



SAFETY GUIDELINE

Relocatable Power Taps or Strips

Introduction

Accessible power in the form of relocatable power taps and power strips has become a necessity in the workplace. The convenience of accessible power is undeniable; however, improper selection, use, installation, and maintenance can introduce electrical and fire hazards to the workplace. This puts employees, students, patients, and visitors at risk for injury.

Purpose

It is essential to recognize that there is no single type of power tap or strip that is universally suitable for every application. Each form of accessible power has a specific purpose and should not be used for a purpose for which it is not designed and approved.

Types of Relocatable Power Taps or Strips

Accessible power has many names, including but not limited to the following:

- Power taps
- Power strips
- Power bars
- Portable outlets
- Multiple outlet connection
- Multiple outlet strip
- Surge/Spike protectors

These devices are not to be confused with or considered electrical extension cords.

There is a significant difference between the technology and safety features used in a generic power strip and a specialized power strip with fault protection, which are designed for specific applications, such as healthcare.

Power strips consist of several components, such as multiple electrical receptacles, an on/off switch, a circuit breaker, a power cord, and a grounded plug, and they must be removable without the use of a tool.

Selection of Relocatable Power Taps or Strips

Non-Healthcare Spaces

Underwriters Laboratories (UL) has specific standards for safety, testing, and certification of power strips. UL refers to power strips as “Relocatable Power Taps (RPT)” defined in UL 1363. UL defines and lists surge protectors (surge suppressors) in UL 1449, “Transient Voltage Surge Suppressors (TVSS).” Surge protectors are dual-listed by UL and also meet the requirements of UL 1363.

Power Strips in Non-Healthcare Spaces:

- Tested to comply with UL 1363
- Must be of the polarized or grounded type, having over current protection
- Must be connected directly to a permanently installed fixture
- Must be protected from exterior damage
- Must not be used with major appliances such as microwaves or refrigerators

Surge Protectors in Non-Healthcare Spaces:

- Tested to comply with UL 1449
- Must be equipped with an automatic circuit breaker, having over current protection
- Power strips with fuses or without over current protection are not acceptable
- Must be connected directly to a permanently installed fixture
- Must not have a cord longer than 15 feet
- Must be protected to minimize trip hazards and damage to cords
- Must not be used with major appliances such as microwaves or refrigerators

Healthcare Spaces

Healthcare Power Strips (including surge protectors) can be divided into four primary applications that meet varying UL standards. Medical-grade power strips meet UL 60601-1 or UL 1363A certification criteria and can be used in the “patient care vicinity.” The “patient care vicinity” is a space within a location intended for the examination and treatment of patients, extended 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 7 ft. 6 in. above the floor.

Medical-Grade Power Strips (Approved for Use in the Patient Care Vicinity):

- Tested to comply with UL 60601-1.
- Can be used both inside and outside the patient care area.
- Protects patients and staff in the event of a single fault.
- Includes splash-resistant receptacle covers that require a tool for access, preventing unauthorized personnel from using the receptacles.
- Include hospital-grade plug and receptacles.
- Typically power medical or computer equipment. In the patient care vicinity, power strips may not be used to power non-patient care-related electrical equipment (e.g., personal electronics) except in long-term care resident rooms that do not use patient care medical equipment.
- Should be permanently attached to the equipment assembly. Mounting must be completed by qualified personnel to ensure compliance with Section 10.2.3.6 of NFPA 99.

Medical-Grade Power Strips for Mobile Applications (Approved for Use in the Patient Care Vicinity):

- Tested to comply with UL 1363A.
- Can be used both inside and outside the patient care area.
- Require permanent mounting (not removable without a tool) to mobile medical equipment platforms, such as IV poles and crash carts.
- Require dual breakers.
- Include hospital-grade plug and receptacles.

Power Strips for Administrative Areas (NOT Approved for Use in the Patient Care Vicinity):

- Tested to comply with UL 1363.
- Not to be used in the patient care area.
- Include hospital-grade plug and receptacles

Surge Protectors for Administrative Areas (NOT Approved for Use in the Patient Care Vicinity):

- Tested to comply with UL 1449.
- Cannot be used in the patient care vicinity
- Provide surge protection for connected equipment
- Include hospital-grade plug and receptacles

Installation

OSHA requires that listed or labeled equipment shall be installed and used in accordance with any instructions included in the listing or labeling. Manufacturers and nationally recognized testing laboratories determine the proper use of power strips.

