



Electrical Safety Program

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March 11, 2012

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1.0 Purpose & Philosophy

This Electrical Safety program is designed to prevent electrically related injuries and property damage. It also provides for proper training of employees to ensure they have the requisite knowledge and understanding of electrical work practices and procedures. Electricity has long been recognized as a serious workplace hazard, exposing employees to such dangers as electric shock, electrocution, fires and explosions. NFPA 70E: Standard for Electrical Safety in the Workplace, covers the full range of electrical safety issues, including safety related work practices, shock and arc flash protection, maintenance, special equipment requirements, and installation. NFPA 70E focuses on protecting people and identifies requirements that are considered necessary to provide a workplace that is free of electrical hazards. Cal/OSHA bases its electrical safety mandates, found in Subchapter 5, on the comprehensive information found in NFPA 70E. References: NFPA 70E, Electrical Safety Requirements for Employee Workplaces (2012 Edition), National Electrical Code (NEC) and Cal/OSHA Standard Subchapter 5 (Electrical Safety).

2.0 Scope

This mandatory program applies to all Cal/State-Fullerton employees as well as any contractors performing work on or near energized electrical equipment operating at 50 or more volts. This program is supplemented by the Hazardous Energy Control (Lockout/Tagout) Program.

The Electrical Safety Program Manager is responsible for establishing and maintaining the elements of the electrical safety program and addresses all the components in this program.

The Electrical Safety Program Manager is: **Scott Bourdon**

3.0 **Responsibilities**

3.1 **Management**

The management staff at each location is responsible for determining which employees will be qualified or non-qualified to work on electrical equipment. An employee can be considered qualified with respect to certain equipment and methods but still be unqualified for others. The Safety Manager or his/her designee is responsible for ensuring that qualified persons and qualified electrical workers receive training as per Cal/OSHA 2320 (low voltage) Cal/OSHA 2940 (high voltage) and NFPA 70E Article 110.2.

3.1 **Employees**

Employees have the responsibility to adhere to the requirements in this program, those prescribed by management, Cal/OSHA and NFPA 70E.

4.0 **Definitions**

Electric Arc Flash – A condition that causes electrical equipment to explode, resulting in an arc-plasma fireball. Temperatures may exceed 35,000° F (the surface of the sun is 9000° F). These high temperatures cause rapid heating of surrounding air and extreme pressures, resulting in an arc blast. An arc flash may cause cotton clothing to ignite.

Electrical Safe Work Practices – Techniques used to recognize hazards associated with the use of electrical energy and taking precautions so that hazards do not cause injury or death.

Electrical Safe Work Condition – A state in which the conductor or circuit part to be worked on or near has been disconnected from energized parts, locked/tagged in accordance with the lockout/tagout policy, tested to ensure the absence of voltage, and grounded if determined necessary.

Flash Hazard Analysis – A study investigating a worker's potential exposure to arc-flash energy, conducted for the purpose of injury prevention and the determination of safe work practices and the appropriate levels of PPE.

Flash Protection Boundary – An approach limit distance from exposed live parts within which a person could receive a second degree burn if an electric arc flash were to occur.

High Voltage-Specifically covering installation and equipment greater than 600 Volts nominal.

Low Voltage-Specifically covering installation and equipment less than or equal to 600 Volts nominal.

A **Qualified Person (OP)** is a person who has been trained to avoid electrical hazards when working on or near exposed energized parts operating at 50 volts or more. A Qualified Person is one who has received training in the following topics:

1. Familiar with the safety related work practices required in NFPA 70E Chapter 1, Cal/OSHA 2320.1 through 2320.9 (Low Voltage) and Cal/OSHA 2940 through 2945 (High Voltage).
2. Able to distinguish exposed live parts of electrical equipment from other parts of electric equipment.
3. Knowledgeable of the skills and techniques used to determine the nominal voltages of exposed parts; and
4. The approach distances specified in NFPA 70E Table 130.4(C)(a)/Table 130.4(C)(b) and the corresponding voltages to which the qualified person will be exposed.
5. The decision making process necessary to determine the degree and extent of the hazard, the shock and arc flash PPE required, and the job planning skills required to perform the task safely.
6. Documented classroom and on the job training in the above.

