



**ENERGIZED ELECTRICAL WORK
APPROVAL WORKSHEET
INSTRUCTION
August 2016**

A. SCOPE AND APPLICATION

The “Energized Electrical Work Approval Worksheet” (hereafter known as the Approval Worksheet) has been established to ensure that all safety requirements are reviewed and implemented, as necessary, to protect workers from the potentially harmful effects of energized electrical circuits at all University of Nevada, Las Vegas (UNLV) properties. It is based on the requirements contained in NFPA 70E “Standards for Electrical Safety in the Workplace” and OSHA regulations.

B. COMPLIANCE

The Energized Electrical Work Approval Worksheet and Instruction applies to all employees and students who work on energized circuits and equipment. It will be used by those are required to work on/near exposed bare or covered conductors of electrical circuits/equipment while performing their job tasks or research responsibilities.

C. DEFINITIONS

- (1) **Bare Conductor** – A conductor having no covering or insulation whatsoever.
- (2) **Covered Conductor** – A conductor encased within material of composition or thickness that is not recognized as electrical insulation.
- (3) **Insulated Conductor** – A conductor encased within material of composition and thickness that is recognized as electrical insulation.
- (4) **Exposed** (as applied to live parts) – Capable of being inadvertently touched or approached nearer than a safe distance by a person. It is applied to parts not suitable guarded, isolated, or insulated.

- (5) **Qualified Person** – One who has received training in and has demonstrated skills and knowledge in the construction and operation of electrical equipment and installations and the hazards involved.
 - a. Determining if an individual is considered to be a “qualified person” will depend upon various circumstances in the workplace. It is possible and, in fact, likely for an individual to be considered qualified with regard to certain equipment in the workplace, but unqualified as to other equipment.
 - b. A worker who is undergoing on the job training and who, in the course of such training, has demonstrated an ability to perform duties safely at his or her level of training and who is under the direct supervision of a qualified person is considered to be a qualified person for the performance of those duties.
- (6) **Worker** - UNLV faculty, staff, researchers, part-time employees and contractors hired to perform electrical work on UNLV properties.

D. DUTIES AND RESPONSIBILITIES

- (1) **Risk Management and Safety (RMS)**
 - a. Provide an Approval Worksheet (Appendix A) for use at UNLV.
 - b. Assist department managers and supervisors, as needed, prepare the worksheet.
 - c. Perform reviews of this instruction and worksheet and update when necessary.
 - d. Offer Cardiopulmonary Resuscitation (CPR) training classes.
- (2) **Department Directors and Managers (UNLV staff only)**
 - a. Identify work that must be performed on energized electrical circuits/equipment.
 - b. Verify that workers are properly trained and skilled to work on energized circuits/equipment and meet the definition of a “qualified person.
 - c. Also verify that supervisors are qualified to oversee this type of work.

- d. Authorize workers and supervisors to complete the require job tasks.
- e. Instruct workers and supervisors on the “Approval Worksheet” and this instruction.
- f. Ensure all assessments are performed; identify all hazards and methods that will be used to protect workers.
- f. Provide workers with an opportunity to attend appropriate training and refresher training on CPR and electrical safety related topics.
- g. Provide re-training when:
 - i. Deficiencies exist in workers’ knowledge of, or failure to follow all prescribed steps.
 - ii. Changes are necessary because of equipment, work processes, or procedure changes.
 - iii. Other situations arise that suggests that additional training is necessary.

(3) Department Supervisors (UNLV staff only)

- a. Provide appropriate Personal Protective Equipment (PPE) and proper tools to adequately protect against electrical hazards encountered.
- b. Establish a system for PPE/tool testing and certification.
- c. Complete the following steps prior to performing work on energized circuits:
 - i. Identify the work to be done.
 - ii. Obtain information from hazard assessments performed.
 - iii. Specify appropriate PPE and tools to protect workers and ensure it is inspected prior to use.
 - iv. Obtain approval (as follows) for all jobs requiring work on energized circuits and complete Approval Worksheet.

50 V – 150 V	Assistant Director/Manager
151 V – 350 V	Director/Department Chair
351 V & up	Executive Director/Dean

- v. Provided a signed copy of the worksheet to RMS prior to commencing work.
- vi. Conduct a job briefing and inform staff of potential hazards and methods of protection.
- vii. Oversee energized electrical work projects to ensure all precautions are followed.

