



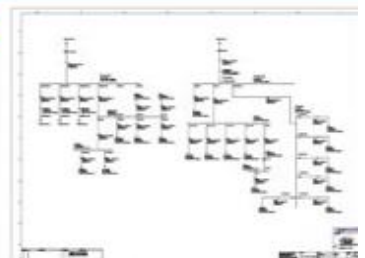
## NFPA 70E COMPLIANCE PROGRAMS



**WARNING**  
Arc Flash and Shock Hazard  
Appropriate PPE Required

Incident Energy Calculated at 18 inches  
Flash Hazard Boundary: 39 in  
Shock Hazard: 480 VAC  
Limited Approach: 42 in  
Restricted Approach: 32 in  
Glove Class: 00  
Std. Std. Out B (Std. 11-20)  
Prot. PD-Southwest Switchboard 4-1  
January 16, 2010

**8.5 cal/cm<sup>2</sup>**



**HENDERSON  
SERVICES LLC**



AUTHORIZED **TEGG** PROVIDER  
*SERVICE*

**OSHA'S General Duty Clause:** Section 5(a)(1) of the Occupational Safety and Health Act requires an employer to furnish to its employees: employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to its employees ...

## **OSHA is using NFPA 70E as a national consensus standard.**

### **What is the relationship between OSHA & NFPA 70E?**

NFPA 70E is considered a national consensus standard and is intended for use by employers, employees and OSHA. OSHA has not "adopted" NFPA 70E, simply because adoption would require the lengthy and expensive process. OSHA has instead referenced compliance to NFPA 70E using Section 5(a)(1) of the Occupational Safety and Health Act of 1970, commonly referred to as the "general duty clause", as their basis for implementation. It is clear that OSHA is using NFPA 70E as a national consensus standard. Further, OSHA expects employers and employees to comply with the provisions of NFPA 70E regardless of whether or not it has been "adopted" as an OSHA requirement.

# DOES YOUR FACILITY NEED TO BE **NFPA 70E ARC FLASH COMPLIANT?**



## ***WHY DO YOU NEED TO BE COMPLIANT?***

- **Protect Your Assets (Personnel & Facility)**
- **Limit Your Liability**
- **OSHA is using NFPA 70E as a national consensus standard for citations**
- **Identify Potential Hazards**
- **Reduce the risk of violations and citations**

## ***HOW DO YOU BECOME COMPLIANT?***

### **FOLLOW THE 6 POINT COMPLIANCE CHECKLIST**

- 1. Maintain an updated safety plan**
- 2. Train and qualify employees in NFPA 70E Compliance**
- 3. Perform an Incident Energy Analysis then apply Arc Flash Labels**
- 4. Generate, update and post a one-line diagram**
- 5. Electrical Predictive and Preventive Maintenance per NFPA 70B**
- 6. Provide employees with Personal Protective Equipment (PPE)**

## ***WHAT IF YOU DON'T BECOME COMPLIANT?***

- **Increases the risk for electrical hazards**
- **Exposes potential for willful violations**
- **Greatly increases your facility's liability**

# 6 POINT COMPLIANCE CHECKLIST

## 1. MAINTAIN AN UPDATED SAFETY PLAN

Understand NFPA 70E and have a complete written NFPA 70E Safety Plan. "**110.1 Electrical Safety Program (A) General.** The employer shall implement and document an overall electrical safety program that directs activity appropriate to the risk associated with electrical hazards..."



