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Choosing Regulatory-Compliant Power Strips for Every Area of a Healthcare Facility

**WHITE
PAPER
95-2883**

Executive Summary

The tangled web of regulatory compliance governing healthcare facilities often makes choosing the correct power strip a matter of guesswork and pure luck. This white paper untangles and simplifies regulatory compliance, helping healthcare managers choose the correct power strip for every area within their facility.

Solutions to Major Power Strip Compliance Questions:

- Which Code-Writing/Regulatory Organizations Govern Power Strip Use?
- What is the Difference Between “UL-Listed” and “UL-Recognized”?
- Which Power Strip is Regulatory-Compliant for My Specific Application?
- What are “Medical-Grade” Power Strips?

Introduction

A variety of code-writing/regulatory organizations generate multiple standards governing the use of power strips* in healthcare facilities. In order to ensure safe, reliable power for all healthcare equipment, managers need to understand all regulatory compliance issues.

Ignoring regulatory compliance is not an option. Failure to comply with relevant standards could potentially harm patients or healthcare staff (incurring lawsuits), cause the facility to fail safety inspections (incurring fines and/or loss of capacity to provide patient care) and cause permanent damage to expensive medical equipment.

Healthcare managers need to first understand the different code-writing/regulatory organizations and their standards. Then they need to match the correct power strip to their application.

* Power strips, also known as "outlet strips," distribute power from a utility source to multiple pieces of connected equipment. In its documentation, UL's official term for a power strip is a "relocatable power tap" (RPT). Power strips are not to be confused with extension cords or surge suppressors. Power strips feature multiple outlets, but do not feature surge suppression or line noise filtering.

Which Code-Writing/Regulatory Organizations Govern Power Strip Use?

There are four major code-writing/regulatory organizations that directly or indirectly govern the use of power strips in healthcare facilities (through either writing codes or enforcing standards). The regulations are not laws, however. Instead, they serve as the foundation upon which federal, state and local governments construct their own laws. In constructing their laws, governmental organizations often adopt all or substantial parts of the codes. Healthcare managers need to be aware of variations within their particular state and local laws (which would be impractical to list in a white paper). Before researching variations, however, managers need to establish an understanding of the code-writing/regulatory organizations that form the foundation of the law.

- **International Electrotechnical Commission (IEC):** an internationally-recognized code-writing/regulatory organization. They develop international standards governing the use of electrical products, including power strips. According to IEC, their regulations are to be used “as a basis for national standardization.”
- **National Fire Protection Association (NFPA):** a U.S. national code-writing/regulatory organization. They develop U.S. national standards governing the use of electrical products, including power strips. NFPA standards are often modified IEC standards. NFPA standards are enforced through local fire marshals. The NFPA develops the National Electrical Code (NEC, or “the Code”), which is updated every three years to reflect the most current technological advances.
- **Joint Commission on Accreditation of Healthcare Organizations (JCAHO):** a code-writing/regulatory organization that provides healthcare facilities with accreditation based on the facilities' voluntary compliance with their codes and standards. JCAHO standards are enforced by JCAHO to maintain a facility's accreditation. JCAHO accreditation is recognized by many governmental organizations as evidence of compliance with their own laws.
- **Underwriters Laboratory (UL):** a not-for-profit product safety certification organization that creates compliance regulations based on the NEC. In order for a power strip to receive UL certification, it must be tested to meet relevant UL standards, consequently also making the power strip NEC-compliant.

UL Standards Governing Power Strip Use:

- 60601-1: patient shock-prevention measure required for all devices that potentially come in contact with patients and staff.
- 60950-1: governs the use of electrical and IT-related equipment in medical environments.
- 1363: basic standard required for all power strips that stand alone and are not designed as components of a larger system.
- 1363a: basic standard required for all power strips that are integrated as components of a larger system (where they supply power to connected components of a movable equipment assembly that is rack-, table- or pedestal-mounted).

What is the Difference Between “UL-Listed” and “UL-Recognized”?

