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Introduction To The Drywall Section
This Section Includes

Task Lists
Safety Review
Tool, Equipment and Material List
Material Description
Construction Details and Drawings

Schedule: Drywall Days 1 & 2

On most Habitat projects the drywall installation can be completed during two scheduled workdays. The drywall cannot be installed until all of the rough-in inspections have been completed and the wall insulation has been installed and inspected. At the end of the second day of drywall, the house should be cleaned out, its floors swept, and ready for the drywall finishers.

Crew Assignments

It is suggested that approximately 15 volunteers, including one task leader and 3-4 crew leaders, be recruited for Drywall. Divide the crews up by distributing the experience level among the crew leaders. On workdays when there are a large number of workers assigned, they can be divided into small crews and each crew assigned to complete all the drywall installation in a particular room: ceilings, walls, closets, and window wraps. With a smaller number of workers, it may be desirable to have all the volunteers concentrate on installing the ceiling panels throughout the house, then continue with the walls in one or two rooms at a time.

Drywall Safety Guidelines

Review these guidelines with each crew member at the start of the day or as they arrive on site.

“NO JOB IS SO IMPORTANT THAT IT CAN’T BE DONE SAFELY”

Speak up if something looks unsafe. An observer can spot danger quicker than a worker.

Stack material so that it is stable and secure. Do not pull the stack away from the wall because shifting stacks have broken bones. Drywall is very heavy!
Dust masks are strongly recommended when using the router.

Utility knives - keep your hand out of the blade’s path. Retract blade when not in immediate use. A sharp blade is safer than a dull one. Safely dispose of used blades.

Drywall preachers (tees) are top heavy and work loose as ceiling is screwed. Hold these supports by hand while they are in use.

Know where water & a first aid kit are located. Tell the site supervisor immediately in the event of an injury.

Habitat requires safety glasses at all times.

Power Saws:

- Only crew members with power saw experience can use them. A busy work day is not the time to teach saw skills nor is it the time to learn saw skills.
- Habitat advises that ear and eye protection be used when using power saws. Don’t bind the blade of any saw – listen for it. Back off and re-support lumber. Keep electric cords out of the way of the saw.
- Don’t cross hands over to stabilize material on the miter saw. Find another way or get help.
- Guards on saws must be in place & operating.

Keep the entire work area, inside and out, free of trip and fall hazards.

Don’t leave loose objects on top of ladders. Keep tools not in use in your tool belt at all times. Select the correct tool for your work. Carry only those you need.

No loose clothing or hair that can get caught in power tools.

Wear appropriate clothing for the task including work boots that protect from falling objects, have a nonskid sole & resist nail penetrations. No open toed shoes allowed.

Tools must be in a safe condition (meet OSHA standards, i.e. no cuts in cords or missing ground prongs.)

Think & concentrate on your task.

If you are uncertain about how to do a task, or how to operate a power tool, ask your crew leader.
Task List - Drywall Installation

Staffing

House Leader
Drywall Task Leader
3-4 Crew Leaders
10-11 Additional Volunteers

Tasks to Be Completed and Crew Sizes

<table>
<thead>
<tr>
<th>Task</th>
<th>Crew Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mark location of studs, trusses, electrical boxes etc.</td>
<td>2 to 3 people</td>
</tr>
<tr>
<td>Install drywall panels on ceilings</td>
<td>3-4 crews</td>
</tr>
<tr>
<td>Install drywall panels on walls</td>
<td>3-4 crews</td>
</tr>
<tr>
<td>Install drywall wraps around windows</td>
<td>1 crew</td>
</tr>
<tr>
<td>Clean-up site, put away tools and equipment</td>
<td>All crews</td>
</tr>
</tbody>
</table>

Quality Checkpoints

- Drywall panels installed so butt joints are over framing members and staggered
- Nail & screw patterns complete
- Nail and screw heads straight and paper dimpled
- 1/8” maximum space at cuts around electrical boxes and other openings
- Top edges of all drywall panels are sealed with caulk or Sill Plate gasket material
- Floor symbols checked against wall penetrations (none covered up)
- All materials re-stacked, site cleaned, tools accounted for and put away

