

260526-H: SUPPLEMENTAL GROUNDING AND BONDING FOR ELECTRICAL

Related Sections

Basis Guideline: [260526](#) – “Grounding and Bonding for Electrical”
[270536-H](#) – “Supplemental Communication Cable Trays”
[272000-H](#) – “Supplemental Voice and Data Communications”

For an explanation of the use of these guidelines, see “[Design Guidelines for UMHHC Facilities](#)”

Applicability:

The information expressed herein is unique to UMHHC owned, operated, and leased facilities, and are intended to supplement the University of Michigan’s Architecture, Engineering, and Construction (UMAEC), design guidelines [16450](#). All information presented in the referenced UMAEC guideline applies to UMHHC facilities, unless explicitly stated otherwise below. Where differences and/or conflicts exist between the supplemental information noted below, and the information in the UMAEC guideline, this supplementary information shall take precedence.

The Design Professional (A/E) shall adhere to UMHHC Design Guidelines for all work at UMHHC facilities. Any requested deviations from these guidelines, shall be sent, in writing, to UMHHC’s Facilities Planning and Development (FP&D). Address the correspondence to the assigned FP&D engineer for the given project. The deviation shall not be incorporated into the construction documents until written approval of the deviation is received by the Design Professional.

The Design Professional is fully responsible for the professional quality, technical accuracy, code compliance, and overall coordination of the contract documents. Compliance with these guidelines shall not be construed so as to relieve the Design Professional of any of that responsibility.

Grounding of Lightning Protection System

1. Lightning protection systems shall be considered for all new buildings and additions. Given the high level of reliance put on information technology services in patient care, the protection given by lightning protection is normally money well spent.
2. Separate grounding electrodes for lightning protection systems are to be installed. Do not use the main service’s grounding systems.
3. Do, however, bond the lightning protection grounding system as required by NFPA 70 and 780.
4. Lightning protection system shall be designed and installed by a certified Lightning Protection System Installer.

Equipment Grounding and Bonding

1. The normal and emergency power panels, serving inpatient rooms and treatment areas, shall have their ground buses bonded together - to eliminate potential difference between the two separately derived ground systems.
2. Every effort shall be made to ensure that all electrical devices in reach of a patient bed, and like inpatient treatment areas are to be bonded together at that location also. This may most conveniently be done at the headwall if such are installed. If not, the A/E shall provide an equivalent bonding equivalent for the space.
3. Code requires that all patient treatment areas shall have two grounds provided to all power circuits serving power outlets, light switches, etc. The metallic conduit of the branch circuit is one of the two grounds, and the dedicated ground wire is the second ground.

4. Note: All feeder and branch power circuits at UMHHC shall have this dedicated (separate) ground. This allows for the changing functions of various spaces, and also provides additional safety to our patients and staff. An exception to this would be non-patient treatment areas of leased facilities.
5. Bonding of communication raceways will be in accordance with NEC and Section 16114-H270536-H and 16740-H272000-H.
6. When required by medical equipment suppliers, install isolated ground receptacles for the circuits associated with that equipment. (Any other requests require UMHHC FP&D engineer approval.)
 - a. These dedicated ground receptacles shall have two insulated ground wires per circuit (plus the conduit ground). One ground for box and wall plate grounding, the other for receptacle grounding.
 - b. Multiple, dedicated ground receptacles on the same circuit, may not utilize the same grounding conductor.
 - c. Whenever possible, install a panel in the room with the specified medical equipment so the 'isolate ground' system is localized to the one run under consideration.
 - d. The two panel ground buses at the panel will be bonded together at the point where all such circuits originate – typically the dedicated panel as noted above.
7. Computer room and equipment grounding shall be in accordance with IEEE Emerald Book Guideline on Electrical Power for ADP Installations.
8. Carefully layout operating room isolated power systems to properly address the grounding issues with these systems. Follow manufacturer directions.