## 2. TRAIN & QUALIFY EMPLOYEES IN NFPA 70E COMPLIANCE

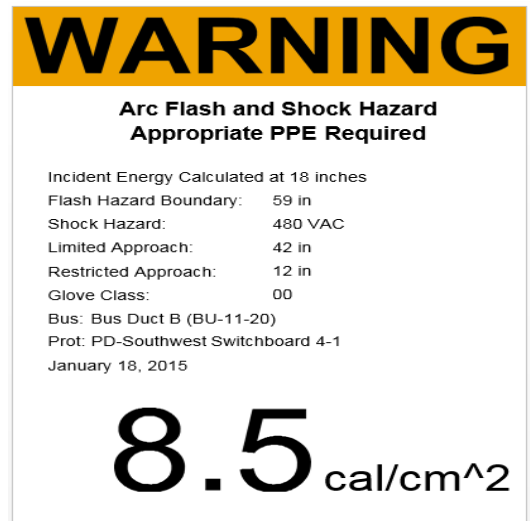
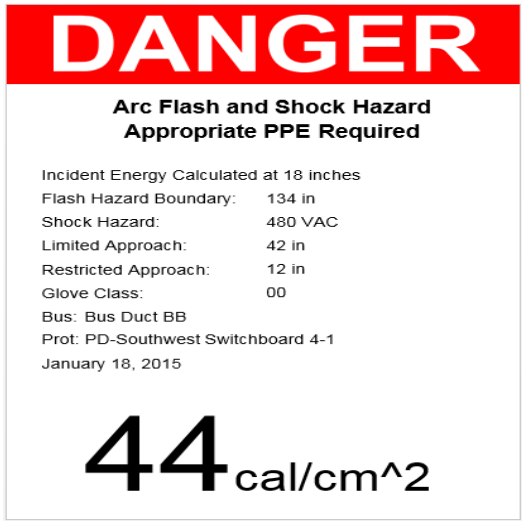
"**Qualified Person** - One who has demonstrated skills and knowledge related to the construction and operation of electrical equipment and installations and has received safety training to identify and avoid the hazards involved." (70E, pg13). "**105.3 Responsibility** - The employer shall provide the safety-related work practices and shall train the employee, who shall then implement them." (70Epg15). "**110.2 Training Requirements. (E) Training Documentation** - The employer shall document that each employee has received the training required by 110.2(D)." (70E, pg16,17).

### HENDERSON SERVICES OFFERS ON-SITE & WEB-BASED NFPA 70E ELECTRICAL SAFETY TRAINING COURSES

#### On-Site and Web Based Training Courses Cover The Following:

- Understanding the hazards associated with electrical system
- Understanding Arc Flash safety requirements
- Reducing the risk of Arc Flash related injuries and fatalities
- Increasing overall workplace safety
- Protecting your company from liability
- Eliminating the risk of OSHA fines related to NFPA 70E

### 3. PERFORM AN ARC FLASH RISK ASSESSMENT & APPLY LABELS TO EQUIPMENT



#### THESE LABELS REFLECT NEW 2015 REQUIREMENTS

"**130.5 Arc Flash Risk Assessment** – An arc flash risk assessment shall be performed and shall: (1) Determine if an arc flash hazard exists, the risk assessment shall determine:" (70E, pg26). "**130.5 (D) Equipment Labeling** - Electrical equipment such as switchboards, panel boards, industrial control panels, meter socket enclosures, and motor control centers that are in other than dwelling units, and are likely to require examination, adjustment, servicing, or maintenance while energized, shall be field marked with a label containing all the following information:

- (1) Nominal System Voltage
- (2) Arc Flash Boundary
- (3) At least one of the following:
  - a. Available incident energy and the corresponding working distance, or the arc flash PPE category in Table 130.7©(15)(A)(b) or Table 130.7(C)(15)(B) for the equipment, but not both
  - b. Minimum arc rating of clothing
  - c. Site-specific level of PPE

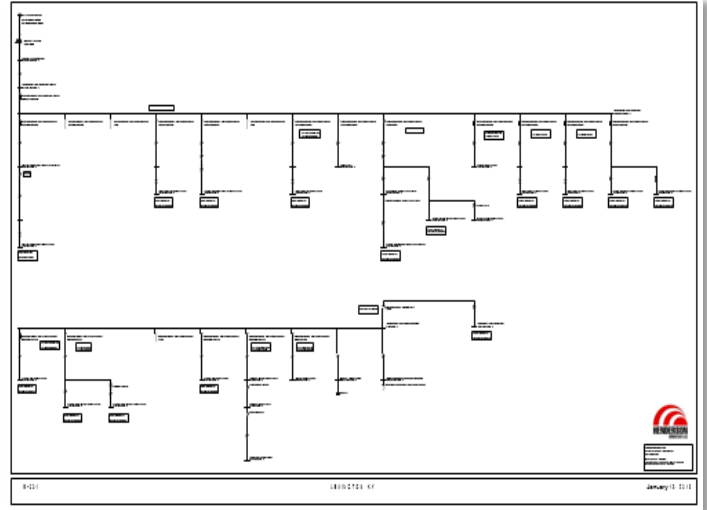
"The method of calculating and data to support the information for the label shall be documented."