Drywall Tool, Equipment & Material List

<table>
<thead>
<tr>
<th>Tools Each Drywall Crew Member Will Need</th>
<th>Tools Each Drywall Crew Will Need</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hammer (16 oz. Min)</td>
<td>Measuring Tape (20’)</td>
</tr>
<tr>
<td>Nail Apron</td>
<td>Drywall Square (4’)</td>
</tr>
<tr>
<td>Retractable Utility Knife with extra</td>
<td>Keyhole Saw</td>
</tr>
<tr>
<td>blades</td>
<td></td>
</tr>
<tr>
<td>Retractable Measuring Tape (16’</td>
<td>Drywall Saw</td>
</tr>
<tr>
<td>Minimum)</td>
<td></td>
</tr>
<tr>
<td>Square (Speed or Combination)</td>
<td>Chalk Line (Blue Chalk Only)</td>
</tr>
<tr>
<td>2 Pencils</td>
<td>Radius Cutter (Optional)</td>
</tr>
<tr>
<td>Safety Glasses</td>
<td>Toe-Operated Drywall Lifters</td>
</tr>
<tr>
<td>---------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>Work Gloves</td>
<td>Electric Drywall Screw Guns with Extra Bits</td>
</tr>
<tr>
<td>Water</td>
<td>18 Volt Drivers with Extension and Drywall Screw Setter</td>
</tr>
<tr>
<td></td>
<td>Surform® Drywall Plane</td>
</tr>
<tr>
<td></td>
<td>2 Drywall benches</td>
</tr>
</tbody>
</table>
|               | 12 Gauge Drop Cord (50’)

### Drywall Tools and Equipment Needed On Site

#### Drywall Material List- For Crews:

- Twelve-Gauge Drop Cords (100’)
- Three or Four-Way Electrical Box
- Circular Saw (7¼”)
- Lumber Marking Crayon or Marker
- Drywall Benches/Work Platforms - 6-8 total
- Step Ladders (6’)
- Drywall “Preachers” (‘T’ Posts) 6-8 total
- Toe-Operated Drywall Lifters (4 pair)
- Routers (Rotozips®)

#### Drywall Material List- For Drywall Finishers:

- Drywall Nails
- 2x4s for miscellaneous Deadwood
- Window Wraps
- Corner Bead
- Tape
- Drywall Mud

### Drywall Material Description

#### Deadwood

Framing material that provides nailing area for drywall where wall and ceiling framing is not adequate.

#### Drywall Panels

Drywall panels that are normally used on Habitat Projects are either 4’x10’ or 4’x12’ sheets of ½” gypsum wallboard.

#### Drywall Screws

1¼” Phillips head screws that are specifically designed for attaching gypsum wall board.

#### Drywall Nails

1¼” coated nails that are specifically designed for attaching gypsum wallboard. Note: No longer used in typical installation.

#### Drywall Window Wraps

Rectangular pieces of drywall that are installed against the rough framing on the sides and top
of a window opening. These can be made on site if not prefabricated.

**Drywall Preachers**

Supports that are used to help hold drywall panels against the ceiling during installation. They consist of a 2x4 post with a horizontal support at one end and are sometimes called T-Posts.

**General Instructions For Working With Drywall**

This is a good drywall crew. Each support is perpendicular to the trusses and is being held by a volunteer. The bench is well built and safe.
Panel Basics

Panels come in pairs, good side facing in, and paper tape binding their edges. Take them apart by pulling the tape free. The front side of a panel has a beveled edge for taping seams. The back side has faint markings and tape. Remind beginner crews to layout accordingly because it is easy to transfer hole measurements to the wrong side. This is important even on straight cuts because factory edges need to go in the center of walls and ceilings.

Cutting Panels
To cut a panel to the desired length, mark the dimension on the top edge of the panel and cut across the 4' face with a utility knife. Use a 4' drywall square as a straight edge to guide the knife. After cutting through the paper face of the panel, snap the panel away from the face side and cut along the crease on the back of the panel.

