DESIGN REQUIREMENTS

PANELBOARDS

GENERAL INFORMATION

1.1 This section applies to panelboards.

DESIGN REQUIREMENTS

2.1 All circuit breaker panelboards will be specified as door-in-door type.

2.2 All branch circuits from the panel will conform to Columbia University’s conduit requirements.

2.3 There will be a comprehensive and accurate schedule of circuits distributed from the panel in the design documents. The Engineer of Record will verify the panel directories to be accurate before final acceptance.

2.4 Do not connect to existing panels without investigating the panel capacity, the wire capacity feeding it, the load on the panel and the load on the feeder.

2.5 Newly installed panels will be connected to sources with known capacity, known loading and known condition by the Engineer of Record. Electrical sources need to be investigated before final design documents are issued.

2.6 All circuit breakers shall be built-on type.

2.7 Interrupting ratings shall be indicated on panel schedules.

CONSTRUCTION REQUIREMENTS

3.1 There will be absolutely no wire nuts within the panel. All terminations will be with contiguous wire and if a mistake is made, new wire needs to be pulled.

3.2 There will be no main lug connections to sub panels, temporary equipment or welding machines under any circumstances unless specifically approved by the University’s Operations department.

3.3 A typed panel directory that has been field verified and reviewed & accepted by the Engineer of Record will be supplied before final acceptance by the University. Under no circumstances will the panel directory be hand written. If it’s a modification to an existing
DESIGN REQUIREMENTS

panel, type the circuit designation on a label and affix it to the existing directory, or replace the entire directory.

3.4 The panel will have a large engraved label permanently affixed on its exterior that clearly identifies where the panel is fed from, its voltage and phase designation, if it’s normal or emergency and its capacity.

3.5 Provide door-in-door construction.

3.6 Enclosure: Code gauge galvanized steel, with a minimum of 16 gauge.

3.7 Outer door shall be secured with two (2) Yale S511 locks with No. 47 key. Inner door shall be secured with two (2) No. 47 key cylinder locks.

3.8 Provide a minimum of 20 percent spare circuit breakers in each panel. Include a minimum of 70 percent of the maximum load of the spare circuits in the calculation of the panel feeder.

3.9 Fill out panelboard circuit directory card upon completion and after testing, balancing and adjusting of installation with a label maker. Description for specific pieces of equipment shall also include room numbers.

3.10 Required field tests shall include:

a. Continuity tests.

b. Exercising circuit breakers to ensure free operation.

c. Ensuring that all covers and breaker shields are properly aligned and tightened.

d. Setting adjustable time-current trip devices.

e. Ensuring that grounding and bonding terminal bars, bus bars, and straps, are properly connected.

f. Insulation resistance tests on each bus section, phase-to-phase and phase-to-ground.

g. Ground resistance using between the grounding system and the panel frame using the point-to-point method.

h. Ground fault device testing.

i. Secondary phase-to-phase, phase-to-ground and neutral to ground voltage tests.

3.11 Arrange conductors into groups and bundle and wrap with ties after installation is complete and after load balancing.
REFERENCE

4.1 The applicable CSI Specification Section is 262416.