ELECTRICAL SAFETY GUIDELINES

June 2024

Electrical Safety Guidelines
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Circuit Breaker: A device that automatically interrupts the flow of an electrical current.

Electrical Panel: An insulated panel on which electrical wires are mounted.

widespread use of personal computers and associated hardware can create an electrical overload. If necessary, determine your current electrical load by following these steps:

Check workplace equipment for a manufacturer's rating label that indicates total watts or amps.

Convert the watts (P)

E. Electrical Safety Guidelines

Fundamentals

Be familiar with the electrical hazards associated with your workplace.

Unplug electrical equipment before repairing or servicing it.

If a prong breaks off inside an outlet, do not attempt to remove it yourself. Call for assistance.

Ensure that outlets are firmly mounted. Report loose outlets.

Report all electrical problems, including tripped breakers, broken switches, and flickering lights.

All appliances used in UNC buildings must be UL (Underwriters Laboratories) or FM (Factory Mutual) labeled.

Do not use an appliance that sparks, smokes, or becomes excessively hot, unless the appliance is specifically designed to exhibit these characteristics.

Keep electrical equipment away from water, unless the appliance is specifically designed for use around water, such as a wet-dry shop vacuum.

Be aware of overhead power lines when working with tall equipment (e.g., bucket trucks, crane, etc.).

Follow lockout/tagout procedures, as appropriate. (Refer to section III)

Flexible Cords

Do not remove the prongs of an electrical plug. If plug prongs are missing, loose, or bent, replace the entire plug or the cord and plug.

Do not use an adapter or extension cord to defeat a standard grounding device. (i.e., only place three-prong plugs in three-prong outlets; do not alter them to fit in a two-prong outlet.)

Use extension cords only when necessary and only on a temporary basis. Do not use extension cords in place of permanent wiring. Request new outlets if your work requires equipment in an area without an outlet.

Use extension cords that are the correct size or rating for the equipment in use. The diameter and conductor of the extension cord should be the same or greater than the cord of the equipment in use.

Do not run electrical cords above ceiling tiles or through walls.

If the equipment is operating, shut it down using normal shutdown procedures.

Isolate the equipment from its energy source by activating the energy-isolating device(s).

Lockout and tagout the energy-isolating device(s). Each authorized employee will be given their own lock and key in order to eliminate the possibility of others inadvertently unlocking an isolation device when it is being worked on by another. When isolating devices are not lockable, tagout will be used instead of lockout. When isolating devices are lockable, lockout along with tagout should be employed.

Every authorized employee working on a system shall independently lockout and tagout the system using his or her own lock and tag or by use of a lockout hasp(at no time should any employee depend on the lock and tag of another worker to protect them during their service activities. Use your own lock and tag.)

Dissipate or restrain stored and residual energy using methods such as grounding, repositioning, blocking, bleeding, etc. (Capacitors, springs, hydraulic systems, and air/gas/water pressure systems may contain stored or residual energy.)

Ensure that all employees are clear from the equipment. Then, test the equipment for successful isolation by attempting to operate it. Return the operating control to off or neutral after verifying the isolation.

The machine or equipment is now locked/tagged out.

B.

Remove the lockout/tagout devices and re-energize the equipment (You should only remove your own lockout/ tagout device. It is the responsibility of each authorized employee to remove his or her own lock and tag).

Note: The removal of some forms of blocking may require the equipment to be re-energized before safe removal.

Notify affected employees and departments that the service is complete, and the equipment is ready for operation.

If it is necessary to remove a lock of an authorized employee that is not present, the following procedures should be employed along with the normal lock/tag removal procedures previously described (see section III-B). Only the Foreman of the work crew involved can remove the lock of the authorized employee and only under the following conditions:

A thorough visual inspection of the work site must be performed to ensure that the work area is clear and the authorized employee is not present;

The foreman or authorized employer representative shall verify that the authorized employee is not on campus (under no circumstance should any lockout or tagout device be removed unless it is **confirmed** that the authorized employee is not on campus);

D. Contractors

Due to the added risk of both contractors and UNC Facilities Management employees working on a given system, the requirements for lockout/tagout should receive special emphasis. Contractors shall notify UNC Facilities Management whenever working around campus energy sources. Whenever possible, campus systems are to be operated only by UNC Facilities Management staff.

IV.

V. Electrical Arc

An arc flash occurs when a vast amount of concentrated radiant energy explodes

C. Energized Electrical Permit

An Energized Electrical Permit (Appendix B) shall be completed by an Electrically Qualified Person. The Energized Electrical Permit assists the electrical personnel

E. Personal Protective Equipment

In accordance with the NFPA 70E, employees working in areas where electrical

Hand Protection

FR gloves shall be worn where required for arc flash protection. Where insulating rubber gloves are used for shock protection, protectors shall be worn over the rubber gloves.

Foot and Leg Protection

Where insulated footwear is used as protection against step and touch potential, dielectric overshoes shall be required. Insulated soles shall not be used as primary electrical protection.

Heavy-duty leather work shoes provide some arc flash protection to the feet and shall be used in all tasks in Hazard/Risk Category 2 and higher and in all exposures greater than 4 cal/cm^2.

Ré to NFPA 70E Ta 130. 7(C)(15)(a Pb Cg d Pa Pe Eq (PPE)

E. Training Requirements

The training requirements apply to employees who face a risk of electrical hazard that is not reduced to a safe level by the applicable electrical installation requirements. Employees shall be trained to understand the specific hazards associated with electrical energy. Employees shall be trained in safety-related work practices and procedural requirements as necessary to provide protection from the electrical hazards associated with their respective job or task assignment and be able to identify and understand the relationship between electrical hazards and possible injury.

(1) Training

The training shall be classroom or on-the-job type training as required by the NFPA 70E.

Employees exposed to shock hazards shall be trained in methods of release of victims from contact Etn/ce cgD 26 3BDC /87-10 (r)-2 002 Tc J5 (ai)6 -2 (e)]T(c)4 3es4 Tc

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If the supervision or annual inspections indicate that the employee is not complying with the safety-related work practices.

If 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 he or she must employ safety-related work practices that are not normally used during his or her job duties.

Annual refresher training must supplement the initial training.

(3) Training Documentation

The employer shall document that each employee has received proper training.

This documentation, including name and dates of training, shall be made when the employee demonstrates proficiency in the work practices involved and shall be maintained for the duration of the employee's employment.

VI. Electrical Emergency Response

The following instructions provide guidelines for handling two

Appendices

Name (Electrically Qualified Person):	Work Order / Project Number:
Location (Building / Room Number):	Date:

Thefollowing information is to be completed by the Electrically Qualified Person DOING the work:

Additional Electrically Qualified Persons working (include contractors):
Detailed job description procedure to be used in performing the above detailed work:
Description of Safe Work Practices to be employed, and list of necessary Personal Protective Equipment to safely perform the task:
Means employed to restrict the access of unqualified persons from the work area:
Evidence of completion of a Job Briefing including discussion of any job-related hazards:
Do you agree the above description work can be done safely:

Electrically Qualified Person Signature

Electrically Qualified Person Print Name:	Electrically Qualified Person Signature:	Date:
Electrically Qualified Person Print Name:	Electrically Qualified Person Signature:	Date:

Supervisor / Management Approval: Electrical