To cut along the 12' dimension of the panel, mark the desired width on the face of the panel in at least two places. Then strike a chalk line between these points and score through the paper with a utility knife as before.

Sequence for Cutting Panels
A T-Square is set to the mark and used as a straight edge for cutting. Don’t forget to take advantage of its rulers. When cutting more than 4’, use a blue chalk line (red will bleed through paint.)

NOTE: NEVER CUT TOWARDS YOUR HAND WITH UTILITY KNIFE

Step One: Measure, Set T-Square in position. Cut first side of panel using square as a guide. Keep hands out of path of blade. Panels are cut 1/4” short of full dimension.

NOTE: GOOGLE ALWAYS REQUIRED

Step Two: Snap board.

Step Three: Cut paper along crease.
Board ready for placement. Use a Surform® to smooth rough edges.
**Use the Surform®**

After cutting boards \( \frac{3}{8}'' \) short, use a Surform® to smooth rough edges, then bevel the edges toward the backside of the board. Accurate cuts will keep broken corners to a minimum. Replace panels that have badly broken edges due to being forced into place. Utility knives can be used for small areas. Each crew should have its own Surform®. Small ones are best because they fit in your tool belt.

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"NO JOB IS SO IMPORTANT THAT IT CAN’T BE DONE SAFELY"

**Utility knives** - keep your hand out of the blade’s path. Retract blade when not in immediate use. A sharp blade is safer than a dull one. Safely dispose of used blades.
Cutting Holes in Panels

Holes in panels can be cut with a keyhole saw before the panel is installed, or a router can be used after the panel is in place (preferred).

Cutting with a Key Hole Saw

Before panels are installed, lay out and cut holes for electrical boxes, heating vents, etc. The maximum space allowed around electrical boxes is 1/8”, so accurate measuring and cutting is important.

To properly locate a round electrical box (normally on ceilings), measure the distance from two adjacent walls (or from the edges of adjacent panels which have already been installed). Transfer these measurements to the face side of the panel to be installed, marking where the two points intersect. If a radius cutter is available, place the pivot point of the cutter at this point and cut a hole to the required diameter. The hole can also be cut with a keyhole saw after first marking for the hole with a compass or a template of the proper size (another round electrical box makes a good template).

For rectangular holes (heating vents, electrical boxes for switches and receptacles), measure the distance first from one wall (or adjacent panel) to both sides of the box and then from the intersecting wall or panel to the other two sides of the box. Transfer these measurements to the face side of the panel to be installed, then with a drywall square as a guide, draw lines to connect the points. Then cut out the area between these lines with a keyhole saw.
Cutting with a Router

For larger holes or openings (doors, windows, attic stairs), install the panel first, then cut out the opening using a saw or a router using the edge of the frame opening as a guide for the saw.

Routers (Rotozip®) can be used for cutting almost all holes. Work the router counterclockwise (against the turn of the bit). Have extra bits on site. Each separate crew would appreciate its own router.
Tolerances for Holes

The maximum space tolerated around electrical boxes is 1/8”, which is only the width of a router bit. Accurate measuring and cutting is important. Gaps wider than 1/8” mean the board will require extra work for the drywall finisher. Help keep the finishing price down by having a quality installation. Even oversized outlet covers cannot make up for sloppy cuts. Do not trade speed for accuracy. On boards with large overcuts, see the site supervisor.

“NO JOB IS SO IMPORTANT THAT IT CAN’T BE DONE SAFELY”

Stack material so that it is stable and secure. Do not pull the stack away from the wall because shifting stacks have broken bones. Drywall is very heavy!

Habitat requires that safety glasses be used at all times.
Construction Details - Drywall Installation
Mark Locations of Studs, Trusses & Electrical Boxes

Before hanging any drywall, mark the center of the trusses (on the top plates), and the center of the studs (on the floor) with a heavy arrow. Mark the location of all electrical boxes, plumbing fixtures, or heating vents by using common symbols, such as those found in the illustration.
Plan the Layout

Ceiling Details

Before any panels are cut, develop a plan for the ceilings and walls in each room.

