

# **DIVISION 26 – ELECTRICAL**

## **26 00 00 ELECTRICAL**

### **PART 1 - GENERAL**

#### **1.01 DESIGN STANDARDS**

- A. All electrical designs shall comply with the latest editions of the National Electrical Code (NFPA 70) and the Laws, Rules and Regulations for Installing Electric Wires and Equipment (applicable sections of WAC and RCW).
- B. In addition to designing the electrical system(s), the Electrical Consultant shall prepare all load calculations, fault current calculations and all other data required for the submittal of the electrical drawings and specifications to the Department of Labor and Industries. The WSU Project Manager will provide to the Consultant (1) the maximum demand for the previous twelve months on the medium voltage feeder and substation main bus involved, and (2) a copy of the One Line Diagram of the medium voltage feeder involved back to the utility point of service. Consultant is required to evaluate all WSU provided information and field verify. Consultant is required to coordinate with the local utility for available fault duty at the utility point of service. When 30-day demand measurements are needed per NEC, Consultant shall be responsible for completing these measurements.

#### **1.02 DRAWING REQUIREMENTS**

- A. Drawings shall be clear and concise; avoid duplication of information on the drawings. Lettering shall be at least large enough so that it is legible when reduced to half size. Words shall be spelled out complete when possible. All verbiage on plans shall not overlap any other drawing elements. All abbreviations shall be identified on the abbreviation index of the drawings.
- B. The following information should be shown on the working drawings:
  - 1. Site Plan and Legend.
  - 2. Lighting Plan, Fixture Schedule and Lighting Control.
  - 3. Power Plan and Panel board Schedules.
  - 4. Equipment Schedule showing all electrically connected equipment identifying power and control requirements and responsibility scope. All information shown on equipment schedule shall coordinate with all disciplines.
  - 5. One Line Power Distribution Diagrams (normal and emergency).
  - 6. Riser diagrams and control diagrams for all Grounding, Fire Alarm, Data, A/V, Security, Lighting Control, and other systems.
  - 7. Wiring and Interconnection Diagrams to all associated disciplines involved.

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#### 1.03 SPECIFICATION REQUIREMENTS

##### A. General

1. Indicate reference standards (codes) to which materials and workmanship must conform.
2. Indicate standard of quality for all materials; reference the WSU Design and Construction Standards wherever applicable.
3. Specify that the contractor provide a minimum of fourteen days written notice to the WSU Project Manager for any work which requires the interruption of electrical service to any WSU facilities.

#### 1.04 SHOP DRAWINGS AND SUBMITTALS

##### A. Brochures and shop drawings shall include but not be limited to information on the following materials:

1. Primary & Secondary Service Equipment and feeders, Motor Control Equipment, Fire Alarm system, Access Control Riser system, A/V Riser system, Distribution Panels, Lighting Controls, Security and Switchboards
2. Raceways and Fittings, Panel boards
3. Emergency Power Riser System
4. Motor Control Centers
5. Wiring Devices, Lighting Fixtures, and Controls
6. Signal and Communications Systems
7. Transformers
8. Security system
9. Electric Snow & Ice Melt System

##### B. One copy of approved Motor Control Equipment submittal shall be furnished to the Temperature Control Contractor for purpose of coordination along with any equipment that may be tied to the WSU Building Automation System.

#### 1.05 REQUIREMENTS FOR ELECTRICAL OPERATIONS & MAINTENANCE (O&M) MANUALS

##### A. Scope: See the General Provisions for Operations and Maintenance manual requirements.

##### B. Systems and Equipment

1. The O&M manuals shall include the following information of all electrical systems and equipment supplied.
  - i. Primary System

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- 1) Primary disconnects
  - 2) Transformers
  - 3) Cable
  - 4) Connections
  - 5) ATS
- ii. Secondary Distribution System
    - 1) Distribution centers
    - 2) Panels and panel board schedules
    - 3) Feeder buss
    - 4) Metering
    - 5) Switchboards
    - 6) Motor control equipment
    - 7) Transformers
    - 8) Fuses
  - iii. Lighting Fixtures
    - 1) Interior
    - 2) Exterior
    - 3) Special
    - 4) Controllers
  - iv. Specialty Controllers
    - 1) Timers
    - 2) Dimmers
    - 3) Sensors
  - v. Fire Detection Systems
  - vi. Paging, Audio-visual and Inter-communication Systems and Equipment
  - vii. A/V systems
  - viii. Clock and Bell System
  - ix. All Control Cabinets
  - x. All testing and commissioning reports
  - xi. As-built and redline drawings.
- C. Information Contained in the O&M manuals: Information contained in the manual shall consist of catalog data on each item, testing and startup logs for all equipment, warranty information, maintenance information, a complete parts list, recommended supply source(s) for repair parts, descriptions of system operation, shop drawings, and wiring and riser diagrams.

**END OF SECTION**