Qualified Electrical Worker (QEW) is person who works on energized conductors or equipment connected to energized high-voltage systems. Except for replacing fuses, operating switches, or other operations that do not require the employee to contact energized high-voltage conductors or energized parts of equipment, clearing "trouble" or in emergencies involving hazard to life or property, no such employee shall be assigned to work alone. Employees in training, who are qualified by experience and training, shall be permitted to work on energized conductors or equipment connected to high-voltage systems while under the supervision or instruction of a qualified electrical worker. A QEW must also meet the training requirements of a PP

Unqualified Person is someone who has little or no training regarding electrical hazards. Even though Unqualified Workers may not be exposed to energized parts, training still must be provided. At a minimum, the unqualified person must be familiar with any electrical-related safety practice that is necessary for their safety. This could be as simple as telling an unqualified person to shut off a machine if there's a problem and contacting a supervisor for assistance.



Shock Protection (Approach) Boundaries are boundaries established to minimize exposure to shock and electrocution. Boundaries for voltage levels encountered at Cal/State-Fullerton sites are given in Tables 1 and 2. The three boundaries are defined as follows:

Limited Approach Boundary – Boundary that unqualified persons may not enter unless they are escorted by a qualified person.

Restricted Approach Boundary – Boundary that only a qualified person may enter provided they are equipped with proper shock PPE such as insulated gloves as well as flame resistant clothing.

Prohibited Approach Boundary – Considered live-line work.

Table 1: Approach Boundaries to Energized Electrical Conductors (for Alternating Current Voltages)

Nominal Voltage	Limited Approach Boundary*	Restricted Approach Boundary	Prohibited Approach Boundary
50 to 300 Volts	3.5 ft	Avoid Contact	Avoid Contact
301 to 750 Volts	3.5 ft	1 ft 0 in	0 ft 1in
751-15 kV	5.0 ft	2 ft 2 in	0 ft 7 in

*Exposed fixed circuit part.

Table 2: Approach Boundaries to Energized Electrical Conductors (for Direct Current Voltages)

Nominal Voltage	Limited Approach Boundary*	Restricted Approach Boundary	Prohibited Approach Boundary
100 to 300 Volts	3.5 ft	Avoid Contact	Avoid Contact
301 to 1000 Volts	3.5 ft	1 ft 0 in	0 ft 1in
1.1 kV to 5 kV	5 ft	1 ft 5 in	0 ft 4 in
5 kV to 15 kV	5 ft	2 ft 2 in	7 in

*Exposed fixed circuit part.

5.0 **Risk Assessment & Shock/Flash Hazard Analysis**

5.1 **General Risk Assessment**

ANSI Z244.1 can be used as an analytical tool for identifying and evaluating that appropriate measures have been taken to reduce the hazards to tolerable levels. The Risk Assessment will identify the following elements:

1. Identification of task
2. Identification of related hazards
3. Consequences
4. Risk Reduction

See Attachment A for Risk Assessment Form.

5.2 **Shock/Flash Hazard Analysis**

1. A *Shock Hazard Analysis* will determine the voltage to which personnel will be exposed, boundary requirements, and the personal protective equipment necessary in order to minimize the possibility of electric shock to personnel. Table 2 in this program refers to the boundary linear distances and voltage levels that need to be assigned. The approach distances specified in NFPA 70E Table 130.4(C)(a)/Table 130.4(C)(b) and the corresponding voltages to which the qualified person will be exposed will also be consulted.
2. A *Flash Hazard Analysis* will determine the arc flash protection boundary and the personal protective equipment that people within the arc flash protection boundary shall use.

5.3 **Assignment of personal protective equipment (PPE).** PPE will be assigned in accordance with one of the two following methods:

1. NFPA 70E Tables 130.7(C)(15)(a) through 130.7(C)(16). Utilize when:
 - a. Need to perform emergency work on equipment without proper arc flash hazard labels/arc flash hazard engineering calculations have not been performed.*
 - b. Determining PPE during equipment inspection.

