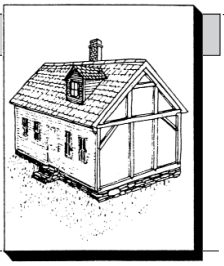


Snaking Wires

by The Old-House Journal *Technical Staff*

Have you ever found yourself dreading the arrival of the electrician on a renovation project? Sure, new circuits are nice, but not at the expense of a month's worth of plaster repair, or the destruction of a section of decorative cornice molding. But don't panic: there are ways to conceal wiring with little disruption to finished surfaces.

What follows is an outline of some of the tricks used to navigate wiring through walls, floors, and ceilings with minimal disruption to finished surfaces. These tips and techniques can save you time whether you are doing the work yourself or coaching your electrician.

Electrical Risers and Feeders

Unless you are connecting into an existing circuit, the first step in routing wiring is to bring power from the panel box in the basement to the floor on which you plan to work. Ideally, the house contains unobstructed voids running from the basement to each floor above. Take the time to find those spaces and you'll save a lot of work and aggravation. Check for:

- Pipe chases. Check plumbing to bathrooms, kitchens, and radiators. Waste pipes are vented to the roof, so they run the entire height of the building.
- Abandoned forced-air ducts. Houses that were once heated with hot air will have unused ducts running through the walls. In city row houses, these usually can be found in the brick common walls. Check for patches in the brick walls of the basement. If you're really lucky, the old hot-air registers will still be in the rooms, eliminating the need for detective work.
- Dumbwaiters. Abandoned dumbwaiters are easy to find because of their large size. Reopening a dumbwaiter will provide a beeline to the floor on which you're working. If the dumbwaiter is still functional, there should be ample space around it to run cable without interfering with its operation.
- Ventilation shafts. Even though most ventilation shafts don't run all the way down to the basement, they are helpful for running wiring between upper floors.
- Voids next to chimneys. The framing around interior chimneys frequently has ample space to run wiring.

If you can't find any vertical through-floor voids in the house, you'll have to bring wiring up one floor at a time, using the methods outlined below.

Planning and Preparation

Once you've brought a new circuit up from the basement or decided where to hook into an existing one, you can route wiring to the exact location where the fixture or switch box will be added.

The first step is to consider the type of framing the building has. If the house has balloon framing, vertical runs through walls will have fewer interruptions; a house with platform framing has plates and sills, which impede vertical runs at each ceiling and floor. Find out which way the joists run, and if they change direction anywhere.

If the building is masonry, is the plaster directly on the brick, or are the walls furred out? The more you know about the house's construction, the better off you'll be when deciding which path will offer the least resistance.

Next, consider what is above, below, and behind the area being wired. If there is a cellar, attic, or other unfinished space above or below, *that* is where to make your horizontal runs. If there are closet interiors, garages, or other unfinished spaces adjacent to the area being wired, take advantage of them for vertical runs since neat patching is unnecessary in these spaces.

Also, look for moldings that could be used to conceal wiring. Baseboards, window aprons, and other moldings can be easily removed to route electrical cable behind them. When the moldings are reinstalled, they conceal the wire without the need for plaster patching.

Tools

Your cable-routing tool kit should include:

Fish wire: steep tape about 3/16-inch wide and 1/16-inch thick; also called a snake. Fish wire is flexible enough to go around corners, yet stiff enough not to buckle when being pushed through partitions. Get several pieces of varying lengths.

Cold chisel and hammer: for cutting holes in plaster.

Keyhole saw: for cutting lath.

Power drill: with carbide-tipped bits (for drilling in plaster), spade bits (for boring beams), and a bit extender.

Plaster patching materials: to repair finished surfaces after the wire is routed.

Running Wire

You'll route wiring either parallel to the studs or joists, or perpendicular to them. You must also be able to cross from a wall to a ceiling.

Following are instructions for dealing with these three main conditions. If you stick to these basic guidelines, you'll be able to conceal electrical cable with minimal disruption to finished surfaces.

Parallel to Studs

Neatly cut a hole in the plaster where you plan to locate the switch, outlet box, or fixture. Cut a second hole where the power source is located. Attach the wire to the loop on the end of the fish, and pull the fish back through. A reverse bend on the end of the loop will keep the fish from getting snagged while being withdrawn.

To run wire from one floor to another, start by removing the baseboard on the upper floor. Use a bit extender and spade bit to bore a hole through the top plate in the partition wall of the floor below. Then, neatly cut a hole in the plaster wall about six inches from the ceiling of the lower floor, or at the firestop if one exists.

