260500-H: SUPPLEMENTAL COMMON WORK RESULTS FOR ELECTRICAL (16010-H)

Related Sections

Basis Guideline: 260500 - "Common Work Results for Electrical"
For an explanation of the use of these guidelines, see "Design Guidelines for UMHH Facilities"

Standards: - Items below have been rearranged for clarity

General Requirements

1. Circuits from the following classes of power systems and auxiliary systems are only to be grouped in raceways with other circuits of the same class and voltage only:
   a. Normal power
   b. Life Safety Power
   c. Critical Power
   d. Essential Power (Also referred to as Equipment System in NEC Article 517-30)
   e. X-ray, MRI, CT and PET scanners
   f. Medium Voltage 5 and 15 kV classes access control system
   g. Fire alarm wires shall be installed in dedicated conduits only.
   h. Security wires may be installed in cable tray.
   i. Other systems requiring dedicated raceways per manufacturer requirements.

2. Whenever possible, sources of Normal, Life Safety, Critical, and Equipment power are to be available within a reasonable distance from any location in the building. I.e., do not provide one Essential Service power panel in the far corner of the lowest level.

3. If a service or equipment is no longer required, it is to be removed and all associated wiring is to be removed back to the sources noted below, or equivalent.
   a. Power: Back to panel or first junction box where circuit continues on to other, existing, active loads.
   b. Telephone: UMH Telecommunications to disconnect at board in communication room and at outlet. Contractor to carefully remove cable.
   c. Data system or other special wiring: Remove wiring back to communication room or other source.
   d. Conduit in walls: Abandon in place. Install blank cover plates at outlet, cut off conduit above ceiling or where otherwise accessible, and plug or cap end. If conduit in wall is flex, it shall be removed.
   e. Conduit, accessible above ceilings or other locations: Remove conduit, plug open ends at panel.

4. Fire stop all holes in floor and at fire walls.

5. Renovation projects shall include needed work to extend/add services, risers, panels, etc., as needed to serve new functions. If existing services are utilized, the need to maintain the space capacity as noted above will not apply. If any new extensions are required, those extensions shall comply with the space capacity requirements noted above.

New Equipment Naming

1. New Panels, services, equipment, etc., shall be labeled, as noted, in Section 16195 for new buildings. Building expansions and renovations shall utilize any naming scheme already in place in that building. A/E shall confirm with UMHS Electrical Engineering the appropriate next sequential name for devices and services in those buildings.

Fire Alarm, Security, Communications

1. Existing fire alarm, security, intercom, nurse call, BMS, master clock and other similar non-power systems shall be extended unless otherwise noted in program statement. A/E shall confirm capacity of those systems to handle new work and include upgrades if needed.
2. Some older buildings on campus still contain obsolete data outlets and wiring. A/E shall identify the location of these outlets and inform MCIT/UMTel to schedule them to update outlets. Buildings containing older outlets include, but are not limited to: UH, Mott, Towsley, Women’s Hospital and MPB.

3. New buildings (unless noted otherwise in program statement) shall have fire alarm, security, intercom, nurse call, BMS, master clock and other similar "non-power" systems that are compatible with those already being monitored, maintained, operated and/or listed in these guidelines.

Operational sequences
1. Sequences of operation and manufacturer’s Operating Instruction Manual are to be provided for new or extended systems.
2. Engineer will prepare and review operating and maintenance procedures for the Maintenance Department to review. These procedures shall be noted in the contract documents when bid prices would be affected.
3. Electrical or Communications Closets can not be used for staging or storage during construction.

Future Capacity
1. For the services noted below the power source, grounding systems, main switch gear, switchboards, panel boards, transformers and feeders shall all have a minimum: 20% spare kVA (or ampere as appropriate) capacity at the end of construction.
   a. Normal power
   b. Life Safety Power
   c. Essential Power (Also referred to as Equipment System in NEC Article 517-30)
   d. X-ray, MRI, CT power systems.
2. For Critical Power services the power source, grounding systems, main switch gear, switchboards, panel boards, transformers and feeders shall all have a minimum: 50% spare kVA (or ampere as appropriate) capacity at the end of construction. The 50% value is selected to allow for all normal power clinical loads to be plugged into the Critical Power receptacles when normal power is lost.
3. Panelboards, switchboards, motor control centers, and switchgear all shall have at the end of construction a minimum:
   a. 20% spare poles, 6 poles minimum
   b. One spare breaker and space for one 3-pole breaker in switchgears.

**Note:** If multiple panels or sections make up an overall unit, the noted spares and spaces may be placed in any of those sections.

4. Generators are to be sized in kVA, for 20% growth in load beyond the additional spare capacity needed to start and operate the largest projected motors with no more than a 10% voltage drop upon start of largest motor, or 2% voltage drop with running or steady-state load.
5. Interrupting duties and bus ratings are to be based upon maximum future available fault projected by Detroit Edison or Campus Utilities Services. Fault studies shall be performed by A/E before bidding, to confirm adequacy of specified equipment. Review interrupting duties and bus ratings whenever services are upgraded.
6. Communication raceways systems, risers, cable trays, communication closets, will allow for 100% growth in number of conductors installed, in watts of installed equipment in communication rooms, and number of drops installed on the system.
7. Communication rooms will be sized for 30% growth in power and cooling in watts, above those required to serve initially installed equipment and drops.