Electrical Safety On Construction Sites – Toolbox Talk 7

Electric shock, and too often fatalities, occur on construction jobsites when temporary power systems are in use. All construction workers who operate power tools should receive training in the systems which safeguard them from electrical hazards.

1. GFCI

- A Ground Fault Circuit Interrupter (GFCI) is equipment that serves as a circuit breaker if it senses a 5 milliamp or greater difference in current between the hot and neutral sides of the circuit. Workers are to report any GFCI “trips” immediately to the superintendent for investigation before any work concerning the task shall continue.

2. Under what conditions must Ground Fault Circuit Interrupters (GFCI) be used on a worksite?

- When electrical tools and extension cords are used in connection with the process of construction or alteration
- When 120-volt, single-phase, 15-20 ampere receptacle outlets are being used, which are not a part of the permanent wiring of buildings or structures.

3. What types of defects should workers continually look for?

- Deformed or missing pins
- insulation damage
- Indications of possible internal damage.

4. How do you identify a “Double Insulated” tool?

- "Double insulated" tools, which are clearly marked and identifiable as a double insulated tool usually by a "D in a square". These tools should nevertheless be inspected by workers, before each use, for cord damage or case damage.

Identifiable Hazards:

- Worn or frayed extension cords
- Inadequate gauged extension cords
- Inadequate site conditions (Wet)
- Absence of GFCI
- Uncovered or obstructed electrical panels
- Circuit overload
- Tools that have no markings indicating double insulation

Note: This page is intended for general recognition and elimination of potential electrical hazards which can develop on the jobsite.

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All electrical work, installation and wire capacities shall be in accordance with provisions of the National Electrical Code.

Job sites will have a Ground Fault Circuit Interrupter system, or an Assured Equipment Grounding Conductor Program. This is required for all 120 volt, single phase 15 and 20 ampere receptacle outlets which are not a part of the permanent wiring of the building or structure in use by employees.

The company shall not permit an employee to work in such proximity to any part of an electric power circuit that he/she may come in contact with it in the course of his/her work unless the employee is protected against electric shock by de-energizing the circuit and grounding it or by guarding it by effective insulation or other means. In work areas where the exact location of underground electric power lines is unknown, workmen using jackhammers, bars, or other hand tools which may come in contact with a line shall be provided with insulated protective gloves.

Before work is begun, the cognizant supervisor shall ascertain by inquiry, direct observation, or instruments whether any part of an electric power circuit, exposed or concealed, is located so that the performance of the work may bring any person, tool, or machine into physical or electrical contact with it. The company shall post and maintain proper warning signs where such a circuit exists. Employees shall be advised of the location of such lines, the hazards involved, and the protective measures to be taken.

Suitable barriers or other means shall be provided to ensure that workspace for electrical equipment will not be used as a passageway during periods when energized parts of electrical equipment are exposed.

Sufficient space shall be provided and maintained in the area of electrical equipment to permit ready and safe operation and maintenance of such equipment. When parts are exposed, the minimum clearance for the workspace shall be not less than 6-1/4 feet high nor less than a radius of 3 feet wide. There shall be a clearance sufficient to permit at least a 90 degree opening of all doors or hinged panels. All working clearances shall be maintained in accordance with the National Electrical Code.

Equipment or circuits that are de-energized shall be rendered inoperative and have tags attached at all points where such equipment or circuits can be energized. Controls that are to be deactivated during the course of work or energized or de-energized equipment or circuits shall be tagged. Tags shall be placed to identify plainly the equipment or circuits being worked on. Unexpected energizing of any electrical line can cause death, shock, serious injury, etc. In addition to the tag, the circuit at the switch box should be padlocked in the "OFF" position. A lockout hoop should be provided and used.

Note: The information on this page is intended for specialized recognition and elimination of potential electrical hazards which can develop on the jobsite. Electrical Subcontractors shall review and sign to ensure compliance with these standards.