

Electrical Safety



Electricity is an essential part of our lives. However, it has the potential to cause great harm. Electrical systems will function almost indefinitely if properly installed and not overloaded or physically abused. Electrical fires in our homes claim the lives of 485 Americans each year and injure 2,305 more. Some of these fires are caused by electrical system failures and appliance defects, but many more are caused by the misuse and poor maintenance of electrical appliances, incorrectly installed wiring, and overloaded circuits and extension cords.

- Never use anything but the proper fuse to protect a circuit.
- Find and correct overloaded circuits.
- Never place extension cords under rugs.
- Outlets near water should be GFI-type outlets.
- Don't allow trees near power lines to be climbed.
- Keep ladders, kites, equipment and anything else away from overhead power lines.

Electrical Panels

Electricity enters the home through a control panel and a main switch where one can shut off all the power in an emergency. These panels are usually in the basement. Control panels use either fuses or circuit breakers. Install the correct fuses for the panel. Never use a greater numbered fuse or a metallic item such as a penny. If fuses are used and there is a stoppage in power, look for the broken metal strip in the top of a blown fuse. Replace the fuse with a new one marked with the correct amperage. Reset circuit breakers from off to on. Be sure to check why the fuse or circuit blew. Possible causes are frayed wires, overloaded outlets or defective appliances. Never overload a circuit with high wattage appliances. Check the wattage on appliance labels. If there is frayed insulation or a broken wire, a dangerous short circuit may result and cause a fire. If power stoppages continue or if a frayed or broken wire is found, contact an electrician.

Electrical Appliances

Appliances need to be treated with respect and care. They need room to breathe. Avoid enclosing them in a cabinet without proper openings and do not store papers around them. Level appliances so they do not tip. Washers and dryers should be checked often. Their movement can put undue stress on electrical connections. If any appliance or device gives off a tingling shock, turn it off, unplug it and have a qualified person correct the problem. Shocks can be fatal. Never insert metal objects into appliances without unplugging them. Check appliances periodically to spot worn or cracked insulation, loose terminals, corroded wires, defective parts and any other components that might not work correctly. Replace these appliances or have them repaired by a person qualified to do so.

Outlets and Extension Cords

Make sure all electrical outlets are three-hole, grounded outlets. If there is water in the area, there should be a GFI or Ground Fault Interrupter outlet. All outdoor outlets should be GFIs. There should be ample electrical capacity to run equipment without tripping circuit breakers or blowing fuses. Minimize extension cord use. Never place them under rugs. Use extension cords sparingly and check them periodically. Use the proper electrical cord for the job, and put safety plugs in unused outlets.

Electrical Heating Equipment

Portable electrical heating equipment may be used in the home as a supplement to the home heating system. Caution must be taken when using these heating supplements. Keep them away from combustibles and make sure they cannot be tipped over. Keep electrical heating equipment in good working condition. Do not use them in bathrooms because of the risk of contact with water and electrocution. Many people use electric blankets in their homes. They will work well if they are kept in good condition. Look for cracks or breaks in the wiring, plugs and connectors. Look for charred spots on both sides. Many things can cause electric blankets to overheat. They include other bedding placed on top of them, pets sleeping on top of them, and putting things on top of the blanket when it is in use. Folding the blankets can also bend the coils and cause overheating.

Children

Electricity is important to the workings of the home, but can be dangerous, especially to children. Electrical safety needs to be taught to children early on. Safety plugs should be inserted in unused outlets when toddlers are in the home. Make sure all outlets in the home have face plates. Teach children not to put things into electrical outlets and not to chew on electrical cords. Keep electrical wiring boxes locked. Do not allow children to come in contact with power lines outside. Never allow them to climb trees near power lines, utility poles or high tension towers.

Electricity and Water

A body can act like a lightning rod and carry the current to the ground. People are good conductors of electricity, particularly when standing in water or on a damp floor. A body can act like a lightning rod and carry the current to the ground. Never use any electric appliance in the tub or shower. Never touch an electric cord or appliance with wet hands. Do not use electrical appliances in damp areas or while standing on damp floors. In areas where water is present, use outlets with "ground fault interrupters" or GFIs. Shocks can be fatal.

Outside Hazards

There are several electrical hazards outside the home. Be aware of overhead and underground power lines. People have been electrocuted when an object they are moving has come in contact with the overhead power lines. Keep ladders, antennas, kites and poles away from power lines leading to the house and other buildings. Do not plant trees, shrubs, or bushes under power lines or near underground power lines. Never build a swimming pool or other structure under the power line leading to your house. Before digging, learn the location of underground power lines.

Do not climb power poles or transmission towers. Never let anyone shoot or throw stones at insulators. If you have an animal trapped in a tree or on the roof near electric lines, phone your utility company. Do not take a chance of electrocuting yourself. Be aware of weather conditions when installing and working with electrical appliances. Never use electrical power tools or appliances with rain overhead or water underfoot. Use only outdoor lights, fixtures and extension cords. Plug into outlets with a ground fault interrupter. Downed power lines are extremely dangerous. If you see a downed power line, call the electric company, and warn others away. If a power line hits your car while you are in it, stay inside unless the car catches fire. If the car catches fire, jump clear without touching metal and the ground at the same time.

Animal Hazards

Mice and other rodents can chew on electrical wires and damage them. If rodents are suspected or known to be in the home, be aware of the damage they may cause and take measures to get rid of them.

