

SECTION 16010

ELECTRICAL GENERAL PROVISIONS

PART 1 - GENERAL

1.1 CONDITIONS & REQUIREMENTS:

- A. Refer to the General Conditions and Supplementary General Conditions and General Requirements

1.2 SCOPE OF WORK:

- A. Furnish and install all materials and equipment and provide all labor required as necessary to complete the work shown on the drawings and/or specified in all Sections of Division 16.

1.3 CODES AND STANDARDS:

- A. All work and materials shall comply with the latest rules, codes and regulations, including, but not limited to the following:
 - 1. Occupational Safety and Health Act Standards (OSHA)
 - 2. California Electrical Code.
 - 3. All other applicable Federal, State and local laws and regulations.
- B. Code compliance is mandatory. Nothing in these Drawings and Specifications permits work not conforming to these codes. Where work is shown to exceed minimum code requirements, comply with drawings and specifications.
- C. No work shall be concealed until after inspection and approval by proper authorities. If work is concealed without inspection and approval, the Contractor shall be responsible for all work required to open and restore the concealed areas in addition to all required modifications.

1.4 LICENSE, FEES AND PERMITS:

- A. Arrange for required inspections and pay all license, permit and inspection fees. Except where directed otherwise by the Project Manager.

1.5 CONDITIONS AT SITE

- A. Lines of other services that are damaged as a result of this work shall promptly be repaired at no expense to the Owner to complete satisfaction of the Owner.

1.6 DRAWINGS AND SPECIFICATIONS:

- A. All drawings and these specifications shall be considered as a whole and work of this Division shown therein shall be furnished under this Division.
- B. Drawings are diagrammatic and indicate the general arrangement of equipment and wiring. Most direct routing of conduits and wiring is not assured. Exact requirements shall be governed by architectural, structural, and mechanical conditions of the job. Consult all other drawings. Extra lengths of wiring or addition of pull or junction boxes, etc., necessitated by such conditions shall be included.

1.7 SAFETY AND INDEMNITY:

- A. Safety: The Contractor shall be solely and completely responsible for conditions of the job site, including safety of all persons and property during performance of the work. This requirement will apply continuously and not be limited to normal working hours.

1.8 RECORD DRAWINGS:

- A. Contactor shall submit in writing prior to installation, any proposed modifications to equipment layouts, device locations, conduit routings, or conductor groupings. Provide record drawings, hardcopy and CAD file at close of project indicating all changes to the documents.

1.9 GUARANTEE:

- A. The Contractor shall issue a certificate of guarantee certifying that all materials and workmanship supplied and/or installed by the Contractor shall be free from defects for a period of not less than one year from the date of substantial completion or beneficial occupancy, whichever occurs first.

PART 2 - PRODUCTS

2.1 MATERIAL APPROVAL

- A. The design, manufacture and testing of electrical equipment and materials shall conform to or exceed latest applicable NEMA, IEEE, and ANSI standards.
- B. All materials shall be new and bear U.L. label. Materials that are not covered by U.L. testing standards shall be tested and approved by an independent testing laboratory or government agency having code enforcing authority.

2.2 SUBSTITUTIONS:

- A. No substitutions shall be made in the materials submitted and approved without a re-submittal and prior approval of the Project Engineer / Owner.

2.3 SHOP DRAWINGS AND MATERIALS LIST:

- A. Submit material list, shop drawings and product descriptive literature as specified for review. Quantity and procedure for submittals shall be as specified by the owner.
- B. Material list shall not include items where no specific manufacturer is shown in the specifications.
- C. Purpose of review of submittals is for check of general compliance with information given in contract documents. Each review and/or addition of notations and comments does not relieve Contractor from compliance with requirements of project contract documents.
- D. Contractor shall be responsible for confirming and correlating all quantities and dimensions, selecting fabrication processes and techniques of construction.

