

Chapter 14. Wall Sheetrock

14.1 PREPARATION

14.2 PLANNING

14.3 GENERAL INSTALLATION RULES

14.4 INSTALLING WALL SHEETROCK

14.5 FINISHING AND CLEANUP

Tools needed by volunteers:

Nail apron
Tape measure
Utility knife
Pencil

Tools and equipment needed:

Extension cord
6' Level
Lighting
Driver/Screw gun
Sheetrock bit (dimple bit)
Drill with 1/4" bit
Staple gun
Spiral Saw
2 1/2" Hole saw
Jab saw
Sheetrock hand saw
Sheetrock rasp
2' and 4' Sheetrock T-square
Foot lifter
Step ladder/stool
Putty or drywall knife
Ratcheting T-driver
Electrical box center locator
Black felt-tipped pen
Red marking crayon
Vacuum

Materials needed:

1/2" Sheetrock
5/8" Sheetrock
1 1/4" Sheetrock screws
1 5/8" Sheetrock screws
2 1/2" Sheetrock screws
1/8" Flat shims
Cardboard shims
Air sealing tape
Window edging strips

Personal Protection Equipment:

Safety glasses (required)
Dust mask (recommended)

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

14.1. PREPARATION

1. Verify that the sheetrock supply staged for house installation is ½” thick. The ⅝” thick sheetrock is to be used for the garage only.
2. Verify that all stud centers have been marked on the floor with red crayon. Mark any missing stud center references.
3. Verify that all electrical boxes, HVAC ducts, and protruding pipe locations have been marked on the floor. Mark any that are missing (see Sections 12.2.2 and 12.2.3 for marking instructions).
4. Verify that all walls have blocking where required. Install blocking where missing (see Section 10.6.3).
5. Verify that the interior faces of kitchen wall studs located behind the future countertop have been checked and adjusted to the same plane per Section 12.2.4.
6. Verify that the Jack studs of sliding door openings have been checked for straightness and plumb. If they are not shimmed or do not have “OK” written on the stud faces, check and shim per instructions provided in Section 12.2.5.
7. Verify that the exterior wall studs adjacent to flush sliding doors have been checked for straightness and plumb. If they are not shimmed or do not have “OK” written on the stud face, check and shim per instructions provided in Section 12.2.6.
8. Verify that the poly vapor barrier in the corners will not interfere with installing sheetrock. Poly should be neatly tucked into corners to allow sheetrock to fit squarely into corners. If poly will prevent sheetrock from fitting tight to the framing, pull out staples and refold if possible, or cut poly in the corners and re-seal with air sealing tape. Also check for holes and tape any holes that develop with air sealing tape.
9. Verify that the doorbell chime and thermostat wires are not covered with insulation or vapor barrier, and that the bathroom vanity light wire is either hanging outside the vapor barrier or connected to an electrical box. If these wires are not visible, locate and uncover them before installing the sheetrock.
10. Verify that cold air return boots don’t extend more than ½” beyond the face of the wall studs. Use a piece of sheetrock or 2x long enough to span adjacent studs and try sliding it down past the boot. If contact is made, manually push boot back to within ½”. This ensures that covers fit tight to the wall after plastering.
11. Verify exterior walls in basement are covered with 1” foamboard, gaps between the top of foamboard and the upper plate have been sealed, and the foamboard is pushed tight to the walls and held with scrap 2x or OSB.
12. Remove any residual spray foam and caulk from the face of all window frames and window components. Take care not to mar the frames. Also check the inside framing

faces of window components for any protruding nails and hammer them down flush to framing if present. On basement windows, verify the foamboard is flush or below the surrounding window framing. If necessary, trim with a rasp or utility knife (see Figure 14-1).



Figure 14-1. Trimming Foamboard Around Basement Window.

