



# University Of Cincinnati

---

## *Electrical Safe Work Program* (ESWP)

### **Table of Contents**

1.0	Purpose .....	2
2.0	Scope .....	2
3.0	Authority .....	3
4.0	Ownership .....	3
5.0	Responsibilities .....	3
6.0	Training Requirements .....	5
7.0	Safe Work Practices .....	7
8.0	PPE .....	11
9.0	General Electrical Safety Rules .....	14
10.0	Test Equipment .....	16
11.0	Reference Documents .....	16
12.0	Attachments .....	17
13.0	Revision History .....	17

Attachment "A"	Energized Electrical Work Permit
Attachment "B"	Electrical Qualified Check List – 600 volts and less
Attachment "C"	Electrical Qualified Check List – Above 600 volts
Attachment "D"	Responsible Persons
Attachment "E"	Definitions

# University Of Cincinnati

---

## *Electrical Safe Works Program*

### **1.0 PURPOSE**

Electricity is a serious work place hazard, capable of causing both employee injury as well as serious property damage. By providing employees with proper electrical safety training and by reviewing this program with employees, the University of Cincinnati hopes to reduce the risk of such incidents.

This program establishes the minimum requirements for employees and contractors that work on or near electrical equipment at all University of Cincinnati locations. This standard implements the requirements of the most current version of the NFPA 70E (Standard for Electrical Safety in the Workplace) which is enforced by OSHA standards 29 CFR 1910.331 – 1910.335. This document also addresses OSHA standard 29 CFR 1910.269 (Standards for Electric Power Generation, Transmission and Distribution).

### **2.0 SCOPE**

This program is mandatory and applies to all University employees, contractors, vendors and contracted service employee's that may be exposed to electrical hazards in the course of performing their work.

This program will be reviewed every three years for compliance with the NFPA 70E and relevant OSHA documents.

### **3.0 AUTHORITY**

This is a University of Cincinnati safety program that establishes the minimum requirements for all sites where employees, contractors, and vendors are stationed. To the extent this program conflicts with federal or local legal requirements, the more stringent requirements shall be followed as long as they do not violate any legal requirements.

### **4.0 OWNERSHIP OF THIS PROGRAM**

**The Administration & Finance (A&F) Facilities Management Department (FM)** shall be responsible for keeping this document in its entirety and all subsequent related documents current to include any referenced material that may be updated or revised. These changes shall be listed in the revision history in the back of this document.

### **5.0 RESPONSIBILITIES**

All individuals are responsible for their own safety and for following the applicable safety rules.

There are several different organizational areas/units at the University of Cincinnati that have staff who are exposed to electrical hazards as part of their work assignments. The areas are defined as follows; Uptown Campus Maintenance and Operations (including both uptown campuses, Victory Parkway campus, Center Hill Research Center, Fishwick property, and Reading campus), Parking Services, Project Services, Utilities Department,

UC Blue Ash Campus, and UC Clermont. The organizational leaders for those areas are responsible for assigning the task groups listed below to the individuals in their areas. **The current list of responsible persons per organizational area can be found in Attachment D.**

Planning + Design + Construction's Safety Plan outlines that the contractor is responsible for the health and safety programs. This is specified in construction documents and term contracts.

#### Executive Management

- Responsible for safekeeping of record documents, including the following:
  - Completed Electrical Qualification Checklist
  - Training records in regards to Electrical Safe Work Program and NFPA 70E
  - Energized Electrical Work permits
- Insure all employees in their org unit that are exposed to electrical hazards are trained on UC's Electrical Safe Work Program

#### Work Manager

- Ensure that all their staff exposed to electrical risks have completed necessary steps to be considered a qualified persons.
- When necessary as determined by Executive Management or Work Manager, a job specific write up and pre-job meeting must be completed prior to the start of any work.
- He or she assumes the effective responsibility for the work.
- Determine if the qualified persons are suitable to carry out the specific work required.

