

## **STEPS TO ELECTRICAL FIRE PREVENTION**

- ▶ Routinely check your electrical appliances and wiring.
- ▶ Homes with aluminum wiring should be inspected by a licensed electrician.
- ▶ Frayed wires can cause fires. Replace all worn, old or damaged appliance cords immediately.
- ▶ Use electrical power strips wisely; don't overload them.
- ▶ When buying electrical appliances look for products which meet the Underwriter's Laboratory (UL) standard for safety.
- ▶ 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.

*The goal of the Fire Prevention Division is to; educate the general public of the laws and regulations; administer comprehensive programs of fire prevention and loss management; hazardous materials regulation and enforcement; and public education. In addition, Bureau personnel recommend policy and ordinance revisions to enable customers to comply with regulatory codes in mitigating fire and hazardous materials conditions in the community and industry. The division monitors the effectiveness of the City's fire loss prevention programs.*

***Having a working smoke alarm dramatically increases your chances of surviving a fire. And remember to practice a home escape plan frequently with your family.***

### ***Milpitas Fire Department***

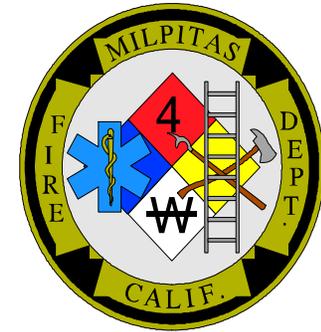
**Emergency  
911**

**Fire Prevention Division  
408-586-3365**

**Fire Investigations  
408-586-3383**

# ***MILPITAS FIRE DEPARTMENT***

## **FIRE PREVENTION DIVISION Fire Prevention Training**



## **How Electricity Ignites Fires**

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**Clare Frank, Fire Chief  
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► 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.

► During a typical year, home electrical problems account for 67,800 fires, 485 deaths, and \$868 million in property losses. Home electrical wiring causes twice as many fires as electrical appliances.

► December is the most dangerous month for electrical fires. Fire deaths are highest in winter months which call for more indoor activities and increase in lighting, heating, and appliance use. Most electrical wiring fires start in the bedroom.

► Many avoidable electrical fires can be traced to misuse of electric cords, such as overloading circuits, poor maintenance and running the cords under rugs or in high traffic areas, and the placement of light bulbs with higher wattage than the lamp is rated for (e.g. 100 watt bulb in a 60 watt lamp.)

## How Electricity Ignites Fires

*Most electrical fires result from problems with "fixed wiring" such as faulty electrical outlets and old wiring. Problems with cords and plugs, such as extension and appliance cords, also cause many home electrical fires.*

- ⚡ Electricity delivers power that translates into heat.
- ⚡ In a faulted or improperly installed system, heat can accumulate in the wires or junctions.
- ⚡ The resistance of the wires themselves result in self-heating with the flow of electricity.
- ⚡ High current flowing through high-resistance junctions create high heat. (*Corrosion, oxidation, and contamination are typical causes of high-resistance.*)
- ⚡ Excessive voltage across electrical load devices. (An electrical common connection at the panel becomes disconnected.)
- ⚡ Excess line voltage or load device current (e.g. in appliances, lamps, extension cords, strip outlets, heaters, fans) can create excess heat. Long term exposure of PVC insulation to this heat can lead to arc tracking (internal arcing between the wires) and fires.

## SPECIAL ATTENTION

Residents of  
**Houses/Mobile Homes**  
built between **1965** and **1974**  
with **Aluminum Wiring**

The **Consumer Product Safety Commission** has determined houses wired with aluminum 15 & 20 ampere circuits between 1965 and 1974 are **55 times** more likely to have connections that are hazardous and cause fires versus those wired with copper.

The aluminum conductors of this era expand at three times the rate of copper conductors, possibly creating a gap at the connections, which could result in both sparks and oxidation of the aluminum. Oxidation increases the resistance at the connection and elevates heat levels in the circuit.

Multiple devices plugged into outlets, usually through power strips or multiple outlet extension cords, can cause excessive voltage through the gaps at these connections and add to the probability that you will have a fire.

**If your house is wired with aluminum 15 & 20 ampere circuits and was built between 1965 and 1974, we suggest your wiring be inspected by a licensed electrician.**