

# 70E + PLUS

THE HANDS-ON SOLUTION FOR YOUR QUALIFIED EMPLOYEES

WE IMPROVE WORKPLACE SAFETY & PERFORMANCE

## RECENT CHANGES REQUIRE A QUALIFIED PERSON TO BE TRAINED

Only qualified people are allowed to perform electrical maintenance and testing on live circuits and those qualified people must be trained. The NEC, NFPA 70E and OSHA all have this requirement for training.

*Do the definitions to the right define your people?*

### NFPA 70 National Electrical Code 2011 Edition & NFPA 70E 2012 Edition

#### Article 100 Definitions:

Qualified person: One who has skills and knowledge related to the construction and operation of the electrical equipment and installations and has received safety training to recognize and avoid the hazards involved.

#### OSHA 1910.399 Definitions:

Qualified person: One who has received training in and has demonstrated skills and knowledge in the construction and operation of electric equipment and installations and the hazards involved.

## TRAINING DESCRIPTION:

There is 70E training and then there is 70E+PLUS. The National Electrical Code, NFPA 70E and OSHA now all require that individuals receive safety training before they can be considered Qualified to perform electrical maintenance. Some of the topics included for this training must be:

- How to select an appropriate volt-meter
- How to determine nominal voltage
- How to determine the appropriate PPE for the hazard
- How to determine Approach Distances based on Voltage
- Requirements of OSHA 1910.331 through 1910.335

In addition it is important they become familiar with the procedures required by NFPA 70E 2012. 70E+PLUS is different because it goes a step further and covers additional material that is needed if your goal is truly avoiding injuries from electrical hazards and not just compliance. 70E+PLUS is hands-on and includes troubleshooting and safety by actually doing it. Hands-On troubleshooting panels will be brought in and the students will actually build circuits and troubleshoot them. Real world examples will be given for students to make decisions concerning PPE and decisions on appropriate troubleshooting techniques. Your plants three phase distribution system will be studied so your qualified employees can better determine system nominal voltages. This course will actually improve troubleshooting skills as well as safety, both will make your plant more efficient. This is truly a unique learning experience.

### TRAINING TOPICS:

- STANDARDS FOR ELECTRICAL SAFETY
- OSHA
- Code of Federal Regulations 1910.331-335
- NFPA 70E
- Workplace Safety Programs
- ELECTRICAL FUNDAMENTALS
- Understanding Electricity
- Conductors/Insulators
- Shock
- Safe and Unsafe Current Values
- NIOSH CASE STUDIES
- Fatality Assessment
- Attitudes, Emotions, & Conditions
- QUALIFIED VS. UNQUALIFIED
- Training
- Knowledge
- Tools and Methods
- SYSTEM VOLTAGE LEVEL
- Transformers
- Single Phase
- Three Phase
- Grounding
- HAZARD ANALYSIS
- 70E Hazards
- Approach Boundaries for Shock Protection
- Arc Flash Analysis
- Arc Flash Boundary
- Reducing Arc Flash
- Labeling
- WORK INVOLVING ELECTRICAL HAZARDS
- Justification
- Permits
- Exemptions
- PERSONAL PROTECTIVE EQUIPMENT
- Arc-Rated Clothing
- Hazard Risk Categories
- Insulating Gloves and Tools
- Selecting PPE
- ENERGY CONTROL PROGRAM
- Lockout/Tagout
- OUTSIDE SERVICE PERSONNEL
- Contractors



### METERS

- Basics
- Category Rating
- Selection and Inspection
- Voltage
- Continuity
- TROUBLESHOOTING
- Checking fuses
- Checking contacts
- Opens & Shorts
- RELAYS
- Ice Cube Relay
- Time Delay Relays
- Machine Tool Relays
- THE MOTOR STARTER
- Pre-wire
- Troubleshooting
- TROUBLESHOOTING STEPS
- Narrowing the problem
- Half splitting method
- THE HANDS-ON PANEL
- Panel Orientation
- Safety
- BUILD AND TROUBLESHOOT CIRCUITS

3-DAY  
TRAINING

CLASS SIZE: UP TO 14  
CLASS LENGTH: 18 HOURS  
CLASS NUMBER: N\_C613

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TECHNOLOGY