(4) **Employee**

- a. Complete all required training courses.
- b. Inspect PPE prior to use and inform supervisor about defective PPE components to be replaced.
- c. Obtain authorization to perform work on energized circuits prior to commencing the job.
- d. Attend the job briefing and follow all instruction given.
- e. Properly use all PPE and the tools specified for the job.

E. DE-ENERGIZED WORK

- (1) The primary and foremost method for safeguarding workers will be to **de-energize** the electrical system before any work is allowed to begin.
- (2) De-energizing the system will be accomplished as follows:
 - a. All power sources shall be identified, de-energized and properly locked out using general or equipment specific procedures.
 - b. Meters/test equipment will be used to verify that all residual energy has been released from the machine or equipment.
- (3) Situations where the shutdown of power to a building is necessary shall be effectively communicated to building occupants, proctors and managers.

F. ENERGIZED WORK

- (1) Working on energized electrical lines and equipment will only be authorized when:
 - a. It is impossible to complete the job with the power supply turned off.
 - b. The work to be done meets the approved categories specified in NFPA 70E.
- (2) Only qualified personnel will be allowed to perform work on energized systems, components or parts, following the requirements covered in NFPA 70E and general industry practices.
- (3) Diagnostic troubleshooting and testing on energized circuits may be performed by qualified, trained and experienced personnel who are:
 - a. Using appropriate PPE and proper tools for the task.

Note: To determine appropriate PPE, see 2015 NFPA 70E Table 130.7(C) (15) (A) (b).
 - b. Performing all tasks in accordance with applicable local, state and federal codes.
- (4) Before beginning any energized work complete the steps listed in D (3) c of this instruction.

G. CONTRACTORS/SUB-CONTRACTORS

- (1) Contractors and sub-contractors whose job assignments require working on energized electrical circuits on UNLV properties shall comply with all safety requirements contained in the contract, applicable standards specified in NFPA 70E, *Standards for Electrical Safety in the Workplace* and all other pertinent OSHA regulations.
- (2) Contractors and sub-contractors shall submit a copy of their written Energized Work Safety Program to the UNLV point of contact, if requested.
- (3) Contractors and sub-contractors may also request a copy of this instruction and approval worksheet through their UNLV point of contact.
- (4) Contractors will submit a signed copy of their Energized Electrical Work Permit to their UNLV point of contact before commencing work.

H. ENTERTAINMENT EVENTS

The variety of events held at the Thomas & Mack Center, Cox Pavilion and Sam Boyd Stadium pose unique challenges during show setup that could fall outside the realm of traditional industrial applications working with energized circuits. The power distribution for events varies according to the event; however the initial setup is always the same.

- (1) Power originates at the Main Distribution Panel (MSD) from a fused breaker.
- (2) Power then goes to a Quick Disconnect Panel where the line side of that service is always HOT.
- (3) Protection is provided via a knife switch in the OFF position that feeds the load side of that service.
- (4) After plugging the event's feeder into the Cam Locks at the service that feeds The Events Distro or Power Supply, engage the knife switch at the Quick Disconnect sending power throughout.
- (5) Once everything is powered up and running, run a series of amp draws/tests at the Quick Disconnect Panel; checking for balance on the loads from phase to phase and phase to neutral.
- (6) Service complete.
- (7) During load – out, the previous steps would be completed in reverse order.

I. ADDITIONAL INFORMATION

- (1) Appendix A – “Energize Electrical Work Approval Worksheet”

Appendix A



ENERGIZED ELECTRICAL WORK APPROVAL WORKSHEET

JOB INFORMATION

Location: _____ Work Order/Job #: _____

Department: _____ Equipment Voltage: _____

Equipment: _____

SAFETY PRECAUTIONS

1. Can equipment power be de-energized and locked out? Yes No

Explain: _____

2. Is energized electrical work authorized and allowed per the requirements specified in local, state and federal policies and codes? Yes No

Explain: _____

3. All required assessments been completed prior to work? Yes No

4. Trained/skilled staff available to do this work? Yes No

5. Appropriate tools and PPE provided and inspected? Yes No

6. Job briefing completed & job hazards communicated to workers? Yes No

WORK APPROVAL

50 V – 150 V Assistant Director/Manager

151 V – 350 V Director/Department Chair

351 V & up Executive Director/Dean

_____ _____
Approving Authority Signature/Title Date

_____ _____
Work Supervisor Signature/Title Date