

Introduction Thanks for volunteering to help at a construction site. Your efforts will make a difference not only to one particular family in need of decent, affordable housing but also the whole neighborhood.

In this [Construction Volunteer How-To article](#) we discuss drywall. Sometimes volunteers fasten the drywall – also known as Sheetrock® or just plain rock – to the ceilings and walls of a house. Fastening drywall is sometimes called *rocking*, so you'll be rocking a house.

We want to familiarize you with the procedures. We hope you'll study this article and feel free to print it on paper, re-read it as necessary, and bring it with you to the site for reference. It does not attempt to teach you *everything* there is to know about rocking, but it's a good start. A supervisor will be on site to try to answer your questions and demonstrate certain procedures.

Table of Contents

Drywall – purpose, definition and description	1
Order of Installation of the three layers	2
Excel spreadsheet	2
The procedure generally	3
Special considerations for the ceiling layer	3
Special considerations for the top wall layer	3
Special considerations for the bottom wall layer	4
How to make snap cuts	4
How to make hole cutouts	5
How to measure and mark for a rectangle	5
Slideshow	6
How to cut out a rectangle	7
How to measure and mark for a circle	7
How To cut out a circle	8
How to make it fit	8
How to find nailers	8
Finding nailers above ceiling rock	9
Finding nailers behind top wall rock	9
Finding nailers behind bottom wall rock	9
How to attach the piece	10
Other rules you must follow	10
Seams	10
Errors	11
Other tips, tricks and hints	12
Conclusion	13

Drywall – purpose, definition and description [TOP](#)

The purpose of drywall, which comes in 4-foot-wide sheets, is to be the ceiling and walls of the interior of the house. When attached to the ceiling of the topmost story, it also supports the weight of the attic insulation. When attached to the inside of exterior walls it holds in the insulation between it and the exterior sheathing. It provides a significant degree of soundproofing. Because it is non-flammable, it retards the spread of a fire to the wooden framing members and thence to other rooms. Finally, drywall helps to stiffen the framing members of the house – the horizontal *joists* for the layer of ceiling rock and the vertical *studs* for the two courses of wall rock.

Once it is all installed, the drywall will be mudded and taped and sanded and painted and eventually scrawled on by a toddler who just discovered how crayons operate. This is what we're all striving for – a comfortable, well-built home a deserving family can grow up in and be proud of.

Drywall is a processed slab of the ground-up mineral gypsum (calcium sulfate) covered on both faces and both edges by two pieces of paper. You might remember gypsum from elementary school art class: Grind gypsum into a powder, add water, *et voilà!* you get plaster of Paris.

The sheets of drywall come in 4-foot widths and in lengths varying from 8 to 16 feet. Ceiling rock is 5/8" thick and wall rock is 1/2" thick. (Special rock called *greenboard* is used in areas exposed to water such as around a shower or sink, and it should be used only where it's needed, because it costs more than regular rock.)

A sheet of drywall consists of two faces, two edges, and two ends. The faces and edges of drywall are covered in paper but not the ends.

Two faces. Drywall has what are called a *good* or *show side* and a *bad side*. The paper face that's lighter in color and smoother in texture is the good side, and it must always face the inside of the room or hallway, because the cheaper, bad side will not take mud or paint as well.

Sign your house. The bad side is good, however, for continuing a tradition among construction volunteers, which is that if you work on a site you should feel free to "sign your house." Signing your house means grabbing a pencil or some other marker and writing your name or the date and a message or whatever you like for history to record.

Two edges. The two long edges are covered in paper, and they are also tapered to a narrower width at the outermost inch or so; these are called the *tapered* or *beveled edges*. The purpose of the tapered edge is to create a flattened-V-shaped valley with the tapered edge of the sheet next to it so there's a space in which to lay all that mud and tape without building up an unsightly mound.

Tapered seams are good, butt-end seams (see below) are evil.

Two ends. The ends, which are 4 feet long, are not covered in paper, and they are called the *butt ends*. (Also, wherever you shorten a piece of rock by making a [snap cut](#) you create two new butt ends.) As you just learned, butt-end seams are more difficult to mud and tape well, so we want to minimize the linear feet of butt-end seams in favor of tapered-edge seams.

No matter what, always use the longest piece of rock you can.

Order of Installation of the three layers [TOP](#)

Rocking a house is done in three layers, from top to bottom. The ceiling (sometimes called the *lid*) must be attached first, then the top 4 feet of wall rock, and finally the bottom 4 feet of wall rock.

