ABOUT ESFI

Founded in 1994 through a joint effort between Underwriters Laboratories Inc. (UL), the U.S. Consumer Product Safety Commission (CPSC) and the National Electrical Manufacturers Association (NEMA), the Electrical Safety Foundation International (ESFI) is North America's only non-profit organization dedicated exclusively to promoting electrical safety in the home, school and workplace. ESFI is a 501(c)(3) organization funded by electrical manufacturers and distributors, independent testing laboratories, utilities, safety and consumer groups, and trade and labor associations. ESFI sponsors National Electrical Safety Month each May, and engages in public education campaigns and proactive media relations to help reduce property damage, personal injury and death due to electrical accidents. The Foundation does not engage in code or standard writing or lobbying and does not solicit individuals.

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Indoor Electrical SAFETY CHECK

TIPS FOR THE SAFE INDOOR USE OF ELECTRICITY

ESFi®
Electrical Safety Foundation International

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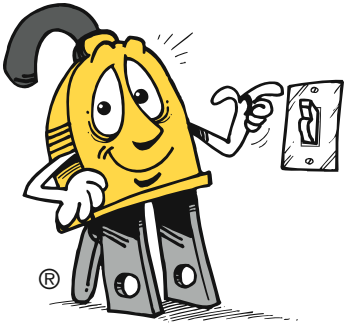


Note: Throughout the booklet, words in blue are listed in the glossary.

INTRODUCTION

Each year many consumers are injured and killed in and around their homes. Unsafe conditions such as overloaded circuits and damaged wire insulation as well as the misuse of extension cords and other electrical products create fire and electric shock hazards.

The U.S. Consumer Product Safety Commission (CPSC) estimates that between 1994 and 1998, there was an annual average of 208 accidental electrocution deaths related to consumer products. In 1999, there were an estimated 150 accidental electrocutions. This reduction is due to improved product safety engineering, better standards and electrical codes, safer installations, and better safety awareness thanks to attentive consumers and the efforts of organizations like the ESFI.

However, during the 1994–1998 period there was an estimated annual average of 165,380 electrical-related home structure fires which accounted for an annual average of 910 deaths, nearly 7,000 injuries, and nearly $1.7 billion in property damage. While the numbers vary from year to year, there is no clear downward trend as we see with electrocutions. This underscores how important it is for us to remain vigilant.

Take a few minutes to look for and correct electrical safety hazards in your home. It does not take too long to check the insulation on a cord, move an appliance away from water, check for correct wattage light bulbs, or have ground fault circuit interrupters (GFCIs) and

arc fault circuit interrupters (AFCIs) installed. On the other hand, it sometimes takes a lifetime to overcome severe electrical injuries that can result from overlooking these simple things.

Electricity is a powerful and useful energy source that also must be treated with respect and extreme caution. This brochure is intended for use only as an information guide, NOT a training or instruction manual.

INSPECT AND PROTECT! ELECTRICAL SYSTEM INSPECTION

In a number of cases of electrical-related home structure fires investigated by the CPSC, homes ranging from 40 to 100 years old had not been inspected since they were built. Just like any product, our electrical systems gradually deteriorate with use, abuse, age and increased demand. Systems installed in the 70s and earlier likely never anticipated the demand we place on them today. To ensure the electrical safety of your home, your electrical inspection should be up-to-date, defects corrected, and service upgraded to meet present and foreseeable demands.

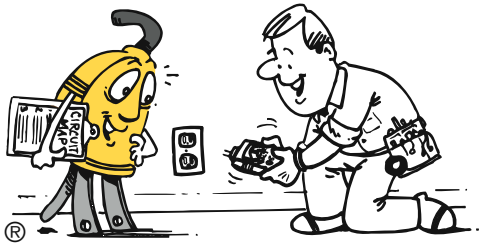
ESFI recommends asking the following questions to determine whether you need to have your home electrically inspected:

- ✔ Is your home 40 years old or older?
- ✔ Has your home had a major addition or renovation or major new appliance added, such as a refrigerator, freezer, air conditioner or electric furnace, in the last 10 years?
- ✔ Are you the new owner of a previously owned home?
- ✔ Do your lights often flicker or dim momentarily?
- ✔ Do your circuit breakers trip or fuses blow often?
- ✔ Are your outlet and light switch face plates hot to the touch or discolored?

