



## AT-A-GLANCE

### TWO DAY OVERVIEW

- What is Arc Flash?
- Flash Protection Boundary and Limits of Approach
- Personal Protection Equipment (PPE)
- NFPA Methods of Selecting PPE
- NFPA 70E Chapter 2 – Safety Related Maintenance Requirements
- NETA Maintenance Testing Specification
- NFPA 70B

## Day One - NFPA 70E Chapter 1: Electrical Safe Work Practices



### WHAT IS ARC FLASH?

- Definition
- Reasons and Overview of Changes to NFPA 70E 2021
- Methods of Reducing Arc Flash Potential



### FLASH PROTECTION BOUNDARY AND LIMITS OF APPROACH

- Electric Shock Potential
  - Unintended Contact with Electricity
  - Electric Shock and Effects on the Human Body
  - Current Limit Tolerances
- Definition of Boundaries and Spaces
  - Flash Protection Boundary
  - Limited Approach Space Boundary
  - Restricted Approach Space Boundary
- Applying Boundaries and Spaces to Electrical Tasks
- OSHA/NEC Distinctions between Qualified and Unqualified Persons
  - Applying the Approach Limits for Unqualified Persons
  - Applying the Approach Limits for Qualified Persons
- Energized Work Permits
  - Work Conditions Requiring Energized Work Permits



### PERSONEL PROTECTION EQUIPMENT (PPE)

- Protective Clothing
  - Rating Systems of Clothing
  - Thermal Characteristics of Clothing
  - Flame Resistant vs. Flame Retardant
  - Clothing Care and Wear
  - Characteristics
- Arc Flash Protection
  - Single Layer vs. Multi-Layer
  - Protective Systems
  - Eye/Ear Protection
  - Gloves and Footwear



### NFPA METHODS OF SELECTING PPE

- NFPA Methods of Selecting PPE
  - PPE Category Classification
  - Simplified, 2 Category Response
  - Arc Flash Hazards of Electrical Work Procedures
  - Selection of PPE based upon Arc Flash Risk Assessment

## Day Two - NFPA 70E Chapter 2: Safety-Related Maintenance Requirements



### NFPA 70E CHAPTER 2 - SAFETY RELATED MAINTENANCE REQUIREMENTS

- Practical safety - related maintenance requirements for electrical equipment and installations in workplaces as included in 90.2
- Identify maintenance directly associated with employee safety
- Describe how maintenance is defined as preserving or restoring the condition of electrical equipment and installations, or parts of either, for the safety of employees who work where exposed to electrical hazards
- Specific components discussed include, but are not limited to:
  - Single-line drawing interpretation and data
  - Short circuit current and coordination considerations
  - Overcurrent protective devices
  - Power cables
  - Switchgear
  - Power and distribution transformers
  - Power circuit breakers
  - Molded/insulated case circuit breakers
  - Fuses



### NFPA 70E CHAPTER 2 - Continued

- NFPA 70B referenced for maintenance and testing methods (2019 NFPA 70B Chapter 11 considerations)
- Specific equipment type testing requirements and interval frequency of testing (2019 NFPA 70B Annex L)
- 2019 NETA maintenance testing specification results interpretation and recommendations
- How “failed” test results and/or inadequate maintenance impact arc flash energies
- What constitutes an effective EPM Program in a facility (2019 NFPA 70B Chapter 5)
- Planning and developing an EPM program (2019 NFPA 70B Chapter 6)



### NETA MAINTENANCE TESTING SPECIFICATION

- Maintenance testing frequencies
- Visual/mechanical inspections
- Electrical tests
- Functional tests
- Specific test instruments
- Results-limits and interpretations
  - Positive results
  - Negative results
  - Courses of actions
  - Developing action plans