UL ratings often confuse healthcare managers. Two power strips can meet the requirements of the same UL standard—60601-1 for example—but receive two different UL ratings: either “listed” or “recognized.” The difference is simple: UL “lists” a stand alone product, but “recognizes” a product that is integrated as a component of a larger system. In healthcare applications, power strips that stand alone and are not designed as components of a larger system are UL-listed. Power strips that are integrated as components within a larger system (such as a medical cart, for example) are UL-recognized.



“UL-Listed” Power Strips

- Stand alone
- Not designed as components of a larger system



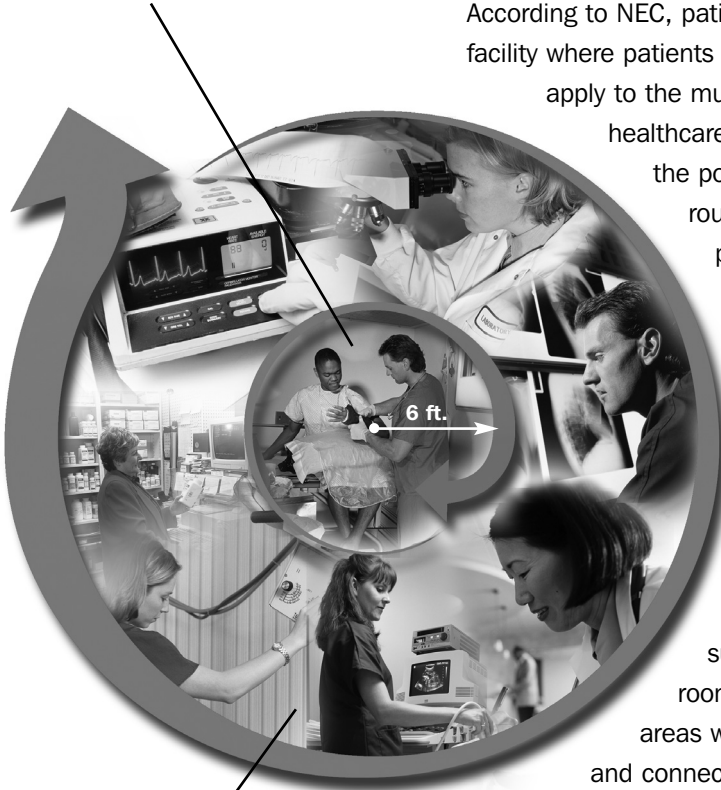
“UL-Recognized” Power Strips

- Integrated
- Designed as components of a larger system (such as a medical cart)

Which Power Strip is Regulatory-Compliant for My Specific Application?

Where you install your power strip determines which type of power strip you need to purchase. In the eyes of code-writing/regulatory organizations, there are two distinct areas within healthcare facilities (inside of patient-care areas and outside of patient-care areas). If a power strip is installed inside a patient-care area, it must be “medical-grade” and be UL 60601-1 compliant.

INSIDE of Patient-Care Areas Medical-Grade Power Strips



INSIDE of Patient-Care Areas

According to NEC, patient-care areas are “any area within a healthcare facility where patients are examined or treated.” NEC regulations specifically apply to the multiple 6-foot perimeters around every patient and healthcare provider. NEC’s 6-foot regulatory perimeter concerns the potential shock hazard to patients and staff as they routinely come in contact with electrical devices within patient-care areas. Patient-care areas include those providing both general and critical care:

- **“General” Patient-Care Areas** - patient bedrooms, examining rooms, treatment rooms, clinics and similar areas where patients come in contact with “ordinary devices” such as nurse call systems, electrical beds, examining lamps, telephone or entertainment devices and electromedical equipment.
- **“Critical” Patient-Care Areas** - special care units such as intensive care units, delivery rooms, operating rooms, coronary care units, angiography labs and other areas where patients will be subjected to invasive procedures and connected to on-line electromedical devices.