- ✔ Do you hear crackling, sizzling or buzzing from your outlets?
- ✔ Do you have extension cords and multiple power strips permanently in use around the house?

If you answer yes to any one of the above questions, you should consider having a qualified, licensed electrical inspector, electrician or electrical contractor perform an electrical inspection of your home. Depending on the size of the home, a basic inspection could take between 30 minutes to an hour. ESFI recommends that at a minimum the inspection should check the following items:

- ✔ Check the capacity of the electrical service to the house and provide a load test. Is the service adequate for present and foreseeable demands?
- ✔ Check the quality of the exposed wiring including the service entrance if above ground.
- ✔ Check for excessive voltage drop at receptacles.



- ✔ Inspect the panel box and check the condition of all connections.
- ✔ Check the wiring of receptacles, switches, and light fixtures, and check for proper lamp wattages.
- ✔ Verify for polarity and ground wiring at the receptacles.
- ✔ Check for required ground fault circuit interrupters (GFCIs) and test each.
- ✔ Identify the type of wiring (aluminum or copper) and check for the proper size of conductors and the presence of overcurrent protection.
- ✔ Check the type of wiring insulation (i.e., cloth or thermaplastic) and for wiring insulation condition and temperature rating.
- ✔ Check the age and type of various components of the electrical system.
- ✔ Check for presence and proper placement of smoke alarms and test each one.
- ✔ Check for appropriate surge suppression, and for areas of the country that experience a lot of lightning, consider a surge arrester.

While you cannot perform your own electrical inspection unless you're a qualified, licensed electrician or electrical inspector, something you can do is create a detailed circuit map and perform a power audit. This is not a substitute for an electrical inspection, but it will help you establish and maintain a safer electrical system.

A good circuit map goes beyond what the sticker on the inside of the electrical panel door provides. It details every receptacle and fixture each circuit serves. To create one is a simple, though admittedly time-consuming process of shutting off a single circuit at a time and determining which outlets and lighting fixtures have been affected each time.

As you proceed, note what appliances are plugged in at each receptacle. Circuits can only handle a specified total wattage of all the electrical products connected to that circuit. If too much wattage is demanded from a circuit, serious electrical problems can result. Here is an easy equation to use to determine what a circuit can handle:

Volts x Amps = Watts

Your electrical panel will indicate your system's voltage, and each fuse or circuit breaker is marked for its amperage. Using the equation above, a 15-amp circuit in a 120-volt system can carry a total of 1800 watts. It is not recommended that you exceed 80% of the total circuit capacity at any given time, in this case 1,440 watts.

Now, find the nameplate on each appliance indicating its power rating in watts. Note the appliance and its power rating on the entry for that circuit. Lamps and light fixtures, too, should note the maximum wattage they can take. If you cannot find the power rating, contact the manufacturer.

Some common household examples in watts:

Hair dryer	1600
Deep Fryer	1500
Portable Heater	1500
Iron	1000
Vacuum Cleaner	600
Portable Fan	150
Television	150
Computer	150
VCR	40
Stereo	30
Light bulbs	40, 60, 75 or 100

Finally, do the math. Add up the power demand of every appliance and fixture drawing power from the circuit. A typical entry in the circuit map should look like this:

Circuit #3— Kitchen—20 amps
Total allowable capacity (80% of total capacity) = 1920 watts
Serves three receptacles along the north and west walls of the kitchen, the kitchen ceiling lighting fixture (120 watts),

and light fixture over the sink (60 watts). Appliances plugged into receptacles include the coffee maker (800 watts), toaster (800 watts), radio (30 watts), phone/answering machine (100 watts).
Total demand on circuit = 1,910 watts.