13. Remove temporary stairway handrail prior to installing sheetrock in the stairway areas.
14. Verify that the cutting bits in the spiral saws are not bent and that the bit protrudes no more than the ideal length of $\frac{5}{8}$ "- $\frac{3}{4}$ " beyond the saw guard. If it is bent remove the clamping sleeve and clean the sheetrock dust from the sleeve slots (with WD-40) to ensure adequate clamping pressure. Replace the bit and position the bit in the sleeve with about $\frac{1}{4}$ " of the bit sticking out beyond the base of the sleeve as shown in Figure 14-2 and reattach the sleeve into the spiral saw.



Figure 14-2. Proper Saw Bit Insert Depth.

14.2. PLANNING

1. Develop an installation plan to maximize efficient use of people and material to minimize building costs.

NOTE: Wall areas are measured before sheetrock day and the most efficient use of 8' and 12' sheetrock pieces are calculated from these measurements. Measurements are written on the studs – red dimensions indicate wall sections to be covered first (before adjacent walls). See Appendix B for an explanation of the measurement process.

2. Divide the task of installing sheetrock into three functions, with a separate team for each function. Functions include cutting, installing and quality control (see Section 14.4.1.7 for quality check instructions).

14.3. GENERAL INSTALLATION RULES

1. House sheetrock is installed with 1¼" sheetrock screws; garage sheetrock is installed with 1⅝" screws. The exception is the garage sheetrock covering the common house/garage wall which requires 2½" sheetrock screws.
2. **Screws should be installed** straight in (i.e., at a 90° angle to the sheetrock) and deep enough so the head is **SLIGHTLY recessed (countersunk) below the paper surface of the sheetrock**. If the outer layer of paper is torn, or the gypsum is crushed between the paper layers, the screw is too deep (see Figure 14-3) and the holding power of the screw is compromised. Leave the screw in place but add another 2" away. Adjust the depth setting of the driver to ensure the correct depth.

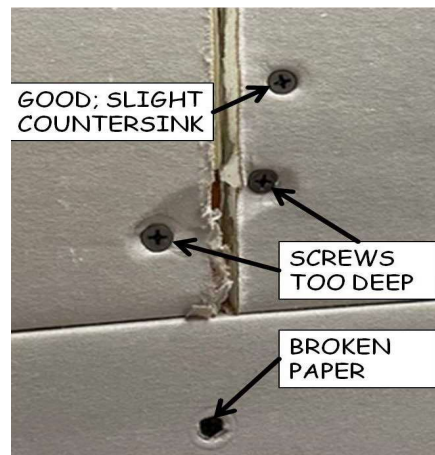


Figure 14-3. Examples of Countersunk Sheetrock Screws.

3. Full width sheets should be secured with seven screws on each end and five in the field.

4. All butt joints must be centered on a stud. Sheetrock pieces above doors or windows with headers do not need to seam on a stud, as headers and top plates provide sufficient support. Closet headers have no vertical studs to attach to.
5. All sheetrock must be secured to at least three studs or two studs and end blocking (i.e., each sheet must have at least three columns of screws). Exceptions are closet side walls, pieces covering closet door headers, window and door headers, and pieces that cover narrow areas (e.g., window framing and interior wall ends).
6. Each full width sheet must be fastened with seven screws on each end and five in the field.
7. Keep the screws used to secure bottom row sheets to wall studs or wall corner blocking 3"-4" above the floor
8. Bottom row sheets should be fastened to the bottom plate with two screws between each stud.
9. Undercut the sheetrock by the following amounts relative to the actual measured dimension:
 - by 1/2" if the piece will span the entire distance between two parallel walls (e.g. a closet or pantry).
 - by 1/4" when butting tight to an adjacent sheetrock piece (as between a sheetrock factory edge on one end and a stud or intersecting wall on the other end).
10. When measuring sheetrock to fit around exterior doors, leave a 1/2"-3/4" gap between sheetrock and the outside edge of exterior door jambs.
11. Factory edges of sheetrock pieces should butt to factory edges of adjacent pieces wherever possible. Try to limit cut edges to inside and outside corners, and the bottom row of basement sheetrock.
12. Ideally, all sheetrock pieces should butt together. Try to limit any gaps to less than 1/8". The maximum allowable gap is 1/4".
13. Cut the bottom row of sheetrock in the basement to provide a 1/2" gap between the bottom of sheetrock and the basement floor. This limits floor moisture from being absorbed into the sheetrock. If sheets are installed without a gap, use a multi-tool with a sheetrock blade mounted on a piece of 1/2" sheetrock to cut off the bottom 1/2" (see Figure 14-4).



