

# Top Ten Wiring Hazards Threaten Life and Property

Electric power can be a friend ... or a foe. Power outages and blackouts remind us how everyday life suddenly becomes primitive without electricity. If not properly handled, electrical power also poses a threat to individual lives and property. It can deliver a lethal jolt to a human body, or burn a home to the ground. It is called electric "power" for a reason.

If electricity is to be our friend then it is necessary to safeguard against certain hazards. Correction of these hazards could prevent many deaths, injuries and cases of property damage. In the interest of assuring that electric power remains our friend, the Copper Development Association (CDA) has developed its own "Top Ten List of Electrical Hazards in the Home."

Arranged in the popular way, CDA's Top Ten list is as follows.

**10. Overloaded or damaged extension cords.** This is an all-too-common cause of fires.

**9. Excessive attic temperatures.** Larger diameter wires should be used to accommodate hot attic temperatures. Avoid bundling of wires as they pass through framing holes, since heat cannot be dissipated easily in such situations.

**8. Failing aluminum wiring connections.** Many homes built in the 1960s and 1970s are exposed to this hazard. Check the U.S. Consumer Product Safety Commission, Electrical Safety Publication #516 "Repairing Aluminum Wiring" ([www.cpsc.gov](http://www.cpsc.gov)).

**7. No GFCI in bathrooms or kitchens, outdoors, or near swimming pools.** The ground fault circuit interrupter has no doubt prevented many electrocutions. However, some early-vintage units were faulty and need to be replaced.

**6. No AFCI's in critical areas.** The arc fault circuit interrupter is a relatively new device that can prevent fires.

**5. Not enough branch circuits and outlets.** Consumption of electricity is rising in American homes. Be

sure there are enough branches to deliver power to new appliances and electronics. And get rid of those extension cords in number 10 above.

**4. Fuse or circuit-breaker misuse.** Wrong fuses, or by-passed fuses, are dangerous. Also, overloading can occur if circuit breakers are not set to trigger properly, according to the load capacity of the wiring. Also, just because your house has "modern" circuit breakers, don't assume they'll last forever. Consider replacing them if they're old.

**3. Non-grounded or improperly polarized plugs and outlets.** Grounding and polarization were introduced as safety features. Don't try to bypass them.

**2. Wire gage insufficient for loads.** When in doubt, upgrade to 10 or 12 gage wiring.

And the Number 1 wiring hazard in homes today:

**1. Old wiring.** This can take the form of bare or frayed wires, crumbling insulation or faulty switches. Nothing lasts forever, including electrical insulation. Homes more than 40 years old are especially susceptible.

The best way to safeguard against electrical hazards is to have a professional electrician install, inspect and — if necessary — upgrade your wiring. The National Electrical Code published by the National Fire Protection Association ([www.nfpa.org](http://www.nfpa.org)) provides detailed specifications on the safe use of electricity, primarily for use by electricians. This Code is generally adopted as law by state and local governments. The National Association of State Fire Marshals ([www.firemarshals.org](http://www.firemarshals.org)) and the Electrical Safety Foundation International ([www.esfi.org](http://www.esfi.org)) also provide sound advice and useful updates on the safe use of electricity. If you have any doubts about the wiring in your home, call a professional electrician, who knows the Code and will make sure your wiring is done right.

You can also visit [www.copper.org/buildingwire](http://www.copper.org/buildingwire) for more information about residential electrical wiring. **HP**