SECTION 16950

ELECTRICAL SYSTEMS ACCEPTANCE TESTING

PART 1 - GENERAL

1.1 GENERAL

A. This purpose of this section is to describe the general requirements for acceptance
testing as part of the commissioning of a new construction project. The Stanford
furnished pad mounted transformer 4160V and 15KV cables installation are not
in this Scope of Work.

B. This work shall be performed by qualified contractor(s) with certified
membership of the National Electrical Testing Association (NETA).

C. Tests described in Parts 4 & 5 below shall be witnessed by Stanford’s
representative upon timely notification.

PART 2 - CODES & STANDARDS

2.1 GENERAL

A. All acceptance testing requirements and procedures shall comply with the
following codes and standards wherever applicable:

2. California Electrical Code (CEC).
3. Institute of Electrical & Electronics Engineering (IEEE).
5. American National Standards Institute (ANSI)

PART 3 - DATA REQUIRED FOR ACCEPTANCE TESTING

3.1 GENERAL

A. The following project data are required for the successful completion of this
work:

1. Single Line Diagram from the approved set of Construction Drawings.
2. Approved shop drawings of the major electrical equipment listed in Part 4
below.
3. Short Circuit/Coordination Study for the power system of the project
complete with recommended device settings.
4. Any pertinent drawings/data if the power system to be tested is
electrically connected with other building systems (examples: lab exhaust
fans connected to the emergency power system, circuit breakers with shunt trips, etc.).

PART 4 - INDIVIDUAL SYSTEM FUNCTIONAL TESTS

4.1 GENERAL

A. The following electrical systems shall be individually tested per NETA procedures and standards where applicable:

1. Main switchboards (MSB) and the associated main and feeder breakers. (Note: all breakers in the MSB shall be manually tripped and re-closed (3) times to prove their operational integrity.)
2. Grounding fault cables AWG #1 and larger.
3. Ground fault protection systems (GFP).
4. 600V feeder cables AWG #1 and larger.
5. Motor control centers (MCC).
7. Power distribution panels (DP) 400A and higher.
8. Individual combination motor starters.
9. 600V feeder bus ducts.
10. Emergency power gen-sets and associated automatic transfer switches (ATS).
11. Uninterruptable power supplies (UPS) and associated battery system.
12. Metering system with special attention to current transformer polarity.
13. Circuit breakers with shunt trip circuits.

PART 5 - INTEGRATED SYSTEM FUNCTIONAL TESTS

5.1 GENERAL

A. Perform the following typical (but not limited to) testing for integrated building electrical systems:

1. Performance of the emergency power system as a response to simulated loss of normal power system via the ATSSs.
2. Performance of the life safety related systems & certain critical processes as a response to the activation of the emergency power system. These systems consist of, but are not limited to, the following:
   a. Emergency lighting system.
   b. Lab exhaust system to be staged in the startup process via the EMCS system to prevent tripping of the generator breaker from high inrush currents.
   c. Sewer & condensate pump systems.
   d. Fire protection system.
   e. EMCS.
   f. Critical process system such as air compressors, PCW, etc.
PART 6 - FINAL TEST REPORT

6.1 GENERAL

A. (3) copies of the completed test reports shall be submitted to the Stanford Project Manager.

B. Any improvements to the system that are deemed appropriate for future implementation shall be described in these reports.

END OF SECTION