OSHA COMPLIANCE MANUAL

Electrical hazards

Introduction

Electricity is such an integral part of everyday life that its power is often taken for granted. In the workplace, employees accept it as a source of power for lights, tools, and equipment — without giving much thought to the significant hazards involved.

One in seven electrical shocks kill. Each year, electrocution is the cause of about nine percent of all work-related deaths and numerous injuries. And often, the victim is not someone whose job it is to install or repair electrical equipment. It's the employee who didn't realize that a worn electrical cord needed replacement, or that special protective equipment was needed to work in the vicinity of exposed live parts or overhead lines.

Between January 1, 2007 and December 31, 2007, federal OSHA statistics show that violations of the electrical standards ranked high in citations. Overall, OSHA cited the electrical standards for 7,613 violations during 2007, not including state-plan states which account for half of the total states. Violations to the three most-cited electrical standards include:

- §1910.303 cited 2,625 times for $2,494,584 initial penalties, averaging $950 per penalty.
- §1910.304 cited 719 times for $778,185 initial penalties, averaging $1,082 per penalty.
- §1910.305 cited 3,276 times for $2,638,610 initial penalties, averaging $805 per penalty.

OSHA requires employers to provide employees with a workplace that is free of hazards. Through hazard assessments to identify electrical problem areas, taking corrective actions, and providing workers with appropriate training and PPE, you will be taking a step in the right direction by heightening employee awareness and providing a workplace that is safe from accidents caused by faulty electrical systems or equipment.

The electrical standards address concerns that electricity has long been recognized as a serious workplace hazard, exposing employees to such dangers as electric shock, electrocution, burns, fires, and explosions. In 2006, for example, the Bureau of Labor Statistics reported that 5,703 work-related deaths occurred in private sector workplaces. Two hundred and forty-seven deaths were the result of contact with electric currents at work. While the number of work-related electrocutions remains relatively unchanged from previous years, the statistics are still tragic because, for the most part, these fatalities could have been easily avoided. For more details, see the Bureau of Labor Statistics reports in the RECORDKEEPING chapter.

OSHA's electrical standards

OSHA's general industry electrical standards, found in Subpart S, §1910.301 through §1910.399 are based on the National Fire Protection Association's Standard NFPA 70E, *Electrical Safety Requirements for Employee Workplaces*, and the *National Electrical Code* (NEC). In addition to general industry, they apply to shipyard employment, longshoring, and marine terminals.

OSHA also has electrical standards for construction, but recommends that employers in this industry follow the general industry electrical standards whenever possible for hazards that are not addressed by their industry-specific standards.

The electrical standards help minimize potential electric-related hazards by specifying safety aspects in the design and use of electrical equipment and systems. Currently, the standards cover only those parts of any electrical system that an employee would normally use or contact. For example, the exposed and/or operating elements of an electrical installation — lighting, equipment, motors, machines, appliances, switches, controls, and enclosures — must be constructed and installed so as to minimize workplace electrical dangers.