



Electrical Basics:

Installing An "Old Work" Switch Or Outlet Box

In This Article:

A special-shaped hole is cut in a wall and an "old-work" box is test-fitted. Then cables are pushed into the box and the box is secured to the wall.

Skill Level: 2 (Basic)

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Time Taken: 30 Minutes

By [Bruce W. Maki](#), Editor

When adding wiring to an existing house it is not practical to remove large sections of drywall just to mount electrical boxes and run cables. There are several types of electrical boxes available that attach directly to drywall or plaster and are used in conjunction with cable that simply dangles inside the wall cavity.



This is an "old work" electrical box, also called a "remodel" box. It is designed to clamp to the wallboard, as opposed to a "new construction" box which is nailed to a wall stud.



There are two clamp tabs on this type of old work box. The box is inserted into the opening with the tabs retracted, and then a simple turn of a screwdriver moves the tab behind the wallboard. Continued tightening of the screw makes the tab clamp onto the wallboard.



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Many years ago I made this template from a piece of cardboard, so I would be able to quickly layout the shape of the drywall cutout.

The odd shape that I use is not necessary. It is possible to make the hole slightly larger (imagine taking the uppermost and lowermost horizontal lines and extending them until they met the vertical sides), but the hole I use is the smallest shape possible. This makes for a stronger drywall surface around the box, so there is less chance of the wallboard crumbling and leaving the box with insufficient material to grab on to.

I used a stud finder to locate the stud near an existing outlet. I will be tapping into the power at that outlet, and my new box, which is for a light switch, will be just above it.

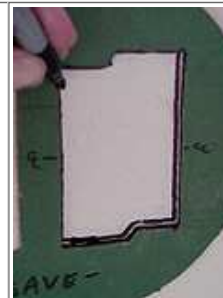
With old work boxes it is important to **stay away** from studs. It is possible to place a box right beside a stud, but I try to stay a few inches away.



For this switch box I made a mark 42 inches above the floor, which indicates the bottom of the new box. This height is also commonly used for receptacles over kitchen counters.

If I was installing a receptacle in a normal situation, I would make the mark 12 inches above the floor. Some electrical codes may dictate these heights.

I placed the template on the height mark and drew the shape of the cutout.





I drilled a hole at each corner, using a 3/8" diameter spade drill bit.

I cut along the lines with a hand saw.

This little saw is pretty neat... it folds up, so it can be easily stored in a pocket or a tool pouch. And it uses standard reciprocating saw blades, so the blade can be replaced when worn out. I got it at KMart, of all places, for about \$10.



Actually, this saw must be magic. I **lost it** twice while cross-country skiing (I used it to trim tree branches on some trails through the woods) but I found it both times... just laying in the snow. There's something to be said for brightly-colored tools.



Aha! There's a wire behind that wall.

This is why I prefer to use a hand saw for cutting these holes. A power saw (such as a jig saw) can easily slice up wires that lurk beneath the surface.

I slipped the box into the hole to test the fit, but the box cannot be left there just yet. I need to run the cable through the hole first.





I went into the attic and slipped a new cable down through the hole I drilled in the top plate. It was easy to find this new cable... I just reached into the hole and pulled it out.

I made a "J"-shaped hook in the cable so I could go back up to the attic and pull the cable back a bit (I had fed too much down the hole). This hook got caught on the wallboard and told me that I had pulled back enough. This is the kind of trick you have to do when working alone.

Then I ran the new cable up from the receptacle below. I slipped both cables into the box, using separate entry holes.

Note how I made both cables come in from the top. It is much easier to work with these boxes if all the cables approach from the same end, top or bottom.



The box was pushed into place and the screws were tightened *carefully*.

This type of old work box uses special spring-loaded clamping tabs to prevent the cable from being pulled **out** of the box. These tabs are basically one-way devices, and allow the cable to be pulled further *into* the box, but not out.

Electrical codes generally require that cable be secured to the framing within 12 inches of the junction box. These old work boxes meet that requirement (as far as I understand) by securing the cable right at the box. It is not necessary to cut holes in the wall to secure the cable at other places.

But remember, I'm not an electrician. I have done several major electrical projects, permitted and inspected, but I am not an expert. Everybody who attempts home wiring should buy one or two decent books on basic electrical wiring.

Electrical Work And Permits:

Electrical modifications such as this light installation may require a permit.

Some local Building Departments allow homeowners to make minor changes in electrical systems without a permit. We recommend that you call your local Building Department and find out if a permit is required for a small alteration.

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| Tools Used: | Materials Used: |
|--|--|
| <ul style="list-style-type: none">• Cordless Drill/Driver• 3/8 Spade Drill Bit• Small Saw• Stud Finder• Tape Measure | <ul style="list-style-type: none">• Old Work Box |

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