

APPLICATION

NYU Langone Health

PURPOSE

- To protect employees, patients, visitors, and contractor personnel from electrical hazards.
- To minimize the possibility of electrical shock, electrocution, or fire from the use of inadequate current-bearing wiring.
- To comply with local electrical codes, Center for Medicare and Medicaid Services (CMS) and Joint Commission (TJC) requirements, and the following consensus standards:
 - National Fire Protection Association (NFPA) *National Electrical Code (NEC)*
 - NFPA 70E *Standard for Electrical Safety in the Workplace*
 - NFPA 101 *Life Safety Code*
 - NFPA 99 *Health Care Facilities Code*
 - New York City *Electrical Code*
 - *National Electrical Safety Code (NESC)*
 - OSHA General Industry (1910) and Construction (1926) standards
- To provide a written plan of action for personnel to follow in the event of an accident where a person has received an electric shock.

POLICY AND GENERAL INFORMATION

1.0 Application

NYU Langone Health (NYULH) refers to the NYU Langone Health System, NYU Langone Hospitals, NYU Grossman School of Medicine, NYU Long Island School of Medicine, the Family Health Centers at NYU Langone, and all entities controlled by any of them.

This policy applies to:

- All NYULH owned and leased facilities.
- All employees, contractors, subcontractors vendors and consultants of NYULH

2.0 Scope

This policy covers:

- the design, installation, and maintenance of electrical wiring and wiring components, including temporary and permanent wiring, pull boxes, junction boxes, fittings, switch boards, panel boards, switches, conductors, light sockets, and flexible cords and cables in all NYULH facilities
- proper usage of extension cords and relocatable power taps (RPTs), or power strips
- emergency procedure for electric shock
- procedures for use of electrical equipment

3.0 Responsibilities

3.1 **Environmental Health and Safety (EH&S)** is responsible for:

- developing the policy and updating it as needed
- conducting semi-annual quality assurance (QA) inspections for electrical hazards and distributing summary reports

3.2 **Clinical Engineering** is responsible for:

- periodic maintenance of RPTs
- purchase of RPTs
- coordinating the power requirements of new equipment with Facilities and/or Real Estate departments
- developing and conducting training for clinical staff who use RPTs on RPT capacity and proper use

3.3 **Departments that coordinate work involving electrical wiring and wiring components and/or installation and use of equipment** are responsible for compliance with the policy. Their responsibilities include:

- ensuring that every project manager is trained on and familiar with the requirements of this policy
- including the requirements of this policy in bid documents
- ensuring that contractors are appropriately trained and informed about the policy

- ensuring that the policy is implemented and all requirements are followed, including for RPTs
- informing Facilities or Real Estate (offsite locations) of installation of new equipment
- arranging for the installation of electrical outlets or circuits for new equipment
- ensuring proper operation and maintenance of equipment, including the retaining of the manufacturer or authorized agent to perform required maintenance and repairs

3.4 **Project Managers** are responsible for implementing the policy on their projects. Their responsibilities include, but are not limited to:

- ensuring that work involving electrical wiring and wiring components is filed, inspected, and closed out with the local Department of Buildings or the appropriate authority having jurisdiction
- ensuring that contractors and employees install and maintain wiring and wiring components in accordance with this policy
- conducting (or coordinating) daily inspections during the project duration and following up on identified issues
- coordinating close-out inspections by licensed electricians from Facilities
- ensuring that contractors correct the identified deficiencies, and withholding final payment until every deficiency is corrected

3.5 **Clinical staff who use RPTs** are responsible for:

- completing training provided by Clinical Engineering on capacity of RPTs and proper use
- ensuring proper use of RPTs within patient care areas

RPTs are approved for use in the following areas/services: Operating Rooms, Procedural Areas, Pediatrics, Emergency Department, Cardiology, Medicine, Neurology, and Surgery

3.6 **Employees that use electrical equipment** are responsible for:

- using equipment in accordance with manufacturers' instructions and this policy
- contacting Facilities or Real Estate (offsite locations), when issues are identified or if additional outlets and/or circuits are needed

4.0 Electrical wiring and wiring components

- 4.1 All employees and contractor personnel who engage in work that involves electrical wiring or wiring components shall:
- install and maintain the wiring and components in accordance with the current adopted CMS/Joint Commission/FGI editions of the *NEC* and any applicable state or local Electrical Code
 - perform work above 50 volts only under the supervision of an appropriately licensed electrician
 - plan and perform work on live systems in excess of 50 volts in accordance with the requirements set forth in the NFPA 70E *Standard for Electrical Safety in the Workplace*
- 4.2 Any contractor failing to conform to this policy shall be prohibited from working at NYULH.
- 4.3 Electrical equipment to be employed outdoors or otherwise exposed to water, liquids or other hazards shall be protected within the proper National Electrical Manufacturers Association (NEMA) rated enclosure.
- 4.4 Live electrical wiring shall not be exposed. All electrical wiring shall be protected against chafing.
- 4.5 Temporary wiring shall be elevated off the ground in accordance with OSHA standard 29 CFR 1926, Subpart K.
- 4.6 Electrical rooms and electrical panels in public areas shall be kept locked. Electrical panels and junction boxes shall be covered with an appropriate manufactured cover and trim when not being serviced. Electrical panels within locked electrical rooms or secured areas are not required to be locked, but shall be closed and latched.
- 4.7 Contractors shall not use NYULH outlets to power tools or equipment unless specifically authorized by Facilities, Real Estate, or building management. Where use of a NYULH outlet is authorized, a ground fault circuit interrupter (GFCI) device must be in use between the outlet and the tool or equipment.
- 4.8 Prior to performing work in a NYULH building, the Project Manager shall arrange for Facilities, Real Estate, or building management to shut down electrical power in the construction space utilizing the NYULH Pre-Demolition Validation permit process.