*May be utilized when fault clearing times do not exceed times listed in footnotes of Table 130.7(C)(15)(a)

2. Arc flash calculation as performed with an arc flash hazard analysis on equipment to be worked on and certified by a Professional Engineer. PPE selection is based on voltages involved and resulting incident energy.

5.4 **Assignment of shock and flash protection boundaries**

1. **Approach boundaries** will be assigned using Table 2 of this program and/or Table 130.4(C)(a) for AC conductors or Table 130.4(C)(b) for DC conductors (NFPA 70E 2012 Edition).
2. **Flash protection boundaries** will be assigned utilizing the results from arc flash calculations. In lieu of a flash hazard analysis, arc flash boundaries shall be set up according to NFPA 70E Tables 130.7(C)(15)(a) –(b) (NFPA 70E 2012 Edition).

6.0 **Personal Protective Equipment**

6.1 Policy

Employees working in the areas where electrical hazards are present will 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 performed. Equipment requirement applies to all employees entering the limited approach boundary, or the flash protection boundary as defined by Section 7.

6.2 Hand Protection

1. Voltage rated gloves will be issued in accordance with voltage ranges the qualified person will be exposed. Table 3 outlines voltage rated glove requirements.

Table 3: Voltage Rated Glove Use Requirements

Class	Protection VDC	Protection VAC
00	Up to 750 Volts	Up to 500 Volts
0	Up to 1500 Volts	Up to 1000 Volts
1	Up to 11,250 Volts	Up to 7500 Volts
2	Up to 25,200 Volts	Up to 17,000 Volts

2. **Testing Requirements:** Voltage rated gloves will be tested by an outside laboratory every six months to ensure proper insulating protection.
3. **Pre-donning inspection:** Qualified persons shall inspect voltage rated gloves prior to donning in accordance with ASTM requirements. Proper pre-donning inspection methods are covered in qualified person electrical safety training.
4. **Protector Gloves:** Leather over gloves shall be worn over rubber insulating gloves.

6.3 Head Protection

1. Insulated head protection will be issued in accordance with voltage ranges the qualified person will be exposed. Table 4 outlines head protection requirements.

Table 4: Insulated Head Protection Requirements

Class	G	E	C
Insulation Protection	2200 V	20,000 V	NONE
ANSI Standard	ANSI Z89.1-1997		

2. Pre-donning inspection: Qualified persons shall inspect hard hats prior to donning in accordance with ANSI requirements. Proper pre-donning inspection methods are covered in qualified person electrical safety training.

6.4 Eye and Face Protection

1. Employees will wear protective equipment for the eyes & face whenever there is danger of injury to the eyes or face from electric arcs or flashes or from flying objects resulting from electrical explosions.
2. Face shields shall have an arc rating suitable for the arc exposure. Face shield without arc ratings shall not be used. Safety glasses/goggles shall always be worn under face shields or hood.
3. Balaclava sock hood (head sock) shall be worn in combination with arc rated face shield for all activities in hazard risk category 2. Arc rated balaclava (head sock) shall be used with an arc rated face shield when the back of the head is within the arc flash boundary.
4. Arc rated hood (double layer switching hood) shall be used when the anticipated energy exposure exceed 12 cal/cm^2 .

6.5 Foot Protection

Heavy duty leather work shoes meeting the requirements of ANSI Z41 shall be used for all energized work.

6.6 Arc Rated Protective Clothing

1. Arc Rated Clothing shall be used for arc flash protection whenever energized work is performed.
2. Outermost layer must meet requirements for Arc Flash Protection Hazard Risk Category or calculated incident energy.
3. Pre-donning inspection: Qualified persons shall inspect protective clothing prior to donning in accordance with ASTM requirements. Proper pre-donning inspection methods are covered in qualified person electrical safety training.

7.0 Shock Protection & Arc Flash Boundaries

7.1 Flash Protection Boundary

1. Flash Protection Boundary is defined as the approach limit at distance from live parts where a person could received a second degree burn if an electrical arc flash were to occur.
2. In lieu of a flash hazard analysis, arc flash boundaries shall be set up according to Tables 130.7(C)(15)(a)-(b) of NFPA 70E 2012 Edition.
3. Qualified persons are required to set-up arc flash boundaries prior to beginning energized work.
4. Unqualified persons shall be restricted from entering the arc flash boundary unless they have donned the appropriate protective equipment and are under the supervision of a qualified person.