If your total exceeds what the circuit is designed to provide, you may have a dangerous overload and should take immediate measures to alleviate the demands on that circuit by moving some appliances to another less taxed circuit, or by adding another circuit. In fact, you may find the total demand on your entire system exceeds the service to your home. In that case, consider contracting with your utility for a "heavy up", or upgrade to a higher level of electrical service.

A good circuit map will let you know at a glance, which circuits are overloaded and which are still available for additional use. Also, in the event of an electric shock or electrical fire, or if you need to remove power to do home maintenance or repairs on or around a circuit, you'll know without a doubt which circuit to shut off.

To be on the safe side, remember this rule of thumb:

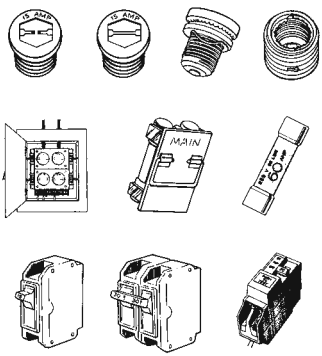
For 15 amps, keep it under 1500 watts.
For 20 amps, keep it under 2000 watts

BEFORE YOU PLUG INTO ELECTRICITY, PLUG INTO ELECTRICAL SAFETY—THE CHECKLIST

With your circuit map and power audit done, it's time to take a run through the house with a keen eye on safety. Use the following checklist on a regular basis to ensure your home remains electrically safe year in and year out. If you haven't already had an electrical inspection performed by a qualified, licensed electrician or electrical inspector, this list can also help identify clues that an inspection and/or repairs are needed.

Fuses/Circuit Breakers

Fuses and circuit breakers are safety devices located in your electrical panel that help prevent overloading and fires. They stop the electrical current if it exceeds the safe level for some portion of the home electrical system. Overloading means that the appliances and lighting on the circuit regularly demand more electrical current than the circuit can safely deliver.



Left to right:

Edison-base plug fuse (open)
Edison-base plug fuse (new)
S-Type plug fuse
S-Type socket insert

Four-fuse panel
Pull out fuse
Cartridge fuse

Single pole circuit breaker
Circuit breaker
Ground-fault circuit interrupter

If the demand for electrical current exceeds the safety level, a fuse opens once and must be replaced to reconnect the circuit. A circuit breaker "trips" its switch to open the circuit, and the circuit is reconnected by closing the switch manually.

Fuses

Replacing a correct size fuse with a larger size fuse can present a serious fire hazard. Doing so will allow excessive current to flow and possibly overload the outlet and the house wiring to the point that a fire can begin.

- ✔ Be certain that correct-size fuses are used (if you do not know the correct sizes, have a qualified, licensed electrician identify and label the sizes to be used).

NOTE: Fuses should be rated according to the wire that makes up the branch circuit, not the connected load. Most of the screw-based fuses used should be 15 amperes. Ensure that all fuses rated higher than 15 amperes are compatible with the branch circuit wiring.

Edison-base/S-type Fuses

Consumers sometimes replace a fuse that repeatedly "blows" with a higher ampere rated fuse. Although the new fuse may not open, it also may not protect the branch circuit. Doing so masks the real problem of too high a demand being placed on the circuit. The fuse will not open at the appropriate load for that circuit.

Instead of using an inappropriate fuse, take something off the circuit to bring the demand to an appropriate level.

- ✔ To prevent future installation of fuses that allow currents too high for your wiring, your fuse panel should be converted to S-type sockets that accept only fuses of the correct amperage rating. If you have Edison-base fuse sockets, have them fitted with the S-type socket inserts.

If fuses continue to "blow," keep track of which branch circuits are affected and which appliances are in use when the power outage occurs. Consult a qualified, licensed electrician to correct the problem.

Circuit Breakers

Just like fuses, circuit breakers provide overcurrent protection by opening the circuit, or "tripping" when an unsafe level of demand has been placed on the circuit.