Figure 14-4. Alternative Method for Ensuring ½” Gap Off Basement Floor.

14. Do not force sheetrock if the fit is tight. Forcing and mishandling can result in broken corners (see Figure 14-5). Sheetrock with broken corners should not be installed. If it is tight, trim to fit. If a break occurs during installation, check with the Construction Supervisor regarding acceptability. If it's OK, remove any loose paper and gypsum before completing installation.



Figure 14-5. Sheetrock Broken Corner.

15. End joints on each successive row should be staggered a minimum of two and preferably three studs.
16. Holes for plumbing and HVAC ducts are typically pre-cut prior to installation and electrical boxes are cut with a spiral saw after installation (for cutting instructions, see Section 14.4.1.12 for cold air returns, Section 14.4.1.13 for switch boxes, and Sections 14.4.1.14 and 14.4.1.15 for receptacle boxes). Use a 2½” hole saw to cut the opening for the sink drain.

NOTE: When cutting with a spiral saw, run a vacuum to reduce dust generated by the cutting tool. This will result in a cleaner work environment.

17. When attaching narrow strips of sheetrock (e.g., ends of walls, inside face of sliding closet doors, 4 x 4 posts, window frames, etc.), use two screws at each end, and fill in between with two staggered rows, every 12"-16".
18. All exposed wall foamboard in the entire house must be covered by sheetrock, per Building Code. Pay particular attention to covering edges of foamboard in the basement.
19. When cutting sheetrock with a hand saw, always cut facing the finish side (grey side) and cut on the push stroke only. This will prevent paper tear-outs along the finish side of the cut.
20. Keep screws 1"-2" away from the corners of sheetrock to prevent corner cracking.

14.4. INSTALLING WALL SHEETROCK

14.4.1. Walls

1. Begin installation at the top of a wall starting in a corner. Install sheets over stud areas marked with red dimensions first and finish the entire top row before installing the bottom row.
2. If wall areas have not been pre-measured, measure the total length of the wall selected for sheetrocking. Then, determine how many full-length sheets can be used to fill the measured length and the size required for the end pieces. The standard size for main floor wall sheetrock is 12' long; basement sheets are 8' long.

NOTE: Every sheet must be attached to at least three studs or two studs and end blocking. All butt joints must be centered on a stud.

3. Measure and draw pencil lines across the sheetrock at the stud centerline locations with a 4' T-square. Marking these lines ensures every screw hits a stud. Marking can be done either before installing while the sheet is still resting on the floor, or after the sheetrock has been secured to the wall with enough screws to safely hold it.
4. Position the piece tight to the ceiling sheetrock and install one or two 1¼" sheetrock screws per stud to securely hold it to the wall. Continue screw installation along the pencil lines until all top row pieces are in place and fully secured, using the recommended approaches provided in Section 14.3.
5. When sheetrocking an upper row, completely cover the upper portion of swinging doors, windows, and the front side of sliding closet doors with a single piece of sheetrock. Two butted scrap pieces can be used on the back side of the closet, provided the pieces extend at least 6" below and beyond the header.

6. Save each window cut-out for covering the windowsill and bottom of window header. Cut-outs from sliding closet doors can be used to cover the upper portion of swinging doors provided they extend at least 6" below the header and cover the header from corner to corner.
7. After installing sheetrock over windows and doors, remove the sheetrock portion covering the opening by cutting in a clockwise direction with a spiral saw along the inside edge of the framing. Set the saw bit depth to $\frac{3}{4}$ "–1".
8. 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.

