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NFPA 70E

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NFPA 70E

Overview:

NFPA 70E was created to provide a safer working area for employees who are required to work with, or around, electricity (70E.90.1). This standard covers activities like installation, inspection, operation, and maintenance of electric conductors, equipment, and other machinery. It also explains how to work safely in various situations where the threat of an electrical hazard is present, such as: warehouses, garages, and machine shops (70E.90.2 (A)). While this standard covers many areas of electrical safety, it does not cover: installations in ships, aircraft, automotive vehicles, railway, underground mines, and several other various situations (70E.90.2(B)).

This standard covers Arc Flash, which is a dangerous condition associated with the possible release of energy caused by an electric arc. This happens when energized electrical conductors are exposed, if a person is interacting with the equipment in such a manner that could cause an electric arc. If people have installed and done regular maintenance to machinery, and are using it properly, it is not likely that there would be an arc flash (70E.100(I)). For more information on Arc Flash, please visit compliancesigns.com.

NFPA 70E covers the work practices and procedures that are necessary for employees to follow and learn in order to avoid electric arc flashes, and other dangers. It is the responsibility of an employer to provide thorough training for employees. This training program will include Lockout/Tagout systems which are used to assure that machinery is unable to be turned on while an employee is performing maintenance. Employers will also inform employees about protective clothing and protective equipment that must be used while working with electrical hazards. Organization and having a proper training program and system in place are key factors to maintaining a safe workplace.

Resources:

Arc Flash Resource Bulletin:(Free) http://www.compliancesigns.com/media/resource-bulletins/CRB-Arc-Flash.pdf

NFPA 70E: ($$$) http://www.nfpa.org

Training Requirements:

Since the employees that use NFPA 70E are those who work with electricity, safety training is essential to maintaining a safe working environment. Safety training helps employees fully realize the dangers of their positions, and understand the procedures that the company has determined are required. They must also be trained to understand the potential for injury in their position and how to identify when danger exists (70E. 110.2 (A))

- Employers should determine the amount of risk associated with each position to decide how much training an employee should receive (70E. 110.2 (B))
- Employees need to be trained in ways to release a person from contact with energized electrical conductors, as well as, first aid and resuscitation (70E. 110.2 (C))
- Certain parts of a job are done once a year or less, so people need to be retrained on the job duties before completing them (70E. 110.2 (D.d))
- A qualified person is one who knows the specifics for certain equipment in order to keep themselves and other safe (70E. 110.2 (D.1))

Compliance – Resource Bulletin

(Training Requirements Continued)

- An unqualified person must know electrical safety practices so that they will be able to keep themselves safe (70E. 110.2 (D.2))
- All training must be repeated every three years or less (70E. 110.2 (D.3.3))
- Everything needs to be documented by the employer to ensure that proper training has been conducted (70E. 110.2 (E)

Electrical Safety Programs:

According to NFPA 70E, employers need to set up an electrical safety program in order to teach employees how they need to behave around electrical hazards on the job (70E. 110.3 (A)). This is essential for maintaining safety for all employees while they are working. This covers procedures that need to be followed at the beginning of a job and during the process of completely the job. Employees must be up to date with procedures every time they begin a new job, even if the job is something that is done routinely. Everything must always be audited and documented (70E. 110.3 (H.3))

Employees must understand and/or obey the following procedures as part of the safety program:

- Most importantly, employees must be aware of surroundings, potential hazards, and safety measures
- Must know the principles of the electrical safety program
- The electrical safety program needs to show the controls and procedures used when working with electrical equipment
- There must be a hazard identification and risk assessment procedure in place.
    - This is a way to identify the hazards before beginning work on the equipment
- There must be an employee who is placed in charge of making sure all of the other employees understand the risks of their jobs.
    - This employee must also notify others if any of the processes change
    - Even if the job requirements do not change, there still needs to be a briefing at the beginning of every shift, every day (70E. 110.3 (G.1-3))
- Auditing is another essential part to an electrical safety program
    - This insures everything is in compliance with NFPA 70E
    - Makes sure that employees are following the procedures of the safety program (70E. 110.3 (H 1-2))

Equipment Usage:

In order for equipment to be maintained safely, employees must perform routine tests. This helps determine if a piece of electrical equipment is performing within its limitations and allows employees to determine if there is a hazard. Employers must also develop a Lockout/Tagout system to ensure that employees are working in a safe environment. As with all other processes that employees must master to work with electrical machinery, or around electrical hazards, the Lockout/Tagout system is a process that must be taken seriously and utilized correctly. There is a simple procedure and a complex procedure, and depending on a person's position within the company, they may have to know how to do both.

Compliance – Resource Bulletin

Additional information:

It is important to remember that NFPA 70E was created to keep employees safe in the workplace where electrical hazards are a big part of the daily routine. While 70E does not teach an employer how to design their electrical systems, it is responsible for teaching employers and employees how to work safely around electricity. If a person needs to understand how to design a system for a factory, or other place of business, they will need to reference additional material outside of NFPA 70E.

When it comes to being safe around electrical equipment, there are a few basic things to remember:

- Turning off the power is the safest way to work
  - This is where the lockout/tagout system is essential because it keeps the machine from getting turned back on during maintenance
- Organization is key to working with electrical hazards
  - Make sure employees are properly trained
  - Make sure employees know when maintenance and other operations are being performed to minimize the amount of people in the immediate area
  - Write down the processes and document who is completing what work
- Always wear proper protective clothing

There are several areas in 70E that cover protective clothing and protective equipment. The necessary clothing/equipment depends on the job scenario (NFPA 70E)

For NFPA 70E signs please visit our store:
https://www.compliancesigns.com/products/electrical/nfpa-70-e-arc-flash-signs