Here's why. The bottom row of wall rock must be attached after the top row because the top edge of the bottom wall rock must butt up against the bottom edge of the top wall rock (as opposed to resting on the floor). There should be a gap between the bottom edge of the bottom wall rock and the floor of about 1/2 inch. To see exactly why, open or save and open this [Excel spreadsheet](#).

And the top wall rock must be installed after the ceiling rock so it can butt up against that ceiling rock to support all of its perimeter.

So, after we meet at the beginning of the session we'll break up into crews, and each crew will pick a room to rock, starting with the ceiling. Only when all of the ceiling is finished can we move on to the top wall rock and then finally the bottom wall rock. If the house is partly rocked when we arrive, we'll take up where the last group left off.

The procedure generally [TOP](#)

In this section we describe the typical steps for installing a piece of rock. Below this section are the special considerations for installing each of the three layers.

1. Choose the location for your next piece of rock.
2. Decide where to make your cut so you use up as much length as possible but also so the cut end lands halfway along a [nailer](#), leaving the other half of that nailer for the next piece along. For nailers that are 1-1/2" wide, which is most of them, you'll want to land the cut end 3/4" onto it. Do not land the edge of a sheet on a stud or joist where you'll need to make a cutout such as for an electrical box.

Once you have chosen that point, carefully mark it on the drywall sheet with a V-shaped pair of pencil marks called a *crow's-foot* at one edge. Make the same crow's-foot mark at the other edge of the sheet, which will be in the middle of that same nailer but on the opposite edge 4 feet away.

3. With those two marked points defining the endpoints of a straight line, make a [snap cut](#).
4. Look carefully for where any openings need to be made, such as for light fixtures and electrical outlets. [Make cutouts](#) for each one.
5. Test-fit the piece.
If it fits, [attach it](#).
If it doesn't fit, [make it fit](#) then return to the beginning of Step 5.
6. Return to Step 1.

Special considerations for the ceiling layer [TOP](#)

Ceiling rock is attached perpendicular to the *joists*, which are the horizontal members above your head that run perpendicular to the ridge of the roof. Often the joists are the bottom edges (called *chords*) of the triangular trusses that support the roof.

Sometimes there are no joists where an edge or end of ceiling rock must be attached, and in those locations there should be special pieces of wood attached to the tops of the top plates just so you'll have a [nailer](#). If your room is missing such a special nailer anywhere, which is a possibility, let your supervisor know right away.

Ceiling rock is 5/8" thick, not the 1/2" used for wall rock. Don't confuse them. Also, keep in mind as you're making marks whether the sheet is right-side up or down. Note also that in the garage, because of the special hazards expected to be therein, you must use 5/8" rock on walls that are shared with the inside of the house.

Follow all the [other rules](#).

Special considerations for the top wall layer [TOP](#)

The top wall rock layer is attached to the vertical members of the frame, principally the studs but also the headers above windows and doorways. To get started just pick a corner, then work from there all the way around, always going up to the farthest vertical edge of wood before turning a corner.

Make sure the top edge of the top wall rock is pressed snugly against the ceiling rock before you install it.

Wall rock is 1/2" thick, not the 5/8" used for ceiling rock. Don't confuse them.

Follow all the [other rules](#).

Special considerations for the bottom wall layer [TOP](#)

The bottom wall rock layer is installed the same as the top wall rock layer, except you have to keep in mind that the top of that bottom wall rock must be snug against the bottom of the top wall rock that's already in place, not resting on the *deck* (the deck is always either a wooden sub-floor or a slab of concrete). This means two things:

- When you set a piece in place to test-fit it or attach it, you'll want to make sure it is raised all the way up to the top wall rock, which means it will be half an inch or so off the deck. If *toe-lifters* (little teeter-totters) are available, use them. If they aren't, a pair of Wonder Bars, generically called *flat bars*, will also work.
- Remember that gap at the bottom when you make measurements for [cutouts](#), and take all vertical measurements from the top down rather than the deck up.

Wall rock is 1/2" thick, not the 5/8" used for ceiling rock. Don't confuse them.

Follow all the [other rules](#), paying special attention to [seams](#).

How to make snap cuts [TOP](#)

Making straight-line snap cuts is easier and more fun than making [hole cutouts](#). To make a straight-line cut, which is really a straight-line *snap*, you must have already marked two points on opposite edges or ends of the sheet of drywall.

You'll use a utility knife to score the paper on one side, you'll use your knee to make the snap, and you'll use your knife again to slice the paper on the other side.

1. Positioning the straightedge. The best tool by far for guiding a typical snap-cut cut is a 4-foot T-square. Flush the flange of the T-square against one edge of the rock at the mark you made.

