

## **SECTION 26 01 25**

### **ELECTRICAL TESTING**

#### **PART 1 - GENERAL**

##### 1.1 RELATED DOCUMENTS:

- A. The Conditions of the Contract and applicable requirements of Divisions 0 and 1 and Section 26 00 01, "Electrical General Provisions", govern this Section.

##### 1.2 DESCRIPTION OF WORK:

- A. General: Provide testing of electrical work installed under Divisions 26, 27 and 28, as specified herein and in other Division 26, 27 and 28 sections. Feeders and equipment shall not be placed in service until they have been checked out and tested, as applicable.

##### 1.3 QUALITY ASSURANCE:

- A. Personnel: Submit evidence to show that the personnel who will actually test the systems are qualified and state certified.
- B. The Engineer/Owner reserves the right to require that the originally approved personnel be replaced with other qualified personnel if, in his opinion, the original personnel are not qualified or are not properly conducting the system testing.

##### 1.4 SUBMITTALS:

- A. Testing Procedures: Submit four copies of all proposed testing procedures to the Engineer for review at least 30 days prior to conducting any testing.
- B. Reporting Forms: Submit four copies of proposed forms to be used in recording testing data and results to the Engineer for review at least 30 days prior to conducting any testing on the project.
- C. Test Data and Results: Submit four copies of complete data and certified test results for each test performed, including, but not limited to:
  - 1. Test performed.
  - 2. Test procedure.
  - 3. System and area tested.
  - 4. Date(s) and time(s) of test.
  - 5. Weather conditions.
  - 6. Test criteria.
  - 7. Test results.
  - 8. Additional pertinent information.
- D. Operational Certification: Submit four certified copies of an operational certification which documents that all equipment and systems have been fully tested to verify proper operation in accordance with the design shown in the Construction Documents and manufacturer's recommendations.

- E. Certification: Certifications stating that submitted test data and results are true and correct shall be provided for all submittals under this Section. Certification shall be executed by an authorized officer if the Contractor is a corporation, by a partner if the Contractor is a partnership, by the Owner if the Contractor is a sole proprietorship or by the authorized representative if the Contractor is a joint venture.
- F. Calibration List: Submit four copies of a listing of testing devices to be used for the project to the Engineer for approval. Listing shall include documentation that devices are properly and currently calibrated.
- G. Test Log: The Contractor shall maintain a test log at the site to document the results of all successful and unsuccessful testing and balancing as it is performed. This log shall be available for review by the Engineer and a copy of the log shall be submitted to the Engineer and Owner's Representative prior to the Substantial Completion inspection. A space shall be provided on the test log for signoff by the Owner's Representative.

1.5 NOTICE:

- A. General: Notify the Engineer and the Owner's Representative in writing two weeks prior all scheduled testing to allow time for scheduling witness of testing, where elected by the Engineer and Owner's Representative.

**PART 2 - PRODUCTS**

2.1 TESTING MATERIALS:

- A. General: Provide all materials and test equipment required for testing of specified electrical systems, including retesting until acceptable test results are obtained.
- B. Products: Tested products which fail to provide acceptable test results shall be repaired or replaced with suitable materials as required to obtain acceptable test results.

**PART 3 - EXECUTION**

3.1 TESTING:

- A. General: Tests shall be made during the course of construction as specified and as required by authorities having jurisdiction. Such tests shall be conducted by this Division as a part of the Work and shall include all personnel, material, and equipment required to perform tests until satisfactory results are obtained. Any defects detected during testing shall be satisfactorily repaired or the equipment involved shall be replaced and the tests re-executed.

Any resultant delay as a result of such necessary retest, does not relieve the Contractor of his responsibility under this contract.

