

An electric shock is the tingling sensation or muscular contraction that a person experiences when an electrical current passes through the body. A shock can severely burn or kill if the muscle contraction is severe enough to stop the heart. This muscle contraction may cause the victim to remain firmly gripped to the source of electrocution, particularly where power tools or leads are being used.

Precautions for avoiding electrical shocks include, but not limited to the following:

- Always use caution when working near electricity.
- Assume that all overhead wires are energized at lethal voltages. Never assume that a wire is safe to touch even if it is down or appears to be insulated.
- Never touch a fallen overhead power line. Call the electric utility company to report fallen electrical lines.
- Stay at least 10 feet away from overhead wires during cleanup and other activities. If working at heights or handling long objects, survey the area before starting work for the presence of overhead wires.
- If an overhead wire falls across your vehicle while you are driving, stay inside the vehicle and continue to drive away from the line. If the engine stalls, do not leave your vehicle. Warn people not to touch the vehicle or the wire. Call or ask someone to call the local electric utility company and emergency services.
- Never operate electrical equipment while you are standing in water.
- Never repair electrical cords or equipment unless qualified and authorized.
- Have a qualified electrician inspect electrical equipment that has gotten wet before energizing it.
- If working in damp locations, inspect electric cords and equipment to ensure that they are in good condition and free of defects, and use a ground-fault circuit interrupter (GFCI).

Ground Fault Circuit Interrupters:

The GFCI is a fast acting device that senses a small current leakage to ground. Within 1/40 of a second it shuts off the electricity and “interrupts” the current flow. It provides effective protection against shocks and electrocution. OSHA requires GFCIs or an assured equipment grounding conductor program on all construction sites and projects.

The F&S Tool Room has portable GFCI “pigtailed” for checkout. These should be used with all corded electrical power tools (i.e., drills, saws, etc.) and be tested before each use. All GFCIs have a built-in test circuit, with test and reset buttons that trigger an artificial ground-fault to verify protection. Test portable GFCIs each time they are used.

Extension Cords:

Extension cords are convenient ways to provide power to portable equipment. However, they are often misused, resulting in injuries and expensive OSHA fines. The most important thing to remember is that extension cords are for temporary use only. Inspect extension cords for physical damage before use. Check wattage rating on the tool being used with the extension cord; do not use an extension cord that has a lower rating. Don't use extension cords marked for indoor use outdoors. Don't plug one extension cord into another.

Normal wear and tear on extension cords can loosen or expose wires, creating hazardous conditions. Cords that are not 3-wire type, not designed for hard-usage, or that have been modified increase your risk of electrocution. Avoid hazards by:

- Storing all cords indoors when not in use.
- Never keep an extension cord plugged in when not in use, as it still conducts electricity.
- **Visually inspect all electrical equipment before use.**
 - External defects (loose parts, deformed/missing pins, damage to outer jacket or insulation)
 - Evidence of possible internal damage (pinched/crushed outer jacket)
 - Return any damaged cords to the tool room for replacement
- Do not modify cords or use them incorrectly.
- Use factory-assembled cord sets and only extension cords that are 3-wire type.
- Use only cords, connection devices, and fittings that are equipped with strain relief.
- Remove cords from receptacles by pulling on the plugs, not the cords.
- Return damaged extension cords or tools with damage to the cord to the tool room for repair or replacement.
- **DO NOT WRAP THE DAMAGED AREA IN ELECTRICAL TAPE.**
- To reduce hazards, avoid putting tension on cords.
- Flexible cords must be rated for hard or extra-hard usage. Cords will be labeled with: S, ST, SO, or STO for hard service.