-hatching indicates the first row of sheetrock).
2. Measure the room widths (parallel to the trusses) from the exterior wall to each parallel interior wall. Then measure the offset distances between each of the interior walls. Mark these dimensions on the floor plan drawing. Verify any provided dimensions indicated as reference (REF.).
3. Examine the plan drawing with added dimensions. Starting with the interior wall furthest from the exterior wall, determine if a full width sheet will work there. (In Figure 13-2, a full width sheet would result in less than a 16" width along the interior stairway and closet wall).



**Figure 13-2. Determining the Starting Point Along Interior Common Area Walls.**

4. If a full width sheet cannot be used, use the plan drawing to evaluate another option, e.g. a 2' piece or a 3' piece. (In Figure 13-2, a 2'-11" piece installed along the interior bedroom wall will provide a good starting point. It satisfies the 16" minimum width along the interior wall and the 12" minimum width along the exterior wall. The width along the exterior wall will be 2'-2", i.e., 10'-2" minus two full width rows.).

**NOTE:** If a full width sheet cannot be used for the first or last row, consider using a 1'-11½" piece. The drop will fit into most closets.

5. Also evaluate hallway areas extending from the kitchen/dining/living room areas. (In Figure 13-1, note that by extending the 2'-11" piece around the corner and into the hallway, a narrow filler piece could be avoided.)
6. Once a starting point has been determined, mark the trusses and snap a chalk line from one end of the room to the other. Verify the line is parallel to the exterior wall before installing sheetrock. Re-snap the line if it is out of parallel by more than 1/8".

### 13.5. INSTALLING CEILING SHEETROCK

1. Once the row widths have been determined, installation can begin at either side of the starting point line in common areas, but bedrooms and bathroom installation should start above an interior wall.
2. Begin installing sheetrock at a wall corner, perpendicular to the trusses. Determine the total length of the first row by measuring the room length (perpendicular to the trusses). Next, determine how many full-length sheetrock pieces can be used to fill the length and the size required for the end sheets. The standard size used for main floor ceiling sheetrock is 12' long; basement sheets are 8' long.

**NOTE:** Every sheet must be attached to at least three trusses or two trusses and end blocking. Also, all butt joints must be centered on a truss.

3. Extend the horizontal sheet support arms of the sheetrock lift as appropriate for the length and lower the two supports for the bottom of the sheet. Place the sheet on the lift and raise it until it almost touches the ceiling. Push the sheet tight against adjacent edges and **make sure the factory end is centered on a truss**. While raising the sheet tight to the trusses, verify that the sheet is tightly placed to the wall or adjacent sheet and that the factory end is still centered on the truss. Secure with several screws in at least three trusses (ends and middle) before lowering the lift. Continue installing all pieces before moving to the next row.
4. Conduct the quality control checks listed below on **every screw**. When completed, mark "OK" on every sheet with a piece of sheetrock used as a chalk. Conducting quality checks as soon as each individual sheet is installed is preferred over waiting until a room is complete. This helps identify any bad habits or equipment problems early in the installation process and helps ensure that the quality checks are not rushed at the end of the work day

**NOTE:** Never write on sheetrock with marking crayons or felt tipped marking pens.

- a. Use a putty knife to make certain the head of each screw is recessed below the surface of the sheetrock (a slight dimple is best). Slide the putty knife along the sheetrock surface and move it over every screw. Listen for a "click". If a screwhead is exposed, tighten until recessed.

- b. If a screw “spins” during driving or seems loose during tightening, it is not secured to a truss or blocking and must be removed and relocated.
  - c. If the screwhead or dimpler bit has completely broken the exterior paper layer of the sheetrock, the holding power of the screw is compromised. Leave the screw in place, but add an additional screw about 2” away.
  - d. Check screw count on each full width sheet to ensure there are seven screws on each end and five in the field. Add screws if the actual number is short of the desired count
  - e. Remove and relocate any screws located less than about 8”-10” from an interior wall or 4” from an exterior wall where trusses run perpendicular to that wall.
5. After completing the first row, continue to the next row (adjacent where the first row ended). Start with a full sheet if possible, but select a length that will allow for a joint stagger of at least two and preferably three trusses.
  6. Before covering electrical boxes and scuttle access with sheetrock, measure from the center of the opening to the edges of two adjacent surfaces oriented 90° to each other. Write these dimensions on an adjacent panel or scrap piece for reference when cutting out the opening. Install the sheetrock over electrical box openings with enough screws to hold the panel. To prevent driving screws through the sheetrock, do NOT fasten within 24” of electrical boxes until after the opening has been cut.
  7. To roto-zip around an electrical box, locate the mid-point of the box from the instructions in Step 5 above and mark this point on the sheetrock. Verify that the depth of the saw bit is  $\frac{5}{8}$ ”- $\frac{3}{4}$ ”. Insert the saw bit 3”-4” away from the mid-point and move it horizontally until resistance from the outside edge of the box is encountered. Then proceed to move the bit counterclockwise around the outside perimeter of the box. Moving the saw in a counterclockwise direction helps hold the saw bit against the outside surface of the electrical box.

**NOTE:** It is important to keep the bit outside the electrical boxes to prevent cutting the wires. If a wire is cut, or insulation is damaged, report it to the Site Leader or Construction Supervisor.

8. To roto-zip the scuttle opening, insert the bit near the scuttle frame, work the bit toward the framing, and cut counterclockwise around the inside edge of the framing.
9. Cut out holes for damper access prior to sheet installation. Determine the center of the damper control lever from two adjacent references, transfer the center to the sheet, and cut with a  $4\frac{1}{8}$ ” hole saw. Verify adequate access before securing the sheet.

### **13.6. ASSEMBLING SCUTTLE BOX COVER**

1. If the scuttle box cover is on-site, proceed to Section 13.7; otherwise, assemble the cover using the following steps.

**NOTE:** The scuttle box cover is constructed in two pieces to aid in inserting the insulation into the scuttle box.

2. Locate the piece of  $\frac{3}{4}$ " OSB pre-cut earlier to 25" x 27 $\frac{1}{2}$ " for the cover. If not found, cut a new piece.
3. Cut two pieces of poly about 48" x 48".
4. Cut 25" x 27 $\frac{1}{2}$ " pieces of 1" and/or 2" foamboard totaling 8" of thickness.
5. Center the OSB on one of the poly pieces and place a 3"-thick stack of foamboard on the OSB. Wrap the poly tightly up and over the foamboard and tape all poly edges tight to the foamboard with [air sealing](#) tape.
6. Center the remaining 5"-thick stack of foamboard on the second piece of poly. Again, wrap and tape the poly edges tight to the foamboard with [air sealing](#) tape.

### **13.7. FINISHING SCUTTLE BOX COVER**

1. Measure the width of the scuttle box framing (either, nominal 3 $\frac{1}{2}$ " or 5 $\frac{1}{2}$ "). Cut four sheetrock strips, each  $\frac{1}{4}$ " narrower than the measured width, and install them flush with the top of the scuttle box (thus allowing the scuttle cover to fit tight along the top of the framing). Secure with 1 $\frac{1}{4}$ " drywall screws.
2. Cut a piece of ceiling rock 25" x 27 $\frac{1}{2}$ " for the scuttle box cover. Attach it to the OSB portion of the scuttle box cover with 1 $\frac{1}{4}$ " screws and set aside for the plasterers.