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**Policy Type** [University](#)

**Contact Office** [Environmental Health and Safety](#)

**Oversight Executive**

Vice President for Research

**Applies To** Academic Division and the Medical Center.

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## Reason for Policy

The purpose of this policy is to educate all potentially affected University faculty, staff and students to the risks of electrical shock and burn injuries including death as a result of working on electrical equipment or facility electrical systems that are still energized. Following electrical safety work practices for both electrical equipment and facility electrical systems will significantly reduce the likelihood of electrical accidents that can result in fires, injuries and fatalities.

Departments who alter or relocate facility electrical systems can also adversely affect the safety of the facilities or occupants. Facilities Management representatives must assist departments with these requests and facilitate power outages. Their oversight will ensure safety for our University facilities and occupants and ensure that all work complies with the State Building Permit Policy.

## Definition of Terms

### **Electrical Equipment**

Generally, electrical equipment can be disconnected from its power source with a cord and plug at a receptacle or at a disconnect box. Equipment hardwired, such as but not limited to a breaker panel, is considered part of the *facility electrical system* and requires *shutdown* by *qualified personnel*.

### **Energized Electrical Work Permit**

The *energized* electrical work permit is a written description of the electrical work to be done, signatures of *qualified* personnel designated by the department to take responsibility for the work, the results of the electrical hazard analysis, and documentation of all safety equipment and practices that will be used. Methods to restrict unauthorized personnel from the work area and the job debriefing are also included in the permit.

## **Energized Work**

Working on or near exposed electric conductors or circuit parts that are or can become energized because electrical power to the working equipment or system has not been *shutdown*.

## **Facility Electrical System**

The facilities' electrical service such as breaker panels, switchgears and transformers and electrical distribution including lighting and branch wiring.

## **Justification**

The process to justify exceptions to shutting down electrical energy sources prior to doing the work. The department designee(s) must document the justification to do the work with equipment or systems still energized. Energized work on facility electrical systems including equipment permanently connected (hard-wired) to the facilities' electrical systems will require an *Energized Electrical Work Permit*.

## **National Fire Protection Association 70E Standard (NFPA, NFPA 70E)**

The leading consensus standard and best work practices for electrical safety. This Standard is generally revised every 3 years by professionals in the electrical industry to stay up to date with best work practices in electrical safety.

## **Occupational Safety and Health Administration (OSHA)**

A regulatory agency that is part of the United States Department of Labor that enforces safety and health regulations.

## **Qualified Personnel**

Qualified personnel must be knowledgeable of the electrical equipment or systems that they work on, the inherent electrical hazards and how to avoid them. OSHA 1910 *Subpart S-Electrical* and NFPA 70E (8) hour training, including refresher training, is required for personnel assigned to facility maintenance and service responsibilities related to electrical equipment and facility electrical systems. Training shall include electrical safety work practices and the protective measures necessary to avoid shock and burn injury hazards.

## **Shutdown**

The action of cutting off electrical power to electrical facility systems or equipment and securing the electrical energy from accidental startup until the work has been completed.

## Policy Statement

University faculty, staff, students and licensed qualified electricians must follow University safety rules when working on: (1) electrical equipment that is not unplugged or disconnected from the power source and the protective enclosures and covers are intentionally bypassed on the equipment to perform the work task; and (2) facility electrical systems. These safety measures include:

### 1. **Shutdowns:**

The safest manner for performing work on electrical equipment or facility electrical systems to avoid the risks of shock, electrical burns and fires, is to shut down the electrical power from the electrical energy source. Refer to policy [SEC-025, Lock-out Tag-out for Equipment during Maintenance and Repair](#) for further guidance. When this action is not feasible the Electrical Safety Work Practices policy is applicable.

### 2. **General Electrical Equipment Use:**

When departments have electrical equipment which is installed or brought into University-owned facilities, the department should provide oversight for the safe use and condition of this equipment. Departments are responsible for training personnel and students in the proper use and maintenance of the equipment to avoid electrical contact injuries. Oversight and training should incorporate the equipment manufacturer's operation and maintenance guidelines. The equipment instructions must be followed whenever protective electrical covers or enclosures are removed from energized equipment. Guidelines have been established in Facilities Management's comprehensive [Electrical Safety Program](#) which provide in depth guidance to mitigate inherent electrical risks.

### 3. **Coordinating Electrical Alterations, Relocation or Power Outages (Shutdowns):**

Departments are cautioned that alteration, relocation or shutdown of electrical systems can adversely affect the safety of the facility or other occupants. Facilities Management representatives must assist departments with these types of requests. Facilities Management will provide safety oversight for the University facility and occupants to ensure that electrical alteration or relocation work complies with the State Building Permit Policy.

### 4. **Working on Energized Facility Electrical Systems:**

Due to the dangers of electrical shock, electrical arc burns and fires, working on University facility electrical systems while energized is prohibited unless performed by licensed and *qualified* electrical technicians. Facilities Management is the central department at the University with qualified personnel to perform energized work (licensed electricians fully trained in OSHA 1910 *Subpart S-Electrical* and NFPA 70E). As such, Facilities Management Occupational Health and Safety personnel have developed a fully comprehensive [Electrical Safety Program](#).

This in depth program: (1) provides guidance to mitigate inherent risks during performance of energized work; (2) meets OSHA 1910 *Subpart S-Electrical* and NFPA 70E Standards; and (3) includes an *Energized Electrical Work Permit* (see Appendix E). The Facilities Management [Electrical Safety Program](#) must be followed by other University departments outside of Facilities Management. In addition, non-Facilities Management departments must consult with the Office of Environmental Health and Safety (EHS) prior to initiating any energized electrical work tasks. EHS will facilitate the required electrical hazard assessment and meeting the requirements of the *Energized Electrical Work Permit*.

## 5. **Compliance with Policy:**

Failure to comply with the requirements of this policy may result in disciplinary action up to and including termination in accordance with relevant University policies. Non-compliance with safety and health regulations may be subject to enforcement and penalties as defined by Code of Virginia § 40.1-49.4.

Questions about this policy should be directed to [Environmental Health & Safety](#).

### **Procedures**

[Electrical Safety Program](#).

### **Related Information**

[SEC- 025: Lock Out Tag Out for Equipment during Maintenance and Repair](#)

#### **Governmental Standards-**

Electrical safety is mandated by United States Occupational Safety and Health Organization (OSHA) standards. Specifically, these standards are contained in 29 C.F.R. 1910 *Subpart S-Electrical*, and 29 C.F.R. 1926 *Subpart K - electrical*. Substantial additional guidance is also given by National Fire Protection Association (NFPA) publication *NFPA 70E, 2015*. Additional general guidance is obtained from Institute of Electrical and Electronics Engineers (IEEE) Std. 1584-2002, *Guidance for Performing Arc-Flash Hazard Calculations*.

**Major Category** [Safety, Security and Environmental Quality](#)

**Next Scheduled Review** Sunday, May 24, 2020

**Revision History** Added Compliance Section 2/26/20; Updated 5/27/17, 12/3/13, 4/12/11.

#### **Policy Summary**

Faculty, staff and students must follow University safety rules when working on electrical equipment or facility electrical systems.

**Approved By** Executive Vice President and Chief Operating Officer

**Approved Date** Tuesday, November 20, 2007