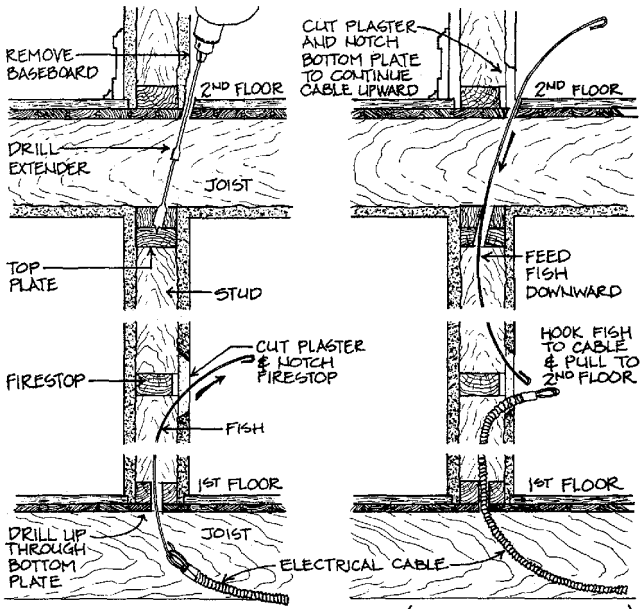
Insert the fish through the hole in the plate, and pass it to the hole in the wall of the floor below. Attach the wire to the fish and pull it up to the floor above.

Cut a hole at the bottom of the top wall so you can continue to run the cable up. Now notch the floor plate on the upper floor and staple the wire into the notch. The reinstalled baseboard will conceal most of the damage.

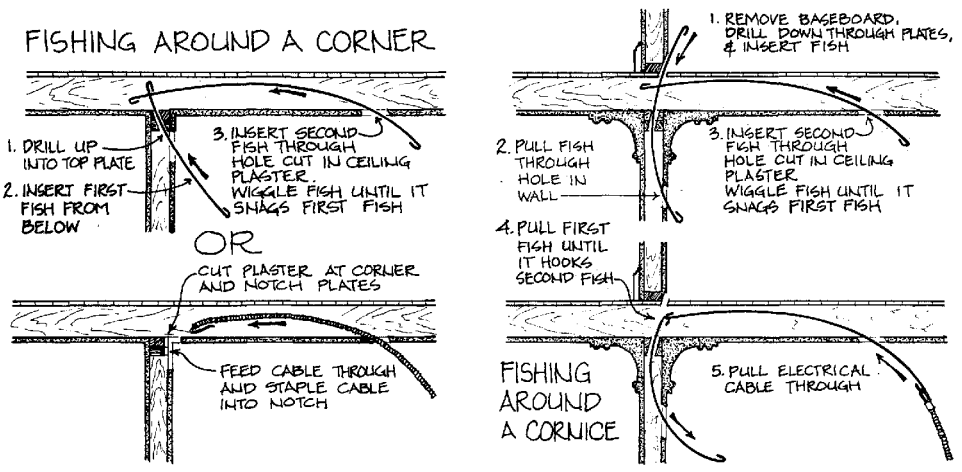
Wall-to-Ceiling Connection

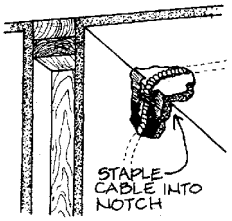
If you're running wire from a wall switch to a ceiling fixture, there are two ways to round the corner at the ceiling/wall connection.

If there is no ornamental plasterwork to go around, you can simply cut a hole in the wall and ceiling at the corner. Pull the wire through, cut a notch in the plate and staple the wire in place, and patch the plaster.



FISHING FROM FLOOR TO FLOOR (PARALLEL TO STUDS)



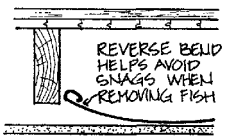


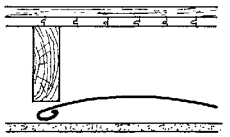
If you have to avoid cutting holes at the corners because of an ornamental plaster cornice, you can use the two-fish method to round the corner. It takes time and patience, but not as much as repairing ornate plasterwork. The procedure is as follows:

1. Cut holes in the plaster on flat parts of the wall and ceiling.
2. Remove the baseboard on the floor above the ceiling, and drill through the plate with a spade bit on an extender.
3. Push a long fish down through the hole in the plate and work through the hole in the plaster wall.
4. Insert a second fish through the hole in the ceiling and push it through until it contacts the first fish.
5. Work fish number two back and forth until it snags fish number one. This will require some patience.
6. Withdraw the ceiling fish until the wall fish appears at the ceiling opening.
7. Attach the wire to the fish and pull it through as usual.

And a Few Fishing Tips

• Fish have a pronounced curve in them because they are stored rolled



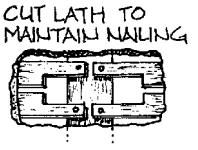


up. You can use this to your advantage. If the fish gets stuck on an obstacle, just withdraw it a bit, turn it over, and press on. The end of the fish will now rest against the opposite surface and bypass the obstruction.

• Helpers are perhaps your most useful resource when fishing wire. It's definitely a two-person job, especially when you're going between floors.

• Sometimes, try as you might, you won't be able to get the fish around an obstacle. After you've spent a reasonable amount of time struggling with the fish, open a small hole in the plaster at the point where the fish is hung up. There's no point in getting frustrated and angry for two hours just to save an hour's worth of plaster repair.

• When you're notching studs or joists, try to avoid breaking any lath. Careful work with a keyhole saw and



chisel will allow you to remove two half-sections of lath, allowing plenty of room to pass cable, while maintaining the integrity of the lath framework. ■