Layout Basics:
- If boards are available in 10’ and 12’ lengths, save the long boards for long walls (i.e. do not cut a 9’ piece out of a 12’ board).
- The panels must be laid out perpendicular to the ceiling joists and wall studs.
- If the room is less than 12’ wide, a single piece can be used.
- When a room is more than 12’ wide, panels are laid out with the butt or end joints staggered. Stagger joints at least 4’ if possible.
- Halls use a single width of drywall. Plan the intersection where halls meet living rooms to get as many factory edges together as possible.
- Leave access to rooms and closets. Drywalling certain walls will block access to these areas.
- Panels should attach to a minimum of three framing members.
- Try not to use pieces shorter than 3’.
- Do not use scrap pieces in closets as it creates too much work for the finishers.

Install Ceilings Boards

Ceiling panels are always installed before the walls. Have two drywall preachers and two benches available in the room. Plan the lay out so that only factory (uncut) edges abut at the joints. (The cut ends should abut the edges of the ceilings or the corners of the walls.) Plan the layout so that seams are not on a light fixture.

Attach ceiling panels with 1¼" drywall screws using a drywall screw gun or 18 Volt driver. Use a pattern of one screw every 12" along each interior framing member, beginning approximately 1" from the edge of the panel. Place screws along the edge of a panel at 8” o.c.

**NO JOB IS SO IMPORTANT THAT IT CAN’T BE DONE SAFELY. SPEAK UP IF SOMETHING LOOKS UNSAFE. AN OBSERVER CAN SPOT DANGER QUICKER THAN A WORKER.**
Drywall Preachers

Whenever possible use three crew members to lift the panel and two to set the preachers under the panel to support it while screwing it in place. To keep the drywall from bending up into the trusses, place the preachers perpendicular to the joists. Make sure the screwing pattern is almost complete before removing the preachers. Assign a crew member to keep a hand on the preacher until it is taken down.

One crew member should run a hand or putty knife over all of the screws to make sure that all are properly countersunk, but not cutting the paper.

Hold the board tightly in place while the preacher is put into final position. If the board isn’t held tight, the preacher will twist it out of place.

“NO JOB IS SO IMPORTANT THAT IT CAN’T BE DONE SAFELY”

Drywall preachers (tees) are top heavy and work loose as ceiling is screwed. Hold these supports by hand while they are in use.
Place前身ers perpendicular to trusses. Keep a hand on them at all times. They are top heavy and dangerous.

Seams are staggered at least 4'. Only factory edges are used in middle of walls or ceilings (not represented in photo).

Habitat work is serious business
Screw Guns, 18 Volt Drivers and Screws

Screw guns have an adjustment that allows the head of the screw to be countersunk just below the surface of the panel. Screws should be \(\frac{1}{16}''\) below the surface so as not to break through the paper on the face of the panel. A Screw Setter used on 18 Volt Drivers also performs the function of controlling the depth of the drywall screw with no adjustments required.

Remove ALL screws that miss a stud or are not driven in straight. Dimple the paper where screws and nails have been removed.

Before beginning the day, and periodically during the day, check every screw gun’s depth setting. Use a scrap piece of drywall against a stud and make the necessary adjustments.
Install Wall Boards
Wall Details

- Exterior walls should be completed first. Place panels of drywall in the room prior to completing interior walls or you may lose access to the room. Attach wall panels using 1¼” drywall nails.
- Upper panels are installed before lower ones. Start drywall nails along the top of the panel before raising it. Lift the panel so the upper edge is touching the ceiling so the upper nails can quickly be set to hold the panel in place. Place drywall screws every 12 inches along each stud location. Alternately nail every 8” along edges and every 12” on the interior of the panel. Interior nails are doubled at 12”, 24” and 36”.
- After the upper panels are in place, install the lower ones. A toe-operated drywall lifter or fulcrum is used to lift the panel off the floor to close the joint between the upper and lower panels, leaving a space (approximately 1” wide) at the floor.
- Plan to install drywall in the closets before all the walls in a room are covered. It may be difficult to get panels into these areas after walls are done.
- Pull the kitchen vent wire through the wall 32½” down from the ceiling.
**Wall Details-Nail Application**