7.2 Approach Boundaries

1. Defined as the prohibited, restricted, and limited approach boundaries designed to protect the worker from shock hazard.
2. Shock Boundaries shall be set-up according to Table 130.4(C)(a) for AC conductors or Table 130.4(C)(b) for DC conductors (NFPA 70E 2012 Edition). See also Tables 1 and 2 of this program.
3. Qualified persons are required to set-up approach boundaries prior to beginning energized work.
4. Unqualified persons shall be restricted from entering the limited approach boundary unless they have donned the appropriate protective equipment and are under the supervision of a qualified person.

8.0 Equipment Labels

Equipment Labels shall have the following information:

1. Available incident energy at working distance or
2. Minimum arc rating of clothing or
3. Required level PPE
4. The following information is required to be listed on labels:
 - a. Nominal System Voltage
 - b. Arc Flash Hazard Boundary
5. See Attachment B for example equipment label

9.0 Procedures

9.1 Policy

Except in extreme cases, work on electrical equipment will be done with all electrical circuits in the work area de-energized by following the Lockout/Tagout procedure. When working on or near energized electrical circuits with greater than 50 volts to ground, proper protective equipment will be donned and approach/flash boundaries will be established. An energized work permit (Attachment C) shall be required for work on energized equipment – with the exception of voltage testing and/or troubleshooting.

9.2 Working on or near energized conductors

In the rare situation when energized equipment (or working in near proximity to energized equipment) cannot be de-energized, the following work practices must be used to provide protection:

1. Obtain permission via an energized work permit (with exception of voltage testing/troubleshooting) from Manager to work on or near energized electrical circuits.
2. **Unqualified Employees are prohibited from working on or near exposed energized circuits.**
3. Lockout and Tagout all circuits possible.
4. Treat all circuits as energized until proven otherwise.
5. Remove all conductive clothing and jewelry (rings, watches, wrist/neck chains, metal buttons, metal writing instruments, etc.).
6. Use proper personal protective equipment, shields and/or barriers to provide effective electrical insulation from energized circuits. Provide adequate lighting. Do not enter areas with exposed energized parts unless illumination (lighting) is provided so that Employee may work safely.
7. Employees entering a Confined Space with exposed energized parts must use protective barriers, shields, or equipment or insulated materials rated at or above the present voltage to avoid contact with the energized part(s).
8. Doors or other hinged panels shall be constructed and secured to prevent them from swinging into an Employee and causing contact with exposed energized parts.

9. Maintenance activities in areas of exposed energized parts may not be completed in areas with close contact unless adequate safeguards (insulation equipment or barriers) are present. Conductive cleaning material (Steel Wool, Silicon Carbide, etc.) or liquids may not be used unless procedures (Lock and Tag Out, etc.) are in place and followed.
10. Station a safety observer outside the work area. The sole function of this person is to quickly de-energize all sources of power or pull worker free from electrical work area with a non-conductive safety rope if contact is made with an energized electrical circuit.
11. A person qualified in CPR must be readily available to the scene.

9.3 Written Procedures

When a qualified person will perform energized work, it is policy to perform Risk Assessment/PPE Assignment/Approach Boundary Form (see Attachment A) for actual site conditions and equipment. With the exception of voltage testing, a work permit will also be generated (see Attachment C).

10.0 **Training**

10.1 Frequency

Qualified Persons and Qualified Electrical Workers shall receive training at the following intervals.

1. Initial training for all qualified persons who will work in the limited approach boundary.
2. Tasks performed less often than once per year shall require training prior to task.
3. Retraining shall occur if one of the following circumstances apply;
4. Annual inspections indicate employee is not complying with safety work practices
5. New equipment or technology
6. Work practices are not part of one's regular job duties.
7. Every three years

10.2 Volt Meter Training

1. Qualified persons will be trained in the proper use of voltage detector, verifying the absence of voltage and limitations.
2. Training will follow guidelines and recommendations of voltage equipment manufacturers.