Circuit breakers are also rated for various current levels, such as 15 or 20 amps. Breaker systems offer more flexibility for new protective technologies like ground fault circuit interrupters (GFCIs) and arc fault circuit interrupters (AFCIs). They also offer you the ability to reset the breaker once tripped, getting lights up and running quickly to prevent accidents resulting from the lack of power in the home. Resetting a circuit breaker is quicker than replacing a fuse and avoids the hazards of oversized fuses.

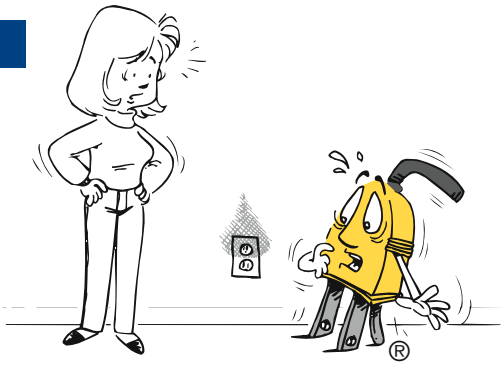
When resetting a tripped circuit breaker, be aware that your circuit breaker may trip to an intermediate position close to "ON" instead of the "OFF" position (sometimes it is difficult to see that it has tripped). To reset, move the switch fully to "OFF" and then to "ON."

✔ Before resetting a tripped circuit breaker, turn off or unplug appliances or lamps on the circuit to bring the demand back down to an acceptable level.

Outlets & Switches

Switches are used to turn the power on and off. Outlets, or receptacles, are usually mounted on a wall or floor to supply electricity through a cord and plug to appliances, lamps, TV, etc. These are the key points in our electrical systems that give us our first line of control to our electrical use, and they are critical connection points. With time and use, these connections can become loose, creating potential hazards.

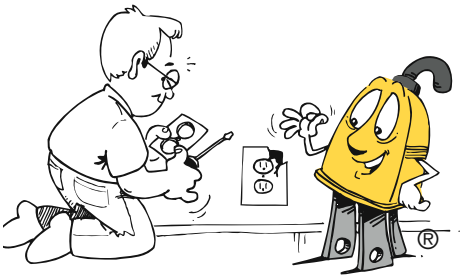
✔ Check to make sure outlet and switch plates are not unusually hot to the touch. If they are, immediately unplug cords from these outlets and do not use the switches. Have a qualified, licensed electrician check the wiring as soon as possible.



✔ Look for discoloration as another indication of potentially dangerous heat build-up at these connections. Stand across the room and look for a tear-drop shaped darkening around and above outlet and switch cover plates.

With outlet and switch cover plates, warm to the touch may be okay, but hot is not.

✔ Check that all outlet and switch cover plates are in good condition so that no wiring is exposed. Replace any missing, cracked or broken cover plate.



✔ Be sure to use safety caps with unused outlets.

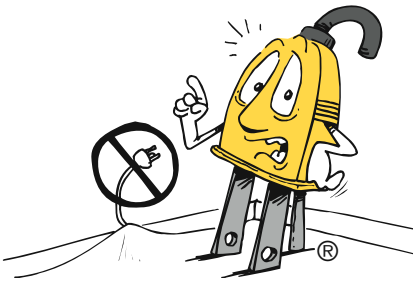
Exposed wiring is a shock hazard.

Power Cords

Power cords, part of electrical products and appliances, connect the item to the power supply by plugging into the outlet. They need to be kept in good condition. Even an electrical item that is in otherwise good working order can still represent a shock and fire hazard if its power cord is damaged.

- ✔ Check to make sure electrical cords are intact and in good condition, not frayed or cracked.
- ✔ Check to make sure lamp, extension, telephone and other cords are placed out of the flow of traffic. Cords stretched across walkways may cause someone to trip. If you must use an extension cord, place it on the floor against a wall where people cannot trip over it.
- ✔ Whenever possible, arrange furniture so that outlets are available for lamps, entertainment products, or appliances without the use of extension cords.
- ✔ Check to make sure furniture is not resting on cords.

Electric cords need ventilation. Cords that run under carpeting or behind baseboards can overheat and cause a fire.



- ✔ Check to make sure electrical cords do not run under furniture or carpeting, or behind baseboards.

