Maintenance

Electrical wiring, like all other systems, needs maintenance and inspection. Have your electrical system examined by a licensed electrician every 10 years. All electrical work should be done by a licensed electrician who obtains a permit when required. The permit process protects homeowners by requiring that an inspector check that the work is done correctly.

Arc Fault Circuit Interrupter (AFCI)

An arc fault circuit interrupter is a new device designed to actually reduce the likelihood of fires. It responds to arcing and sparking within a circuit before the circuit breaker or fuse trips. The AFCI breaker trips to help prevent the fire from occurring in the first place.

The AFCI is installed at the electrical panel and doesn't look much different than a regular circuit breaker.

Don't confuse the AFCI with GFCI. Both devices serve different functions.

AFCIs are mostly found in newly built homes, but can easily be installed in older homes equipped with circuit breakers.

Ground Fault Circuit Interrupter (GFCI)

Installing Ground Fault Circuit Interrupter (GFCI) receptacles can reduce deaths from electrical shock in and around the home by two-thirds. GFCIs should be installed by a qualified electrician in places near water such as kitchen counters, bathrooms and other areas subject to moisture, including the outdoors.

Preventing Electrocutions and Shocks

Safety Tips:

- Read and follow instructions and safety tips provided with electrical appliances and equipment.
- Install plastic safety covers in unused electrical outlets to protect children from shock hazard.
- When unplugging a cord or appliance from an outlet, pull the plug not the cord. Pulling by the cord can cause damage to the wiring at the connection.
- Do not defeat polarized plugs (one prong larger than the other) or the third or ground prong.
- Keep electrical appliances and cords away from water. Keep yourself alive by keeping water and electricity separate.

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Preventing Electrical Fires at Home

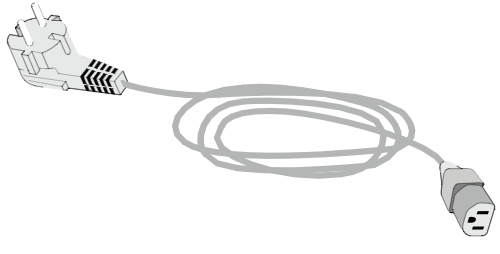
DEPARTMENT OF FIRE SERVICES
Peter J. Ostroskey • State Fire Marshal

Electricity is a powerful energy source that must be treated with care and respect.

When we think about electricity, we think about electric current. Electric current is the power running along wires in our home and generates heat as it travels. The electrical current is like water running through a hose. The size of the cord can carry only so much electricity before it starts to overheat. The insulation on home wiring, fuses and other parts of the electrical system are all designed to carry a certain amount of electricity safely. The more electricity you draw along a cord, the more quickly it heats up. For instance, an appliance like a space heater can draw a lot of current and needs to be plugged in with a properly designed cord.

Extension Cords

The plugs on cords are the places where heat builds up and the more cords you connect together, the more trouble spots you have. The connection between an extension cord and an appliance cord does not have the same safety features (like fuses or circuit breakers) as those that are built into a wall socket. That is why extension cords are for temporary use only.



Electrical Fires: A Leading Cause of Fire Deaths

From 2010-2014, Massachusetts fire departments reported 2,743 home fires caused by electrical problems. These fires caused 42 civilian deaths, one fire service death, 121 civilian injuries, 310 fire service injuries and an estimated dollar loss of $136 million. The average loss per fire was $49,598. Electrical fires were the leading cause of fire deaths in 2011 and and 2014, and they were tied as the number two cause in 2012 and 2013.

Potential Warning Signs and Hazards

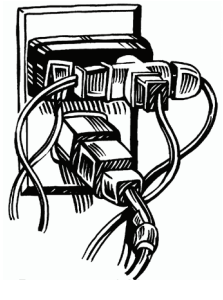
Call the fire department immediately if you have any of these warning signs:

- Arcs, sparks or short circuits;
- Sizzling or buzzing sound;
- Odors, vague smell of something burning

Firefighters can use thermal imaging technology to see excessive heat inside the walls.

Call a professional electrician soon if you have any of these warning signs:

- Frequently blown fuses or tripped circuit breakers;
- Dim or flickering lights, bulbs that wear out too fast;
- Overheated plugs, cords or switches;
- Shock or mild tingle – more than normal static electricity;
- Loose plugs; or
- Unusually warm or faulty outlets or switches.



Look around for these hazards in your home and correct them:

- Overloaded outlets – more than one appliance cord plugged into one wall outlet.
- Cords pinched behind furniture like couches or bureaus.
- Overloaded power strips. They should only be used with a few low current devices such as electronics.
- Lamps or fixtures with light bulbs higher than the recommended wattage. Most lamps recommend 60 watts. Be careful where you use higher wattage bulbs.
- Electrical cords underneath rugs, carpet or furniture. Move them to reduce the risk of fire from overheating due to worn insulation.
- Cords with frayed wires or cracked insulation. Replace them with new ones having a certification label from an independent testing laboratory.
- An extension cord that is not properly

rated for the appliance it powers. Typical "lamp cord" extension cords cannot carry the electrical current needed for appliances such as space heaters or air conditioners.
- Cords or wires that are nailed into place. This can cause electrical shorts and arcing.
- Indoor appliances and cords being used outdoors.