10.3 Documentation

Qualified person training shall include a measure of comprehension of subject matter presented.

10.4 Training Content

Course I (Required Attendees: QPs + QEW's). Objectives:

1. List definitions relevant to work on energized equipment,
2. Discuss the use of personnel protective equipment, tools, and test equipment when working near energized equipment,
3. Identify general safe work practices when working around live electrical equipment including illumination considerations, work in confined conductive materials and equipment, ladders, portable electrical equipment, temporary wiring, use of electric power and lighting circuits, and warning signs,
4. Familiarize qualified employees with the safety related work practices and procedural requirements to provide protection from electrical hazards associated with their respective job tasks, including arc flash hazard analysis, and work permit system.
5. Implement the decision making process to determine the degree and extent of the hazard, PPE, and job planning necessary to perform the task safely. Utilize PPE according to hazard present:
 - a. Arc Rating Clothing for arc flash protection
 - b. Insulated protective equipment for shock protection
6. Understand approach distances to energized parts as specified in NFPA 70E, Table 130.4(C)(a) and Table 130.4(C)(b).
7. Understand the safe use voltage detection equipment.
8. Discuss facility specific emergency procedures.

Course II (Required Attendees: QEW's only). Course I is a prerequisite. Objectives:

1. Understand relevant standards & documents
2. Define Qualified Electrical Worker (QEW)
3. Comprehend the risks when working on or near energized circuits greater than 600
4. Implement protective equipment in high voltage range
5. Discuss approach distances and flash boundaries in high voltage range
6. Familiarize QEW with the safety related work practices and procedural requirements to provide protection from electrical hazards associated with their respective job tasks

11. Auditing

11.1 Electrical Safety Program Auditing

1. Purpose: Ensures that principles and procedures are followed
2. Frequency: Every three years
3. Audit Content (see Attachment D)
 - a. Work Permits
 - b. Energized Electrical Work Procedures
 - c. Contractor/Host Employer Relationships
 - d. Annual inspections of qualified persons
 - e. LOTO as it pertains to electrical safety
 - f. Restriction of unqualified persons from approach boundaries
 - g. Risk Assessments

11.2 Qualified Person Audit

1. Purpose: Ensure Qualified Persons are following safety related work practices, including but not limited to:
 - a. Setting up approach and flash protection boundaries
 - b. Donning appropriate PPE for work involved
 - c. Performing and adhering to risk assessments
2. Frequency: Every year
3. Audit Contents (see Attachment E)
 - a. Qualified Person Training Received?
 - b. Were unqualified persons in area notified of energized work being performed?
 - c. Were approach and flash protection boundaries set-up by qualified person?
 - d. Did qualified person inspected don proper PPE in accordance with HRC?
 - e. Are written energized work procedures available?
 - f. Was energized work permit utilized?

12. Contractor/Host Employer Relationship (Attachment F)

12.1 Host Employer (Cal/State-Fullerton) Responsibilities

1. Communicate any known hazards with contract employer
Results of arc flash hazard analysis. In lieu of the arc flash hazard analysis the Cal/State-Fullerton sponsor shall ensure that a Risk Assessment/PPE Assignment/Approach Boundary Form is performed (Attachment A) according to the system work will be performed.
 - a. Electrical system maintenance
 - b. Report any observed contractor employer violations of NFPA 70E to contract employer
 - c. Violations of host employer electrical safety program
 - d. Violations of NFPA 70E requirements
2. Host Employer (Cal/State-Fullerton) Sponsor. Cal/State-Fullerton will assign a sponsor who is familiar with electrical systems involved to manage and supervise contractor's work and ensure compliance. The Cal/State-Fullerton sponsor has the following responsibilities:
 - a. Sponsor shall make regular worksite visits to ensure compliance with safety requirements
 - b. Appropriate actions shall be taken when non-compliance observations observed