Nails or staples can damage cords, presenting fire and shock hazards.

- ✔ Check to make sure electrical cords are not attached to the walls, baseboards, etc. with nails or staples. Disconnect power before removing nails and staples from on or around electrical cords.
- ✔ Do not attempt to repair cords yourself. Take any item with a damaged power cord to an authorized repair center, or cut the cord, safely dispose of the item, and purchase a new one.

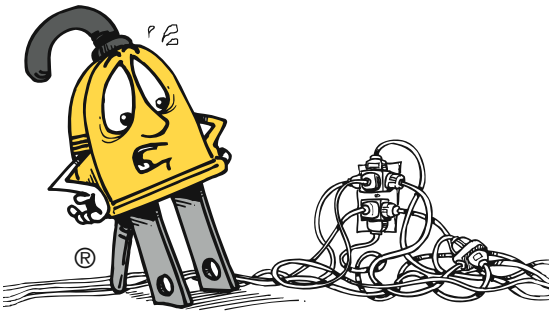
Cutting off the cord when disposing of a damaged electrical product reduces the likelihood of someone else "salvaging" the item and bringing the hazard home with them.

Extension Cords

Extension cords can be very helpful in delivering power right where we need it. However, no matter what the gauge or rating of the cord is, the extension cord is designed as a temporary

solution, not as long-term extension of your household's electrical system. With continuous use, the extension cord can more rapidly deteriorate, creating a potentially dangerous electric shock or fire hazard. In addition to the same safety tips that apply to power cords, keep the following principles in mind when using extension cords.

- ✔ **Extension cords should only be used on a temporary basis; they are not intended as permanent household wiring. Unplug and safely store extension cords after every use.**
- ✔ A heavy reliance on extension cords is an indication that you have too few outlets to address your needs. Have additional outlets installed where you need them.

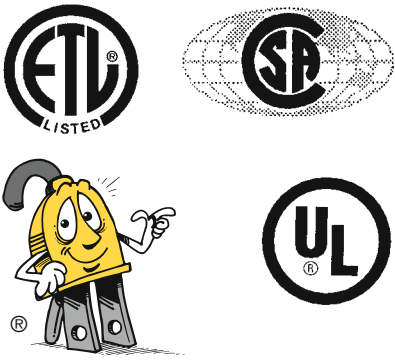


- ✔ Make sure extension cords are properly rated for their intended use, indoor or outdoor, and meet or exceed the power needs of the appliance or tool being plugged into it.

- ✔ Assume 125W per amp when calculating power (wattage) to determine if the extension cord you intend to use is properly rated for the appliance being connected to it.
- ✔ Replace No. 18 gauge cords with No. 16 gauge cords. Older extension cords using small (No. 18 gauge) wires will overheat at 15 amps or 20 amps.
- ✔ Change the cord to a higher rated one or unplug some appliances, if the rating on the cord is exceeded because of the power requirements of one or more appliances being used on the cord.

Overloaded extension cords can and do cause fires.

- ✔ Use cords with polarized and/or three-prong plugs.
- ✔ Buy only cords approved by an independent testing laboratory, such as Underwriters Laboratories (UL), ETL-SEMKO (ETL) or Canadian Standards Association (CSA).



Power strips and surge protection

Power strips give us the ability to plug more products into the same outlet, which can be a help, but also a hindrance to safety if used inappropriately. Power strips and surge suppressors don't provide more power to a location, just more access to the same limited capacity of the circuit into which it is connected. The circuit likely also still serves a variety of other outlets and fixtures in addition to the multiple electrical items you might be supplying with the power strip. In addition to the tips above, keep these safety principles in mind when using power strips and surge suppressors.

- ✔ Be sure you are not overloading the circuit. Know capacity of the circuit and the power requirements of all the electrical items plugged into the power strip and into all the other outlets on the circuit as well as the light fixtures on the circuit.
- ✔ A heavy reliance power strips is an indication that you have too few outlets to address your needs. Have additional outlets installed where you need them.

