



Blackmon Power, LLC

NFPA 70E 2018

If you are not yet familiar with the requirements of NFPA 70E *Standard for Electrical Safety in the Workplace*, it is a guide to making the workplace safer for all employees. There are numerous requirements for determining who is qualified to work on electrical components, how to work safely, how to assess risk, and how/when to audit your safety program.

Here is a brief summary to get you started, with some of the most basic and critical information.

110.2 Electrical Safety Training

A **Qualified Person** must be familiar with:

- Precautionary techniques
- Electrical policies and procedures
- Selection and care of PPE
- Insulating and shielding materials
- Test equipment

*Note that a person could be considered qualified in respect to one type of electrical work but not in others.

In addition, to be allowed to work inside the Limited Approach Boundary, such persons shall be trained in the following:

- Distinguishing energized from non-energized parts
- Determining nominal voltage of energized parts, including selecting and using the appropriate test instrument, and understanding its limitations
- Understanding approach distances and the corresponding voltages
- Decision-making necessary to:

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Power TestingArc Flash Studies.....Load Bank & Commissioning Support.....Power Quality Analysis....Thermal Imaging

- Perform job safety planning
- Identify electrical hazards
- Assess the associated risk – see next page for further details
- Select the appropriate risk control methods from the hierarchy of controls identified in 110.1(G), including PPE.

Risk Assessment Procedure – Article 110.H

1. Identify Hazards
2. Assess Risks
3. Implement risk control according to hierarchy of risk control methods.

*The assessment must address human error.

The Assessment must use the hierarchy:

- 1) Elimination (eliminate shock/AF risk by turning off power – create electrically safe working condition)
- 2) Substitution (like rewiring machine with 208V controls to operate with 24V controls)
- 3) Engineering Controls (using maintenance settings on breakers to lower AF incident energy, or guarding live parts)
- 4) Awareness (Signage, labels, barricades)
- 5) Administrative controls (Procedures, JSA, PTP)
- 6) PPE

[*Note that PPE is the lowest for a reason - it is the least effective! See Annex F Table F.3 for examples](#)

Establishing an Electrically-Safe Working Condition – Article 120

- Review drawings and determine all energy sources.
- Interrupt load current and open disconnecting device
- Visually verify blades open or breakers racked out, if possible
- Release stored electrical energy
- Release or block stored mechanical energy
- Select and use test instrument – check each phase, perform live/dead/live test
- Perform visual check if possible
- LOTO – name and date on tag
- Try to operate to verify LOTO is functional

*Complex LOTO – requires written plan. Person in charge of the complex LOTO must be present at the procedure location. See Annex G 9.3. See Annex G 6.0 for restoring power.

Auditing Summary – See referenced sections for further details (Maximum intervals shown – “not to exceed”)

- Audit safety program every 3 years 110.1 K(1)
- Audit field work annually to verify that safety program is being followed 110.1 K(2)
- Audit LOTO annually 110.1 K(3)
- LOTO retraining every 3 years 110.2 B (2)
- Contact release training annually 110.2 C (1)
- 1st Aid/CPR training annually for employees responsible for responding to medical emergencies 110.2 C (2)
- Retraining in safety-related work practices every 3 years 110.2 A (3)
- Document all audits!!

Please contact **Blackmon Power** for NFPA 70E Training for your employees! We provide lunch for the 4-hour class, which is a combination of classroom instruction, videos, discussion, and a hands-on lesson that allows supervisors to observe their qualified workers do the following, using a live, labeled disconnect:

- Correctly read an Arc Flash label.
- Select PPE according to that label.
- Inspect the PPE.
- Select a metering instrument that meets the voltage and class requirements.
- Perform a live-dead-live test with the meter.
- Install a LOTO device.
- Test to make sure the LOTO is installed correctly.