

The Medical Center Company

Electrical Design Guidelines

1. Purpose

1. This document describes the coordination between the Medical Center Company and design professionals making connections to the Medical Center Company System.

2. Technical Specifications

1. The minimum acceptable requirements of the Medical Center Company for work performed on the electrical distribution system are described in the Electrical Installation Requirements, referred to here as the Requirements. The work is defined as new installations, repair of existing installations and modifications of existing installations.
2. This document is not to be used as construction specifications nor shall it be used as a substitute for national, state, and local codes and ordinances.
3. A current copy of the Requirements shall be included with construction documents.
4. These guidelines are not to be used as the sole source of design practice. The final and sole responsibility for the design and specification of any installation shall be the responsibility of the engineer who has been contracted to perform the design work and affixes his seal on the construction documents.
5. In addition to the Requirements, all work shall conform to the current editions of national, state and local codes and ordinances, the National Electrical Code - N.F.P.A. No. 70, and the National Electrical Safety Code - A.N.S.I. C2. Where a conflict exists, please consult with the Medical Center Company. The most stringent requirement shall govern.

3. System Description

1. The Medical Center Company power distribution system consists of the following:
 - a. An 11,400 volt nominal three phase, three wire, grounded wye system with ground fault current limiting resistors. Substations connected to this system are connected to two feeders by primary selector switches with momentary paralleling capabilities. Correct phase sequencing is essential for the normal operation of this system. Each feeder source to a service is energized at all times. It is normal, in this system, to have the load side of switches energized. USE CAUTION AT ALL TIMES.
 - b. Two 2400 volt, three phase, three wire delta systems; Some substations connected to these systems are served with two cables in a primary selective configuration and some are connected with a simple radial feeder.

4. Approvals

1. These design guidelines and the Requirements shall be incorporated into any construction documents issued for

projects to be connected to the Medical Center Company system.

2. Medical Center Company will review construction documents for general agreement with these design guidelines and the Requirements. This review will be completed within five working days of receipt unless otherwise indicated at the time of receipt.
3. These design guidelines and the Requirements must be complied with to the satisfaction of the Medical Center Company before voltage will be applied to a distribution feeder or any other equipment.
4. At the discretion of Medical Center Company, deviations from the Requirements may be allowed where made necessary by installation conditions. Medical Center Company may require additional equipment or installations to achieve the level of safety or extensibility required by the Requirements.
5. All concrete construction shall be detailed on the construction drawings, showing plan, cross-sections, reinforcing steel and concrete design.
6. All duct bank construction shall be detailed on the construction drawings, showing plan and profile of the duct bank as well as sections of typical runs. All duct banks shall be constructed of reinforced concrete. All known utilities in the path of the duct bank shall be indicated in plan and profile. All duct banks shall be pitched toward manholes and away from buildings to provide drainage of water.

5. Service Entrance Equipment

1. A service disconnecting means shall be provided for each incoming service feeder. The service disconnect shall be capable of being closed on a fault equal to or greater than the maximum available short circuit current in the supply circuit.
2. Service entrance equipment shall be selected from the following:
 1. Metal enclosed fused air interrupter switches.
 2. Metal clad draw-out type, magnetic-air or vacuum interrupter type circuit breaker switchgear.
1. Notes on Primary Selective or Loop Type Distribution Systems:
 1. Two service entrance switches will be required with these systems. Double-throw switches will not be acceptable.
 2. A common bus may be required integral to service switchgear with, in some cases, momentary paralleling capability.
1. Provide auxiliary switches on each service entrance switch to indicate switch "open" and switch "closed. These switches shall be connected to a terminal block for future connection to Medical Center Company SCADA system.

1. Service Metering

1. Watt-hour meters shall be installed on each service (regardless of voltage) which is used to transmit power from one corporate member to another corporate member of the Medical Center Company system.
2. Watt-hour meters shall be installed on each separate feeder within a corporate member's system that requires a

separate billing

3. Watt-hour meters shall be installed in other special cases as determined by the Medical Center Company during a review of the proposed electrical system.
4. Where one transformer feeds more than one corporate member there shall be one watt-hour meter for the transformer plus one meter for each corporate member fed by the transformer, for a minimum of three meters.

2. **Power Factor Correction**

1. Each new building shall be designed with a minimum power factor of .92. Where required, provide appropriately sized capacitor bank(s) to correct power factor.

3. **Feeder Sizing**

1. All conductor sizes shall be fully rated for the entire length of the feeder run. Conductor sizes shall not be reduced near the end of a main feeder or at a tap of the main feeder.
2. The conductor size selected shall be rated at the proper ampacity, and shall be able to sustain levels of short circuit current that it may encounter in the system. This level of short circuit current will be determined at the time of feeder assignment by the Medical Center Company Minimum conductor size shall be 500 Kcmmil unless prior approval is received from Medical Center Company.

4. **Connection Point**

After careful consideration of proposed and existing electrical loads, Medical Center Company will assign a source or sources of power. Please provide preliminary electrical load and power factor information to Medical Center Company.

5. **Short Circuit Capability**

All equipment connected to the Medical Center Company system shall be rated for 500MVA fault withstand capability.

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