Make sure the square is on the mark at the other edge of the sheet as well. If it is not, make sure you know why there's a discrepancy.

If you're right-handed you'll probably want to cut along the right edge of the square.

If the sheet is resting on-edge on the deck (this is how the pros do it), place your toe against the bottom of the T-square so it won't move as you make the cut. If the sheet is lying flat on the deck, place your knee on the bottom of the T-square so it won't move as you make the cut.

2. The first knife cut – scoring the drywall. Make the scoring cut by drawing your knife confidently yet carefully along the edge of the square. You're looking to score through the paper and a bit of the gypsum underneath, not cut all the way through.

It's easy for the knife to wander off-line if you aren't careful. If you wander off-line, the snap might not be straight or you might even cut into the aluminum of the T-square.

If you can't make the scoring cut all in one swipe, when you start a new swipe the knife will try all by itself to wander off-line, so be extra careful at the start of that next swipe.

Make sure to take the cut all the way out to both tapered edges; the gypsum that's behind un-scored paper can snap in any random direction. Get this wrong and you could end up ruining not one but two corners.

3. Snapping – the fun part. Stand the sheet up so your edge-to-edge score line is *plumb* (vertical), then walk around to the other side, the un-scored side, and give it a kick in the middle (2 feet up) with your knee, just opposite the score line. When you do it right the piece will snap in two for you like magic.

As you're performing the knee-kick maneuver, pull the rock on both sides of the line towards you a little bit; this will help make the snap more sudden and crisper. Experience will teach you how hard to kick and how hard to pull.

4. The second knife cut – slicing paper. Bend the sheet at the now-snapped line at least 90 degrees and run a knife up from the bottom to the top to cut the paper and separate the two pieces.

For this final cut through the paper vertically, emulate the professionals and get in the habit of slicing from the bottom up rather than the top down. One reason is to avoid bonking the all-important tip of your knife blade into a concrete deck and dulling it. Another reason is so both your hands are at the top at the moment the pieces finally separate; sometimes you have to be able to hold onto both pieces lest one fall down, and it's easier to do that from the top.

It's all too easy to tear rather than slice the paper. Make sure to use the slicing part of the blade's edge, not the piercing part of the tip, and angle that blade about 45 degrees off of *level* (horizontal) so that it acts as a guillotine rather than a cleaver. If it still tears, either you're wandering off the line or your utility knife blade needs to be replaced.

How to make hole cutouts [TOP](#)

In many of the pieces of rock you add you'll have to make cutouts for such elements as light fixtures and electrical outlets. Before you consider adding a particular piece of rock, make note of whatever will be behind it that you don't want to cover up. Whatever you find will need a cutout, i.e, a hole in the drywall that just fits.

Scan carefully before adding rock; it's all too easy to miss a cutout or fail to check at all. Here are some cutouts to look for.

In ceiling rock: Light fixtures, fans, vents, smoke detectors, attic hatches.

In wall rock: Vents, electrical outlets, electrical switches, light fixtures, doorbell wires, alarm wires, telephone wires, cable wires, oven vent hood wires, CAT5 wires, washer-box (laundry) connections, other plumbing connections.

Do look for loose wires in the joist and stud bays without an obvious box such as for the doorbell or the alarm. Drill holes or otherwise make cutouts into the rock, no larger than necessary, for these wires and pull them through to the room side of the piece of rock you're about to attach.

For most novices, making cutouts is not automatically easy. Do not cut into the rock till you've confirmed that you really do have it marked correctly, because once you make the cutout in the wrong place, you can't fix it.

Now that you've spotted all the special objects behind the piece you're going to attach, here in more detail is how to make cutouts for them. We'll use as our first example a simple two-plug electrical outlet contained in a box nailed to the face of a stud. (All such boxes will be the same dimensions, typically 2-1/4 inches wide by 3-3/4 inches tall, so once you've measured one you won't have to measure the others.)

Although there are several ways to achieve the goal, here's one way that works.

How to measure and mark for a rectangle [TOP](#)

The goal here is to end up with four pencil lines forming a rectangle the size of the box, located on the rock such that when you cut that rectangle out, the hole just barely fits the outside of the box.

As a reminder, making hole cutouts is not automatically easy for most novice volunteers. It is essential that you take your time to make sure your cutouts are where they're supposed to be. If four volunteers spend 15 minutes cutting a piece to length and chalk-lining all the nailers and sinking some of the fasteners halfway and otherwise getting everything right but end up cutting out a hole that's two inches off, that's at least an hour of wasted time and probably some wasted drywall as well.

So, again, take your time measuring and marking. Check and re-check your work.