- Insure the supply and maintenance (including certification and calibration) of the appropriate PPE and test instruments for the work.
- Supervise the safety aspects before, during and after executing the work.

#### Qualified Person

- Comply with all safe work practices as explained during training on this Electrical Safe Work Program and NFPA 70E.
- Carry out live work only when Energized Electrical Work permit has been authorized.
- Carry out proximity work on live elements.
- Inform the line of command of those electric risks that exist at the workplace and that have not been identified.
- Know how to use and care for personal protective equipment.

### **6.0 TRAINING**

Each organizational unit leader is required to ensure that all their University employees who interact with, work on or near electrical equipment, operating at 50 volts or greater AC or DC, or face a risk of electrical hazards that are not reduced to a safe level, receive necessary electrical safety training. Employees shall be trained in the safety related work practices and procedures that pertain to their respective job assignments and tasks.

This training must include identifying and understanding the relationship between electrical hazards and possible injury. Training shall include classroom, on-the-job training (OJT), task specific, or a combination.

Every qualified employee shall attend NFPA 70E Arc Flash type training once every 3 years. This training can be organized, hosted and taught by UC or an outside training agency specializing in electrical safety.

**Training Documentation:** Records of training received by University personnel covered by this program must be documented and maintained for the duration of the employee's employment. Documentation shall include the employees' name, dates of training, and description of training. This training documentation shall be kept by the employee's organizational unit.

**Qualified Person:** A qualified person shall be trained and knowledgeable on the construction and operation of equipment they work on or with, or a specific work method and be trained to recognize and avoid the electrical hazards that might be present with respect to that equipment or work method.

(a) Such persons shall also be familiar with the proper use of special precautionary techniques, personal protective equipment, including arc-flash, insulating and shielding materials, and insulated tools and test equipment.

(b) A person can be considered qualified with respect to certain equipment and methods but still be unqualified for other equipment.

(c) Such persons shall complete Attachments B or C "Electrically Qualified Check List" and have it signed by their UC organizational unit's appropriate management. (See attachment)

(d) Such persons are permitted to work within the Limited Approach Boundary (and thus the RAB) of exposed energized electrical conductors

and circuit parts operating at 50 volts or more shall, at a minimum, be additionally trained in all of the following:

- (1) The skills and techniques necessary to distinguish exposed energized electrical conductors and circuit parts from other parts of electrical equipment
- (2) The skills and techniques necessary to determine the nominal voltage of exposed energized conductors and circuit parts
- (3) Understanding of approach distances as found on the arc flash labels, and the corresponding voltages to which the qualified person will be exposed
- (4) The decision-making process necessary to determine the degree and extent of the hazard and the personal protective equipment and job planning necessary to perform the task safely.

**Retraining shall be required if:**

- The employee's supervisor or other inspection methods indicated that the employee is not complying with safe electrical work practices.
- New technology, new types of equipment, or changes in procedures necessitate the use of safety related work practices that are different from those that the employee would normally use.
- If the employee must use safety-related work practices that are not normally utilized during his/her regular job duties.

**7.0 SAFE WORK PRACTICES**

It is the University of Cincinnati's policy that anyone working on University premises or University equipment reduce the risk of electrical hazards by not working on or near energized exposed parts. In the event that energized work must be performed, a signed energized work permit is required prior to

the work commencing. Testing, troubleshooting and the verification of voltages does not require a signed energized work permit.

## **7.1 De-energized (Voltage-free) Work**

The following must be followed to ensure the circuit is de-energized.

- Disconnect: The installation where the work is going to be carried out must be disconnected from all power supply sources. Those elements of the electrical installation that are still live after disconnection must be discharged with appropriate devices.
- Prevent any possible unexpected reconnection: All operation devices that have been used to disconnect the electrical installation must be secured with mechanical interlocking or blocking system, pins, or other elements, such as warning signals, to avoid any possible reconnection. If blocking is defined, it shall be blocked per proper procedure and (LOTO) will be followed.
- Verify that the installation is voltage free: The absence of voltage must be verified by a qualified person in all active conductors of the electrical installation within, or as near as possible, to the work area. In the case of cable-connected installations, when these cannot be accurately identified in the work area, other means must be adopted to guarantee safety; for example, the use of appropriate cable-cutter or cable-crusher devices.
- Grounding and short-circuiting for 600 volts and greater: All those parts of the installation where work has to be carried out must be grounded and short-circuited. After verification of the absence of voltage, grounding and short-circuiting equipment or devices must be connected first to the ground tap and then to the grounding elements.



