

Residential Building Electrical Fires

An estimated 25,900 residential building electrical fires were reported to fire departments within the US each year. These fires caused an estimated 280 deaths and \$1.1 billion in property losses.

Electrical malfunction was the third leading cause of residential fires for the period 2009 to 2011. Electrical fires are caused by electrical system failures, appliance defects, incorrectly installed wiring, misuse and poor maintenance of electrical appliances, and over-loaded circuits and extension cords.

Electrical fires can take longer to detect and be more difficult to extinguish.

A unique characteristic of these fires is they can smolder for some time and cause smoke to not be immediately seen or detected. Flames can spread behind and within walls. As a result, electrical fires have the potential to spread further and cause more damage and injuries. And, they can be tricky to extinguish as water conducts electricity and putting out the fire can cause electrocution unless power is reliably disconnected.

Our homes have changed; can our electrical systems handle it?

Over the last 30 years, our homes have been dramatically transformed by electrical devices and these demands can overburden the electrical system in a home, especially one that is more than 40 years old that has older wiring. There is a likelihood that the older homes may not comply with more modern electrical code requirements putting them at an elevated risk of hazardous conditions for electrical fires. Given enough time, any home can be at risk of an electrical fire as wire insulation ages, connections loosen, receptacles and switches come loose or wear out and oil and dirt cause components to overheat.

According to FEMA, residential building electrical fires occurred most often in one and two family dwellings (84%), most often in colder months of January and December where more indoor activities lead to an increase in lighting, heating and appliance use. Also, low humidity is most likely to occur in winter. This results in wood studs and framing drying out and being somewhat easier to ignite by an arcing current or electrical overheating.

One belief that one and two family dwellings had more electrical fires than multifamily buildings (apartments, condominiums and townhouses) may be because more stringent building and fire codes require more frequent fire and safety inspections and may also be more often professionally maintained.

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Reducing Your Exposure to Electrical Fires

The following strategies were provided by the Electrical Safety Foundation International:

- Install advanced electrical safety technologies (arc fault interrupters AFCIs, Ground Fault Circuit Interrupters GFCIs, and Tamper Resistant Receptacles).
- Properly maintain your electrical systems by:
 - Ensuring all residential work is performed by a qualified, licensed electrician and complies with codes and standards.
 - Testing electrical safety devices (AFCIs, GFCIs, smoke alarms) on a monthly basis.
 - Properly labeling electrical panel circuits.
 - Replacing fuses or circuits with the correct size and amperage.
 - Keeping your electrical panel accessible.
 - Getting a professional system inspection if the building's electrical is 40 years or older, previously owned, has undergone a major renovation, has been outfitted with major new appliances in the last 10 years.
- Install smoke alarms according to current recommendations and test monthly.
- Prepare and practice a fire escape plan that includes 2 ways out of each room.
- Identify and correct potential electrical hazards such as not overusing extension cords; make sure they are in good condition (no frays or cuts), not located under rugs or where they could be pinched or damaged. If damaged, discard immediately.
- Make sure all appliance cords are in good condition including for lamps and lighting.

For additional information on Residential Building Fires, please refer to <http://www.usfa.fema.gov/statistics/>

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