



Removing

BEFORE

AFTER



I busted open my first wall sometime in high school. It wasn't an act of vandalism; I was helping my dad to remove the wall between our kitchen and dining room, and not without trepidation. Walls are built for a reason, I thought, if not to hold up the house, then to have a place for outlets and light switches. Besides, I knew there was stuff in walls that I couldn't see. Lucky for me, my dad believed in doing everything slowly and methodically. We didn't tear down the wall. We assessed it first to see if it was bearing any weight, and then we tried to sniff out what might be hidden behind the plaster. When all that work was done, we dismantled the wall.

Since that first experience, I've removed a lot more walls. To learn more about the process, I interviewed a bunch of remodeling contractors who do this work daily. This article is a collection of what I've learned, but the truth is that the basic process is much the same as what my dad taught me almost two decades ago.

Unbuild the walls

Walls are built in an organized way, and that's how they should be taken down. Studs go up first, and they come down last. Trim goes in last, and it comes off first. That might sound trivial, but there are plenty of people who take a different tack. Cutting through a wall with a reciprocating saw and then attempting to remove full sections might seem like the most



Interior Walls

A step-by-step guide for taking down walls without wrecking the house

The payoff. Removing interior walls is a remodeling project that pays off in a more open, well-connected space. Approached methodically, wall removal can be done with little disturbance to the house around it.

efficient approach, but it's dangerous. Attacking an enclosed wall haphazardly with a power tool or sledgehammer is like peeling away the shingles on a roof with a backhoe bucket.

With the basic precautions shown here, you can begin to dismantle a wall safely at any time. However, it's important to know if a wall is bearing weight before messing with the framing. Spotting a load-bearing wall isn't always easy, but there are some telltale signs (sidebar p. 68). If you're unsure, hire an engineer. An engineer is also the person to consult when sizing a beam to replace a bearing wall. That beam can be mounted within the finished ceiling in line with the joists above, where you won't be able to see it, or below the joists, where it can be trimmed as an architectural detail (*FHB* #152, pp. 80-85, and at FineHomebuilding.com). I'm not going to cover how to do that here, though; this story is about taking down walls efficiently. After you have determined whether the wall is bearing weight, the next step is to figure out what's in it.

Pretend the wall could shock you

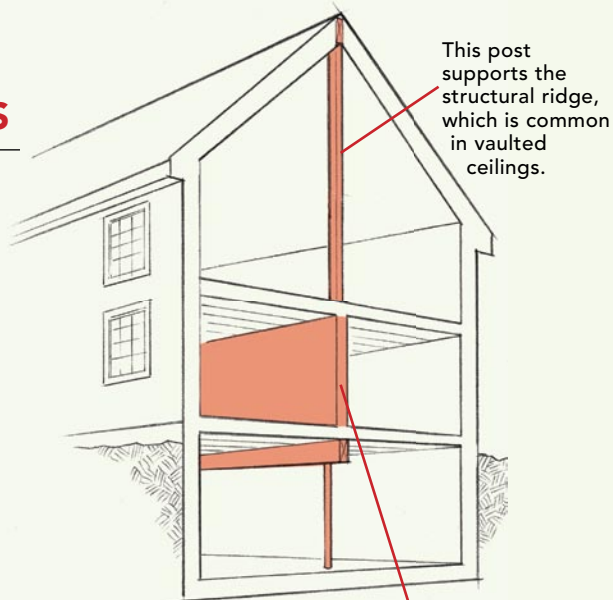
Chances are good that electrical wires are running in and through the wall you want to remove. Light switches, fixtures, and outlets are obvious indicators, but don't think that they tell the whole story. Look in the basement and attic for cables that enter or exit the wall.

Turn off the power to the circuits you discover before even starting to remove the plaster and lath or the drywall. It's possible that old wiring in the wall could be in bad shape. Even if it's not, though, accidentally loosening or damaging wires during demolition can cause immediate and latent danger, including shock, electrocution, and fire.

Even after you've done your electrical investigative work, be ready for weird stuff. Cliff Popejoy, an electrical contractor in Sacramento, Calif., was called to a house after the home-

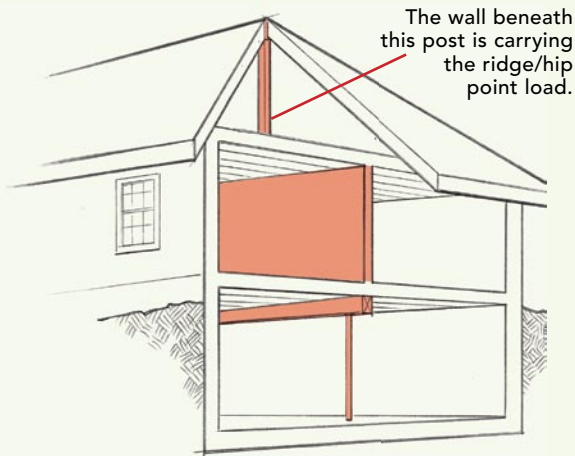
SPOT AND SUPPORT LOAD-BEARING WALLS

Bearing walls carry roof, ceiling, and floor loads. They often run perpendicular to floor and ceiling joists, but that isn't the rule. Sometimes walls that run parallel to floor joists are also load-bearing. Look in the basement for girder beams, and trace their path to the roof; some homes have more than one. While these drawings illustrate some common signs of bearing walls, they don't represent a definitive list. The smartest, safest approach is to consult an engineer, and assume that the wall you're going to remove is bearing weight until you prove otherwise. Properly sized beams must replace bearing walls.