## **7.2 Working On or Near Electrical Energized Conductors or Circuit Parts**

The University of Cincinnati will permit energized work to be performed under the following conditions:

1. Only electrically qualified employees may perform this work.
2. Barricades are to be used to limit access by unqualified employees.
3. It can be demonstrated that de-energizing the system will introduce additional or increased hazards. (Life Support, Ventilation, Emergency alarms systems etc.)
4. That it is infeasible to perform the assigned task with power turned off.
5. A signed Electrical Energized Work Permit (Attachment "A") is obtained PRIOR to the work being performed and posted at the job site.
6. This permit shall be kept for a period of one year after completion of work by the responsible person for that area.

Testing, troubleshooting and the verification of voltages does not require a signed energized work permit.

The signed Energized Work Permitted must be completed by one of the following University Director's or his/her authorized designee of: UTILITIES, MAINTENANCE and OPERATIONS, PLANNING, DESIGN and CONSTRUCTION, UNIVERSITY ENGINEER OR ELECTRICAL ENGINEER. (See attachment "D" of this program.)

## **7.3 Approach Boundaries to Live Parts.**

Prior to troubleshooting or working on or near live parts, qualified persons shall conduct an analysis to determine the voltage to which personnel will be exposed, the shock (i.e. limited, restricted) boundaries, the arc flash

boundary, and the required PPE to enter these boundaries. This information should be available on the Arc Flash label posted on the equipment.

**7.3.1 Limited Approach Boundary (LAB).** Only electrically qualified employees may enter the LAB. In the event there is a need for an unqualified person (manager, sales rep, engineer, professor, student etc.) to enter the Limited Approach Boundary, a “Qualified” person shall advise them of the possible hazards, and continuously escort the unqualified person while inside the Limited Approach Boundary. Under no circumstances shall the escorted unqualified person be permitted to cross the Restricted Approach Boundary. Based on the task being performed, barricades may need to be set up to keep unqualified persons out of the LAB.

**7.3.2 Restricted Approach Boundary (RAB):** ONLY electrically qualified persons may cross the restricted approach boundary. Inside the RAB the following MUST be observed:

- Only Insulated tools are permitted
- Voltage rated insulating gloves must be worn
- A signed energized work permit (if needed).

### **7.3.3 Arc Flash Hazard Analysis:**

To protect employees from arc flash injuries, each site must conduct an arc flash analysis to determine the Incident Energy, the Arc Flash Boundary and required PPE when live work is performed within the Arc Flash Boundary.

The Incident Energy level (in cal/cm<sup>2</sup>) and the Arc Flash Boundary will be displayed on the arc flash label.

The arc flash hazard analysis shall be updated when a major modification or renovation takes place. It shall be reviewed periodically, not to exceed five

years, to account for changes in the electrical distribution system that could affect the results of the arc flash hazard analysis.

**Flash Hazard Analysis Exception:** In lieu of the flash hazard analysis, current edition of NFPA70E Tables can be used until all equipment is analyzed and posted, to determine the hazard/risk category and protective clothing for each task. The hazard/risk categories and required PPE are based on the assumed short-circuit current capacities and fault clearing times for the various tasks listed in the text and notes section in each table. For those tasks not listed, or for power systems greater than the assumed short-circuit current capacity or with longer than the assumed fault clearing times, a flash hazard analysis is required.