OUTSIDE of Patient-Care Areas Power Strips with Hospital-Grade Plug and Receptacles

Choose “Medical-Grade” Power Strips

Medical-Grade Power Strips are designed for patient-care areas. These power strips remove the potential shock hazard associated with the NEC’s 6-foot regulatory perimeter. They deliver a higher level of grounding reliability through dual-level fault protection (where a single fault condition will not result in an electrical hazard).

- Medical-grade
- UL 60601-1 compliant
- Hospital-grade plug and receptacles
- Metal housing (withstands demanding healthcare applications)
- Switchless design (prevents accidental power off)
- Outlet covers (prevents accidental contact with unused outlets)

OUTSIDE of Patient-Care Areas

Any area not defined as a patient-care area would fall under this category: reception areas, nurse stations, laboratories, IS and administration offices, foodservice, maintenance and housekeeping areas and more.

Choose Power Strips with Hospital-Grade Plug and Receptacles

Power Strips with Hospital-Grade Plug and Receptacles are designed for use outside of patient-care areas. These power strips provide high-quality power distribution. Rackmount power strips are ideal for network closets and rack enclosures.

- UL-compliant or UL-recognized
- Hospital-grade plug and receptacles
- Metal housing (withstands demanding healthcare applications)
- Switchless or covered switch design (prevents accidental power off)

Special Application: Power Strips Designed for Use Inside and Outside Patient-Care Areas

Special power strips are designed as components of a larger system (such as a mobile medical cart). These power strips are UL-recognized for 60601-1 and 1363a standards and can be used either inside or outside of patient-care areas, depending on the certification of the larger system they are integrated into.

What are “Medical-Grade” Power Strips?



“Medical-Grade” Power Strip

“Medical-Grade” power strips are UL 60601-1 compliant for use inside patient-care areas. They are not to be confused with power strips that feature a “Hospital-Grade” plug and receptacles. “Hospital-Grade” simply means that the plug or outlets are constructed to meet demanding healthcare environments. For example, the outlets feature greater blade-retention than standard outlets, reducing the chance that equipment plugs can shake loose.



*“Hospital-Grade”
Outlet*



*“Hospital-Grade”
Plug*

What is the Benefit of Purchasing Power Strips from a Manufacturer with a Complete Line of Healthcare/Medical Products?

The simple solution to ensure regulatory compliance is to purchase power strips from a manufacturer that offers a complete line of healthcare/medical products. A full line of regulatory-compliant and area-specific power strips delivers a number of benefits to a busy healthcare facility:

- **Simplifies Decision Making:** a full line of regulatory-compliant power strips designed and offered by a single manufacturer makes the selection process for facility managers simple and streamlined.
- **Helps Facilities Pass Inspection:** a full line of regulatory-compliant power strips helps every area of a facility pass inspection.
- **Increases Patient and Staff Safety:** a full line of regulatory-compliant power strips provides the peace-of-mind that patients and staff are protected as dictated by NEC and UL standards.
- **Provides State-of-the-Art Power Distribution:** a full line manufacturer continually updates power strip designs to meet changing NEC and UL standards.

Conclusion

It is clear that selecting regulatory-compliant power strips is a difficult, but extremely necessary, part of a healthcare manager's job. To simplify the selection process, managers need to understand the different regulatory standards and select the correct power strip based on their specific application. Ideally, managers should purchase power strips from a manufacturer that offers a complete line of healthcare/medical products.

References

- International Electrotechnical Commission (IEC): www.iec.ch
- Joint Commission on Accreditation of Healthcare Organizations (JCAHO): www.jointcommission.org
- National Fire Protection Association (NFPA): www.nfpa.org
- *NFPA Guide to Electrical Systems in Health Care Facilities*. Fischer, Marvin. National Fire Protection Association. Quincy, MA: 2006.
- Tripp Lite Healthcare/Medical Power Protection: www.tripplite.com
- Underwriters Laboratories (UL): www.ul.com



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