MICHIGAN MEDICINE
UNIVERSITY OF MICHIGAN

2101 Commonwealth Blvd, Suite B
Ann Arbor, MI 48105-5759
www.med.umich.edu/facilities/plan/

263500-H: SUPPLEMENTAL POWER CONDITIONERS

Related Sections

Basis Guideline: 263500 - "Power Conditioners"
260913-H – "Electrical Power Monitoring"

For an explanation of the use of these guidelines, see "Design Guidelines for UMHHC Facilities"

Applicability:

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.

All new UMHS buildings, and all existing UMHS buildings undergoing major renovations shall address the power needs of computers and computer controlled equipment.

Standards:

Microcomputer Workstations

1. All workstations having computers (or likely to receive computers) are to have a dedicated ground duplex receptacle. This isolated ground (orange) receptacle shall be for identification only. The isolated ground terminal of the receptacle will also be grounded by the ground wire that bonds the box and cover. Note: Each workstation shall also have a 'normal' receptacle for other (non-computer) loads.
2. All workstation computer (isolated ground) receptacles are to be served (preferably) by separate 'Computer Power' receptacle panels. Only computer loads are to be connected to these panels. [Large printers shall be evaluated on a case-by-case basis.] These panels shall have only one ground bus (see note above concerning the receptacles). The computer power panels, themselves, will be fed from normal power receptacle power sources.
3. When separate computer receptacle panels are practical, they are to be installed to allow easy cut-over (in the future) to a computer power riser.

   Note: When project budget allows, a UPS, or static transfer switch is to be part of base bid.

4. Said branch circuits are to have neutral conductors and grounding conductors that are separate from those circuits serving loads other than workstation computers. If the computer workstations are computers and screens only, three or four stations can be connected to each 20-ampere circuit. A/E shall affirm loading when workstation printers or other IT equipment is also served.
5. Allow floor space in new buildings, and designate a future power feed, for a UPS or static switch.
6. Dedicated ground receptacles are to be orange in color to clearly identify their special purpose.

Mini, Main Frame, Security, BMS, Fire Alarm, Communication System and File Server Computers

1. Large data processing centers will be evaluated on a case-by-case basis, but in general will follow guidelines noted in the References.

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2. UPS power systems are to be used only for many user computers. Typically, these are the systems installed in designated computer rooms or in Communications Rooms.
3. In buildings with UPS systems, the UPS will be the preferred source of power. In other locations use a static transfer switch or power conditioner.

UPS and Static Transfer Switch Power Sources

1. Static transfer switches with or without power conditioners may be used to power microcomputers, workstation computers, or computer operated clinical and building services equipment. Typically, these equipment are not installed in dedicated computer rooms.

Neutral Conductor Sizing

Current loading of neutral conductors serving computers will exceed those normally seen on 3 phase systems. Neutral conductors will be sized accordingly...at least 50% larger current rating than phase conductors.

References:

IEEE recommended Practice for Powering and Grounding Sensitive Electrical Equipment IEEE Std. 1100-1999.

NIPS Publication #94 "Guidelines on Electrical Power" for ADP Installation (Out of Print, but used copies are often available)