See UM Consultant Procedures and Design Guidelines. All design guidelines posted are applicable. Information below supplements and supersedes information provided in Division 26 of those documents.

1. Avoid lighting fixtures that are costly to maintain or repair.

2. All lighting fixtures must be placed so that they are easily accessible for future maintenance. If placement of fixtures will require anything other than a standard 12-foot ladder, placement will need to be approved by MU Health Care.

3. Indirect recessed perforated basket type fixtures must be LED, and either Focal Point or Metalux. (Lithonia and Williams perforated baskets tend to be disorienting and nauseating to patients with astigmatism).

4. Fire/Smoke barrier assemblies shall be clearly marked on the Electrical drawings.

5. Preferred Vendor: Metalux Encounter 24EN LED Specification Grade Troffer

6. Under cabinet lights: LED hard wired. Included and located only as requested by User/Client group. Coordination of power connection shall be included as a detail in the project drawings and confirmed with manufacturer prior to completion of 50% CD Review.

7. All primary incoming power shall be noted as ABC (clockwise) rotation to match generator rotation. Notes must indicate that rotation is to be confirmed prior to ordering major electrical equipment and prior to termination of power cables.

8. Power System Studies and Arc Flash Labels:

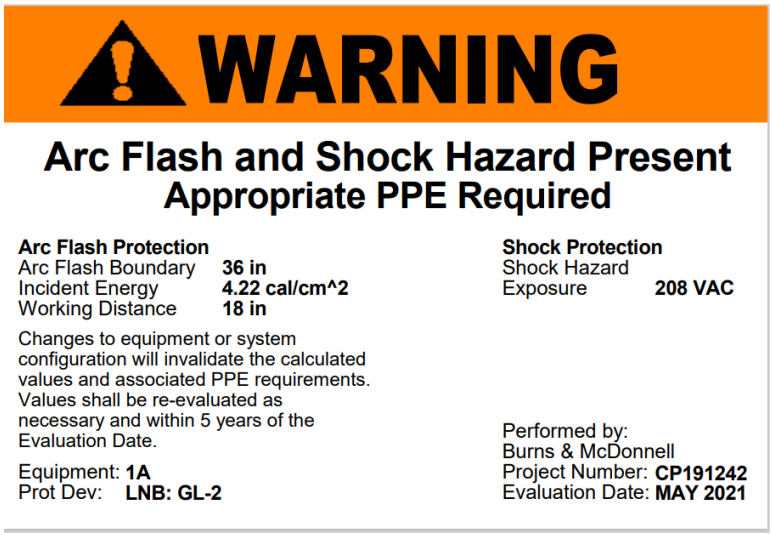
   - All Power System Studies (PSS) shall have the MU project number and Name prominently displayed on the cover sheet of the report.

   - All PSS diagrams and labels shall also have MU Project number and name included.

   - Confirm during design who is responsible for changing any and all

recommended breaker settings during construction.

- Report is required during construction to confirm breaker settings, who made the correction, and PSS labels are based upon correction.
- Labels shall not be placed until breaker settings have been corrected.
- Once breaker settings have been corrected, a Request for Change must be approved by MUCH Engineering Services before settings are modified again.
- Typical label shall be as follows:



260519 Low Voltage Electrical Power Conductors and Cables

1. CONDUCTORS:

- Provide 98% conductivity copper conductors with 600-volt insulation.
- For conductors No. 10 AWG, provide stranded type THWN-2 or THHN, unless approved by MUHC PD&C. For conductors No. 12 AWG, provide type TWHN-2 or THHN solid.

- For conductors No. 14 AWG and smaller, provide stranded type THHN.

- Per *UM Consultant Procedures and Design Guidelines*, aluminum conductors are prohibited.

- MC Cable must be hospital grade and is only allowed for lighting whips (5' or less; above ceiling only). Any other use must be approved by MUHC PD&C in writing during design. Construction documents must specifically state approved use of MC Cable and state "prohibited" if product is not allowed in the project.

260533 Raceway and Boxes for Electrical Systems

1. Standardized Color Coding of Conduit
   - Red with uncolored J-boxes = Life Safety Branch
   - Orange = Critical Branch
   - Yellow = Equipment Branch
   - Red with Red J-boxes = Fire Alarm

261300 Medium Voltage Switchgear

1. EXTRA MATERIALS

   - Provide spare parts as recommended by manufacturer and as indicated on the drawings.

   - Provide a complete set of spare fuses of all sizes and ratings used in the switchgear.

   - Provide fuse cabinet.

2. PRODUCTS
   - Acceptable manufacturers
     - Square D
     - General Electric/ABB
     - Eaton

   - No other manufacturers are acceptable.

- Barriers shall be included between Switchgear sections if more than one section is included in a cabinet.

- Touch Safe terminal blocks shall be utilized.

3. EXECUTION

- Contractor shall Install required safety labels including arc flash requirements.

262300 Low Voltage Switchgear

1. GE/ABB Switchgear shall be the Basis of Design.

- Barriers shall be included between Switchgear sections if more than one section is included in a cabinet.

- Touch Safe terminal blocks shall be utilized.

262400 Switchboards, Panel boards and Motor Control Centers

1. Panel board assembly shall be enclosed in a locking steel cabinet. The size of the wiring gutters shall be in accordance with UL Standard 67. Fronts shall have door with matching trim, be of code gauge full finished steel with rust inhibiting primer and baked enamel finish. Assembly shall have swing fronts.

262726 Wiring Devices

1. Consultant shall incorporate the requirements included within the CPDG section 26 2726.

2. Install Hospital grade tamper resistant receptacles in all patient care areas including, but not limited to, pediatric rooms, unit corridors, waiting rooms and therapy or play areas.

3. GFI Receptacles in all areas deemed “wet locations”.

262923 Variable Frequency Motor Drives

1. Starter Indicator lights/ operating signals shall include the following at a minimum:
   - Power on
   - Zero speed
   - Enabled
   - Over temperature
   - Current limit
   - Under voltage
   - Over voltage
   - Over current
   - % Speed
   - % Load

2. Drives must have by-pass feature or 100% redundant backup drive. Preference is redundant drives if space is available. Confirm with MUHC PD&C HF Managing Engineer during design.

263200 Packaged Generator Assemblies

1. Remote radiators for emergency generators are prohibited without prior approval from MUHC.

263600 Transfer Switches

1. General Transfer Switch Product Requirements:

   - Motor Loads: For switches that serve motor loads, furnish closed transition transfer switch with in-phase monitor (make-then-break)

2. Products:

   - Acceptable manufacturers: Russelectric or ASCO.

265213 Emergency and Exit Lighting

1. Basis of design Exist Lighting fixture shall be:
   - Sure-Lites EUX7 series
   - Edgelit
   - Self-powered emergency
   - LED lamps
   - Red lettering
   - Brushed Aluminum housing.
   - No self-diagnostics

2. Emergency Lights (wall-pacs)

   - Where emergency power is available, emergency egress lighting will be connected to the EP.

   - Battery powered wall-pac units to be used for task lighting in approved anesthetizing locations.

   - Where there is not EP, battery powered wall-pacs approved to be used.

   - Consider using a remote battery system with numerous egress lightning. Less maintenance manpower for monthly and annual checks.

   - If battery powered, battery system should be included.

   - If critical access location (e.g., MRI) has battery powered lighting, the battery bank needs to be located in a perimeter location for ease of access by maintenance.

   - Lights that are located in inaccessible location shall have remote battery banks.

3. NOTE: Convenience lighting shall not be added without input from MUHC PDC. Formal process needed to request and approve convenience lighting.

END OF SECTION