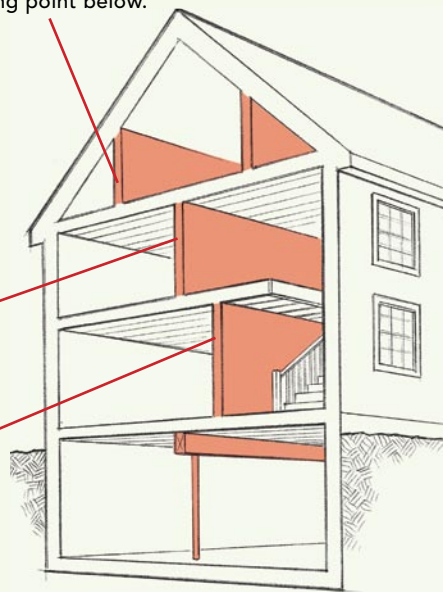
This post supports the structural ridge, which is common in vaulted ceilings.

This first-floor wall is bearing weight from the floor joists above, as well as the roof load. Bearing walls often run inline with a beam in the basement. They can be offset from their bearing points, however.



The wall beneath this post is carrying the ridge/hip point load.

A stiff knee or kneewall is possibly carrying some roof load. In older homes, this approach might take the form of posts, which aren't necessarily running plumb to the bearing point below.



This wall is carrying the ceiling joists and possibly some roof load.

This wall is carrying floor joists and an offset load from the wall above.



Temporary support. Before cutting into the framing of a load-bearing wall, build a temporary wall to pick up the load. Use a 2x8 or 2x10 for the top plate to minimize potential damage to the finished ceiling. Cut the studs 1/4 in. long to take some weight off the wall, and screw or nail them in place every 16 in. You also can support the load with a header and posts in lieu of studs to make walking through the temporary wall easier. Be sure that the load path has adequate support below. And remember, the wall might need support on both sides.

owner got a shock from touching the washing machine and the wall at the same time. Two of the walls were plaster on metal lath, and both were energized to 120v because a piece of lath was touching the hot terminal of a non-GFI receptacle.

Once you are inside the wall, dealing with electrical wiring means rerouting or dead-ending circuits. An electrician is the best person to do the job. If you're tackling it yourself, though, keep these things in mind.

The best way to reroute cable is to remove it back to the last undisturbed box (at a receptacle, switch, or fixture) and to run new cable. This is easy with modern (grounding) nonmetallic (NM) cable. If the wiring is old armored cable, flexible metal conduit (EMT), or knob-and-tube, it's time to check with the code official to see what materials must be used.

If the part of the wiring that you're removing doesn't feed anything and you can't follow the wiring back to an existing box, you need to dead-end the wiring in its own electrical box. Code requires that the box be accessible. If you can't put it in a basement, a crawlspace, or an attic, you'll have to put it in a wall or cabinet and cover it with a blank plate.

Although low-voltage wiring (doorbell, thermostat, intercom, telephone, cable, etc.) can be spliced outside a box, it's bad practice to seal a splice inside a wall. Follow the wire back to the attic, the crawlspace, or the basement, and splice the cable there. Or use a low-voltage ring and a blank coverplate in the wall so that the splices are accessible.

See pipes? Think flood insurance

If you're lucky, electrical cable will be the only thing you have to deal with, but don't proceed under that assumption. Unlike

INVESTIGATE WHAT'S IN THE WALL

Signs of extra work ahead.

Note the number of utilities passing through the bottom of the wall, but don't assume they tell the whole story. Turn off the power and water to any fixtures and plumbing in the wall and in the walls above and below the wall to be removed; wire and pipe might pass through them as well.



Use a sensor. Even if you know that wire and pipe enter the wall from below, it's possible that more is hidden inside. To eliminate as many surprises as possible, use a tester like the MultiScanner from Zircon (\$59; www.zircon.com), which finds live wires and metal as well as studs.



PROTECT FLOORS, AND MANAGE DUST

Masonite takes a beating. If the floors are to remain, take time to protect them from screws, nails, and other debris. A layer of 1/8-in. Masonite over plastic offers great protection. Sheets of Masonite are reusable (about 32¢ per sq. ft.) and easy to come by.