12.2 Contract Employer Responsibilities

1. Communicate hazards to his employees as communicated by the host employer in addition to the requirements of NFPA 70E. Such communication can be in the form of:
 - a. Formal training
 - b. Tool box talks
 - c. Pre-shift meetings
2. Require that employees follow safe work practices as require by host employer and NFPA 70E
3. Inform host employer of:
 - a. Unusual hazards presented during work
 - b. Unanticipated hazards (i.e.: arc flash incidents)
 - c. Shock incidents
 - d. Any other injury
4. Corrective actions taken as a result of any violations reported by the host employer
5. Advise host employer of any unanticipated hazards found during the contractor's work

12.3 There shall be a documented meeting between the host employer and the contract employer

13. Special Equipment

13.1 Hot Sticks

1. A hot stick is an insulated pole, usually made of fiberglass, used when engaged on live-line working on energized high-voltage electric power lines, to protect from electric shock.
2. ASTM Standard F 711 specifies the stringent requirements for hot sticks, and OSHA standards require that they be inspected and electrically tested every two years.
3. Cal/State-Fullerton shall keep records of bi-annual certification.

13.2 Grounding Sticks

1. Grounding devices shall be capable of carrying the maximum anticipated fault current.
2. Only approved cable and hardware shall be used to meet the material and electrical specifications of ASTM F 855. Specifically only 2/0 or 4/0 AWG copper, flexible wiring shall be used.



Attachment A
Risk Assessment/PPE Assignment/Approach Boundary Form



Risk Assessment/PPE Assignment/Approach Boundary Form

Job
Title

Date Evaluated

Risk Assessment

1

Identification of Task

2

Identification of Related Hazards

3

Consequences

4

Risk Reduction



Personal Protective Equipment Assignment/Approach Boundary Evaluation Form
(Continued)

Equipment Location: _____
Date Evaluated: _____
Evaluated by: _____

1. Equipment (Circle appropriate category)

- a. Panelboard
- b. Switchboard
- c. Motor Control Center
- d. Motor Starter
- e. Metal Clad Switchgear
- f. Other Equipment

2. Voltage Class _____

3. Task _____

4. Hazard Risk Category 0 1 2 3 4

5. List protective clothing and PPE. Note any special requirements per the NOTES at the end of table 130.7(C)(15)(a)-(b)

- a. _____
- b. _____
- c. _____
- d. _____
- e. _____
- f. _____
- g. _____
- h. _____

6. Class of V-Rated Gloves 00 0 1 2 3 4 Not Required

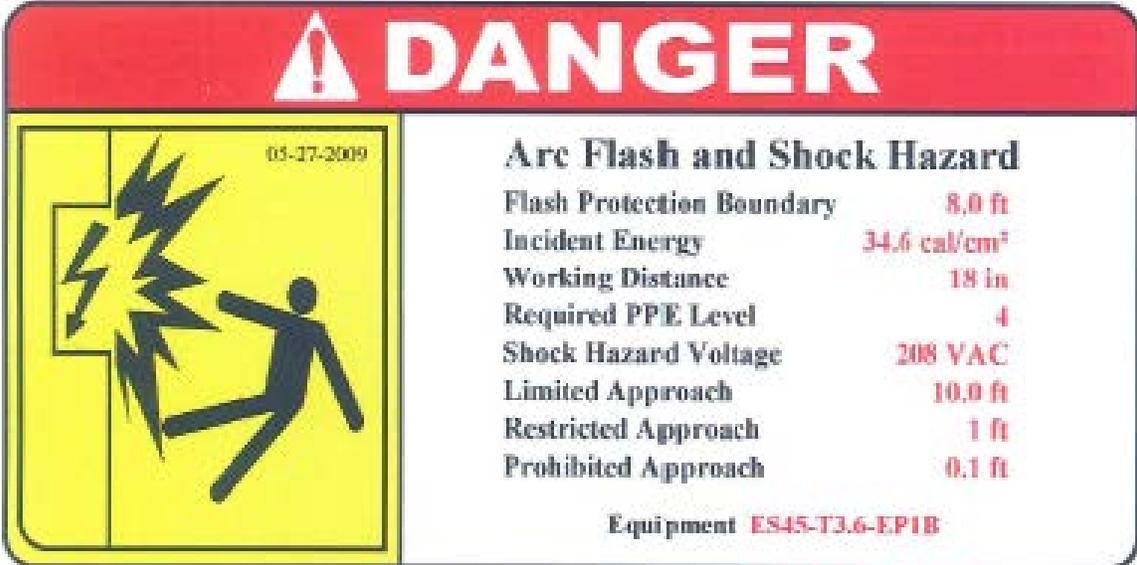
Are protective over gloves required? Yes No

