

Location: \_\_\_\_\_ Instructor: \_\_\_\_\_ Date/Time: \_\_\_\_\_

### TOPIC C031: ELECTRICAL SAFETY

**Introduction:** One of the most common electrical hazards in the workplace is electrical shock from a ground fault. Electrical accidents are usually caused by unsafe equipment and/or installation, unsafe workplaces caused by environmental factors, and unsafe work practices.

Electricity travels through a closed circuit, and its normal route is through a conductor. If you become part of the circuit, the severity of a shock you can receive is determined by three primary factors: the amount of current, the path of the current, and the length of time you're in contact with the circuit. To work safely, it's critical that you're trained to recognize electrical hazards, and how to eliminate or protect yourself and others from them.

**Hazard Mitigation:** To reduce electrical shock-related injuries, always follow lockout, blockout and tagout procedures when repairing, or working in an area where there is an energized source.

Training will help you recognize electrical hazards and use safe work practices to control or eliminate those hazards. Only "qualified" workers can work on exposed energized parts and must be familiar with the hazards of electricity such as high voltages and current, arcing, grounding, and the lack of guarding. Things to keep in mind are:

- **Personal protective equipment (PPE):** When working around potential electrical hazards, you'll be given electrical PPE. Always use the PPE appropriate for the work you're doing and the body parts you need to protect
- **Tools:** To maximize your safety, always use insulated tools. Always inspect your tools before use, if they're defective or damaged, tag them and remove them from service. If you're using tools to handle energized conductors, ensure they're designed to withstand the voltages and stresses they will be exposed to
- **Over-current protection devices:** Ensure there are circuit protective devices installed, such as fuses, circuit breakers and GFCIs to limit or shut off current flow in case of a ground-fault, overload, or short circuit in a wiring system. They prevent overheating of wires and components that could create hazards for you
- **Grounding is required to protect you from electrical shock, to prevent fire, and to protect against damage to electrical equipment. There are two kinds of grounding:**
  - **Service or system ground:** In this system, one wire, the neutral conductor, is grounded. This type of ground protects machines, tools, and insulation
  - **Equipment ground:** This method provides a path for current from a tool or machine to ground. This protects you if there's an electrical malfunction
- **Guarding:** Any "live" electrical equipment operating at more than 50-volts must be guarded to prevent accidental contact. Entrances to areas with "live" electrical parts must be marked with warning signs, limiting entrance to qualified persons only
- **Insulation:** Inspect your equipment daily for insulation breakdown such as broken or exposed wires and damaged insulation on extension cords. Electrical insulation must meet the requirements for the voltage and conditions under where the equipment will be used
- **Underground and overhead lines:** If you don't know the exact location of underground lines, anyone using jackhammers or hand tools must wear insulated protective gloves. If you're working near overhead power lines, the lines must be de-energized and grounded or other protective measures must be installed before work starts. Unqualified employees and mechanical equipment must stay at least 10 feet away from overhead power lines

**Employee Attendance:**(Names or signatures of personnel who are attending this meeting)

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These guidelines do not supersede local, state or federal regulations, and must not be construed as a substitute for, or legal interpretation of, any OSHA regulations.