- ✔ Understand that surge suppressors only protect the items plugged into it, not back along the circuit into which it is connected.
- ✔ In the event of a large surge or spike, such as a lightning strike, the surge suppressor is a one-time-use protector and will likely have to be replaced.
- ✔ Consider purchasing surge suppressors with cable and phone jacks to provide the same protection to your phone, fax, computer modem and television.
- ✔ Not all power strips are surge suppressors, not all surge suppressors can handle the same load and events. Be sure the equipment you buy matches your needs.
- ✔ For homes in areas with a high incidence of lightning, consider having a surge arrestor installed at the fuse box or breaker panel for whole house protection

Light Bulbs

We've come to take the light bulb for granted, but there is a wide variety of bulbs available that provide different levels and quality of light, and that demand different levels of power. Make sure you are selecting the bulbs that are appropriate for your intended use and for the power rating of the intended lamp or fixture.

- ✔ Use a bulb of the correct type and wattage. If you do not know the correct wattage, contact the manufacturer of the lamp or fixture.
- ✔ Read and follow light bulb manufacturers' safety instructions.
- ✔ Make sure bulbs are screwed in securely —loose bulbs may overheat.
- ✔ Place halogen floor lamps (torchieres) away from curtains, beds, rugs or other furnishings. These lamps can become very hot and can cause a fire hazard. Consider replacing halogen torchiere lamps with models that use cooler, more efficient fluorescent bulbs.

A bulb of too high wattage or of the wrong type may lead to fire through overheating. Some ceiling fixtures and recessed lights can trap heat.

Portable Space Heaters

Portable space heaters can be a blessing in a cold and drafty house in the deep of winter. But space heaters, and any electrical product with a heating element, can demand a lot of power. By their nature, they also produce a lot of heat, and, if not used carefully, can become a fire hazard. Make sure to follow these safety principles with portable space heaters:

- ✔ Plug portable space heaters directly into an outlet; do not use an extension cord.

- ✔ Make certain the circuit into which you plug a space heater can adequately and safely handle the added demand.
- ✔ Never remove the grounding feature on a plug by clipping or grinding off the third prong.

- ✔ Use an adapter to connect the heater's 3-prong plug, if you do not have a 3-hole outlet. Make sure the adapter ground wire or tab is attached to the outlet ground.
- ✔ Relocate heaters away from passageways and keep all flammable materials such as curtains, rugs, furniture or newspaper at least three feet away.
- ✔ Unplug and safely store portable space heaters when not in use.

Plug portable space heaters directly into an outlet; do not use an extension cord.

Small Appliances and Tools

Follow these simple safety precautions with all your small appliances and tools:

- ✔ Make certain all small appliances and tools are approved by an independent testing laboratory, such as Underwriters Laboratories (UL), ETL-SEMKO (ETL) or Canadian Standards Association (CSA). (See example on page 18.)
- ✔ Use small appliances and power tools according to the manufacturer's instructions.
- ✔ Unplug all small electrical appliances, such as hair dryers, shavers, curling irons, clothes irons, and toasters, when not in use.
- ✔ Be sure you have ground fault circuit interrupter (GFCI) protection anywhere electricity and water are within six feet of each other, such as in your kitchen, bathroom and outdoors, to protect against electric shock. For more information, see the section on GFCIs, page 25.
- ✔ Take any damaged electrical appliance or tool to an authorized repair center, or cut the cord, safely dispose of the item, and purchase a new one.

Even an appliance that is not turned on, such as a hairdryer, can be potentially hazardous if it is left plugged in. If it falls into water in a sink or bathtub while plugged in, it can electrocute you. New hair dryers should always have a safety device called an appliance leakage circuit interrupter (ALCI) on their power cords to protect against electrocution.

- ✔ Never reach into water to get an appliance that has fallen in without being sure the appliance is unplugged or the circuit is shut off.

"Tucking in" an electric blanket or placing additional coverings on top of it can cause excessive heat buildup, which can start a fire.