(70E, pg28)



## 4. GENERATE & POST A FACILITY ELECTRICAL ONE-LINE DIAGRAM

"120.1 Establishing an Electrically Safe Work Condition - (1) Determine all possible sources of electrical supply to the specific equipment. Check applicable up-to-date drawings, diagrams, and identification tags." (70E, pg19). "205.2 Single Line Diagram- A single line diagram, where provided for the electrical system, shall be maintained in a legible condition and shall be kept current." (70E, pg44).



## 5. PERFORM MAINTENANCE ON ELECTRICAL EQUIPMENT

"130.5(3) The Arc Flash Risk Assessment shall take into consideration the design of the overcurrent protective device and its opening time, including its condition of maintenance." (70E, pg26). "205.3 General Maintenance Requirements - Electrical Equipment shall be maintained in accordance with manufacturers' instructions or industry consensus standards to reduce the risk associated with failure. The equipment owner or the owners designated representative shall be responsible for maintenance of the electrical equipment and documentation"(70E,pg44) "205.4 Overcurrent Protective Devices - Overcurrent protective devices shall be maintained in accordance with the manufacturers' instructions or industry consensus standards. Maintenance, tests, and inspections shall be documented." (70E, pg44)

## 6. PROVIDE THE APPROPRIATE PPE, PERSONAL PROTECTIVE EQUIPMENT

"130.7 Personal and Other Protective Equipment.

(A) **General** - Employees working in areas where electrical hazards are present shall be provided with, and shall use, protective equipment that is designed and constructed for the specific part of the body to be protected and for the work to be performed."

(70E, pg29)





FEATURES	BASIC	PREMIUM	CUSTOM
Visual Inspection	YES	YES	OPTIONAL
Infrared Thermographic Inspection	YES	YES	OPTIONAL
Ultrasonic Inspection	YES	YES	OPTIONAL
Comprehensive IR Report	YES	YES	OPTIONAL
TEGG Pro Web Based Reporting Software	YES	YES	OPTIONAL
Predictive and Proactive Service	NO	YES	OPTIONAL
Electronic Equipment Inventory	NO	YES	OPTIONAL
Energized Testing and Analysis	NO	YES	OPTIONAL
De-Energized Testing & Analysis	NO	OPTIONAL	OPTIONAL
De-Energized Preventive Maintenance	NO	OPTIONAL	OPTIONAL
<b>GUARANTEED SERVICE</b>	<b>YES</b>	<b>YES</b>	<b>OPTIONAL</b>
Guaranteed Repair & Replacement	90 DAYS	LIFE	OPTIONAL
24x7 Emergency Call Out	YES	YES	OPTIONAL
Overtime For Repairs On Guarantee	NO	YES	OPTIONAL
Downstream Resultant Damage Repairs	NO	NO	OPTIONAL
Express Shipments For Repairs	NO	NO	OPTIONAL
Temporary Power (Wiring)	NO	NO	OPTIONAL
Emergency Power (Generator)	NO	NO	OPTIONAL

### **ENERGIZED SERVICE & INSPECTION:**

The energized services will be performed annually, at a minimum, and while the electrical distribution system is energized. Energized services include: **True RMS Voltage & Current Service, Voltage Drop Service, Infrared Thermographic Imaging, Ultrasonic, Voltage & Current Harmonics, Visual & Mechanical Inspection, and Phase-Balance Service.**

### **DE-ENERGIZED SERVICE & INSPECTION:**

De-energized services will be performed at a mutually agreed schedule, while your electrical distribution system and/or electrical component(s) is de-energized and include the following: **Insulation Resistance Service, Winding Resistance Service, Contact Resistance Service, Circuit Breaker Service (Low Voltage), Ground Resistance Service, Transformer Service, Motor Service, Visual & Mechanical Inspection.**

### **PREDICTIVE & PROACTIVE CARE:**

These predictive and proactive service tasks will be performed on the electrical component(s) and/or connection(s) identified in the "System Components and Planned Service Interval" section of this Agreement. The following tasks will be conducted: **Equipment Nameplates, Remove Covers, Inspection, Check Tightness, Installation, Exercising, Mechanical Indicators, Cleaning, Lubrication, Minor Repairs, Analysis, One-Line Drawings, Repair or Replacement, Temporary Power.**

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