**7.3.4 Arc Flash Boundary:** the Arc Flash Boundary is a distance (normally measured in inches) from a prospective arc source within which a person could receive at a minimum a second degree burn if an electrical arc flash were to occur. When an employee is working within the Arc Flash Boundary, protective clothing and other PPE shall be worn in accordance with the calculated incident energy and the assigned hazard/risk category. The protective clothing selected for the corresponding incident energy level shall have an arc rating (ATPV rating) of at least the value listed on the equipment labeling. If equipment is not labeled, look at upstream device labels for an indication of the incident energy rating.

## **8.0 PERSONAL PROTECTIVE EQUIPMENT (PPE) REQUIREMENTS**

Each site with employees working in areas where electrical hazards are present shall provide PPE that is designed and constructed for the specific part of the body to be protected and for the work to be performed.

Protective equipment shall be maintained in a safe working condition. All equipment must be maintained in accordance with the manufacturer's recommendations or listing and current ASTM standards. All protective equipment shall be visually inspected for damage and defects before initial use and as service conditions require.

**8.1 Clothing.** At a minimum, general duty work clothes shall consist of non-melting, non-flammable materials (i.e., untreated cotton, wool, rayon or silk or blends of these materials). Additional arc resistant (AR) clothing up to and including flash suits are required as the incident energy increase.

**8.2 Eye Protection.** Approved non-conductive eyewear meeting the requirements of ANSI Z87 shall be worn while troubleshooting or working near energized equipment.

**8.3 Face and Head Protection.** Personnel troubleshooting or working inside the Arc Flash Boundary and when the incident energy is 1.2 cal/cm<sup>2</sup> or greater shall wear nonconductive hard-hats equipped with an arc rated face shield or flash suit hood.

**8.4 Hearing Protection.** Employees working inside the arc flash boundary shall wear ear canal inserts to protect against damaged from noise and blast.

**8.5 Hand Protection.** When working inside the restricted approach boundary, employees shall wear rubber insulating voltage gloves appropriate to the nominal voltage. Rubber insulating gloves are never to be worn without leather protectors.

**8.5.1** Prior to each use, the employee shall visually inspect the gloves for damage such as holes, rips, tears, or chemical damage. Defected or suspect gloves shall not be used. Gloves shall also be air tested as part of this visual inspection.

**8.5.2** Rubber insulating gloves shall also be dielectrically tested prior to first use and then every six months in accordance with ASTM F496. The date of this testing shall be stamped in the cuff of the glove.

**8.5.3** Rubber voltage rated gloves and their leather protectors shall be stored in an approved glove storage bag. Rubber gloves shall not be stored folded or wadded.

**8.6 Rubber Insulating Blankets.** When required, rubber insulating blankets meeting the requirements of ASTM D 1048 may be used.

**8.6.1** Rubber insulating blankets shall be inspected for damage before each day's use and immediately following any incident that can reasonably be suspected of having caused damage. To inspect blankets, place flat on a clean, smooth surface and roll the blanket up looking for signs of holes, tears, punctures, ozone cutting or checking, embedded foreign objects, and changes in texture such as swelling, softening, hardening, stickiness or loss of elasticity.

**8.6.2** Rubber insulating blankets shall also be dielectrically tested in accordance with ASTM 479 before their first use and every 12 months thereafter. Blankets shall also be retested if damage is suspected. Blankets shall be identified with the stamped date of the test.

**8.6.3** When not in use, blankets should be stored flat or rolled up in protective covers or inserted into canisters. Never fold, crease or compress blankets.

**8.7 Live-Line Tools.** When required, Live-Line insulating tools meeting the requirements of ASTM F711 shall be used.

**8.7.1** The employee in charge of the work shall ensure the live line tool rated for the expected voltage and of sufficient length to safely do the job.

**8.7.2** Prior to use, Live-line tools shall be inspected for cracks, splits or deformation. Moisture, oil and dirt shall be wiped away using approved wipe towels/rags.