SAFETY PRECAUTIONS

- Routinely check your electrical appliances and wiring.
- Frayed wires can cause fires. Replace all worn, old or damaged appliance cords immediately.
- Use electrical extension cords wisely and don't overload them.
- Keep electrical appliances away from wet floors and counters; pay special care to electrical appliances in the bathroom and kitchen.
- Don't allow children to play with or around electrical appliances like space heaters, irons and hair dryers.
- Keep clothes, curtains and other potentially combustible items at least three feet from all heaters.
- If an appliance has a three-prong plug, use it only in a three-slot outlet. Never force it to fit into a two-slot outlet or extension cord.
- Never overload extension cords or wall sockets. Immediately shut off, then professionally replace, light switches that are hot to the touch and lights that flicker. Use safety closures to "child-proof" electrical outlets
- Check your electrical tools regularly for signs of wear. If the cords are frayed or cracked, replace them. Replace any tool if it causes even small electrical shocks, overheats, shorts out or gives off smoke or sparks.

Do You Need An Electrician? Who do you call? What questions do you ask?

10 Questions to Ask Yourself about Your Home Electrical System

Do circuit breakers in your home trip often or do fuses keep blowing?

A home electrical system has these built-in safeguards to prevent electrical overload. Too much current causes the breakers to open automatically or the fuses to melt. When a circuit shuts down repeatedly, it's a warning that should not be ignored.

Are GFCI outlets installed where required?

The National Electrical Code now requires extra protection for outlets in specific areas of the home, such as kitchens, baths, utility rooms, garages and outdoors. Ground-fault circuit interrupters (GFCI's) - which are identifiable by their TEST and RESET buttons—are generally required in proximity to wet locations. If your wiring has not been upgraded with GFCI's you're not protected.

Are extension cords needed to reach the outlets in any room?

Electrical outlets, especially in older homes, are often spaced too far apart for modern living. This not only creates too much demand on too few outlets, it also poses a hazard when the extension cords are run under rugs and furniture.

Is there rust on the main electrical service panel?

Even permanent fixtures wear out or suffer the ravages of time. When rust appears on the metal service panel it often indicates a moisture problem or that deterioration has reached an advanced stage.

Do the lights dim when appliances turn on?

High-demand appliances such as air conditioners, clothes dryers, refrigerators and furnaces need extra power when they start up. This temporary current draw can be more than just a nuisance; it can damage sensitive equipment.

Do electrical switches or outlets feel warm or tingly?

Loose or deteriorating electrical connections, such as the wiring junctions in switches and outlets, impede current flow and create resistance. This may create a dangerous condition that can result in shock or fire.

Do your electrical outlets need accessory plug-strips?

Too many things plugged in at one location can create more current demand than a single outlet or electrical line can safely handle. Adding multiple plug-in strips won't solve the problem. What you need are additional outlets, and possibly new wiring runs to service them.

Do your outlets not accept three-prong plugs?

The third, or grounding, prong on a typical appliance plug provides an extra measure of safety against electrical shock. Older two-prong receptacle outlets, installed in homes before this innovation, may not be adequately grounded and should be upgraded.

Is the wiring in your outlet boxes old and crumbling?

If you look at the wiring to your home's light switches or outlets, do you find wires wrapped in cloth sheathing or bits of black rubber in the electrical box? Very old homes often have antiquated wiring that should be upgraded to ensure your safety.

Have you never upgraded your electrical service?

If your home is over 25 years old, you could have an inadequate and possibly hazardous electrical system—and not even know it. To be safe, call in an electrician for a thorough inspection, and if necessary bring your home up to today's electrical code standards.

Questions to Ask an Electrician

If you need to consult a professional electrician or electrical contractor, ask the following questions to learn whether the individuals you're considering are fully qualified and likely to do reliable work at a reasonable price.

Are you licensed in this municipality?

Not all states, counties or towns regulate or require licenses for electricians, but it's prudent to check first with your local building department. Also ask if electrical work in your municipality must adhere to standards established by the National Electrical Code.

Will my electrical panel need replacement?

The current National Electrical Code recommends a minimum 100-amp incoming electrical service. If your service panel provides less, it should be upgraded to this level or better to meet today's home requirements. Most new homes are wired with 200-amp service.

Will I have to apply for a permit?

If a permit is required, the electrician often will make the application for the homeowner. Some municipalities allow homeowners to do minor electrical repairs and installations if they first secure a permit and have the work inspected when complete.

Is my home's electrical system adequately grounded?

Ground-wiring protects a home and its occupants in case of an electrical fault, such as a short-circuit. But grounding also protects expensive electronic equipment like computers and many appliances. An electrician can quickly check and add grounding capacity if needed.

Are there any hidden costs for the work?

The electrician should do a thorough preliminary inspection and provide you with a firm, accurate estimate of the work involved, along with the cost of fixtures or wiring that will be installed. If additional work is necessary, it can be negotiated and billed separately.

Will you use all-copper wiring for any new installation?

Solid copper wiring is the material of choice for new homes or renovations. Although 14-gage wire is allowed for many circuits, it's smart to install heavier 12-gage wiring, which costs a little more but can handle more electrical current, making it safer and more energy-efficient.

If my service needs upgrading, will the entire house have to be rewired?

Unless you live in a very old home with antiquated wiring, you probably won't have to replace your existing electrical lines. However, if you require more electrical capacity in certain rooms, new wiring runs and additional outlets are likely to be needed.

Can you provide references from other homeowners?

Every tradesperson or electrician is only as good as their reputation. If you have never contracted with the electrician who answered your call, it's fair to ask for the names of other homeowners who have and to give them a call to check the contractor's work.