7. Are V-Rated tools required? Yes No

Approach Boundaries (table 130.4(C)(a) for AC systems/table 130.4(C)(b) for DC systems)

- 1. Prohibited Approach Boundary _____
- 2. Restricted Approach Boundary _____
- 3. Limited Approach Boundary _____
- 4. Flash Protection Boundary _____

Attachment B
Example Equipment Label



The label features a red header with a white exclamation mark icon and the word "DANGER" in white. Below the header is a yellow box containing a black silhouette of a person being struck by a lightning bolt, with the date "03-17-2009" in the top right corner. To the right of the yellow box is a white area with black text listing hazard parameters and their values in red. At the bottom, the equipment ID "ES45-T3.6-EP1B" is listed in red.

Arc Flash and Shock Hazard	
Flash Protection Boundary	8.0 ft
Incident Energy	34.6 cal/cm ²
Working Distance	18 in
Required PPE Level	4
Shock Hazard Voltage	208 VAC
Limited Approach	10.0 ft
Restricted Approach	1 ft
Prohibited Approach	0.1 ft

Equipment **ES45-T3.6-EP1B**



Attachment C
Energized Work Permit



Energized Electrical Work Permit

Complete this form before work is started on all live electrical equipment.

PART I: TO BE COMPLETED BY PERSON REQUESTING WORK

Area Name _____ Date: _____
 Requestor _____ Identification # _____
 Work to be performed: _____
 Justification of why circuit/equipment cannot be de-energized _____

PART II: TO BE COMPLETED BY PRIMARY QP/QEW PERFORMING WORK

Qualified Persons Involved: 1. _____ (Primary QP/QEW)
 2. _____
 3. _____

1. Purpose of task	
b. Qualification and number of employees involved.	
c. Approach limits. 1. Qualified Person Minimum Working Distances 2. Flash Protection Boundaries	Flash Protection Boundary: _____ Limited Approach Boundary: _____ Restricted Approach Boundary: _____ Prohibited Approach Boundary: _____
d. Other safe work practices, which will be used. (i.e.: location of emergency shut off)	
e. PPE to be used.	PPE Hazard Level: 0 1 2 3 4 Voltage Rated Gloves: 00 0 1 2 3 4
f. Insulating materials/tools to be used.	Voltage Rated Tools: Y N
g. Electrical diagrams.	
h. Job Briefing Completed (see back)	Yes No

III. APPROVALS TO PERFORM WORK WHILE ENERGIZED

1) Signature-Primary Qualified Person/Qualified Electrical Worker	2) Date
Signature-Qualified Person/Qualified Electrical Worker	Date
Signature-Qualified Person/Qualified Electrical Worker	Date
Signature-Facilities Manager/Safety Manager	Date



Job Briefing and Planning Checklist

A **NO** answer indicates that all requirements have not been met

	Yes	No
1. Have hazards been identified?	<input type="checkbox"/>	<input type="checkbox"/>
2. Have the voltage levels been identified?	<input type="checkbox"/>	<input type="checkbox"/>
3. Has any foreign voltage been identified?	<input type="checkbox"/>	<input type="checkbox"/>
4. Have unusual work conditions been reviewed?	<input type="checkbox"/>	<input type="checkbox"/>
5. Have flash protection boundaries been identified & implemented?	<input type="checkbox"/>	<input type="checkbox"/>
6. Is an attendant available?	<input type="checkbox"/>	<input type="checkbox"/>
7. Has proper PPE been inspected & donned by all persons performing work?	<input type="checkbox"/>	<input type="checkbox"/>
8. Is the location of the nearest fire extinguisher known?	<input type="checkbox"/>	<input type="checkbox"/>
9. Is the location of the telephone known?	<input type="checkbox"/>	<input type="checkbox"/>
10. Has the equipment shut off/disconnect been located?	<input type="checkbox"/>	<input type="checkbox"/>

