

Keys to Electrical Safety Are No Shock

Every day almost 3 million workers in the United States are at risk from uncontrolled energy when servicing equipment. Injuries range from burns and falls to electric shock (nonfatal) and electrocution (fatal). Here is an overview of key OSHA rules for working safely near electricity.

OSHA's electrical safe work practice rules (29 CFR 1910.331 - 1910.335) cover work practices for both qualified persons (those who have training in avoiding the electrical hazards of working on or near exposed energized parts) and unqualified persons (those with little or no such training) working on, near, or with:

- Premise wiring (i.e., installations of electric conductors and equipment within or on buildings or other structures, and on other premises such as yards, parking and other lots, and industrial substations)

- Wiring for connection to supply

- Installations of other outside conductors on the premises

- Installations of optical fiber cable where such installations are made along with electric conductors

Safety-related work practices must be employed to prevent electric shock or other injuries resulting from either direct or indirect electrical contacts when work is performed near or on equipment or circuits that are or may be energized. The specific safety-related work practices must be consistent with the nature and extent of the associated electrical hazards.

Note: Only qualified persons may perform work on energized equipment or de-energize and lock out and/or tag out electrical parts and equipment.

De-energizing parts or equipment. Live parts to which an employee may be exposed must be de-energized before the employee works on or near them, unless the employer can demonstrate that de-energizing introduces additional or increased hazards or is infeasible because of equipment design or operational limitations. Live parts that operate at less than 50 volts to ground need not be de-energized if there will be

no increased exposure to electrical burns or to explosion due to electric arcs.

Energized parts or equipment. If the exposed live parts are not de-energized, other safety-related work practices must be used to protect employees who may be exposed to the electrical hazards involved. Such work practices must protect employees against contact with energized circuit parts directly with any part of their body or indirectly through some other conductive object.

De-energized parts or equipment not locked or tagged out. Conductors and parts of electric equipment that have been de-energized but have not been locked out or tagged must be treated as energized parts.

Lockout/tagout of de-energized equipment. While any employee is exposed to contact with parts of fixed electric equipment or circuits that have been de-energized, the circuits energizing the parts must be locked out or tagged or both. The employer must maintain a written copy of the procedures followed to lock or tag out equipment. Safe procedures for de-energizing circuits and equipment must be determined before circuits or equipment are de-energized.

Work on or near energized equipment. Only qualified persons may work on energized equipment. Such persons must be capable of working safely on energized circuits and be familiar with the proper use of special precautionary techniques, personal protective equipment, insulating and shielding materials, and insulated tools.

Work near overhead lines. If work is to be performed near overhead lines, the lines must be de-energized and grounded, or other protective measures must be provided before work is started. If the lines are to be de-energized, arrangements must be made with the person or organization that operates or controls the electric circuits involved to de-energize and ground them.

Unqualified persons and the longest conductive object he or she may contact must not come closer than 10 feet to an energized 50 kilovolt (kV) overhead line (greater distances for greater than 50 kV lines), and they must not bring any conductive object closer than the same distances.

Qualified persons must not approach or take any conductive object without an approved insulating handle and must obey approach distances to overhead lines specified in the rule.

Housekeeping duties. Where live parts present an electrical contact hazard, employees may not perform housekeeping duties at such close distances to the parts that there is a possibility of contact, unless adequate safeguards (such as insulating equipment or barriers) are provided.