OSHA Revises Electrical Safety Regulations

Commitment to Electrical Safety

The Occupational Safety and Health Administration of the Federal Department of Labor (OSHA) considers electrical safety a high priority. The Bureau of Labor Statistics indicates that over the decade from 1992 to 2002, deaths due to electrical contact average almost 300 per year and lost time injures number over 4,000 per year. That's the bad news. The good news is that the trend is down in both categories. To help this downward trend to continue, OSHA is revising some of the federal regulations concerning electrical safety.

NFPA 70E

Early in 1976 the National Fire Protection Association (NFPA) announced the formal appointment of a new electrical standards development committee. This committee was formed specifically to assist OSHA in preparing electrical safety standards that would serve OSHA's needs and that could be expeditiously promulgated through the provisions of Section 6(b) of the Occupational Safety & Health Act. "NFPA 70E Standard for Electrical Safety in the Workplace 2004 Edition" is the seventh and current edition published by this committee.

Revision of OSHA Electrical Standard

Now comes the first revision to CFR 29 1910 Subpart S Electrical Standard since 1981. The Final Rule dated February 14, 2007 will go into effect on August 15, 2007. Due to the lengthy process of publication, public hearings, review and issue of final rule this revision is based on Part 1 of "NFPA 70E Standard for Electrical Safety in the Workplace 2000 edition".

This final rule revises OSHA's existing standard for electrical installations, which is contained in 1910.302 through 1910.308 of Subpart S, with relevant definitions in 1910.399, and focuses on safety in the design and installation of electric equipment in the workplace. It applies, as the existing standard does, to employers in general industry and in the shipyard employment, long shoring, and marine terminals.

OSHA wanted the standard to reflect the most current practice and technology in the industry and is responding to requests from stakeholders that the Agency revise Subpart S so that it reflects the most recent editions of NFPA 70E and the NEC. Some have criticized the use of NFPA 70E 2000 instead of the more recent version. OSHA has responded by indicating:

"Basing Subpart S on the latest edition of NFPA 70E would thus necessitate re-proposing the rule. Given the time involved in re-proposing and finalizing an OSHA standard, it is likely that NFPA 70E will be revised yet again within that timeframe. In addition, because NFPA 70E and OSHA's electrical installation standard were developed specifically to minimize the need for revision with every new version of the NEC, a final rule based on the 2000 edition of NFPA 70E will not be obsolete. Furthermore, several provisions in the final rule are based on corresponding requirements in the 2002 NEC, on which NFPA 70E-2004 is based. In the proposing and finalizing this revision of Subpart S, OSHA carefully chose which NEC changes would have the greatest impact on employee safety. The Agency does not believe that delaying the substantial increase in employee safety that would result from the standard published in the final rule is warranted."

Details

The final rule, as does the current standard, exempts older electrical installations from meeting some of the provisions of the Design Safety Standards for Electrical Systems (that is, 1910.302 through 1910.308). Older installations must meet fewer requirements than newer ones. The grandfathering of older installations is contained in paragraph (b) of final 1091.302.

Paragraph (b)(1) of final 1910.302 contains a list of provisions that would apply to all installations, regardless of when they were designed or installed. The few requirements in this short list are so essential to employee safety that even the oldest electrical installations must be modified, if necessary, to meet them. The list is unchanged from the current standard, except for the addition of:

1. A prohibition on using grounding terminals and devices for purposes other than grounding.
2. A documentation requirement for hazardous locations made under the zone classification system.
3. Requirements covering the zone classification system.

OSHA is also extending the ground-fault protection requirement to temporary receptacles used in construction-like activities performed in general industry. These regulations apply to every electrical installation and all utilization equipment installed or overhauled after March 15, 1972. At the same time, this final rule extends protection to temporary wiring receptacles of higher voltage and current ratings (such as 125-volt, single-phase, 30-ampere and 480 volt, three phase receptacles). Paragraph (b)(2)(ii) of final 1910.304 requires ground-fault circuit-interrupter (GFCI) protection for all receptacle outlets on temporary wiring installations that are used during maintenance, remodeling, or repair of buildings, structures, or equipment, or during similar construction-like activities. Such activities include cleanup, disaster remediation, and restoration of large electrical installation. A GFCI devise monitors the current going into and coming out of an electric circuit and will open the circuit if they do not equal each other, preventing any other current path, such as flow through a worker's body to ground.