Slideshow. You can see a [simple slideshow](#) that takes you step by step through the 7-step procedure described below. If you open it in a second browser window or tab you can more easily follow along, switching between this PDF document and the slideshow, till it makes sense.

Three notes: (1) After Step 1, in which you measure on the structure rather than the rock, only each *new* pair of marks is shown in bold. (2) The dimensions are not to scale. (3) You can print Step #1 and Step #7 plus the stud-lengths graphic all on one sheet of paper from [here](#).

Step 1. On the wall, take the four measurements you'll need. Let's assume that down to the top of the box is **34 inches** and that down to the bottom of it is **37-3/4 inches**. We'll further assume that right to the left side of the box is **16-3/4 inches** and that right to the right side of it is **19 inches**.

It is often helpful to make a little diagram somewhere of these four distances and their relationship to the appropriate corner. Draw quick lines for the appropriate corner of the rock and then the rectangle, then write down the four distances.

Now that you have all four measurements, you can go to work making your marks on the rock, which consist of four pairs of crow's-feet and the four straight lines that connect them to define the box.

Step 2. Before making any pencil marks on the rock, make sure you've got it oriented in your mind correctly. For example, if you're going to flip it end for end between marking it and attaching it, then right is left and left is right. (This can be even more confusing for ceiling rock, which can be rotated about not one but two axes.)

Eyeball or measure at the top edge of the rock where you think 16-3/4 inches from the left end is, then subtract several inches and measure down from the top of the rock 34 inches from that point. Make a crow's-foot at that 34-inch location, which represents the top of the box. Without moving the T-square (or whatever ruler you're using), make another crow's foot at 37-3/4 inches down, which represents the bottom of the box.

Step 3. Move the T-square right several inches to the right of where the rectangle will be and make the same two crow's-foot marks at 34 inches and 37-3/4 inches down from the top.

Step 4. Using a pencil and straightedge, connect the two pairs of crow's-feet with horizontal lines. You now have lines marking the top and bottom of the cutout. Next is to define the two sides.

Making an accurate line with a pencil is easier but less obvious than you might think, and we always want to be accurate. Here's how most novices do it:

Slide the straightedge up to the mark(s), then place the pencil next to the straightedge, then draw the line. This is the obvious and natural way to do it if you're unfamiliar with the two ways it can go wrong.

Here's how all novices *should* do it:

Place the point of the pencil on the mark, then, without changing the angle of the pencil, slide the straightedge up to the pencil and draw the line.

Memorize this: **Pencil on the mark first, *then* slide the straightedge to the pencil.**

This method is just as fast and easy as the obvious and wrong method, and it enjoys two benefits. One is that it eliminates parallax error, and the more frequently useful one is that it eliminates the possibility the point of the pencil will not be on the line. So, again, pencil point first, then straightedge. Also, note that a carpenter's pencil makes a broad line held one way and a fine line when rotated 90 degrees; make sure always to hold it so it makes a fine line (and do keep it sharpened).

Step 5. From several inches above the top line you just drew, measure right from the left end of the rock 16-3/4 inches and make a crow's foot. Without moving the ruler, make another crow's foot at 19 inches.

Step 6. Move down (below the box) half a foot or so and make another pair of crow's feet at those same points, i.e., at 16-3/4 inches and 19 inches.

Step 7. Connect the two new pairs of crow's feet with straight vertical lines and there's your rectangle.

Remembering that there are lots of chances for error in this process, do feel free to check your work or have someone else do it. This is a total of twelve times you must use a ruler as well as twelve times you must make a mark, for a total of 24 opportunities to make a mistake, not to mention all the opportunities you have to make a mistake in arithmetic.

This task – however you perform it – is complicated enough that many novices who haven't read this article will get it wrong unless they're really careful. Take your time, especially early on.

How to cut out a rectangle. The easiest way to cut out a rectangle such as for an electrical box is with a *keyhole saw*, sometimes called a stab saw or jab saw. Here's how to use the jab saw at right. With your weak hand holding the handle, position the tip of the blade just inside a corner of the rectangle you've marked with pencil lines so that the teeth are facing the line you want to cut. Whomp on the heel end of the handle pretty hard with the heel of your strong hand so that the saw stabs all the way through the rock.



keyhole (stab) saw

Then saw confidently along your pencil line. Feel free to use two hands. Try to use long, carefully controlled strokes rather than many short ones, because long strokes are mostly nice slices whereas short strokes are mostly ripping and tearing.

Repeat in the other three corners and there's your cutout. If for some reason it doesn't fit, [make it fit](#).

