PART 1 - GENERAL

1.01 Where no product listed by an approved national testing laboratory for the application is available, provide with certification of performance, function and rating from a Facilities Services approved independent testing agency or laboratory.

1.02 Provide three spare fuses of each size and type for new transformers, distribution and control panels, motor starters, etc. Provide a wall mounted spare fuse cabinet in main electrical room for all new work and where one is not present in existing facilities. Bussman SFC - FUSE-CAB 24WX30HXA12D, or Cooper B-Line 242412 FC or equal.

1.03 Main disconnects for all buildings: Shunt-trippable from a lockbox located per Fire Department requirements.

1.04 Water and Condensate Meters: Provide conduits from the water and condensate meters to the nearest Power Monitor provided under Division 26 Power Monitoring and Control.

1.05 The campus priority feeders (Feeder #1 and #12) and facility standby, emergency distribution systems shall serve only the following loads:

A. Emergency egress lighting systems (including emergency lighting inverters and battery chargers).

B. Refrigeration equipment for preservation of specimens or research projects.

C. Selected HVAC equipment whose operation is necessary to prevent damage to building and/or protect life or safety.

D. Fire Alarm and Powered Fire Sprinkler Components

E. HVAC Direct Digital Control (DDC) panels.

F. Telecommunications phone and network equipment as determined by FS/DDC.

1.06 Large buildings shall have at least two power distribution systems:

A. Normal power for non-essential loads.

B. Priority power for essential services per requirements stated elsewhere in this document.

C. Provide redundant/ parallel distribution system, with redundant utility connections, for buildings where operations cannot be interrupted.
1.07 Provide external connection point for portable generator to highest priority power distribution system. Typically, this will be the emergency and/or standby power distribution system.

A. Require demonstration for the operation the automatic and/or manual transfer switches.

B. Size disconnect per determined loads.

C. Minimum size disconnect: 200A.

1.08 Provide shunt trip disconnects and fire alarm interface for elevator machinery rooms when required by work in other divisions or by applicable codes such as (NFPA 13, 72 and ASME) Coordinate requirement and location with other divisions.

1.09 Include 20% spare capacity in panelboards. Load branch circuits to no more than 80% capacity.

1.10 All DDC (BMS) control panels shall be provided with uninterruptible power supplies. Source may be central or isolated battery back-up with power conditioning. Design for a minimum run time of 30 minutes.

1.11 NEC requirements for “Dedicated Equipment Space” shall apply to all operable electrical equipment. Intent is to widen the requirement of NEC 110.26 F to include equipment other than switchboards, panelboards, distribution boards, and motor control centers to include disconnects, transfer switches, variable frequency drives, and similar equipment. Show all dedicated spaces on the mechanical and electrical drawings.

1.12 Equipment cover retaining screws: Screws or mating threaded holes or retaining devices which are stripped, damaged, or non-functional will be repaired or replaced at no expense to the FS/DDC.

1.13 Fasteners

A. In wet or corrosive environments all exposed fasteners, screws, bolts, washers, nuts, and anchors are to be commercial grade stainless steel. Contractor to substitute manufacturer’s non-stainless steel fasteners, screws, bolts, washers, nuts, anchors, with appropriate stainless steel substitute unless approved otherwise, in writing, by the FS/DDC’s.

B. Fasteners shall not be installed such a manner that they may cause damage to conductors, as in the case of self-tapping screws holding labels on cover of a panelboard. Where installed, they will be replaced at no cost to FS/DDC with a type fastener acceptable to the FS/DDC.

1.14 New buildings: Perform an analysis to determine if lightning protection shall be installed.
PART 2 - PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 All materials shall be installed in a neat, orderly, and secure fashion, as required by these specifications and commonly recognized standards of good workmanship. The norms for execution of the work shall be in conformity with National Electrical Code (NEC), Chapter 3, and the National Electrical Contractors’ Association “National Electrical Installation Standards”, for which the FS/DDC’s judgment shall be final.

3.02 Install equipment, supports, and similar equipment with cutting edges or points removed or permanently protected.

3.03 Connections on conductors 60 Amperes or larger shall be connected using a torque wrench.

3.04 Protect all electrical equipment prior to and during installation. Equipment damaged will be replaced at the discretion of the FS/DDC at no cost to the FS/DDC. FS/DDC will determine if accumulation of debris in equipment constitutes damage to equipment. The term “damage” includes actions, such as construction debris in equipment, which may reduce the useful life of the equipment.

END OF SECTION