

# fall

ELECTRICAL SAFETY

## FACTS AND STATISTICS

- Data from the Consumer Product Safety Commission indicates that annually, there are approximately 40,000 home fires caused by electrical systems.
- Home electrical fires result in over 500 deaths and 5,000 injuries each year.
- Electrical fires cause about \$1.6 billion in property damage each year.
- Electrical outlets cause nearly 4,000 injuries annually. Approximately one-third of these injuries occur when children insert objects into outlets.
- Electrical receptacles are involved in 5,300 fires annually, claiming 40 lives and causing over 100 injuries

ESFi

Electrical Safety Foundation International

SLOGAN

*Invest in Electrical Safety*

## OVERVIEW

Electricity is a major cause of home fires. While use of electric power has increased, electrical systems, particularly in homes built over 20 years ago, have not kept up with the demand. Aged wiring, overloaded circuits, worn outlets are among the electrical hazards that can start fires and cause electrical shock.

Increasing electrical safety awareness and the use of electrical safety technology are key factors in reducing reduce deaths, injuries and economic losses due to electrical hazards.

Most shocks and fires from electrical systems can be prevented. Have your electrical system inspected by a licensed electrician. Fix dangerous defects, install smoke detectors, arc-fault circuit interrupters (AFCIs), ground-fault circuit interrupters (GFCIs), and check lighting and home appliances for wear and tear.

## ESFI WARNS HOMEOWNERS ABOUT AGING HOME ELECTRICAL SYSTEMS

Electrical distribution systems are the third leading cause of home structure fires. These fires caused the most property damage, are the second leading cause of death, and the third leading cause of home fire injuries, according to statistics from the U.S. Consumer Product Safety Commission (CPSC). The Electrical Safety Foundation International (ESFI) recommends that homeowners to have their homes electrically inspected, particularly if they fall into one of the following categories:

- Owner of a home 40 or more years old;
- Owner of a home 10 or more years old that has had major renovation, addition or major new appliance; or
- New owner of a previously owned home.

The following are some of the signs consumers can look for to address home wiring electrical hazards:

- Power outages—circuit breakers that frequently trip or fuses that need replacement;
- Dim and flickering lights;
- Arcs and sparks—flashes of light or showers of sparks in your electrical system;
- Sizzles and buzzes—unusual sounds from your electrical system;
- Overheating — overheated wires can give off an odor of hot insulation; switchplates or receptacle covers are hot to the touch, or discolored from heat buildup;
- Electrical shocks — any shock, even a mild tingle, may be warning of an electrical danger;
- Overrated panel — electrical panels with fuses or circuit breakers rated at higher currents than the capacity of their branch circuits; and
- Damaged wire insulation — cut, broken or cracked insulation.

## ALUMINUM WIRING DANGERS

The Electrical Safety Foundation International (ESFI) urges homeowners with aluminum wiring in their homes to monitor it closely. Aluminum wire oxidizes more rapidly than copper wire and is a greater potential fire hazard because oxidation increases resistance and heat buildup along the circuit. Since aluminum wire expands and contracts at a greater rate than copper wire, there is also a greater likelihood that gaps could develop at connections, potentially leading to hazardous arcs and glowing connections.

Even in younger homes, new homeowners should take an active role in understanding the condition of the current electrical system, its capacity, limitations, and potential hazards. ESFI encourages homeowners to contact a licensed electrician to inspect the home's circuitry to ensure the home's circuits are not overloaded and the home's electrical service can adequately supply the demand. Homeowners can

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develop a detailed map to show which circuits serve which outlets and fixtures, and how much power is being demanded of each.

Electrical inspections can catch problems hidden behind the walls and correct them before they turn tragic. In many cases, technologies such as ground fault circuit interrupters (GFCIs) and newer arc fault circuit interrupters (AFCIs) can be installed to help prevent a fire and accidental electrocution. The bottom line is: Inspect and Protect - call a qualified, licensed electrician to schedule an electrical inspection.

### ESFI ENCOURAGES AFCI INSTALLATION

Prevailing low interest rates encourage homeowners to make renovations but also present a prime opportunity for an investment to improve their home's electrical safety. The Electrical Safety Foundation International (ESFI) is urging consumers to install arc fault circuit interrupters (AFCIs) to protect all of the circuits throughout the home during renovations.

AFCIs are electrical safety devices designed to prevent fires caused by dangerous electrical arcs. Arc faults are one of the major causes of the 73,500 residential electrical fires that occur each year.

Use of new AFCI technology could prevent between 50 to 75 percent of these fires, saving hundreds of lives, reducing thousands of injuries and nearly \$1 billion in property damage annually, according to ESFI.

Arc faults do not necessarily create a sustained short circuit that causes a traditional circuit breaker to trip or a fuse to blow, but can result in hot spots in wiring that can lead to a fire. AFCIs recognize the unique

signature of harmful arcs—and shut off the circuit to prevent a fire hazard.

Arcs can occur along the circuit in residential electrical systems and at outlets and switches, behind walls. Hidden electrical fires can spread rapidly, delaying detection by smoke alarms, reducing the chances of survival. Conditions that trigger arc faults include:

- Damaged wires from nails driven into walls;
- Cracked insulation on wires due to aging or stress;
- Frayed wires at stress points;
- Loose or improper connections, faulty electrical equipment; and
- Overheated electrical wires.

ESFI recommends having AFCIs installed on all general purpose circuits throughout the home, particularly in older homes where arcing hazards could have developed over several years.

### SEASONAL SAFETY REMINDERS FROM ESFI

The Electrical Safety Foundation International (ESFI) has issued a safety checklist to remind everyone to keep electrical safety in mind during the change of seasons:

- Safely store warm weather tools like lawn mowers and trimmers. Check cold weather tools, such as leaf and snow blowers, along with their power cords, for unusual wear and tear. Repair or replace worn tools or parts right away.
- Unplug and safely store battery chargers that won't be in use again until spring.
- Use only weatherproof electrical devices for outside activities. Protect outdoor electrical devices from moisture. Make sure electrical equipment that has been wet is inspected and reconditioned by a certified repair dealer.

- Keep dry leaves swept away from outdoor lighting, outlets and power cords.
- Make sure electric blankets are in good repair, certified by an independent testing lab such as UL, CSA or ETL. Power cords should not be frayed, cracked or cut.
- Do not tuck your electric blanket into mattresses or under children, and don't put anything on top of the blanket while in use, such as comforters or bedspreads.
- Never allow pets to sleep on the electric blanket.



#### **ADDITIONAL RESOURCES AND LINKS**

For more on consumer product safety, contact the Consumer Product Safety Commission at [www.cpsc.gov](http://www.cpsc.gov). For information on product recalls, visit [www.recalls.gov](http://www.recalls.gov). For more on work place safety, contact the U.S. Department of Labor's Occupational Safety and Health Administration at [www.osha.gov](http://www.osha.gov).