How to measure and mark for a circle [TOP](#)

All houses have rectangular cutouts in the drywall, but some have circular cutouts as well, such as for a light fixture. The procedure is the same: Measure and mark, then cut. And here again, there are several ways to do this, so here are just two of them.

On the structure, measure for or otherwise locate the center of the circle to be cut out. Mark that point on the rock with a cross. Make sure the cross is where it's supposed to be. Measure at least twice, because this is really easy to get wrong.

If you have access to a compass to draw with, use that. Set the distance to the radius (i.e., half the diameter) of the circle, set the pointy part on the center of that circle, and swivel away with the pencil part.

If you don't have a compass, you can try this method.

Assume the radius of the circle is 3 inches and that the center is marked with a cross.

Step 1. Hold a ruled straightedge so that a particular index on it – let's say the 7-inch mark – is on the center of the circle, the marked cross. Using a nail or screw or some other handy pointed object, make a barely visible puncture through the paper at 4 inches (7 inches *minus* your 3-inch radius) and another at 10 inches (7 inches *plus* your 3-inch radius), thus marking the two endpoints of one particular 6-inch diameter of your circle.

Before you proceed, at least until you're sure you doing this right, measure the distance between those two endpoints to make sure they really are 6 inches apart and that they really do straddle the cross that marks the center of the circle. If there's a problem, you made a mistake that you need to identify and correct and not make again.

If you have enough endpoints to sketch in the entire circle accurately freehand, skip to Step 3.

Step 2. Rotate your ruler several degrees and return to Step 1. (At first you'll want to rotate approximately 90 degrees from the original diameter, then pick up the two 45s, and so on as necessary.)

Step 3. Now that you have enough pairs of diameter endpoints punctured into the paper, using a pencil lightly connect those points into a circle. Make any corrections necessary until you have a clearly visible 6-inch circle marked on the rock and centered where it's supposed to be. It doesn't have to be absolutely perfect, but the closer the better.

How To cut out a circle. Make the cut using a stab saw (or a drywall router or a jigsaw one is available). You can also make such cuts using just a sharp utility knife, but it takes a long time. No matter what, be patient and make sure you don't go outside the lines, remembering that you can always subtract gypsum but never add it.

How to make it fit [TOP](#)

Some framing elements such as walls are as not as square, plumb, flush or level as you would like, so be prepared for such inevitable problems by test-fitting early and often.

How to make it fit depends on the problem, but remember that you can't add rock, only subtract it. Said another way, it's better to cut the piece too big than too small. Remember also that drywall costs money, and we want to waste as little as possible.

To subtract rock in order to make it fit there are several tools available to you.

Utility knife. For small areas such as a light switch cutout that you didn't cut big enough, just use a utility knife to carefully shave away at it. If your knife blade becomes so dull that it doesn't cut but rather tears, please take the time to replace it.

Drywall rasp. For longer distances or where you're looking to smooth down a hump, use a *drywall rasp*, sometimes called a cheese grater, which works just like a food grater by scraping with many small, close-set, curved blades.

Two tips. A drywall rasp is designed to run parallel to the edge you're working on in long strokes. If you rasp perpendicularly you risk cracking out the face of the rock. If the pores between the blades get clogged with gypsum, just whap the tool on your hand or something to clear them.

Drywall saw. For cutting a long, straight line that can't be [snap-cut](#), such as for a window you've rocked right over, use a drywall saw, which is faster than a stab saw. Like a stab saw, a drywall saw makes a very aggressive cut on both the pull- and the push-strokes, so be careful not to veer involuntarily into nearby rock or wood that shouldn't be cut.

Drywall router. If one is available, you can use a *drywall router* such as a Roto-Zip to make all sorts of cuts and adjustments. But the tool's very design requires that no guard be attached to help protect you from being injured by a bit that turns at a really high speed and that cuts not only at its tip but also along its length. In the right hands a drywall router is really good at what it does, but in shaky hands it is really dangerous, so do not use one till you've received your supervisor's approval and donned eye protection.

How to find nailers [TOP](#)

A *nailer* is any wood surface, typically a 1-1/2-inch edge of a stick of 2-by-4 or 2-by-6 lumber, to which you will fasten the drywall. You need to know where those nailers are before you place a sheet of rock in place to attach it. The reason is that as soon as you put it in place you will have covered up those very nailers or at least part of them. The nailers will always be in straight lines, and you need to know where those lines are so you can attach the screws or nails through the drywall into them and not into mere air.

Take as long as you need to understand the importance of being able to find the nailers.

