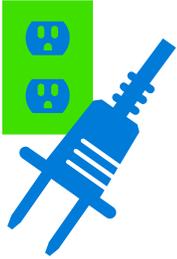


Safety Note #19

BASIC ELECTRICAL SAFETY



According to information from the Electrical Safety Foundation International, every year electrical accidents cause approximately 165,000 electrical fires, 900 deaths, and 7,000 injuries. Electrical accidents can be prevented by understanding how electricity works and recognizing potential hazards. ***This safety note is to be used in conjunction with electrical safety video (E-081) available for loan from the ANR Environmental Health & Safety Library at <http://safety.ucanr.org>.***

Basic Electrical Information

- Electricity naturally seeks the path of least resistance to the ground.
- If your body happens to be in the path of least resistance due to a shorted wire/receptacle or malfunctioning power tool or appliance, the electricity will pass through you and into the ground (i.e., the earth) unless you are standing on a non-conductive surface.
- You will experience a shock as the electricity passes from you to the ground.
- An electrical path of least resistance that passes through your vital organs can result in a serious injury.

Basic Electrical Safety Practices

- Remove frayed, defective, or damaged power cords/plugs, receptacles, switches, cover plates, appliances, and power tools from service by attaching a red tag that states "DO NOT USE." Complete red tag with appropriate information and notify your supervisor.
- Always insert plugs into receptacles with similar prong or blade patterns.
- Never alter a plug by removing, bending, or twisting the prongs or blades.
- Flickering/dimming lights, tripped circuit breakers, blown fuses, and warm receptacles or electric cords are signs of potentially overloaded circuits.
- If a circuit appears to be overloaded, reduce the load by disconnecting appliances or power tools from the circuit.
- A 15 amp circuit should not exceed a 1,500 watt load and a 20 amp circuit should not exceed a 2,000 watt load when used less than three hours. For more than three hours of continuous use, a 15 amp circuit and 20 amp circuit may not exceed 80% of their load or 1440 watts and 1,920 watts, respectively, unless the circuit breakers are rated and marked for 100% load.
- Never touch energized power tools or appliances that are wet or lying in water. Always de-energize wet tools or appliances before touching.
- Do not yank on power cords to disconnect equipment. Always grip the plug when disconnecting equipment.
- Never replace a correctly-sized fuse with a larger-sized fuse.
- Ground fault circuit interrupters (GFCIs) should be used whenever electricity and water are within six feet of each other. GFCIs should also be used with temporary wiring "during maintenance, remodeling, or repair of buildings, structures, or equipment or during similar activities" involving construction.
- A grounded three-prong adapter shall be used to connect a three-prong plug to a two-prong receptacle.
- Always be aware of the electrical hazards present in your work area.
- Plug power strips directly into wall outlets. Do not daisy chain two or more together to increase length.