- 4.9 Facilities, Real Estate, or building management shall tie in the contractor's temporary lighting and power system. The temporary power system shall either be connected to GFCI circuit breakers or maintained under an assured equipment grounding conductor program in accordance with OSHA 1926.404(b)(1)(iii).
- 4.10 Electrical installations and equipment shall comply with NYULH Safety Policy No. 122, Fire Prevention.

5.0 Close-out inspection

- 5.1 Upon completion of a construction/renovation project, the licensed electrician who filed the application shall coordinate an inspection with the local Department of Buildings, where applicable. In jurisdictions where the local Department of Buildings does not inspect, the licensed electrician shall coordinate an inspection by a third-party electrical inspection service approved by the authority having jurisdiction.
- 5.2 The electrician shall inspect all wiring and wiring components for code-compliance and shall inform the project manager of all deficiencies.
- 5.3 The project manager shall notify Facilities, or Real Estate when deficiencies have been corrected. The project manager shall utilize a licensed electrician to correct electrical deficiencies and provide a report to Facilities or Real Estate to confirm that they have been corrected.

Electrical extension cords and RPTs

- 5.4 Electrical extension cords
 - Electrical extension cords are prohibited in all patient care areas. Exceptions must be approved by the Environment of Care (EOC) Committee, except in emergencies as summarized in 6.3.
 - Extension cords are permitted in non-patient care areas for temporary use only and must be used in accordance with all applicable codes. Extension cords must:
 - not be used as a substitute for the fixed wiring of a structure
 - not run through holes in walls, structural ceilings, suspended ceilings, dropped ceilings, or floors
 - not run through doorways, windows or similar openings
 - not run on the floor in areas where they may pose a tripping hazard or could be damaged

- Extension cords used in wet areas must be GFCI protected. A limited number are available in the Facilities Department stockroom and the electrical shop.


5.5 Relocatable Power Taps (RPTs)

- RPTs may be used for non-patient care equipment such as computers/monitors/printers, and in areas such as waiting rooms, offices, nurse stations, support areas, corridors.
- RPTs and power strips used in patient care rooms shall comply with all requirements of NFPA 99 (2012) and NFPA 101 (2012)
- RPTs shall only be used in anesthetizing locations if they are permanently attached to the equipment.
 - Clamp-mounted RPTs are not permanent.
 - Clamp-mounted RPTs shall be installed by Clinical Engineering, Facilities, or MCIT.
 - Clamp-mounted RPTs shall be inventoried by Clinical Engineering or BioMed (NYULH-LI).
- If RPTs are used, they shall:
 - be used for surge suppression; not be used as extension cords
 - be hospital grade and UL listed with ground fault and over-current protection
 - patient care: UL 1363A or UL 60601-1
 - non-patient care: UL 1363
 - never be “daisy-chained” (2 or more RPTs connected in series)
 - be prevented from becoming tripping hazards
 - be appropriate for the number and types of devices used (e.g., one plug per outlet)
 - be installed in an electrical outlet with no other devices plugged into outlets on the same circuit. If in doubt, Facilities should be contacted to specify the outlet that may be used.
 - never exceed 75% device capacity load (see Appendix A)

5.6 Emergency Use of Extension Cords and RPTs

- Extension cords and RPTs may be used during an emergency to prevent the loss of life or property without prior approval from the EOC committee.
- Designated extension cords and RPTs, located at the nurse's station on each patient floor, may be used during loss of electrical power (see Safety Policy 117, Emergency Power).
- Extension cords and RPTs approved for use or used in an emergency must be either
 - Underwriters Laboratories (UL) listed, double insulated, with grounded cords, or
 - manufactured by the staff electricians, under direction of the Manager of Electrical Systems

6.0 Use of electrical equipment

- 6.1 All equipment shall be visually examined by the user prior to use to ensure there are no obvious defects or damage. If there is any defect, damage or question by the user, the equipment must NOT be used. The manufacturer, contractor or staff electricians shall be contacted.
- 6.2 Electrical cords must not be frayed or damaged in any way.
- 6.3 All plugs must be grounded-type plugs; three-prong to two-prong adapters are not permitted.
- 6.4 Ungrounded equipment must be manufactured with non-metallic casing and be UL listed. All ungrounded equipment must have double insulated wire. (i.e., labeled double insulated or Class II, or bearing this symbol ).
- 6.5 Equipment with IEC listings only are not permitted unless approved by the licensed electricians from Facilities.
- 6.6 If a circuit breaker trips upon activation of the equipment, the circuit breaker or ground fault (if a GFCI outlet) shall NOT be reset. Facilities or Real Estate must be called immediately.

