



MEETING YOUR OSHA AND NFPA 70E REQUIREMENTS

You are required to meet certain OSHA and NFPA 70E compliance standards in the areas of arc flash and electrical safety. EPSCO can help you meet these requirements with a concise package of deliverables that contains some or all of the following:

- ⚡ Incident energy calculations for devices included in the arc flash study
- ⚡ A short circuit study and development of time-current curves for protective devices
- ⚡ Electrical safety training programs
- ⚡ Protective device coordination study
- ⚡ Guidance on developing an electrical safety program
- ⚡ Guidance on developing an electrically energized work permit system
- ⚡ Guidance on developing a PPE program
- ⚡ Short circuit line diagrams
- ⚡ Comprehensive single-line diagrams for all services in building
- ⚡ An SOP for keeping single-line diagrams up to date

OSHA & NFPA 70E CODES/STANDARDS

NFPA 70E is where OSHA's electrical safety standards are derived from. The following is a summary of OSHA & NFPA 70E codes and standards. To access the actual NFPA articles (1-7), go to [nfpa.org](https://www.nfpa.org) and create a free account. Then search the article within the NFPA 70E document. To access the OSHA standards (8-9), click on the section titles below.

1. NFPA 70E, ARTICLE 105

Outlines the responsibilities of the employer and the employee(s) regarding electrical safety. **The employer is responsible for providing safety-related work procedures, training employees in the practices, supervising the employees, auditing, and documenting.** The employees are responsible for applying the work procedures following their training and their demonstrated ability.

2. NFPA 70E, ARTICLE 110.5 (A)

Requires that the employer implement and document an electrical safety program—as part of the employer's overall occupational health and safety management system— that directs employees on the proper procedures.

3. NFPA 70E, ARTICLE 110.6

Says employees should be retrained in safety-related work practices in intervals of three (3) years or less.

4. NFPA 70E, ARTICLE 120.1 (A)

Says **each employer must identify, document, and implement lockout/tag-out procedures that safeguard employees from electrical hazards.** The procedures should be appropriate for the workplace conditions and training.

5. NFPA 70E, ARTICLE 130.5

Says, **an arc flash assessment must be completed to determine if an arc flash hazard exists**, taking into consideration the design of the overcurrent protective device, its opening time, and its condition of maintenance. The assessment must be updated if a major modification or renovation takes place, and it must be reviewed periodically, at intervals not to exceed five (5) years.

6. NFPA 70E 130.7.E.2

Communicates **the need for creating approach boundaries/barricades in work areas that contain energized conductors or circuit parts.** In the case of the arc flash, the boundary is based on the inverse square of the distance to the hazard. In other words, if you halve the distance to the arc flash hazard, the available incident energy increases by a factor of four (4).

7. NFPA 70E 130.5(F)

Allows for two (2) methods of selecting PPE: The Incident Energy Method (arc flash study) or the Arc Flash Categories PPE Method (use the tables). When tables are used, however, the currents and clearing times included in the equipment category/rating headings must be checked to confirm that use of the tables is permitted. If a task is not in the tables—or the working distance is closer than those used in the tables or the clearing time of the arcing current—then the arc flash study should be used instead.

8. OSHA'S GENERAL DUTY CLAUSE (CFR 1910) SECTION 333

Says **safety-related work practices are needed to prevent electric shock when work is performed near or on equipment/circuits that are or may be energized.** Completing an arc flash study, along with applying proper labeling to the devices, clearly communicates what the hazards are.

9. OSHA'S GENERAL DUTY CLAUSE (CFR 1910) SECTION 335

Says, **employees working in areas where there are potential electrical hazards must be provided with, and use, electrical protective equipment** that is appropriate for the specific parts of the body to be protected and for the work to be performed.

RISK ASSESSMENT

OSHA VIOLATIONS

Arc Flash Citation

"The employer is failing to protect employees from 480 volt electrical and arc flash hazards associated with working in the vicinity of... possible arc flash hazards."

- Reference 29 CFR 1910.303(b)(1)(viii)

ARC FLASH CITATION EXAMPLES

Inspection Number & Link: [1445812.015](#)

Fatalities: 1

Total Citations: 2

Total Fines: \$45,000

Inspection Number & Link: [1456538.015](#)

Fatalities: 1

Total Citations: 3

Total Fines: \$161,928

Inspection Number & Link: [1204690](#)

Fatalities: 1

Total Citations: 5

Total Fines: \$63,375

Inspection Number & Link: [1301219](#)

Fatalities: 1

Total Citations: 9

Total Fines: \$94,234

ELECTRICAL SAFETY TRAINING CITATION

Employees were not trained in and familiar with safety-related work practices required by {Standard} that pertained to their respective job assignments...not trained to assess the arc flash and shock hazard level of the electrical equipment being worked on."

-Reference 29 CFR 1910.331 - 1910.335

PRODUCTION COST

Downtime

Protective devices without proper coordination can cause unnecessary outages as well as facility Wide Outages.

Downtime Cost/Hour: _____

Quantity of Outages - 5 Years: _____

Possible Production Cost: _____

OSHA PENALTIES

Serious Violation - \$13,653 Per Violation

Failure to Abate - \$13,653 Per Day

Willful or Repeated - \$136,532 Per Each

LOSS OF LIFE (FATALITY)

Family Loss

When a parent or child does not return home from work due to an incident, the emotional and psychological effects can be devastating.

Company Loss

Post fatality, the incident cost will include;

- OSHA Penalty
- Litigation
- News Publication
- Hospitalization
- EMR Modification

Possible Fatality Cost

\$6M-\$8M

Click the link to see how EPSCO can help your facility

START NOW

Note: There are additional fines that can be assigned based on electrical safety programs, shock and arc flash PPE, barricades, working areas, exposed equipment, and other working hazards not included in this estimate.