

No./Title: USE OF EXENSION CORDS AND SURGE PROTECTORS	Resp. Office: RESEARCH SAFETY	Effective Date: 07/20/2020
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Related Policies:		

PURPOSE, APPLICABILITY AND SCOPE

This policy is intended to ensure that UTHSC employees understand and comply with the regulatory requirements of OSHA’s electrical standard (29 CFR 1910) related to the use of extension cords, electrical work and safety. This shall apply to all students, staff and faculty working in facilities operating under the authority of the Office of Research.

BACKGROUND

The Tennessee Occupational Safety and Health Administration (TOSHA) and National Electric Code (NEC) have established standards for the use and maintenance of electrical systems, electrical appliances and other electrical devices (e.g. extension cords and surge protectors). Research laboratories and areas operating under the authority of the UTHSC Office of Research are governed by these standards and regulations. For the clarification and benefit of researchers and personnel working in research facilities this policy is intended to highlight regulatory standards and guidelines governing the use of extension cords and surge protectors.

DEFINITIONS

- **Extension cord** - A length of flexible electrical power cable with a plug on one end and one or more sockets on the other end (usually of the same type as the plug).
- **Ground fault circuit interrupter (GFCI):** A device intended for the protection of personnel that monitors the amount of current flowing from the hot conductor to neutral conductor and interrupts the circuit if there is an imbalance of more than 4-5 milliamps.
- **Surge Protector** - An appliance or device designed to protect electrical devices from voltage spikes.
- **Power strip** - A block of electrical sockets that attaches to the end of a flexible cable (typically with a mains plug on the other end), allowing multiple electrical devices to be powered from a single electrical socket.

PROCEDURE

Extension cords provide a convenient method of bringing AC power to a device that is not located near a power source. They are intended for use as temporary power sources. As such, extension cords are heavily used. They are also often involved in electrical code and safety violations.

Improper use of extension cords can lead to shock hazards. In addition, use of an undersized extension cord results in an overheated cord and insufficient voltage delivered to the device, thus causing device or cord failure and a fire hazard. The following additional requirements apply:

- There are very few acceptable combinations of extension cords and devices. Some acceptable combinations are:
 - Extension cord to device (electrical equipment)
 - Power strip to device
 - Surge protector (with cord) to device
 - Direct surge protector to extension cord to device
- Temporary electrical power and lighting installations 600 volts or less, including extension cords, flexible cords, cables, and distribution panels, may only be used during and for renovation, maintenance, repair, or experimental work. If the temporary electrical power is not intended for one of these purposes it may not be used for a period that exceeds 90 days. If the electrical power is required for a duration that exceeds 90 days, it is not considered temporary and must meet OSHA and NEC requirements for permanent electrical service equipment.
- Temporary wiring may also be used for decorative lighting for special events and similar purposes for a period not to exceed 90 days.
- Ground-fault protection (e.g., ground-fault circuit interrupters or GFCI) must be provided when extension cords and/or equipment are used in wet, damp or conductive locations.
- Extension cords shall be visually inspected before use for external defects (such as loose parts, deformed and missing pins, or damage to outer jacket or insulation) and for evidence of possible internal damage (such as pinched or crushed outer jacket).
- Extension cords must be approved (by Underwriter Laboratories or another NRTL) and properly maintained with no exposed live parts, exposed ungrounded metal parts, damage, or splices.
- Extension cords may not be: run through holes in walls, ceilings or floors. run through doorways, windows or similar pinch points unless protected from damage; attached to building surfaces, concealed behind building walls, ceilings or floors, or used as a substitute for fixed wiring.
- Flexible cords and cables must be protected from accidental damage. Sharp corners and projections are to be avoided.
- Extension cords must be three-conductor (grounded) even if the device has a two-conductor cord. Never use two-conductor extension cords at UTHSC.
- Cord repair is not encouraged. In the event it becomes necessary; only qualified personnel may make repairs of extension cords.
- Extension cords may not be fastened with staples or otherwise hung in such a fashion as could damage the outer jacket or insulation.

Power strips are a block of electrical sockets attached to the end of a flexible cable, allowing multiple electrical devices to be powered from a single electrical socket. They are very often equipped with a surge protector device designed to protect electrical devices from voltage spikes. Power strips and surge protectors must be used in accordance with the following guidelines.

- All devices must have a UL or equivalent rating.
- Power strips must not be connected in series (i.e. daisy chaining). The main hazard associated with multiple power strips is fire. The UL Listing for such devices states that cord-connected relocatable power taps (RPT) are not intended to be connected to another cord-connected RPT.
- Power strips must be positioned in a manner that does not present a tripping hazard and allows work areas to be regularly cleaned. This often means keeping them off the floor, possibly by fastening them to a table or other surface.