Improper installation will render all other efforts useless. Many regulatory violations occur due to the improper installation of power strips, even when the correct type of strip is used in the proper location for the intended application.

Common installation related violations include:

- Daisy-Chaining: Interconnecting power strips, which can cause overloads and fires, is prohibited.
- Improper Routing: Routing cords through walls, ceilings, floors, windows, or similar openings is prohibited.
- Overloading: Power strips are designed for use with low-amperage loads, such as desktop computers, laptops, and printers. Power strips should not be connected to high-amperage loads, such as refrigerators, space heaters, microwave ovens, and air conditioners.
- Improper Labeling: Power strips without the proper agency certification sticker (e.g., UL certification sticker) are prohibited.
- Improper Mounting: Power strips should not be mounted using Velcro, double-sided tape, duct tape, zip ties, or similar methods.
- Improper Plug Connection: The power strip cord and device cords must not be hanging out of receptacles. Power strips and devices must not be suspended from the power cord.
- Signs of Thermal Distress: Power strips, plugs, or cords that are hot to the touch, have melted, are frayed, burned, scorched, or discolored are unacceptable.
- Signs of Damage or Neglect: Power strips, cords, and components should not be dirty, stained, crushed, cut, broken, kinked, warped, knotted, twisted, loose, frayed, or otherwise damaged.
- Improper Environmental Conditions: Power strips must not be installed in a moist environment or a location with excessive heat or limited air circulation.
- Improper Grounding: Power strips must not have their grounding pin or wire removed or connected to an adapter that defeats grounding.
- Tripping Hazards: Power strips must not be installed in a location that may impede the safe movement of personnel and patients.
- Improper Application: Power strips must be used for the applications for which they are designed and approved. A power strip with a UL 1363 rating and hospital-grade plug and receptacles can be used in certain areas of a healthcare facility; however, it must not be used in the patient care vicinity, as it requires a UL 1363A or UL 60601-1 rating for use in this area.

General Safety Precautions

Serious injury may result from exposure to electrical hazards from overloaded power taps or strips. Below are safety precautions to follow to eliminate electric shock, electrocution, fires, and explosions.

Safe Practices

- Ensure power strips are correctly installed by qualified personnel.
- Ensure the appropriate type of power strip is being used in the correct location for the correct application.
- Always follow the manufacturer's instructions.
- Inspect power strips, cords, and all components before each use. Remove damaged power strips from service.
- Inspect insulation on cords for signs of cuts, deterioration, or exposed wires.
- Protect cords from damage.
- Keep areas near power strips clean and free from flammable and combustible materials.
- Keep cords away from doorways or walkways where they could be stepped on or pose a trip hazard.
- Report any electrical problems to Facilities promptly.
- Do not overload power strips or use them for purposes other than their intended use.
- Do not plug major appliances such as microwaves or refrigerators into power strips.
- Do not use ungrounded plugs for grounded electrical equipment.
- Do not twist or tangle electrical cords.
- Do not rest objects, furniture, or other heavy items on power cords.
- Do not repair or splice a power strip or cord.
- Do not alter any plugs.
- Do not place power strips near heat or water.
- Do not use power strips that are damaged, deteriorated, or recalled.
- Do not use power strips with worn or frayed cords.
- Do not run cords loosely across floors or under floor rugs.

References

Centers for Medicare & Medicaid Services: CMS Categorical Waiver for Power Strips

National Fire Protection Association: NFPA 70 National Electrical Code (NEC) & NFPA 99 Healthcare Facilities Code / Standard for Healthcare Facilities

Occupational Safety and Health Administration: 29 CFR 1910.303

The Joint Commission: EC.02.02.01/EP 23

[Tripp-Lite Power Strip Safety and Regulatory Compliance: A Comprehensive Guide to Utilizing Power Strips in Healthcare Facilities](#)

[29 CFR 1910.303](#)