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

TIP: 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 workday

- 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 the screwhead is exposed, hand tighten with a ratcheting T-driver until slightly recessed.
- b. If a screw "spins" during driving or seems loose during tightening, it is not secured to framing and must be removed and relocated.
- c. **If the screwhead or dimple bit is too deep, (e.g, it has completely broken the exterior paper layer of the sheetrock, or crushed the gypsum), leave the screw in place but add an additional screw about 2" away.**
- d. Verify the 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. Also verify that all sheets (except narrow sheets) are attached with at least three columns of screws. If not, see Construction Supervisor.
- e. Verify each piece of sheetrock is attached to at least two studs and a section of blocking (i.e., three rows of screws) before marking "OK". Inform the Construction Supervisor if any pieces having fewer than three rows of screws are found.
- f. Verify that all narrow sheetrock strips are secured as stated in Section 14.3.15.

- g. Verify that all screws used to secure bottom row sheets to **wall studs (or wall corner blocking)** are 3”-4” above the floor. If not, remove and relocate.
 - h. Verify that each bottom row of sheetrock is attached to the bottom plate with two screws between each stud.
 - i. Verify any loose or torn paper from the interior face of the sheetrock has been removed.
 - j. Verify any installed sheetrock with a broken area has been approved by the Construction Supervisor and loose gypsum has been removed.
9. When installing the top row of sheetrock, install screws about 1½” down from the ceiling. There is 2½” of wood support for the top row of screws (below the ceiling sheetrock). Screw straight in, NOT at an angle. Screwing straight in will reduce the number of screw heads that need to be reset.
10. On outside corners of walls, install a piece of sheetrock on the first wall so its corner side edge is flush with the outside edge of the corner stud. Score and snap (or saw-cut) this piece flush to the corner. (An acceptable tolerance is a maximum of ¼” short of the corner, but do not allow the piece to extend past the outside edge of the corner stud.) Form a recessed corner by installing the second sheetrock piece on the adjacent wall so its edge is flush with the other outside edge of the corner stud. The outside corner ends of the sheetrock should not overlap the corner (see Figure 14-6).

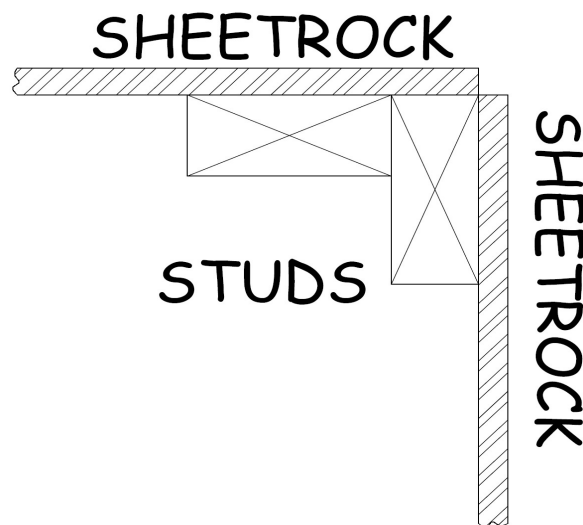


Figure 14-6. Top View of Outside Corner Installation of Sheetrock.

11. Outside corners of intersecting walls should be flush. If one corner stud is proud of the intersecting corner stud, a gap results at the corner (see Figure 14-7). To rectify, verify the problem and close the gap with cardboard shims **before securing** the sheetrock.

