

Institutional Handbook of Operating Procedures Policy 08.01.24	
Section: Health, Safety and Security	Responsible Vice President: EVP and Chief Financial Officer
Subject: General Electrical Safety	Responsible Entity: Environmental Fire and Safety

I. Title

General Electrical Safety

II. Policy

It is the responsibility of UTMB personnel to follow this policy, promote a safe work environment, and be cognizant of potential electrical hazards and preventive measures necessary to minimize or eliminate these hazards. UTMB shall promote the compliance with and enforcement of the requirements of the Office of the State of Texas Fire Marshal for the safe use of electrical appliances, including extension cords, surge protectors, and power adapters.

III. Procedure

A. Policy Requirements and Precautions

1. The following conditions are expressly forbidden by code and UTMB policy:
 - a. Extension cords of any type used as permanent wiring.
 - b. “Daisy chaining” of surge protectors and/or multiple outlet adapters.
 - c. Multiple outlet adapters. Note: Multi-outlet adapters that have integrated surge protectors are allowed.
 - d. Outlets or switches with protective covers missing. If observed, please report to Business, Operations and Finance (BOF) by calling the Service Response Center 409-772-4040 for repair.
 - e. “Cheater” adapters or two-wire AC outlets.
 - f. The cords of surge protectors shall not exceed 6 feet in length.
2. UTMB Environmental Health and Safety in conjunction with Property Services will approve the emergency temporary use of extension cords for longer-term use, but in no case will such an installation be permanent.
3. The following precautions should be employed:
 - a. Before using any equipment that requires connection to an electrical outlet, make sure to inspect the equipment, and ensure that it carries a current electrical safety certification Underwriters Laboratories (UL) label.
 - b. Do not use coffee makers, radios, lamps, or other personal electrical appliances unless they have UL approval.
 - c. Do not clip or tape electric cords and telephone wires to desks. If cords must cross the floor, use plastic channels designated for this purpose.
 - d. Use only electrical equipment that has a three-prong plug, polarized prongs, and is properly grounded, or double-insulated electrical equipment that has a two-prong plug. Property Services will ensure the grounding of electrical outlets.

B. Equipment Testing

In the clinical enterprise, the electrical equipment testing program is designed to ensure a proper ground for all equipment in case the device becomes energized. Contact Clinical Equipment Services to review their policies for further guidance.

C. Responsibility

1. Environmental Health and Safety (EHS)
 - a. Provide consultative services regarding electrical safety;
 - b. Provide liaison services between the Office of the State Fire Marshal and the UTMB campus;
 - c. Issue electrical safety hazard warnings; and
 - d. When needed, perform periodic safety surveys of UTMB facilities with subsequent feedback to building occupants.
2. Supervisors
 - a. Enforce this policy with their employees;
 - b. Provide adequate facilities, supplies, and supervision to control electrical hazards;
 - c. Ensure that employees know and understand the potential electrical hazards associated with each instrument and the necessary safeguards to prevent a possible shock/electrocution; and
 - d. In the event of an electrocution:
 - i. Immediately disconnect or shut off the power source, and/or free the victim from the source by using a non-conductor;
 - ii. Initiate lifesaving procedures immediately and continue them until professional medical assistance arrives:
 - I. If the heart has stopped, begin cardiopulmonary resuscitation (CPR) or the use of an Automated External Defibrillator (AED), if available.
 - II. If respiration has stopped, begin artificial respiration at once.
 - iii. Call for emergency assistance quickly by calling 911.

D. Personal Safety

The following safety precautions should be employed if working with electrical equipment:

1. Unplug equipment before attempting to troubleshoot (or repair) equipment.
2. Ensure that all hazardous energy has been controlled (lock-out/tag-out) in accordance with [EHS Policy 08.01.05](#).
3. Do not hold energized electrical appliances with wet hands or when wearing wet shoes.
4. Body moisture or perspiration lowers resistance, which permits a greater current flow. Keep body resistance high by keeping hands and feet dry.
5. Do not attempt to repair electrical equipment unless you are qualified to do so. Refer to [EHS Policy 08.01.15](#) for more information on qualifications.

E. Defective Equipment

1. Never ignore a tingling sensation caused by a piece of equipment. This indicates that the equipment is defective. Turn it off. Place an “Out of Service” tag on it and report it to the appropriate department for repairs. Clinical Equipment Services (CES) (for hospital/clinical equipment and non-medical equipment) –409-747-6143 and –Business Operations and Facilities (for building equipment and power) – call the Service Response Center at 409-772-4040.

2. All equipment must be cleaned and disinfected before sending for repair. A [Decontamination Form](#) must be completed. If the equipment cannot be thoroughly decontaminated, maintain a tag indicating the hazards on the equipment.
3. Any device or instrument under a private maintenance contract (e.g., photocopy machines, typewriters, dictating machines) should be reported directly to the company that services the contract.

F. Guidelines for New Equipment

1. The operators of all electrical devices are expected to perform visual and operational checks to ensure good mechanical condition and proper operation of equipment each time a device is used.
2. Equipment used in the hospital, clinics, and supporting laboratories shall receive preventive maintenance with supporting documentation.
3. The manufacturer's recommendations for proper use should always be followed.

