

GROUNDING AND BONDING

DESIGN GUIDELINES

1. Summary:
 - a. This section provides guidelines and standards for Grounding and Bonding of the electrical systems.
2. Design
 - a. Grounding
 - All grounding shall be sized and installed in accordance with the NEC.
 - New building construction shall have a main ground bar with standoff bushings near the service entrance (minimum size to be 24" long x 4" high x 1/4" thick).
 - Ground bars shall be made of copper.
 - New construction shall provide design for grounding riser to interconnect all electrical and data closets. Riser shall be minimum #3/0 AWG.
 - Refer to the *Washington University School of Medicine, BJC and Telecommunications Facility Corporation Low Voltage Voice and Data Pathways and Spaces Standard* for specific Voice and Data system grounding requirements.
 - Coordinate with WUSM OFMD and Project Manager for lightning protection on new or existing buildings. If lightning protection is determined to be required, it shall be designed per NFPA 760 and UL 96/96A.
 - Lightning protection, structural steel (if applicable), main water pipe, transformers, other grounding electrode risers for electric, and data closets shall all terminate at the main ground bar.
 - Furnish and install a green size #6 AWG copper wire (in 1/2" conduit where protection is required) from the ground terminals of fire alarm control panels, security system panels, CATV, Satellite and all other special systems to the local ground bar in the electrical room.
 - Install equipment grounding conductors with all feeders, including power and lighting branch circuits.
 - b. Bonding
 - All devices, panels, equipment, etc. shall be bonded per NEC.
 - Bond all hood and flammable solvent storage cabinets with #6 ground conductor to ground bar in electrical room.
 - Bonding conductors: Provide bonding conductors between panelboard busses where Patient Care areas are fed from different panels.

- c. Testing
 - The resistance to ground for the electrical distribution system in new construction shall be specified to not exceed 2 ohms.
 - d. Ground Rods
 - Copper-Clad Steel or Solid Copper
 - Minimum size 10' x 3/4"
3. Related Sections
- a. Building Wire and Cable
 - b. Lightning Protection System
 - c. Washington University School of Medicine, BJC and Telecommunications Facility Corporation Low Voltage Voice and Data Pathways and Spaces Standard

EQUIPMENT and PRODUCT REQUIREMENTS

1. Conductors
 - a. All grounding conductors shall be stranded copper. Refer to Building Wire and Cable Design Guide.

END OF SECTION