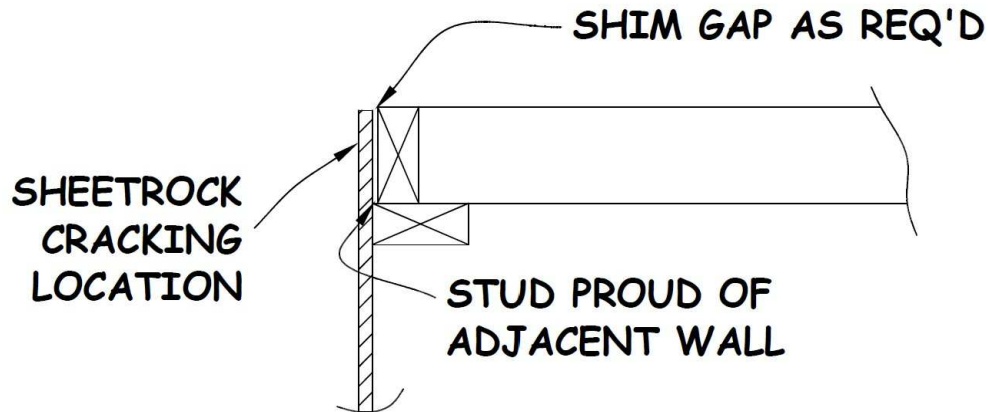


Figure 14-7. Proud Outside Corner Stud.

NOTE: If a gap exists, there is no support at the end of the sheetrock, and cracking can occur along the unsupported end (see Figure 14-8). Cracking compromises the security of the sheetrock and may cause future movement.



Figure 14-8. Cracking Resulting From One Proud Corner Stud.

12. If walls have not been pre-measured, first secure and check the top row of sheetrock. Then, install the bottom row. Start with a full sheet if possible, but select a length that will allow for a joint stagger of at least two studs. Install the bottom row of sheetrock using a pair of foot lifters to hold the sheet up snug to the

upper sheet before fastening. **For basement walls (including knee walls) sheetrock must be ½” off the concrete floor (or ledge for knee walls) to prevent moisture wicking.** Drive two screws into the bottom plate evenly spaced between each stud.

13. Cut out the opening for the cold air return before attaching the sheetrock to the wall studs. Determine the distances from both sides as well as the top and bottom of the duct boot to adjacent sheetrock surfaces. Transfer these dimensions to the sheet to be cut and use a square to mark the lines for the cut-out. Cut the bottom first, then both sides with a hand saw or jab saw. Scribe and snap off the top. As an alternative, the duct opening can be cut with a spiral saw after installation, but it is more challenging because the sheet metal is very thin. Take care to preserve the bottom section of sheetrock under the duct boot.

NOTE: If the room opposite the return duct has not been sheetrocked, set the sheetrock in place and trace the perimeter of the duct on the back side of the sheetrock. This will simplify the process.

14. Wall outlets are cut out by hand or with a spiral saw. Single electrical boxes, such as floor level receptacles (~14” above floor) and the microwave/range receptacle are typically cut with a spiral saw after piercing with a box center locator. Wall switches and switch height single boxes are generally cut out by hand.
 - a. To cut with a spiral saw, insert a box center locator into a box. Position the sheetrock and push in to pierce the sheetrock with the center locator. Verify the depth of the spiral bit is between 5/8” and ¾” and insert the bit to the left or right of the pierced hole. Move the bit up or down to contact the inside surface of the box, then move the bit clockwise around the inside of the box. Complete the cutout by spiral cutting around the outside of the box in a counterclockwise direction.

NOTE: When using a spiral saw, ask someone to run a vacuum and hold the hose end close to the leading edge of the cut to reduce spreading the dust generated by the cutting tool.

- b. To cut out a wall switch box by hand, temporarily position the sheetrock where it will be installed and mark the right and left edge of the box on the sheet. Extend these marks down about 6”. Measure from the bottom of the upper sheet to the bottom of the switch box and transfer this dimension to the bottom sheet. This is the height of the cut. Use a hand saw to cut the left and right sides down to the measured height, then use a utility knife to score the bottom side and snap off the cut-out.
15. **Do not bury doorbell chime or thermostat wires behind sheetrock.** Drill a ¼” hole in the sheetrock at the height the wire is attached to the stud and thread the wire through the hole (see Figure 14-9).



Figure 14-9. Pulling Wires Through Sheetrock.