G. Guidelines for Re-locatable Power Taps (aka Power Strips or RPTs)

Power strips may be used in a patient care vicinity to power rack-, table-, pedestal-, or cart-mounted patient care-related electrical equipment assemblies, provided *all* the following conditions are met:

1. The receptacles are permanently attached to the equipment assembly. Only equipment that is a part of the assembly may be plugged into this Power Tap.
2. The sum of the ampacity of all appliances connected to the receptacles shall not exceed 75 percent of the ampacity of the flexible cord supplying the receptacles.
3. The ampacity of the flexible cord is suitable in accordance with the current edition of NFPA 70, National Electric Code.
4. The electrical and mechanical integrity of the assembly is regularly verified and documented through an ongoing maintenance program.
5. Means are employed to ensure that additional devices or non-medical equipment cannot be connected to the multiple outlet extension cord after leakage currents have been verified as safe. Power strips used in conjunction with an isolated power system are not subject to this requirement.
6. Power strips may *not* be used in a patient care vicinity to power non-patient care-related electrical equipment (e.g., personal electronics).
7. Power strips *may* be used outside of the patient care vicinity for both patient care-related electrical equipment & non-patient-care-related electrical equipment.
8. Power strips providing power to rack-, table-, pedestal-, or cart-mounted patient care-related electrical equipment assemblies are not required to be an integral component of manufacturer tested equipment. Power strips may be permanently attached to mounted equipment assemblies by personnel who are qualified.
9. Power strips providing power to patient care-related electrical equipment must be Special-purpose Re-locatable Power Taps (SPRPT) listed as UL 1363A or UL 60601-1.
10. Power strips providing power to non-patient-care-related electrical equipment must be Re-locatable Power Taps (RPT) listed as UL 1363.

H. Guidelines for High-Voltage Electrical Work/Arc Flash Protection

1. All individuals performing high-voltage electrical work on energized equipment must be a Qualified Person.
2. Prior to initiating work, the Qualified Person must develop a plan to safely undertake the high-voltage electrical work and must understand how to use special tools and special work procedures while performing the high-voltage electrical work.

3. When feasible, all high-voltage electrical work shall be performed with equipment in a de-energized state and with all hazardous energy controlled in accordance with [EHS Policy 08.01.05](#).
4. All electrical equipment operating at 50 volts and higher shall be assessed for electrical shock and potential arc-flash hazards. Equipment below 277 volts are exempt from the arc flash hazard analysis requirement unless it involves at least one 125 kVA or larger low-impedance transformer in its immediate power supply. Any arc flash hazard analysis shall be performed by a professional engineer with documentation available. Any equipment that may be worked on while energized must be identified and marked with an arc-flash warning label.
5. For activities involving arc flash risk, consider use of remote methods (remote breaker racking device).
6. If remote methods are not feasible, then the individual performing the electrical work must be wearing appropriate arc flash personal protective equipment (PPE) with an adequate arc thermal protective value (ATPV) rating based upon the arc flash hazard analysis. PPE shall include head protection, face protection, hearing protection, torso, arm, and leg protection, hand protection, and foot protection. All PPE shall be visually inspected by the employee prior to use.

IV. Definitions

Cheater Adapters a device used to allow a 3-prong electrical plug to be plugged into a 2-prong outlet (removal of electrical grounding).

Daisy Chaining: One extension cord, multi-outlet adapter, or surge protector plugged into one another.

High Voltage: Circuits with a nominal voltage greater than 600 volts.

Patient care vicinity is defined in as a space, within a location intended for the examination and treatment of patients (i.e., patient care room) extending 6 ft. beyond the normal location of the bed, chair, table, treadmill, or other device that supports the patient during examination and treatment and extends vertically 7 ft. 6 in. above the floor.

Permanent Use: Pertaining to the use of extension cords, “permanent” means used for longer than a single shift for an individual task and generally being used in lieu of permanent, fixed wiring, and outlet.

Polarized Prongs: One prong wider than the other.

Qualified Person: As defined in NFPA 70, a Qualified Person is “one who has skills and knowledge related to the construction and operation of the electrical equipment and installations and has received safety training to recognize and avoid the hazards involved.”

Temporary Use: Pertaining to the use of extension cords, “temporary” means in-use for the purpose of performing a limited duration task such as drilling holes, buffing a floor, etc., generally not to exceed one work shift.

V. Related UTMB Policies and Procedures

[UTMB Safety Manual – Chapter 5 - Electrical Safety](#)

[IHOP - 09.13.03 - Patient Owned Medical Equipment](#)

[IHOP - 09.13.22 - Handling Malfunctioning, Defective Clinical Equipment, Devices, Supplies](#)

[Environmental Health & Safety Policies & Procedures – 08.01.05- Control of Hazardous Energy - LOTO](#)

[Environmental Health & Safety Policies & Procedures– 08.01.15 – Laboratory Equipment Maintenance and Repair](#)**VI. Dates Approved or Amended**

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08/18/2016	
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VII. Contact Information

Environmental Health and Safety
(409)747-0515