The following new requirements apply only to electrical installations and utilization equipment installed after April 16, 1981:

1. Over 600 volts, nominal-Entrance and access to work space
2. Overcurrent protection-600 volts, nominal, or less
3. Grounding-Grounding of systems and circuits of 1000 volts and over (high voltage)
4. Equipment for general use-Capacitors
5. Elevators, dumbwaiters, escalators, moving walks, wheelchair lifts, and stairway chair lifts-Interconnection between multicar controllers
6. Electrically driven or controlled irrigation machines
7. Swimming pools, fountains, and similar installations-Fountains
8. Systems over 600 volts, nominal-Above ground wiring methods
9. Class 1, Class 2, and Class 3 remote control, signaling, and power-limited circuits-Marking
10. Fire alarm systems

The following new requirements apply only to electrical installations and utilization equipment installed after August 13, 2007:

1. Disconnecting means and circuits-Capable of accepting a lock
2. Disconnecting means and circuits-Marking for series combination ratings
3. 600 Volts, nominal, or less-Space about electric equipment
4. Over 600 volts, nominal-working space and guarding
5. Branch circuits-Identification of multiwire branch circuits
6. Branch circuits-Ground-fault circuit interrupter protection for personnel
7. Overcurrent protection-Feeders and branch circuits over 600 volts, nominal
8. Switches-Connection of switches
9. Switches-Grounding
10. Electric signs and outline lighting-Disconnecting means
11. Elevators, dumbwaiters, escalators, moving walks, wheelchair lifts, and stairway chair lifts-Operation
12. Elevators, dumbwaiters, escalators, moving walks, wheelchair lifts, and stairway chair lifts-Location
13. Elevators, dumbwaiters, escalators, moving walks, wheelchair lifts, and stairway chair lifts-Identification and signs
14. Elevators, dumbwaiters, escalators, moving walks, wheelchair lifts, and stairway chair lifts-Single-car and multicar installations
15. Swimming pools, fountains, and similar installations-Receptacles
16. Carnivals, circuses, fairs, and similar events-
17. Systems over 600 volts, nominal-Interrupting and isolating devices
18. Systems over 600 volts, nominal-Tunnel installations
19. Emergency power systems-Signs
20. Class 1, Class 2, and Class 3 remote control, signaling, and power-limited circuits-Separation from conductors of other circuits
21. Solar photovoltaic systems

Complete details on the proposed 1910 subpart S Final Rule may be found in the Federal Register for Wednesday February 14, 2007, Part II, Department of Labor, Occupational Safety and Health Administration, 29 CFR part 1910, Electrical Standard; Final rule (e7-1360).

Looking Forward

There is no doubt about OSHA's commitment to improving electrical safety in the workplace. Looking forward there will be the adoption of the other facets of NFPA 70E such as "Safety Related Work Practices" into OSHA rules. Careful study of and compliance with current versions of NFPA 70E will insure full compliance with present and future OSHA rules There often are questions about the employer's need to comply with NFPA 70E. OSHA often employs what has come to be known as the "General Duty Clause" of the OSH Act of 1970 considering failure of the employer to comply with OSHA rules, This is section 5 of the Act:

SEC. 5. Duties

(a) Each employer-

(1) Shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees:

(2) Shall comply with occupational safety and health standards promulgated under this Act.

29 USC 654

(b) Each employee shall comply with occupational safety and health standards and all rules, regulations, and orders issued pursuant to this Act which are applicable to his own actions and conduct.

Electrical shock hazard is certainly a recognized hazard that is causing or is likely to cause death or serious physical harm to employees. Feasible solutions to preventing electrical shock hazard are found in NFPA 70E. These solutions include the use of voltage rated gloves. The "General Duty Clause" is one more reason for employers to study and comply with the NFPA 70E standard.