- ✔ Do not tuck in electric blankets.
- ✔ Don't allow anything on top of the blanket while it is in use. This includes other blankets or comforters and even pets sleeping on top of the blanket.
- ✔ Do not use electric blankets on children.
- ✔ Never go to sleep with a heating pad that is turned on. It can burn you. Newer heating pads have an automatic cut off switch.

Sleeping with a heating pad that is turned on can cause serious burns even at relatively low settings.

- ✔ Check to make sure power tools have a 3-prong plug or double-insulated cords, and consider replacing old tools that have neither.
- ✔ Use a properly grounded 3-prong adapter for connecting a 3-prong to a 2-hole receptacle.
- ✔ Consider using a portable GFCI when using power tools.
- ✔ Replace guards that have been removed from power tools.
- ✔ There have been many recalls of power tools due to problems with the safety guard sticking. Be sure your model has not been recalled, as this hazard poses a serious risk of injury. Check online at *www.recalls.gov*.
- ✔ Check power tools before each use for frayed cords, broken plugs or cracked housing.

Test and Protect!—Ground Fault Circuit Interrupters (GFCIs)

Ground fault circuit interrupters (GFCIs)—which protect against accidental electric shock or electrocution by acting immediately to shut off the circuit if they sense a ground fault, or "leak" of current off the circuit—have been in homes since the early 70s on circuits that come within six feet of water. Homeowners, however, should consider having GFCI protection on general purpose receptacles throughout the home.

✔ There are outlet GFCIs protecting everything in that outlet and downstream on the circuit, circuit breaker GFCIs protecting the entire circuit, or portable GFCIs that protect just at the point of use.

Outlet type GFCI

Circuit breaker type GFCI

Portable type GFCI

A GFCI-protected outlet can provide power without giving an indication that it is no longer providing shock protection. Be sure your GFCI is providing protection from fatal electric shock by testing it monthly and after every major electrical storm.

✔ You should test your GFCIs monthly and after every major electrical storm. Here's how:

- Push the "Reset" button of the GFCI receptacle to prepare the unit for testing.
- Plug in a night light and turn it on. Light should be ON.
- Push the "Test" button of the GFCI receptacle. Light should go OFF.
- Push the "Reset" button again. Light should go ON.

A light plugged into the GFCI receptacle should go out when the test button is pushed. If the light remains on when the button is pushed, either the GFCI is not working properly or has not been correctly installed. If the "RESET" button pops out but the light does not go out, the GFCI has been damaged or was improperly wired and does not offer shock protection at that wall outlet. Contact a qualified electrician to correct any wiring errors or replace defective GFCIs.

- ✔ If you have a home without GFCIs, consult a qualified, licensed electrician about adding this important protection, or purchase plug-in units or a portable GFCI to provide individual receptacle or load protection.

New Protection—Arc Fault Circuit Interrupters (AFCIs)

Newer arc fault circuit interrupters (AFCIs) can help prevent fires that often result from problems at the outlets, switches and frayed and cracked cords connected to the circuits. The AFCI senses the particular signature of an arc—where electricity has to jump through an insulating medium—and, like the GFCI, acts immediately to shut off the circuit, thus reducing the risk of fire associated with arcing faults.

AFCIs are currently required by the National Electrical Code® in new construction in all bedroom circuits, but should be considered in all homes and all general purpose receptacles. Consult a qualified, licensed electrician to determine if your home is compatible with AFCI protection.

Other technology

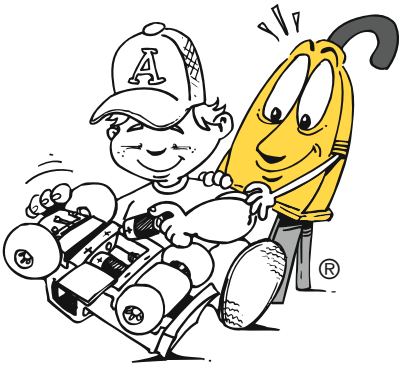
Over the years, we have begun to safety engineer our electrical products to include some of the same technology that has been applied to our electrical systems. Immersion detection circuit interrupters (IDCIs) and appliance leakage current interrupters (ALCIs) are typically found on hair dryer and specific appliance cords. They operate in slightly different ways but perform essentially the same function. Leakage current detection interrupters (LCDIs) are protective devices that help prevent fires due to damage to cords. They are presently being built into the plug cap of room air conditioners. If the cord is damaged, the LCDI circuitry detects an abnormal condition and immediately shuts off power. LCDI technology is also available in select extension cords and power strips.