Let's consider attaching a piece of top wall rock. You've used a [snap cut](#) to make it the right length, and you've made any appropriate [hole cutouts](#), and you've [made it fit](#), and now you're ready to [attach it](#) to the studs. But as soon as you hold it in place, you've covered up the top halves of all those studs, which means you can't see where they are except at the bottom of the sheet. Unless you have a practiced eye, you will sometimes end up nailing or screwing through the rock into air rather than wood, which is a waste of a fastener and, more important, your time and the time and mud of the mudder who later must fill in those holes.

A number of solutions are available, and they all have as their purpose making it easy for you to sink the fasteners through the rock and into wood, not air. Generally, it's a good idea for novices to go ahead and hold the new piece in place and mark the endpoints of the nailers, then take the piece down and connect those endpoints with straight lines, using either a pencil and a straightedge or a chalk line.

For marking nailers, let's look at each of the three layers in turn.

Finding nailers above ceiling rock [TOP](#)

Where a joist intersects the top plate, make a straight vertical line, a couple inches long, on that top plate down from the center of that joist. Do this on both ends of every joist.

The two toes of a crow's foot can be marked pretty much any old way as long as the point where they meet, called the *vertex*, is correct, because a crow's-foot always marks a single point. Not so with the nailer marks we're talking about here; they are not points but short lines.

It is important that the lines you make to mark nailers be right. Make sure they are truly centered and truly at a right angle to that point. Most novices cannot make such a line freehand, so feel free to use a Speed square or some other square. Remember, place the pencil *first*, then slide the straightedge up to the pencil.

If there's *blocking* (special nailers, in this case added to the top plate, for the purpose of giving you a surface to fasten to), mark those locations on the top plate as well.

Trick. Because ceiling rock is 25% heavier than wall rock, and especially because you have to hold it over your head, you might want to use this trick. *While the sheet is resting on the deck* go ahead and drive some or all of the fasteners partway into the sheet. When you get it hoisted up into place, all you have to do is sink them the rest of the way (which, as a bonus, you can do with only one hand). Re-read this paragraph.

Finding nailers behind top wall rock [TOP](#)

All of the lid will be installed before you get to the top wall rock, so all you have to do is mark that ceiling rock with crow's feet wherever a stud intersects the top plate. The studs at the bottom edge of the top wall rock are visible, so you don't need to mark them at all.

However, if you want to hoist the piece into place and make crow's-foot marks on it top and bottom and then take it back down, you can then connect those marks with straight lines that completely define the nailers, which might be easier for you, especially in the beginning.

Finding nailers behind bottom wall rock [TOP](#)

Where every stud intersects the deck (with a bottom plate in between), make a horizontal line on that deck inward from the center of that stud. You don't need to mark the top of the bottom wall rock because you'll be able to see where the fasteners are at the bottom of the top wall rock.

Here again, though, if you're having trouble hitting wood, go ahead and connect the endpoints of every stud with a straight line and you'll be sure not to miss.

How to attach the piece [TOP](#)

Once you have marked and cut your piece to length and you have made any cutouts necessary and you have test-fitted and made it fit, and you know where the nailer lines are, you're finally ready to hold the piece in place and attach it. Here are the rules for attaching a piece of rock.

- Use a *fastener*, whether a screw or a nail, in every corner.
- Use a line of fasteners along both edges and both ends.
- Use a line of fasteners at every [nailer](#): every joist for ceiling rock and every stud for wall rock. The exception is where you see two or more studs sistered together, such as on the sides of windows and doors and in some corners. Go for the innermost of each piece and ignore the ones laminated to it.
- Once you've fastened the corners and the rest of the edges and ends, what's left is called the *field*, i.e., the big part in the middle. For every joist or stud in the field use a fastener every 12 inches, which means, for example, that for a 4-foot height of wall rock you'll use three fasteners in the field, so with the two edge fasteners that's a total of five for each stud.
- The fastener must be sunk slightly below the surface of the paper. For screws, the special drill bit you'll probably use, called a *mushroom bit*, will set that depth automatically, but you do have to learn how to use it. For nails, continue driving with your hammer till the head of the nail is just below the surface and there's a slight dimple in the rock, but do not drive so far that the paper tears.