7.0 Performance monitoring

EH&S shall conduct QA inspections for electrical deficiencies in conjunction with Hazard Surveillance inspections and QA inspections for penetrations.

8.0 Emergency procedures for electrical shock

- 8.1 If someone appears to be receiving electrical shock and is still in contact with the current, do NOT touch the person with your bare hands.
- 8.2 Shut off the current if possible. Stay away from high-voltage wires until the power is turned off.
- 8.3 If shutting off the current is not possible, use an insulator to cautiously remove contact from the victim while staying as far away as possible. An insulator is any dry, non-conducting object, such as a heavy rubber hose or a hand inside a glass beaker. Push the victim or current source aside to remove contact from the victim. A dry towel will not suffice.
- 8.4 If someone appears to have been a victim of electrical shock, do not move the person unless they are in immediate danger.
 - Dial the emergency phone number for your location:
 - On Cisco phones: 33-911
 - Otherwise: 212-263-3911 (on the superblock) or 911 (all other locations)

Related policies:

- 117: Emergency Power
- 120: Construction Contractor Safety Requirements
- 122: Fire Prevention
- 145: Interim Life Safety Measures
- 156: Installation & Maintenance of Dispensers for Alcohol-based Hand Sanitizer
- 203: Electrical Equipment – Privately Owned
- 207: Portable Space Heaters

Appendix A	Relocatable Power Tap (RPT) Assemblies
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Issue date	07/2021
Replaces	11/2019
Reviewed by	J. Burke, NYULH-LI, Facility & Plant Management E. Cintron, Real Estate R. Cohen, Facilities Operations N. Ejaz, NYULH-B Safety Officer M. Figueroa, Environmental Health & Safety S. Haney, Environmental Health and Safety B. Kenny, NYULH-LI Engineering V. Matozzo, Purchasing D. Resnick, Facilities Construction D. Rubbo, NYULOH Engineering







	<p>L. Wetstein, Clinical Engineering NYU Langone Hospital Environment of Care (EOC) Committee NYU Langone Orthopedic Hospital EOC Committee NYU Langone Hospital – Brooklyn EOC Committee NYU Langone Hospital – Long Island EOC Committee Family Health Centers at NYU Langone EOC Committee</p>
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Summary of Revisions

Revision date	Section	Changes
July 2021	3.4	Clarifies PM responsibilities for closing out projects
	4.1	Updates code requirements
	5.1	Updates to include close out inspection requirements outside of NYC
	5.6	Adds use of designated extension cords and RPTs at nurse’s station during power outages
	Appendix A	Updates to Relocatable Power Tap (RPT) Assemblies
March 2021	Throughout	Changes NYU Winthrop to NYU Langone Health-Long Island
October 2019	1.0	Incorporates Winthrop and NYU Long Island School of Medicine
	3.2	Adds responsibilities at Winthrop
	7.1	Update LSC code reference, and remove reference to categorical waiver.
	Reviewed by	Adds review by NYULH-B Facilities and NYU Winthrop Hospital
April 2019	Throughout	Updates logo and organizational references
	Application	Adds Clinical Engineering and Clinical Staff who use RPTs
	3.2	Adds responsibility to Clinical Engineering for providing training on proper use of RPTs and RPT capacity
	3.5	Adds responsibility for Clinical Staff who use RPTs
	Appendix A	Adds Common Devices Used with RPTs
March 2017	Application	Changes NYULMC to NYU Langone
	1.0	Defines NYU Langone Adds Lutheran Facilities
	3.2	Adds responsibilities for Clinical Engineering
	4.7 and 4.8	Clarifies requirements for contractors
	6.2	Adds information for RPTs
	Review by	Adds review by Lutheran Safety Officer, HJD, Lutheran, and Lutheran Family Health Centers EOC Committees
	Summary of Revisions	Adds Summary of Revisions

Relocatable Power Tap (RPT) Assemblies

- RPTs must be permanently secured to the **SAME** cart /IV-pole/rack as the equipment plugged in---- as part of an assembly.
- No Other Equipment can be plugged into an RPT
- Less than 15 amps total
- UL-1363A or UL-60601 Listed

IV Pole Type	Equipment Cart Type	
		
Typical Equipment Assembly		
		
<p>IV Pole mounted equipment such as infusion pumps, fluid warmers, humidifiers.</p>	<p>Endoscopy, Arthroscopy Cart</p>	<p>Anesthesia cart with computer equipment</p>
RPT Assembly Requirements		
<p>Hand-tool required for removal. Tie-wrap, set-screw or equivalent.</p> 	<p>Hand-tool required for removal. Tie-wrap, screws or equivalent</p> 