

NFPA 70E: Frequently Asked Questions

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In response to the numerous questions and comments from my article: Performing the Electrical Flash Hazard Analysis, listed below are responses to ten commonly asked questions.

1. What is NFPA 70E?

OSHA requested the National Fire Protection Association (NFPA) develop a standard addressing electrical safe work practices. In response, the first edition of NFPA 70E was published in 1979.

2. What is the difference between NFPA 70 (NEC®) and NFPA 70E?

The National Electrical Code® is generally considered an electrical installation document and protects employees under normal circumstances. NFPA 70E is intended to provide guidance with respect to electrical safe work practices.

3. Does OSHA enforce NFPA 70E?

No, NFPA 70E is not Incorporated by Reference in 29 CFR 1910.6 However, OSHA has several comparable requirements that are enforceable:

29 CFR 1910.132 (d)(1): Requires employers perform a personal protective equipment (PPE) hazard assessment to determine necessary PPE;

29 CFR 1910.269 (l)(6)(iii): Requires employers ensure each employee working at electric power generation, transmission, and distribution facilities who is exposed to the hazards of flames or electric arcs does not wear clothing that could increase the extent of injury when exposed to such a hazard;

29 CFR 1910.335 (a)(1)(i): Employees working in areas where there are potential electrical hazards shall use electrical protective equipment appropriate for the specific parts of the body for the work being performed;

29 CFR 1910.335 (a)(1)(iv): Requires employees wear nonconductive head protection whenever exposed to electric shock or burns due to contact with exposed energized parts;

29 CFR 1910.335 (a)(1)(v): Employees shall wear protective equipment for the eyes or face wherever there is danger of injury to the eyes or face from electric arcs or flashes or from flying objects resulting from an electrical explosion;

29 CFR 1910.335 (a)(2): Employees shall use insulated tools or handling equipment when working near exposed energized conductors or circuit parts;

29 CFR 1926.28 (a): Employer shall require employees wear appropriate personal protective equipment (PPE) during construction work.

4. What does NFPA 70E specify for flame retardant clothing (FRC)?

NFPA 70E: 130.1 requires employers perform a flash hazard analysis to identify work tasks performed on energized electrical conductors. Appropriate flame retardant clothing (FRC) as well as voltage rated tools may then be selected.

5. What does the term “curable burn” mean?

To ensure an employee exposed to an electric arc incident does not experience a burn that will cause irreversible tissue damage – a curable burn. This is a 2° burn where the skin temperature does not exceed 175° with a duration no longer than 0.1 second.

6. What type of FRC clothing should my electricians wear to work every day?

Although not specifically required by NFPA 70E, it is recommended that covered employees be provided FRC daily wear with an ATPV (Arc Thermal Performance Value) of at least 8. This satisfies the garment requirements for a HRC 2 task.

7. What does “clearing time” mean [as discussed under NFPA 70E: 130.3 (A)]?

This refers to the time necessary for an electrical circuit breaker or disconnect to switch from an energized state to a deenergized state. A faster clearing time reduces the potential for an electric arc incident.

8. Does flame retardant clothing have any special laundering requirements?

Yes, FRC garment care and laundering requirements are specified by ASTM F1449 (2001 Edition): Standard Guide for Care and Maintenance of Flame, Thermally and Arc Resistant Clothing. In addition, inspection requirements for FRC garments are outlined in NFPA 2113 (2001 Edition): Flame-Resistant Garments for Protection of Industrial Personnel Against Flash Fire.

9. Does the Hazard Risk Category (HRC) classifications (0 – 4) listed in Table 130.7 (C)(9)(a) have a direct correlation to voltage?

No, the hazard risk category (HRC) classifications are based upon estimated incident energy. Consider two work tasks with different voltages:

Task #1: Examination of insulated cable in open area \geq 1,000 volts: **HRC 2 task.**

Task #2: Insertion or removal of 600 volt class individual starter buckets: **HRC 3 task.**

Although task #2 involves less voltage than task #1, it has a higher HRC.

10. What is the best way to avoid an electric arc flash?

Unless the equipment must remain energized – lock it out!

If you have any questions concerning this article or other safety issues, please contact W. Jon Wallace at 919.933.5548 or email: jwallace@workplacegroup.net.