Other rules you must follow [TOP](#)

- The most important rule is to *think about safety first*. You'll be using ladders and power tools and knives, and you'll be carrying large, unwieldy objects from place to place, and there are things to trip over, and there are nails and screws that can't wait to puncture or lacerate you. You must pay attention to your own safety and everyone else's. If you are uncertain whether you can perform a particular procedure safely, ask.
 - **Eyes.** If you find yourself using a drywall router, you must wear eye protection.
 - **Hands.** There is no procedure in rocking a house that is improved by wearing gloves. On the other hand, both drywall screws and nails have extremely sharp points, so be a little delicate every time you dip your hand into your nail pouch.
 - **Knees.** Sometimes you need to kneel on the deck. It will take only once kneeling firmly onto the sideways head of an errant drywall screw or nail to teach you never again to kneel without looking first.
 - **Feet.** Also, every once in a while a fastener will land on the floor on its head, which means if you step on it you will need a bandage for the short term and a tetanus shot for the long term.
- Keep in mind that drywall is surprisingly frangible. Be careful when carrying and setting down a sheet of rock, because it crushes easily, especially the corners, which are subjected to enough abuse later on anyway. Before laying a sheet on the floor, make sure you've swept away any debris that could crush up through the paper. For long pieces you're carrying or hoisting flat, keep in mind they can snap in half of their own weight. In case it needs to be said again, be especially careful to protect the corners.
- **Seams.** There's more to think about than you might think about seams. Look ahead to visualize where not just the instant seam but the next one must land. Said another way, you have to see ahead not just one but two steps. Here are several rules.
 - Try to avoid seams within 2 feet of working doors and windows.
 - Do not allow seams to line up within one joist or stud. For example, if a piece of top wall rock lands 12 feet from the left, make sure the piece of bottom wall rock does not also land 12 feet from the left; instead, make it land at least one stud to the left or right. The structure is more rigid when rock is

attached, but it is even more rigid when no seam runs through any two contiguous pieces.

- Minimize the number of seams. Every seam requires extensive time and materials to mud and tape, and we want to cut down on that as much as possible.
- Cut down even more on butt seams. Where you do have to have a seam between two pieces of rock, try not to make it a butt seam.

● **Errors.** Many problems result from errors in measuring and marking that can be avoided once they're identified and understood and memorized. The entire process of correctly attaching a particular piece of Sheetrock to the house involves a number of steps, each of which must be done right.

It's not like, say, painting, which doesn't involve measuring or marking or cutting or even thinking. Rocking a house just simply *is* more difficult than painting, so take enough time to get it right. The more you do it the faster you'll get, which is good. Below we list several common marking and measuring errors and how to avoid them.

- Make sure your marks really are where they're supposed to be. Take the extra moment to get it right from the beginning.
- To prevent parallax error, when you make a crow's foot or a nailer mark, look at the piece straight on rather than from the side or above or below. For the same reason, when you make a mark using a tape measure, press either the top or the bottom edge against the piece first.
- Be careful to place the point of your pencil exactly where it's supposed to be.
- Do not use a single line to mark a point; always take the extra moment to mark a crow's foot, i.e., a prominent V-shaped pair of marks like the ones you saw in the [simple slideshow](#).
- For connecting two crow's-foot marks with a straight line, you already know to place the point of the pencil first, then slide the straightedge up to the pencil. Remember also not to change the angle of the pencil once you've got it set where it should be. If you need to make more than one swipe to complete the cut line, try not to change that angle on the subsequent swipe.
- Make sure your short nailer mark lines are straight and square and centered where they should be.
- Once your straightedge is in place correctly, whether for making marks or for cutting, make sure it doesn't move till you're done with it. If you need someone to hold it for you, get help.
- Take measurements carefully. Make sure you're reading the ruler accurately. If you're calling out or memorizing or listening to a measurement, get it right. Fifty-five and three eighths is not the same as fifty-three and five eighths.

● Four-foot T-squares are handy for making straight cuts square to the sheet but, unlike aluminum Speed squares, they are not indestructible. If you try hard enough you can dig a gouge into the aluminum with your knife, which we really want to avoid. Also, be careful to not to stress the joint that keeps it at 90 degrees. A T-square that's not truly square is worse than no T-square at all, so be sure when you set one down that you take a moment to make sure it won't get knocked over or stepped on or otherwise damaged.

● Prefer blue to red or black powder in your chalk box. Unlike blue, red and black are formulated to be difficult to remove, and they also telegraph through primer and two coats of paint. For the same reason, avoid walking on the good side of a sheet of rock or using a marker such as an ink-pen or a Sharpie or a Magic Marker. If where you make these marks is going to be taped, then use whatever you want.

● Remember from [How To Attach the Piece](#) above that fasteners must be sunk below the drywall surface but not tear it. Whether you're using a hammer and nails or a drill and screws, there should be a dimple, a concavity, in the rock with the head of the fastener at the bottom of that dimple. This is an easy rule to forget, so do strive to remember it with every single fastener.