**8.7.3** Only approved voltage rated attachments shall be used.

**8.7.4** Live-line tools shall be dielectrically tested prior to initial use and then every six months thereafter for wooden rods or 24 months thereafter for fiberglass and epoxy rods. Tools shall also be dielectrically tested if damage is suspected. Dielectric tests shall be documented and tools identified with test day and identification number.

## **9.0 GENERAL ELECTRICAL SAFETY RULES**

- 9.1** All electrical lines and pieces of equipment are to be considered energized unless positively known to be isolated, locked, tagged and verified for the absence of voltage
- 9.2** Any person experiencing a direct contact electrical shock must immediately report this to his/her supervisor.
- 9.3** Only qualified electrical workers are permitted to open electrical enclosures.
- 9.4** Bypassing mechanical or keyed safety interlocks is restricted to qualified electrical personnel and can only be for the purpose of testing, servicing or maintenance of the equipment.
- 9.5** Electrical enclosures and panels shall have their doors closed and secured unless being serviced.
- 9.6** Tools and personal effects shall not be stored inside or on top of electrical equipment.
- 9.7** Combustible and flammable material shall not be stored within five feet of electrical equipment.
- 9.8** 36 inches of clear free space shall be maintained in front of all electrical enclosures for ready access in the case of an emergency.
- 9.9** All electrical panels, enclosures, boxes etc. shall have all unused openings effectively closed.
- 9.10** When working or troubleshooting inside the Limited Approach Boundary, conductive articles of clothing and jewelry shall not be worn due to the electrical contact hazard with live parts and the possibility of increasing the burn hazard in the event of an arc flash incident.
- 9.11** No work is allowed on or near exposed energized parts without adequate illumination.

## **Power Tools**

- 9.12** Each department shall comply with their written program for the use and management of portable 120 volt power tools.
- 9.13** Prior to using a power tool, employees shall inspect the tool for a cut, frayed, cracked or damaged power cord. The tool shall not be used if there is a broken attachment plug or missing ground pins. Tools that are found defective shall be removed from service.
- 9.14** Portable 120 volt electric power tools shall be grounded or of double insulation construction.
- 9.15** Corded power tools shall not be carried, raised or lowered by the cord.

## **Extension Cords**

- 9.16** Extension cords may be used for portable or season equipment or for a trial purpose of 90 days or less.
- 9.17** Extension cords shall be inspected prior to use. Any cord that has damaged attachment plug, a missing ground pin or damaged outer insulation shall be removed from service and not used until repaired.
- 9.18** Extension cords shall not be run through holes in walls, ceilings, or floors or through open windows or open doors.
- 9.19** Extension cords shall not be fastened with staples or otherwise hung in such a fashion as could damage the outer jacket or insulation.
- 9.20** Extension cords may be built and repaired by a qualified employee using approved and listed parts.

## **Power Strips**

Use of portable electric power strips (also known as power taps and temporary power taps) is permitted in compliance with manufacturer's instructions and local codes. Power strips are not considered temporary wiring.

- 9.21** Power strips are designed to be used with several low-amperage loads, such as desktop or laptop computers, computer peripherals

etc. Power strips must not be used to connect high amperage loads such as refrigerators, space heaters, microwave ovens or air conditioners.

- 9.22** Power Strips can only be plugged into a permanently installed receptacle. They cannot be plugged into extension cords.
- 9.23** Power strips shall not be daisy chained.
- 9.24** Power strips shall not be installed in a moist environment or a location with excessive heat or limited air circulation.

## **10.0 TEST EQUIPMENT**

- 10.1** When instruments are used for testing and troubleshooting on circuits operating at 50 volts or more, the test instrument shall have a minimum of a Cat III rating.
- 10.2** Test leads shall also be rated at Cat III or higher.
- 10.3** Voltmeters shall be rated for the maximum expected voltage.
- 10.4** Leads and meters shall be visually inspected for damage prior to use.
- 10.5** Test equipment shall be maintained and operated according to the manufactures specification.
- 10.6** A portable voltmeter shall be operationally tested prior to measuring for the absence of voltage. A Live-Dead-Live type test meets this requirement.