Batteries

When used correctly, batteries provide a safe and dependable source of power. However, if they are misused or abused, overheating, leakage, or in extreme cases explosion or fire, can occur. Follow these safety principles when using batteries:

- ✔ Always follow warnings and manufacturers instructions for both the batteries and the battery-operated product. Use only the correct type and size battery indicated.

- ✔ Check the contacts of both the battery and the battery-operated product for cleanliness.
- ✔ Always insert the batteries correctly with regard to polarity (-/+), matching the positive and negative symbols of both battery and product. Putting them in backwards, the product will sometimes still operate, but may inadvertently charge the batteries resulting in venting or leaking.



- ✔ Remove and safely dispose of exhausted batteries immediately.
- ✔ Replace all batteries in battery-operated products at the same time and with the batteries of the same type and manufacture.
- ✔ Do not short circuit batteries. When the positive (+) and negative (-) terminals of a battery are in contact with each other, the battery can become short circuited. For example, loose batteries in a pocket with

keys or coins can be short circuited possibly resulting in venting or explosion.

- ✔ Do not heat batteries.
- ✔ Do not crush, puncture, dismantle or otherwise damage batteries.
- ✔ Do not charge non-rechargeable batteries.
- ✔ Keep batteries out of reach of small children.

Congratulations! You've just completed a thorough electrical safety check of your home. The few minutes you took to check your home using this booklet could prevent a safety hazard and save a life.

Ampere (amps)—A measure of electrical current flow.

Arc-Fault Circuit Interrupter (AFCI)—Provides protection from fires caused by effects of electrical arcing in wiring. An AFCI device will de-energize the circuit when an arc fault is detected.

Circuit—The path (usually wire) through which current flows between an electrical energy source and an electrical device, appliance or fixture.

Circuit breaker or Fuses—Protect against *overcurrent* and *short circuit* conditions that could result in potential fire hazards by opening a circuit path in case of an overcurrent.

Electrical faults—A partial or total failure in an electrical conductor or appliance.

Energized—Electrically connected to a source of potential difference, or electrically charged so as to have a potential different from that of the ground.

Gauge—Standard or scale of measure for circuit conductors.

Ground-Fault Circuit Interrupter (GFCI)—Provides the best available protection against severe shock and electrocution. A GFCI device

will de-energize a circuit when it senses a difference in the amount of electricity passing through the device and returning through the device, or a "leak" of current from the circuit.

Grounded/grounding—A conducting connection, whether intentional or accidental, by which an electric circuit or equipment is connected to the earth, or to some conducting body of relatively large extent that serves in place of the earth.

Overcurrent—Any current in excess of the rated current or ampacity of a conductor. May result in risk of fire or shock from insulation damaged from heat generated by *overcurrent* condition.

Outlet— A contact device installed along a circuit for the connection of an attachment plug and flexible cord to supply power to portable equipment and electrical appliances. Also known as receptacles.

Three-pronged plugs and outlets—Grounded appliances and outlets (unless marked otherwise) have a third socket or prong. The third wire, or grounding conductor, provides a path from the frame or housing of grounded electrical appliances back to the circuit breaker panel to permit current flow in event of an electrical fault in the equipment. When a ground fault occurs, the circuit breaker can trip to remove

energy from the faulty equipment but does not respond quickly enough to prevent the risk of severe shock.

Short circuit—An abnormal electrical path.

Voltage (volts)—A measure of electrical potential

Wattage (watts)—A measure of power or the rate of energy consumption by an electrical device when it is in operation, calculated by multiplying the voltage at which an appliance operates by the current it draws (Watts = Volts X Amperes).

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