2.4 OPERATING AND MAINTENANCE MANUALS:

- A. Submit three (3) sets of Operating and Maintenance Manuals of equipment with recommended spare parts.
- B. For specific requirements, see the Sections in which the equipment is specified.

2.5 PRODUCT DELIVERY, STORAGE AND HANDLING:

- A. Delivery, store, and handle materials in a manner to prevent damage.
- B. Protect equipment from weather and dampness.

PART 3 – EXECUTION

3.1 WORKMANSHIP AND CONTRACTOR'S QUALIFICATIONS:

- A. Only quality workmanship meeting industry's standards will be accepted. Poor installation practice will result in rejection of work.
- B. Provide a foreman to be in charge of this work at all times.

3.2 COORDINATION:

- A. Coordinate work with other trades to avoid conflict and to provide correct rough-in and connection for equipment furnished under trades that require electrical connections.

Inform Contractors of other trades of the required access to and clearances around electrical equipment to maintain serviceability and code compliance.

- B. Verify equipment dimensions and requirements with provisions specified under this Section. Check actual job conditions before fabricating work. Report and resolve any discrepancy to prevent rework.

3.3 MANUFACTURER'S INSTRUCTIONS:

- A. Where the specifications call for an installation to be made in accordance with Manufacturer's recommendations, a copy of such recommendations shall at all times be kept in the job superintendent's office and shall be available to Stanford's representative.
- B. Follow manufacturer's instructions where they cover points not specifically indicated on drawings and specifications obtain clarification from Architect before starting work.

3.4 QUALITY ASSURANCE:

- A. Provide a meaningful Quality Assurance program. To assist the Contractor in this program, the specifications contained herein are set forth as the minimum acceptable requirements. This does not relieve the Contractor from executing other Quality Assurance measures to obtain a complete operating facility within the scope of this project.
- B. The Contractor shall insure that all workmanship, all materials, employed, all required equipment and the manner and method of installation conforms to accepted construction and engineering practices, and that each piece of equipment is in satisfactory working condition to satisfactorily perform its functional operation.

3.5 CUTTING AND PATCHING:

- A. All cutting and patching required for work of this Division is included under other Divisions of this Specification. Coordination with General Contractor and other trades is imperative.

3.6 FIELD TEST AND OPERATIONAL CHECK:

A. General Scope:

1. The Contractor shall engage and pay for the services of an approved independent testing Contractor for the purpose of performing inspections and tests as herein specified. The tests and inspections shall determine the suitability for energization. All tests shall be in strict accordance with NETA standards.

2. It is the intent of these tests to assure that all electrical equipment is operational within industry and manufacturer's tolerances and is installed in accordance with design specifications.
3. Schedule tests and give a minimum of 5 days advance notice to Stanford's Representative(s) who reserve the right to witness any and all tests.
4. Equipment to be tested shall include.
 - a. Building Grounding System
 - b. Building Main Switchboard (MSB) and/or Unit-substation (USS)
 - c. Motor Control Centers (MCC)

B. Test Instrument Traceability:

1. The approved testing Contractor shall have a test equipment calibration program that meets current industry standards.
2. Dated calibration labels shall be visible on all test equipment.

C. Protective Device Settings:

1. The testing Contractor shall be responsible for all protective device settings in accordance with the Design Engineer's specifications and the functional testing of these protective devices.

D. Test Report:

1. The test report shall include the following:
 - a. Summary of project
 - b. Description of equipment tested.
 - c. Description of test.

E. Failure to Meet Test:

1. Any system, material, or workmanship which is found defective on the basis of acceptance tests shall be reported directly to the Architect and/or Stanford Project Manager.

2. The Contractor shall replace any defective materials or equipment furnished in the Contract and have them retested for satisfactory performance without additional cost to Stanford.

3.7 ACCEPTANCE DEMONSTRATION

- A. Upon completion of the work, at a time to be designated by Stanford, the Contractor shall demonstrate to Stanford the operation of the electrical installation, including any special items installed by the Contractor or installed under his supervision.

END OF SECTION