- B. Tests: Testing shall include but not be limited to all items listed in other Sections of this Division and the following:
  - 1. Thermographic Testing: Conduct a thermographic test of the main switchboards/switchgear, **[unit substations]** distribution panels, panelboards, automatic transfer switches, **[busway joints]** **[, motor control centers]** and other electrical distribution apparatus and connections using an infrared temperature scanning unit. The test shall be performed by an independent testing laboratory (General Electric, Eaton Electrical Systems And Solutions or Siemens Industrial Service). Connections that are not indicating higher temperature levels acceptable shall be tightened, lugs replaced and/or OCPD replaced as required to eliminate the condition. Conduct test, using test

reporting forms, between **[6 and 8]** months after beneficial occupancy, but in no case beyond the one year warranty period. Correct unacceptable conditions prior to end of the warranty period.

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| 2. Medium Voltage Conductors and Cable Testing         | Refer to Section 26 05 01. |
| 3. Low Voltage Conductors and Cable Testing            | Refer to Section 26 05 19. |
| 4. Undercarpet Wiring System Testing                   | Refer to Section 26 05 20. |
| 5. Modular Wiring System Testing                       | Refer to Section 26 05 21. |
| 6. Electrical Grounding Testing                        | Refer to Section 26 05 26. |
| 7. Lighting Control Device Testing                     | Refer to Section 26 09 23. |
| 8. Low-Voltage Lighting Control Testing                | Refer to Section 26 09 26. |
| 9. Central Dimming System Testing                      | Refer to Section 26 09 33. |
| 10. Computer Center Site Monitoring System Testing     | Refer to Section 26 09 71. |
| 11. Secondary Unit Substation Testing                  | Refer to Section 26 11 16. |
| 12. Medium Voltage Pad-Mounted Transformer Testing     | Refer to Section 26 12 19. |
| 13. Medium Voltage Switchgear Testing                  | Refer to Section 26 13 13. |
| 14. Medium Voltage Load Interrupter Switchgear Testing | Refer to Section 26 13 16. |
| 15. Low Voltage Transformer Testing                    | Refer to Section 26 22 00. |
| 16. Low Voltage Switchgear Testing                     | Refer to Section 26 23 12. |
| 17. Low Voltage Switchboard Testing                    | Refer to Section 26 24 13. |
| 18. Tenant Metering Cubicle Testing                    | Refer to Section 26 24 14. |
| 19. Panelboards Testing                                | Refer to Section 26 24 16. |
| 20. Isolated Power Panels and Accessories Testing      | Refer to Section 26 24 18. |
| 21. Low Voltage Motor Control Center Testing           | Refer to Section 26 24 19. |
| 22. Feeder and Plug-in Busway Testing                  | Refer to Section 26 25 01. |
| 23. Overhead Plug-in Busway Testing                    | Refer to Section 26 25 02. |
| 24. Power Distribution Unit Testing                    | Refer to Section 26 26 00. |
| 25. Wiring Device Testing                              | Refer to Section 26 27 26. |
| 26. Engine Generator Testing                           | Refer to Section 26 32 13. |
| 27. Generator Paralleling Switchgear Testing           | Refer to Section 26 32 15. |
| 28. Battery Emergency Power Supply Testing             | Refer to Section 26 33 05. |
| 29. Static Uninterruptible Power Supply Testing        | Refer to Section 26 33 53. |
| 30. Capacitor Testing                                  | Refer to Section 26 35 13. |
| 31. Power Conditioning System Testing                  | Refer to Section 26 35 23. |
| 32. Manual Transfer Switch Testing                     | Refer to Section 26 36 13. |
| 33. Automatic Transfer Switch Testing                  | Refer to Section 26 36 23. |

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| 34. Automatic Transfer/Bypass-Isolation Switch Testing     | Refer to Section 26 36 24. |
| 35. Low-Rise Fire Alarm System Testing                     | Refer to Section 28 31 01. |
| 36. High-Rise Fire Alarm System Testing                    | Refer to Section 28 31 02. |
| 37. Addressable Device Fire Alarm System Testing           | Refer to Section 28 31 03. |
| 38. High-Rise Addressable Device Fire Alarm System Testing | Refer to Section 28 31 04. |

**END OF SECTION 26 01 25**