## **11.0 REFERENCE DOCUMENTS**

- 11.1** 29 CFR 1910, Subpart I, "Personal Protective Equipment,"1910.137, "Electrical Protective Equipment."
- 11.2** 29 CFR 1910, Subpart S, "Electrical"
- 11.3** 29 CFR 1910.269, "Electric Power Generation, Transmission & Distribution".
- 11.4** 29 CFR 1910.331, "Scope".



- 11.5** 29 CFR 1910.332, “Training”.
- 11.6** 29 CFR 1910.333, “Selection & Use of Safe Work Practices”.
- 11.7** 29 CFR 1910.334, “Use of Equipment”.
- 11.8** 29 CFR 1910.335, “Safeguards for Personal Protection”.
- 11.9** NFPA 70 2014 Edition “National Electrical Code”
- 11.10** NFPA 70-B 2013 Edition “Maintenance of Electrical Equipment”
- 11.11** NFPA 70E-2015, “Standards for Electrical Safety in the Workplace”.
- 11.12** UL white Book 2014 Edition
- 11.13** ASTM Standards as applicable

## **12.0 ATTACHMENTS**

- Attachment “A” Energized Electrical Work Permit**
- Attachment “B” Electrical Qualified Check List - 600 volts and less**
- Attachment “C” Electrical Qualified Check List - Above 600 volts**
- Attachment “D” Responsible Persons**
- Attachment “E” Definitions**

## **13.0 REVISION HISTORY**

- |                      |   |
|----------------------|---|
| <b>December 2015</b> | <b>Initial Release</b>                      |
| <b>May 2019</b>      | <b>Major revision</b>                       |
| <b>June 2019</b>     | <b>Spelling and grammatical corrections</b> |



## Attachment "A" Energized Electrical Work Permit

Part I: TO BE COMPLETED BY THE PERSON REQUESTING THE WORK BE COMPLETED IN AN ENERGIZED STATE:

OSHA 29 CFR 1919.333 (a) (1) requires that all electrical installation over 50 volts be placed in an electrically safe condition prior to working on, or near, any exposed electrical parts.

By electing to not turn off power, I understand that I am placing the person working on the electrical circuit in a potentially life threatening situation.

(1) Description of equipment and job location and work to be performed:

---

---

(2) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage: (attach additional documentation if necessary)

Criteria for energized work: (check one)

- A. Creates a greater hazard \_\_\_\_\_
- B. Life Safety \_\_\_\_\_
- C. Continuous Industrial Process \_\_\_\_\_
- D. Infeasible to do the task assigned to the qualified employees without shutting off power. \_\_\_\_\_
- E. Other \_\_\_\_\_

\_\_\_\_\_  
Requester/Title (Print Name)

\_\_\_\_\_  
Date

\_\_\_\_\_  
Requester Signature

**Part II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:**

Work order number: \_\_\_\_\_

(1) Do you agree the above described work can be done safely? YES / NO (circle: If no return to requester)

(2) Verification of the electrical circuit to be worked on:

Panel Name: \_\_\_\_\_

Circuit Number: \_\_\_\_\_

OCPD Info Maintained per manufactures specs: Yes/No (If no return to requestor)

Breaker

Fuse

Rating \_\_\_\_\_

Clearing Time \_\_\_\_\_

(3) Description of the Safe Work Practices to be employed:

---

---

---

---

---

(4) Shock Hazard Analysis: Voltage Level Phase to Phase \_\_\_\_\_

Approach Boundaries: Limited \_\_\_\_\_ Restricted \_\_\_\_\_

(5) Results of Flash Hazard Analysis:

Flash Protection Boundary: \_\_\_\_\_ Flash Hazard at 18" \_\_\_\_\_

(6) Necessary personal protective equipment to safely perform the assigned task including the method used to determine the appropriate personal protective equipment:

---

---

(7) Means employed to restrict the access of unqualified persons from the work area:

---

---

(8) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

---

---

\_\_\_\_\_  
Electrically Qualified Person(s)  
Date

\_\_\_\_\_  
Date

\_\_\_\_\_  
Electrically Qualified Person(s)

**Part III: AUTHORIZED SIGNATURE OF APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED. (See Attachment "D" of the ESWP)**

Do you agree the above described work can be done safely? YES/NO (circle: If no return to requester)

\_\_\_\_\_  
NAME

\_\_\_\_\_  
TITLE

Date \_\_\_\_\_

**Part IV: DOCUMENTATION OF ELECTRICALLY ENERGIZED WORK:**

I understand that the above Energized Work was completed on \_\_\_\_\_  
Date

\_\_\_\_\_  
Administrative Supervisor

NOTE: Once work is complete, forward a copy of this form to Assistant Director, Electrical Maintenance.



## Attachment "B"

### Electrical Qualified Checklist – 600 volts and below

<b><u>Employee:</u></b>	<b><u>Manager:</u></b>
-------------------------	------------------------

- \_\_\_ Employee has successfully completed NFPA 70E training
- \_\_\_ Employee has received training for LOTO
- \_\_\_ PPE. Based on job needs, the employee has appropriate clothing, gloves (rubber and leather protectors), head and face (hard hat, face shield and balaclava), hearing and eye protection
- \_\_\_ Understands how to properly read Arc Flash labels, determine incident energy levels in Cal/CM<sup>2</sup> and what PPE is appropriate/required.
- \_\_\_ Perform glove test – visual inspection and air test for rubber gloves
- \_\_\_ Demonstrate proper use of multi-meter (Current, voltage and continuity)
- \_\_\_ Demonstrate with the proper tester, absence of voltage on 600 volts and below. Must use the Live-Dead-Live verification method.

**Qualified Worker Signature**

**Manager Signature**

**Date**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

- **File a copy of completed form with the responsible person for this worker’s organizational area (Refer to attachment D in Electrical Safe Work Program)**



## Attachment "C"

### Electrical Qualified Checklist – Above 600 volts

<b>Employee:</b>	<b>Manager:</b>
------------------	-----------------

- Employee has successfully completed NFPA 70E training.
- Employee has received training for LOTO.
- PPE. Based on job needs, the employee has appropriate clothing, gloves (rubber and leather protectors), head and face protection (hard hat, face shield and balaclava), hearing and eye protection.
- Understands how to properly read Arc Flash labels, determine incident energy levels in cal/cm<sup>2</sup> and what PPE is appropriate/required.
- Perform glove test – visual inspection and air test for rubber gloves
- Demonstrate proper use of multi-meter (current, voltage and continuity)
- Demonstrate with the proper proximity tester, absence of voltage on a 12,470 volt system. Must perform test by using the Live-Dead-Live verification method
- Demonstrate grounding and short circuit techniques while wearing the appropriate PPE using a hot stick connecting to the ground tap first and then to the grounding elements
- Demonstrate proper use and knowledge of live line tools (hot stick and specific tools of task)

**Qualified Worker Signature**

**Manager Signature**

**Date**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**\* File a copy of completed form with the responsible person for this worker’s organizational area (Refer to attachment D in Electrical Safe Work Program)**



## Attachment "D" Responsible Persons

Below is a list of organizational areas/units that have workers exposed to electrical list and the responsible person for that area.

- Uptown Campus Maintenance and Operations (including both uptown campuses, Victory Parkway campus, Center Hill Research Center, Fishwick property, and Reading campus)
  - Ken Bloomer; Executive Director, Maintenance and Operations
  
- Parking Services
  - Ephrem Tefera; Assoc Dir Parking Services, A&F Parking Maintenance East
  
- Project Services
  - Bill Crone; Director Project Services
  
- Utilities Department
  - Mike Hofmann; Director Utility Services
  
- UC Blue Ash Campus
  - Robert Knarr; Dir College Facilities, UCBA Facilities Management
  
- UC Clermont
  - Kevin Peck; Assoc Dir Maint Operations, Clermont Operations & Maintenance