Completed by (signature)

Date



Attachment D
Electrical Safety Program Audit Checklist

Location Inspected _____
 Inspected by _____
 Date of Inspection _____ Shift _____ Time _____

Action	Compliant (Y, N, NA)	Follow-up
<u>Work Permits</u> Have work permits been completed for tasks other than voltage testing?	Y N NA	
<u>Procedures/Risk Assessments</u> Are Risk Assessments/work procedures completed?	Y N NA	
<u>Contractor/Host Employer Relationship</u> Have requirements for energized work performed by contractors (Attachment F) been completed & documented?	Y N NA	
<u>Annual inspections of qualified persons</u> Have qualified persons been inspected on an annual basis (Attachment E)?	Y N NA	
<u>LOTO as it pertains to electrical safety</u> Are energy control procedures available and audited on an annual basis (see Lockout/Tabout Program)	Y N NA	
<u>Restriction of unqualified persons from approach boundaries</u> Are unqualified persons restricted from entering flash and shock boundaries?	Y N NA	



Attachment E
Qualified Person Annual Inspection

1. General Information

Qualified Person Inspected _____
Date of Inspection _____ Shift _____ Time _____
Area or Department _____
Equipment _____
Voltage _____ PPE Hazard Risk Category (HRC) _____

Reason system could not be de-energized: _____

2. Answer yes or no to the following

Qualified Person Training Received?
Were unqualified persons in area notified of energized work being performed?
Were approach and flash protection boundaries set-up by qualified person?
Did qualified person inspected don proper PPE in accordance with HRC?
Are written energized work procedures available?
Was energized work permit utilized? If not, state reason below:
Reason energized work permit was not used:

Yes	No

Re-training required?
If so, list areas of deficiencies:

--	--

3. List additional deficiencies/areas needing attention:

4. Corrective Actions taken

Date Corrective Actions Completed: _____

Audit Performed by (signature): _____

Qualified Person (signature): _____



**Attachment F
 Contractor/Host Employer Checklist**

Contractor Name _____

Date of Initial Meeting _____ Time _____

Attendees

Name (print)	Signature	Company

Host Employer Responsibilities

Action	Host Employer Initials	Contractor Initials
Host employer has communicated the following with contract employer <ul style="list-style-type: none"> ◦ Results of arc flash hazard analysis. In lieu of the arc flash hazard analysis the Cal/State-Fullerton sponsor shall ensure that a Risk Assessment/PPE Assignment/Approach Boundary Assessment is performed (Attachment A) according to the system work will be performed. ◦ Electrical system maintenance ◦ Report any observed contractor employer violations of NFPA 70E to contract employer ◦ Violations of host employer electrical safety program ◦ Violations of NFPA 70E requirements 		
Host Employer (Cal/State-Fullerton) Sponsor. Cal/State-Fullerton will assign a sponsor who is familiar with electrical systems involved to manage and supervise contractor's work and ensure compliance. The Cal/State-Fullerton sponsor has the following responsibilities: <ul style="list-style-type: none"> ◦ Sponsor shall make regular worksite visits to ensure compliance with safety requirements ◦ Appropriate actions shall be taken when non-compliance observations observed 		



Contract Employer Responsibilities

Action	Host Employer Initials	Contractor Initials
Communicate hazards to his employees as communicated by the host employer in addition to the requirements of NFPA 70E. Such communication can be in the form of: <ul style="list-style-type: none"> ◦ Formal training ◦ Tool box talks ◦ Pre-shift meetings 		
Require that employees follow safe work practices as require by host employer and NFPA 70E		
Inform host employer of: <ul style="list-style-type: none"> ◦ Unusual hazards presented during work ◦ Unanticipated hazards • i.e.: arc flash incidents • Shock incidents • Any other injury 		
Corrective actions taken as a result of any violations reported by the host employer		
Advise host employer of any unanticipated hazards found during the contractor's work		