

Worksite: _____ Instructor: _____ Date/Time: _____

Topic C038: Electrical Cords

Introduction: Electricity is important in the workplace where power is required. Many workers are electrocuted each year because they did not follow safe work practices for electricity or were unfamiliar with the equipment that was in use. A large percentage of electrical accidents are caused from using improperly grounded temporary electrical systems or damaged power tools and extension cords in the workplace.

Electrical shock: The most common electrical shock-related injury is a burn. Burns suffered may be electrical burns, arc burns, and thermal contact burns.

Extension cords: The main concerns are the connectors, insulation, and the appropriate wire size needed to carry the current. If the wrong length or size of cord is selected for a particular tool, then the voltage available is reduced to the tool, creating an over-current hazard.

Ground Fault Circuit Interrupters (GFCI) will help to minimize most dangerous situations. GFCI protection must be at the outlet end of the circuit. However, keep in mind that GFCIs are not fool-proof, and under wet conditions are not always effective.

Plugs and receptacles must match the job at hand. Each type of receptacle is designed to handle a specific amount of voltage and current. Always be aware of your circuit requirements.

Electric tools: Do not use tools with frayed or loose cords, cords repaired with tape, or cords with exposed wiring. Tools must be inspected before use and if found defective, properly tagged and removed from service.

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Specific OSHA regulations that cover flexible extension cords and grounding requirements include:

- **Extension cord sets** used with portable electric tools and equipment shall be of three-wire type and shall be designed for hard or extra-hard usage.
- **Inspect all cords** and power tools to ensure that the plug is a 3-prong plug with proper grounding. Never remove or cut-off the ground plug.
- **Receptacles, cord connectors, and attachment plugs** shall be constructed so that no receptacle or cord connector will accept an attachment plug with a different voltage or current rating than that for which the device is intended.
- **Receptacles connected** to circuits having different voltages, frequencies, or types of current (AC or DC) on the same premises shall be of such design that the attachment plugs used on these circuits are not interchangeable.
- **A grounding terminal** or grounding-type device on a receptacle, cord connector, or attachment plug shall not be used for any other purpose.
- **No grounded conductor** shall be attached to any terminal or lead so as to reverse designated polarity.
- **Flexible cords and cables** shall be protected from damage. Sharp corners and projections shall be avoided. Flexible cords and cables may pass through doorways or other pinch points, if adequate protection is provided to avoid damage.
- **Splices** — Flexible cords shall be used only in continuous lengths without splice or tap. Hard service flexible cords No. 12 or larger may be repaired if spliced so that the splice retains the insulation, outer sheath properties, and usage characteristics of the cord being spliced.

Conclusion: Electricity is a delicately confined source of energy and should be handled with care. Its behaviors and currents are unpredictable, and it is subject to a magnification of intensity when it comes into contact with highly conductive materials such as water or metal. Take caution when working on tasks in which electricity is a primary factor and do not come into contact with its sources without proper training.

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.