16. If the bathroom vanity light wire is not running through an electrical box, leave it hanging at its attached height outside of the poly vapor barrier and sheet the wall. The electrician will drill through the sheetrock and fish the wire out at the appropriate location for the vanity light.
17. Cover the plenum for the range hood with sheetrock. The opening for the hood vent will be cut out prior to cabinet installation.
18. When sheetrocking the portion of the stairwell opening below the stairway closet platform, do not cover the joist hangers on the left and right side of the LVL. Cut the sheetrock short of the hangers and the plasterers will fill in the gap (see Figure 14-10).



Figure 14-10. Trimming Around Joist Hangers.

19. Re-install the temporary stairway handrail as soon as the sheetrock has been installed in the stairway area.

14.4.2. Window Frames

1. Verify component framing around the windows is free of residual spray foam, caulk, or protruding nails.
2. On basement windows, verify the foamboard is flush or below the surrounding window framing and trim with a rasp or utility knife (see Figure 14-1).
3. Use the window cut-out to cover the sill and the bottom of the header. Install these pieces first before sheetrocking the side pieces.
4. Place a cardboard shim on each corner of the sill, tight to the window frame. Cardboard shims are used to create a narrow gap for window edging strips.
5. Cut the sill sheetrock to fit tight to the cardboard shims and flush with the interior edge of the 2x6 window framing. Ensure that sheetrock is in good contact with the framing and check the reveal along the bottom of the window. If the reveal is uniform, go to Step 6 below. If not, verify the sill is free from debris and protruding nails. If necessary, use cardboard shims underneath the sheetrock to balance the reveal.
6. Secure the sill piece with 1¼" sheetrock screws. Push the piece tight against the shims and keep screws at least 2" out from the window frames. Screws should be installed per the pattern described in Section 14.3.15. Step back and re-check the reveal after installing screws. If the reveal is not uniform, remove screws and adjust with cardboard shims. Refasten in new holes. After installation, remove the shims used to create the edging strip gap.
7. Repeat Steps 3 through 6 above and cover the header. Then, use scrap pieces to cover the sides, maintaining a gap around the entire perimeter of each window frame per Step 3 above.
8. Measure the length and width between the installed sheetrock pieces and cut one edging strip to each of those dimensions. Clip the corners to 45° angles (see Figure 14-11) and insert the short edge into the gap. Push the beads down along the strip length. If bead strips are too long (do not lay flat), remove, re-cut and re-install.

NOTE: A maximum of two window edging strips can be butted together to form a single edging strip per section. Do not use a strip length less than 6".

9. Starting on one end, push the strip into the gap and tight to the window frame. Hold and add one staple near the row of holes closest to the window (see the right side of Figure 14-11). Repeat the push-hold-and-staple sequence every 6" along the window, keeping the strip in contact with the window frame as each staple is added.



Figure 14-11. 45° Clipped Corners and Inside Row Hole Stapling.

10. Once the edging strips have been stapled per Step 9 above, complete installation by stapling down the interior edge of the edging strips every 6"– 9" (see Figure 14-12).



Figure 14-12. Final Staple Securement of Edging Strips.

11. Pound down any non-flush staples.

14.4.3. Shower Area

1. Sheetrock at the tub/shower nailing flange should butt to the exterior edge of the nailing flange (see Figure 14-13 for proper installation). **NEVER OVERLAP THE NAILING FLANGE.**



Figure 14-13. Sheetrocking Around Tub/Shower Nailing Flange.

14.4.4. Basement Door Area

1. On the unfinished side of the basement door, install scrap sheetrock above the door and on either side of the door to the width of at least one stud bay.
2. Use 8"-12" wide sheetrock scraps to cover all interior horizontal wall wiring between studs in the unfinished side of the basement. Cut all pieces to the same width.

14.5. FINISHING AND CLEANUP

1. Return all unused full-length sheetrock to the main floor.
2. Any leftover pieces of sheetrock (**no full sheets**) may be given to the homeowner if they want them. Lean these pieces up against a wall underneath the stairs, supported by a few short scraps of 2x material to keep them off the floor.
3. When installation is complete, clean floors by dragging push brooms to remove debris, but do not remove the fine dust.

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