

Electrical (General Requirements)

3/01/07

The OSHA standard, Title 29, §CFR 1910.303 **Electrical (General Requirements)** was one of the top10 cited standards by OSHA in 2005. The top10 violations account for more than 50 percent of all OSHA citations. Therefore, you may want to devote more attention to these five electrical violations.

Overview of Standard

This standard provides guidance regarding general safety requirements for designing electrical systems.

Top 5 Sections of Standard Cited by OSHA

- Failure to install and use electrical equipment according to factory instructions 1910.303(b)(2)
- Failure to guard electrical equipment 1910.303(g)(2)(i)
- Failure to identify disconnecting means and circuits 1910.303(f)
- Failure to keep work spaces clear 1910.303(g)(1)(ii)
- Use of electrical equipment containing recognized hazards 1910.303(b)(1)

Installation and Use

1910.303(b)(2) This section of the standard requires that listed or labeled equipment must be used or installed in accordance with any instructions included in the listing or labeling.

The definitions for "listed" and "labeled" as stated in 29 CFR 1910.399 are as follows:

1. Equipment is "listed" if it is of a kind mentioned in a list that (a) is published by a nationally recognized laboratory, which makes periodic inspection of the productions of such equipment, and (b) states such equipment meets nationally recognized standards or has been tested and found safe for use in a specified manner.
2. Equipment is "labeled" if there is attached to it a label, symbol, or other identifying mark of a nationally recognized testing laboratory (a) which makes periodic inspections of the production of such equipment and (b) whose labeling indicates compliance with nationally recognized standards or tests to determine safe use in a specific manner.

This section of the standard was the most frequently cited because of equipment being used or installed that was not in accordance with the instructions included in the listing or labeling.

Guarding of Live Parts 1910.303(g)(2)(i) Basically this section of the standard requires that live parts of electric equipment operating at 50 volts or more must be guarded against accidental contact by approved cabinets or other forms of approved enclosures, or by any of the following means:

- By location in a room, vault, or similar enclosure that is accessible only to qualified persons.
- By suitable permanent, substantial partitions or screens so arranged that only qualified persons will have access to the space within reach of the live parts. Any openings in such partitions or screens shall be so sized and located that persons are not likely to come into accidental contact with the live parts or to bring conducting objects into contact with them.
- By location on a suitable balcony, gallery, or platform so elevated and arranged as to exclude unqualified persons.
- By elevation of 8 feet or more above the floor or other working surface.
- In locations where electric equipment would be exposed to physical damage, enclosures or guards shall be so arranged and of such strength as to prevent such damage.
- Entrances to rooms and other guarded locations containing exposed live parts shall be marked with conspicuous warning signs forbidding unqualified persons to enter.

Identification of Disconnecting Means and Circuit 1910.303(f) This section of the standard basically requires that each electrical disconnect must be legibly marked to indicate its purpose unless located and arranged so the purpose is evident. The markings must be of sufficient durability to withstand the environment involved. For a review of the complete language of this section refer to 1910.303(f). A disconnect is defined as: A device, or group of devices, or other means by which the conductors of a circuit can be disconnected from their source of supply.

Working Space Clear 1910.303(g)(1)(ii) This section of the standard requires that working space required by 1910.303(g)(1)(i) may not be used for storage. When normally enclosed live parts are exposed for inspection or servicing, the working space, if in a passageway or general open space, shall be suitably guarded.

Working clearances or workspace distances of 600 volts or less are defined in 1910.303(g)(1)(i) of standard. Basically, the minimum clear distance in front of electrical equipment built and installed prior to 4/16/81 is 2 feet 6 inches. For equipment built or installed after this date the minimum clear distances vary from 3-4 feet depending on conditions.

Examination of Electrical Equipment 1910.303(b)(1) - Electrical equipment shall be free from recognized hazards that are likely to cause death or serious physical harm to employees. Safety of equipment shall be determined using the following considerations:

- Suitability for installation and use in conformity with the provisions of this subpart.
- Suitability of equipment for an identified purpose may be evidenced by listing or labeling for that identified purpose.
- Mechanical strength and durability, including, for parts designed to enclose and protect other equipment, the adequacy of the protection thus provided.
- Electrical insulation.
- Heating effects under conditions of use.
- Arcing effects.
- Classification by type, size, voltage, current capacity, specific use.
- Other factors which contribute to the practical safeguarding of employees using or likely to come in contact with the equipment.