

## Electrical Safety and You

By recognizing electrical hazards that may be present in your home, you can protect your family, home and assets from damage caused by electrical surges.

To prevent such damage, consider using lightning protection systems and surge protection devices and investing in Arc Fault Circuit Interrupters (AFCIs), and follow some general prevention tips.

### Where do electrical surges come from?

Electrical surges happen in storms when:

- Electric utility lines touch one another
- Power grid switching occurs
- Air conditioning units, furnaces, refrigerators or vacuum cleaners turn on and off.
- Lightning strikes within two miles of a home

### Lightning Protection Systems

- Provide a direct path for the lightning to follow to the ground
- Prevent destruction, damage, injury or death as it travels that path

### When there is lightning nearby:

- Do not use the telephone except in an emergency.
- Stay away from electrical appliances, TVs, fireplaces, metal objects, windows or doors.
- Seek shelter immediately in an enclosed building or vehicle.
- If you cannot find shelter, find a low lying area, crouch down with feet together and hands on your knees until the storm is over.
- Avoid isolated trees, high ground, bodies of water or large open areas.
- If someone is injured, administer first aid, if you are qualified to do so, and call for emergency help. You cannot be shocked by someone who has been hit by lightning.

### Surge Protection Devices

Properly installed surge protection devices (SPDs), combined with a good grounding system, should protect your electronic and electrical appliances from all but the most severe electrical surges. An SPD does not suppress or arrest a surge; it actually diverts the surge to the ground.

Each time a surge occurs, the damage to the electronic or electrical appliance accumulates, weakening the appliance components until they finally fail.

Things to consider when looking for SPDs:

- The surge protector should be listed to UL Standard 1449.
- The surge protector must be capable of protecting all power and signal lines that are connected to the protected equipment.
- Examples of signal lines: phone lines and coaxial cable from satellite, cable TV or external antenna.
- Select a surge protector that has an indicating light and/or audible alarm to show when it needs replacement.
- Look for SPDs that come with a manufacturer's warranty. Some warranties cover only the device; others also cover the damaged equipment and electrical wire insulation chewed by rodents.

### Arc Fault Circuit Interrupters (AFCIs)

AFCIs are able to detect certain types of dangerous arcing conditions. They look and work just like conventional circuit breakers and fit into electrical panels in the same way. Not only do they protect against overloads and short circuits, but they also electronically sense arcing.

Consider using AFCIs in older homes that may have aged or damaged electrical wire insulation. It may also be wise for newly constructed houses to have an AFCI due to electrical wires that may have been damaged by nails and screws that are concealed inside walls and ceilings.

### Service Entrance Lines

- Use caution around above-ground service entrance lines. Contact with entrance lines by objects such as ladders or a child's kite could result in electrocutions.
- Contact the utility company before digging around underground service entrances.

### **Fuse and Circuit Breaker Boxes**

- Enclose fuses and circuit breakers in a panel box. Interior wiring should never be visible. Always keep the panel door closed and latched.
- Keep the area around the electrical panel free of combustible materials.
- If you notice burn marks, hear buzzing or cracking or smell burning plastic around or inside the electrical panel, have a qualified electrician check the panel immediately.
- Keep on hand spare fuses of the proper size for the circuit they protect. Over fusing presents a severe fire hazard as circuits can overheat when they carry more current than that for which they were designed.
- When screw-type fuses require replacement, S-type fuses should be used.
- If fuses blow or circuit breakers trip frequently, it may be an indication that the circuits are overloaded. Have a qualified electrician inspect the circuit and make the appropriate repairs.

### **Electrical Cords**

- Extension cords are a temporary, not permanent, wiring solution.
- Avoid overheating by using extension cords of the proper size for the load they will carry and by using cords as short as practical.
- Regularly check cords for damage and never repair by splicing.
- Avoid using "octopus plugs" which allow many cords to be plugged into a single receptacle.

### **Electrical Appliances and Tools**

- Hire a qualified electrician to replace two prong outlets with three prong GFCI outlets if your appliances have three prong plugs. Never remove the grounding prong on an appliance cord.
- Unplug any appliance or tool that gives even the slightest shock (tingling sensation) and have it checked by a qualified electrician or repair person.