Thick protection in a roll. Ram Board (www.ramboard.com; about 16¢ per sq. ft.) offers good protection and comes in rolls. It's durable, easy to install, and reusable. It won't take a beating like Masonite, but it comes close.

Inexpensive, but thin. Red (or brown) rosin paper is readily available and cheap (about 3¢ per sq. ft.), but it won't take much of a beating. Save it for tiled or carpeted floors.



Contain dust. Clear plastic isolates the area without blocking light. Furring strips or telescoping poles (www.zipwall.com) hold it tight to the floor and ceiling. Protect your lungs with a respirator, and beware of lead paint. (For more on dust control, see FHB #180, pp. 78-83.)



Remove dust. Mount a fan in the window to pull dust out of the house. Cover floor registers and return-air grilles. Furnace filters work well for this purpose if the heating system will be running during the job; otherwise, tape them shut with cardboard.

electrical cable, pipe generally runs in a straight path, so it is fairly easy to sleuth out. Check in the basement for plumbing lines and in the attic for vent pipes.

There aren't as many indicators of hidden pipe as there are of electrical work. The proximity of kitchen faucets and bathroom fixtures can offer some clues. If you suspect there is plumbing in the wall, turn off the water at the closest shutoff before beginning any demolition.

There are lots of good reasons to hire a licensed plumber to reroute supply, drain, or vent pipes. Most states allow non-licensed plumbers to remove only fixtures that are attached to a shutoff valve; anything beyond the shutoff valve, as well as drain and vent piping, must be removed and rerouted by a licensed plumber.

But the best reason could be that licensed plumbers have insurance to cover damage caused during remodeling work. While modern copper and PEX plumbing can be resilient, jostling old galvanized and copper pipe can weaken joints elsewhere. And given the fact that 4-in. cast-iron pipe weighs about 2 lb. a foot, removing 8 ft. from a stack can be dangerous.

Black iron and flexible gas lines are another concern. These lines should be rerouted only by a licensed gas contractor.

All this investigative work will pay off by giving you a good idea of what's lurking behind the finished surfaces. When the trim and wallboard are gone and the studs and plates are down, you might have to reroute some wires or pipes, but you won't be scrambling to make emergency repairs. □

Chris Ermides is an associate editor. Photos by the author, except where noted.

DISMANTLE THE WALL, DON'T DEMOLISH IT:



START WITH A KNIFE, NOT A HAMMER

Run a sharp utility knife along the edge of each piece of trim to break the painted or caulked seam. Use a taping knife and a hammer to pry trim from the wall one piece at a time so that it can be reused later.



SEVER THE CEILING-TO-WALL JOINT

For plaster-and-lath walls, run a reciprocating saw along the joint between the wall and the ceiling. Take care not to cut any deeper than the plaster's depth (usually about $\frac{5}{8}$ in.). Use a sharp utility knife where drywalled ceilings and walls meet.



PULL THE PLASTER, THEN THE LATH

Using a sledgehammer or a framing hammer, tap the plaster between studs. Start from the bottom, and work up to the ceiling. This breaks the keys off the plaster, releasing it from the lath. Pulling it off is as simple as scraping it with a utility knife.

TIPS FOR CAREFUL DECONSTRUCTION



PULL DRYWALL IN BIG PIECES, NOT LITTLE CHUNKS

Cut the drywall into large sections about 2 ft. wide by 6 ft. long. Starting from the top, fold down each section. The leverage and weight of the drywall will make popping it from the screws or nails easy.



FREE THE CABLE, DON'T PULL IT

When you have no choice but to work around wire or pipe, cut a sawkerf just above and just below the wire. Then tap the section with a hammer to free the wire from the stud.



TWIST THE STUD, THEN PULL IT

Knocking studs loose with a hammer works, but it often splits the stud, rendering that part useless. You can cut the nails by running a metal blade in a reciprocating saw between the stud and the plate, but if the wall is bearing weight, you'll reciprocate more than the blade. Stanley's FuBar (www.stanleytools.com; \$30) has a cleverly designed jaw that makes twisting the stud free easy.



SPLIT THE PLATE AROUND PIPES AND WIRE

Once the studs are removed, pull the nails from the plate, then cut it on both sides of the pipe or wire. Finally, split the remaining piece with a chisel. This method also works for top plates.

A tool set for every demo task

Pry as he might, toolmaker Joe Skach couldn't find the best tool to remove the siding on his house, so he developed his own. He didn't come up with a new bar that does a few different things. Skach came up with a system: a collection of handles, blades, and fulcrums that can be arranged for any demo-specific task. The Artillery Pry Bar System can be configured and assembled to fit whatever task you need. Pop drywall with ease, scrape plaster from lath, and pry that stubborn bottom plate loose without losing your breath.

Five different sets are available, ranging in price from \$179 to \$329. The set shown here sells for \$198.

