

An Electrical

A professional electrician shares the tools and materials he relies on for the most common wiring tasks

BY BRIAN WALO

I could easily blow everything I earn as a professional electrician in a single afternoon buying fancy tools that I might use some day for some thing. When I check back into reality, though, I have to admit that it's still the most basic electrical tools that I always reach for. Besides, if I'm going to remain efficient, I have to choose the tools that provide the most bang for my buck and leave my electrical-tool bucket light enough to move around easily.

Also, some tools in my kit (not shown here) are basic items that apply to all sorts of remodeling tasks. I choose these tools based on their use in electrical applications, though. For instance, rather than a heavy 18v drill/driver, I carry an ultracompact model with long-lasting Li-ion batteries to save space without sacrificing run-time. This kit won't get you in and out of complex jobs, but for most of the electrical work found in remodeling, it will be your new best friend. □

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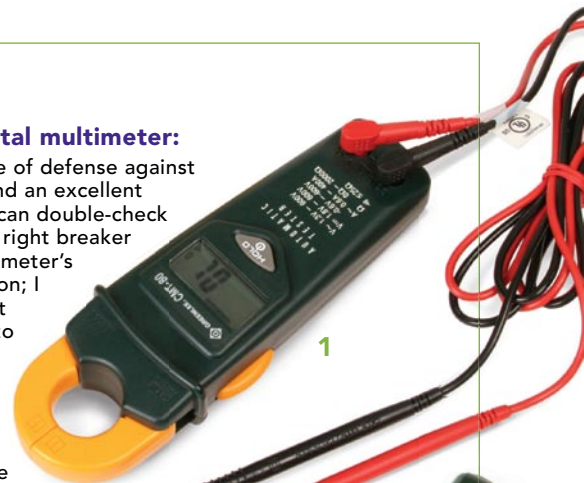
Win these tools

We will choose a winner at random to receive the complete electrical kit featured in this article. Fill out the survey at www.finehomebuilding.com/survey204 to enter the drawing.

TESTERS

1 Analog/digital multimeter:

This is my first line of defense against electrical shock and an excellent diagnostic tool. I can double-check that I shut off the right breaker by using the multimeter's AC-voltage function; I also can figure out which cable runs to a light from a particular switch box. I use a clamp-on multimeter because it limits my exposure to bare conductors when I need to take an amperage reading on live equipment. For more in-depth information on using a multimeter, see "Make Sure the Power Is Off" (FHB #196, and online at FineHomebuilding.com). **(\$85)**



2 Noncontact voltage detector:

This little tool has a big gee-whiz factor because you can check for voltage without touching bare wires. Because different types of wire insulation and other nearby conductors can interfere with the electrical field, this tool can be less than 100% reliable. Read the safety manual, and understand the tool's limitations. This is not an empty safety reminder, either. I have two pairs of wire strippers with arc holes that resulted from relying on this device before cutting a cable. **(\$16)**



3 GFCI-outlet tester: This little tester is the quickest way to check a GFCI outlet for proper wiring and fault protection. It's also a fast way to figure out which breaker powers a given circuit. **(\$6)**



DRIVERS

1 Phillips head #2 and #3: Almost every screw that was once slotted for a flathead screwdriver now accepts a Phillips head, too. The #2 and #3 are the two must-have sizes for electrical work. **(\$7 each)**

2 Flathead 3/16 in. and 1/4 in.: I hate slotted screws, but they are common. For electrical cover plates, 3/16 in. is the standard size; among other things, the 1/4-in. size comes in handy as a "beater" for breaking the spot welds on the knockouts of a metal electrical box. **(\$7 each)**

3 Nut driver: Most grounding screws for metal workboxes have a 3/16-in. hex head. I find a 3/16-in. nut driver to be the quickest means of tightening them. **(\$7)**

4 Robertson #1 and #2: These square-drive screwdrivers are my favorite tool, and no one else I know uses them. Most new devices (receptacles, switches, etc.) feature screws that can be driven with Phillips, flathead, or Robertson (square) screwdrivers, the latter of which provides the most positive grip. **(\$8 each)**



Tool Kit

PLIERS

1 Side-cutting (aka lineman's): Whether I'm pulling and clipping cable, or twisting wires together, these pliers are the most crucial and frequently used tool I own. (**\$27**)

2 Crimpers: Find a pair that is long and slender so that you can crimp together ground wires deep inside an electrical box. I also like crimpers with a cutter built in to the nose for slicing through the copper crimping sleeve to separate old ground-wire connections. (**\$24**)

3 Strippers: Even the most basic wire strippers are adequate, but I look for a set that has a long nose for reaching into tight spots and serrated jaws to help me pull wire through the back of electrical boxes. (**\$22**)

4 End cut: This tool will be your first choice for pulling out cable staples from a stud or yanking nails from electrical boxes or can lights. A good set has sharp tangs and a solid bite for clipping through nails and staples. (**\$19**)

5 Needle nose: The fairly precise control of these pliers is great for getting me out of jams—for instance, if I drop a screw in the back of a crowded electrical box or need to pull some cable through a hole in a stud or plate. (**\$28**)



MATERIALS

1 Electrical tape: Black tape is the standard, but I also carry rolls of white and green so that I can mark grounded and ungrounded conductors for easy identification. (**\$4 per roll**)

2 Wire nuts: If I had to pick one wire nut to cover the bulk of my day-to-day work, it would be 3M's Performance Plus Tan/Red wire connectors. These nuts handle from #22 to #8 AWG (American wire gauge) wires, depending on the number of conductors. (**\$20 per box**)

3 Crimping sleeves and bonding screws: Most, if not all, codes require grounding conductors to be joined together, especially where they enter a metallic workbox. A jar of various sizes of copper crimping sleeves and #10 green ground screws is a must-have. (**100 count sleeves: \$20; 100 count screws: \$7**)

4 Cable clamps: These important but often-overlooked clamps secure and protect cable where it enters a light fixture, a workbox, or an electrical panel. I keep both 1/2-in. and 3/4-in. plastic clamps and a few metal clamps in a range of sizes up to 1 1/2 in. (**\$20 for assortment**)

5 Staples: Most of the cable I install is #12 and #14 AWG, so I keep lots of insulated staples in these two sizes. (**40 count: \$2.50**)

6 Screws: When I have to install workbox extensions in a kitchen backsplash or I lose a fastener from a fixture, #6x32 and #8x32 screws save the day. I buy them long and cut them to length with my strippers. (**\$5 per box**)



AREN'T YOU FORGETTING ...

Diagonal cutters?

Often called "diags" or "dykes," these cutters are a common electrical tool. I typically use strippers or lineman's pliers for most tasks suited to dykes, so I really can't justify their placement in my essentials kit.

Multibit screwdriver?

I don't actually own a multibit screwdriver, but I am guilty of borrowing them. If you don't have room for individual drivers of all shapes and sizes, a good combo driver is a fine choice, but only if it's fully equipped. Don't keep carrying it around if half the bits are lost.

Fish tape?

Running new wires through existing walls is a frequent task for electricians who work on remodeling projects. To be honest, though, I don't own a single fish tape or anything else designed for snaking wires. Instead, I carry 10 ft. of 1/2-in. PEX tubing. For a closer look at this tip, see p. 18.