To be sure you've sunk the fastener deep enough, run your fingers over the dimple to make sure you can't feel any metal. Another option is to scrape a straight metallic edge such as a putty knife or the flange of a Speed square across a whole line of fasteners; if you scrape across a head that isn't sunk, you'll hear and feel a click.

- Never forget the Carpenter's Rule: MEASURE TWICE, CUT ONCE.
- And never forget the Corollary to the Carpenter's Rule: IF YOU'RE GONNA CUT WRONG, CUT LONG. You can always remove more rock, but you can't cram any back on.
- For the top layer of wall rock, and sometimes even the bottom layer, it's usually easier to just rock right over a door or a window opening as though it weren't there and cut it out later with a drywall saw or router.
- If you set a fastener too close to an edge it will break through the gypsum and fail to perform its function and probably slow down the mudder and taper. Be especially careful not to do this in corners. If the nailer you're fastening onto is 3/4" wide, set your nail or screw 3/8" from that edge.
- Although you should never miss wood if you read the part above about [how to find nailers](#), you don't automatically have to remove a fastener that still somehow hit only air. If it's otherwise sunk properly, and especially if it won't come out easily, you may ignore it and move on. You can tell when you've missed wood because the screw or nail will go in too easily.
- For various reasons, sometimes a screw will break in half. You can tell when this had happened because all of a sudden the screw just spins freely but doesn't drive in deeper. Needless to say, this screw is no longer performing its function and must be replaced. The broken-off heads of these rascals are notoriously difficult to remove, so if you don't have to remove it, just make sure it's below the surface of the paper as always and forget about it.
- If you have to remove a fastener for some reason, note that if you use that same hole hoping to try a different angle, the fastener will try very hard to follow the original angle.
- If a piece won't fit into a corner using hand pressure, don't just bash away with a hammer, which will break the rock. If you think it will work, you may use a board to press up against the rock so you can hammer the board. If that doesn't work, figure out how to [make it fit](#).
- Don't just beat on nails or over-drive screws till you crush through the gypsum, especially in the difficult corners. Take your time, and find wood. Angle the fastener off of square only if truly necessary, but still make sure every part of it is sunk below the surface no matter what.
- Be sure to use greenboard as opposed to regular drywall sheets when you're rocking an area that will be exposed to moisture, such as near sinks and bathtubs. Check with a site supervisor to make sure you know which walls need the more expensive greenboard.
- In order to avoid waste, always choose the shortest piece that satisfies the other rules. For example, if you have the option of cutting 5 feet off a 12-foot piece or cutting 1 foot off an 8-foot piece in order to get a 7-foot piece, choose the 8-foot piece and leave the 12-foot piece alone. Sometimes this means hunting around a little to see what's available throughout the house. Feel free to poach a piece from any other crew's inventory as long as it isn't called for.
- For making crow's-foot marks for a cutout, get in the habit of making them all point toward the cutout rather than away from it. This makes it easier to keep track of what each crow's foot does, and it keeps the area you care about less cluttered.
- Those mushroom bits we mentioned are small and thus really easy to misplace forever. If you remove one from the drill, don't just set it down anywhere. And bits do eventually wear down, so if yours seems uncooperative, check or have someone check whether it needs to be replaced.

- If you're using a drill, learn to recognize the chattering sound of the bit spinning against but not driving the screw. Whenever you hear that sound and feel that chattering, STOP. That sound and that chattering feeling mean that the bit in the end of your drill is not properly connected to the head of the screw you're trying to sink. That chattering means you're stripping both the screw head (a lot because it's softer) and the drill bit (a little bit because it's harder). Needless to say, you don't want to grind away metal. Almost every time, the way to get it to work right is (1) make sure the bit is exactly parallel to the screw or (2) push harder or (3) both.

- Do keep your area as neat as necessary. Every so often gather the scrap into one spot, keep the doorway clear, sweep up if needed, and don't lose track of your tools.

Conclusion [TOP](#)

Getting good at attaching drywall to a house takes awhile, but you can get better faster if you bear down and try hard. This document cannot possibly list all of the little tips, tricks and hints used by experienced rockers, but you will discover some not listed above if you feel free to think through problems you encounter and then make and discuss suggestions or seek help from an expert.

Learn from any mistakes you make. When you discover a better way to do something, do pass it on. By the end of the work day you and all your fellow volunteers will be a veritable rocking machine. Enjoy it.

We thank you for volunteering to help build a house, and we hope you find the experience pleasurable and educational and worthwhile. Your hard work and earnest efforts will help a deserving family afford a house you built, and that is always worthwhile.

How To Attach Drywall – last edited January 22, 2010

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