- Cut Door Opening with Router after full panel is installed.
- Space screws a maximum of 12" apart on stud at least 3/8" from edge and edges. Sink screws to just below panel surface leaving paper intact.
- Factory edges on all interior seams.
- Drywall lifters here to raise the bottom panel tight to upper.
Air Seal Drywall to Top Plates

The top edge of the drywall must be sealed to the top plate of the wall framing. This is normally done by applying a heavy bead of caulk mid-height of the top plate just before the drywall panel is lifted into place. An alternate method is to staple a band of Sill Gasket to the top plate. Ask construction manager for his/her preferred method.

Heavy bead of caulk applied to the top plate typical all walls. Alternate Sill Sealer also shown.

Nailing Technique

Nails should be driven into the face of the panel so that the nail head is slightly below the surface. On the final stroke, the face of the hammer depresses the drywall around the head so that it is indented 1/16" to form a “dimple”. Do not break the paper surface of the panel. (Using a drywall hammer with a slightly rounded face makes this task easier.) Remove ALL nails that miss a stud or are not driven in straight. Dimple where the nails were removed. Dimples hold drywall mud.
Dimple paper in 1/16" when setting nails. Do not tear with nail or hammer. It is the paper that gives drywall its strength. Dimples are needed for the drywall compound.

Establish the habit of feeling for dimples and set nails.

Do not bend nails or break paper. This nail should be removed and the paper dimpled. (If removing it is too damaging, it can be sunk as long as it has hit a stud.)
Start the top nails while the panel is on the ground. Placing nails over studs will show the top of the stud’s location, which will be helpful when nailing in the center of the panel. Start nails 1 ½” down from the top to make nailing easier.

Raising top board together.

Nails that were started are now easy to set.

Using a T-Square to mark boards for stud locations can be helpful. Top of stud is easily located if nails in upper panel were started over studs. This is especially helpful when panels are not marked for studs.

The top board is in place. Window and door openings can be cut flush or ¼” short but never long.
Install Drywall Wraps around Windows

Before wrapping the window jambs, make sure the drywall on the walls does not overhang past the window framing. It should be flush or \( \frac{1}{4}'' \) short of the corner.

If requested, wrap the tops and both sides of each window opening with drywall strips. These can be cut from scrap pieces to fit just inside the frame opening. Nail the strips in place using 1¼” drywall nails about every 12” near the center of the strip. The room side of the Drywall Wrap should be flush or 1/4” short. Plane any protruding drywall using a Surform® Drywall Plane.

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*Utility knives - keep your hand out of the blade’s path. Retract blade when not in immediate use. A sharp blade is safer than a dull one. Safely dispose of used blades.*

Clean Up Site, Put Away Tools

Scrap pieces of drywall will be generated during the workday and should be stacked in two separate stacks. In one stack place all the usable scraps (pieces that are large enough to be used elsewhere in the house). In the other stack place all the broken or damaged pieces and those that are too small to be used. At the end of each workday, remove from the house all the scrap drywall to be thrown away and sweep the floors.

On the final day of Drywall Installation any full unused drywall panels, and all leftover nails, screws, and equipment should be removed from the house and returned to storage. Remove debris and sweep the floors. The house should be ready for the professional drywall finisher.

Final Nail and Screw Check

After the house has been swept out, do a final walk through checking for the following:
- Screw and nail pattern complete
- Screws set below surface
- Nails dimpled
- Bent, crooked, overdriven nails and screws removed and paper dimpled
- Additional screws added in places where screws have broken the paper.
- No outlets or other penetrations covered up (check against floor markings).

**Drywall Appendix**

**Reducing Nail Pops**

To minimize future nail pops, use a nailing pattern that begins in the center of the panel and works its way towards the edges. Think of it as smoothing out a piece of wrinkled paper.

**Drywall Benches and Work Platforms**

Drywall benches and work platforms are preferred because they are easier to use than ladders.