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BuildingName
The Description of the Project
P00000000 0000

SPECIFICATION DIVISION 26

NUMBER SECTION DESCRIPTION

DIVISION 26 ELECTRICAL
SECTION 260526 – GROUNDING AND BONDING FOR ELECTRICAL

END OF CONTENTS TABLE

DIVISION 26 ELECTRICAL
SECTION 260526 – GROUNDING AND BONDING FOR ELECTRICAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

INCLUDE PARAGRAPH 1.1.A AND B IN EVERY SPECIFICATION SECTION. EDIT RELATED SECTIONS 1.1.B TO MAKE IT PROJECT SPECIFIC.

A. Drawings and general provisions of the Contract, Standard General and Supplementary General Conditions, Division 1 Specification Sections, and other applicable Specification Sections including the Related Sections listed below, apply to this Section.

IN 1 AND 2 BELOW, DELETE SUSTAINABLE DESIGN IF NOT APPLICABLE TO THE PROJECT. SELECT PROPER COMMISSIONING SPEC SECTION NUMBER APPLICABLE TO THE PROJECT.

B. Related Sections:

1. Section 018113 - Sustainable Design Requirements
2. Section 019100/019110 - Commissioning
3. Section 017823 - Operation and Maintenance Manual
4. Section 260513 - Medium, Low & Control Voltage Cables
5. Section 260533 - Electrical Materials and Methods
6. Section 260800 - Electrical Acceptance Tests

1.2 SUMMARY

A. Provide grounding for all systems and equipment.

1.3 GROUNDING SYSTEM REQUIREMENTS

A. Each ground rod shall have a maximum resistance to ground of 10 ohms before connection to the other ground rods. If reading is above 10-ohms, drive one extension. Further testing of that individual rod is not needed

FILL IN THE APPROPRIATE RESISTANCE VALUE BELOW. SPECIFY 2 OHMS FOR PRIMARY SERVICES OR 5 OHMS FOR SECONDARY SERVICES.

B. The total grounding system with all connections completed shall have a maximum resistance to ground of _____ ohms.

1.4 CONNECTION REQUIREMENTS

A. Provide exothermic weld type, or Burndy Hyground, ground connections for concealed, underground, and concrete encased ground connections, for ground connections to structural steel, connections between sections of the main ground bus and all connections to the substation room ground bus bars.

B. Exposed ground connections (except connections to structural steel and substation room ground bus bars) may be made with copper or bronze compression ground fittings or bolted compression ring lugs.

C. Provide exothermic weld type, or Burndy Hyground ground connections for splices and taps of grounding conductors No. 8 AWG and larger. Exposed splices and taps shall be taped.

PART 2 - PRODUCTS

2.1 GROUND RODS

A. Unless shown otherwise, ground rods shall be 3/4" diameter by 10' long, copper clad steel. Ground rods shall be capable of being extended when additional length is required.

2.2 GROUNDING CONDUCTORS

A. Grounding conductors for direct burial underground, for encasement in concrete, and for grounding of unit substations shall be No. 4/0 AWG minimum, bare, stranded copper.

B. Grounding conductors for general use shall be stranded, copper conductor, sized in accordance with the NEC unless shown otherwise on the drawings, and insulated with green NEC Type THHN insulation rated 90 degrees C, 600 volts.

2.3 GROUND CONNECTIONS

A. Ground connections shall be Burndy Hyground, Cadweld, Thermo-weld or Thomas & Betts Blackburn only.

PART 3 - EXECUTION

3.1 INSTALLATION REQUIREMENTS

A. Ground duct banks and manholes in accordance with Specification Section 260543.

B. Ground the shields of medium voltage primary cables in accordance with Specification Section 261000, and the shields of shielded instrumentation and control cable in accordance with Specification Section 260513.

C. Provide bare copper grounding conductors from duct banks, manholes, unit substations, primary switches, transformers, switchgear, panelboards, motor control centers and control panels to the building grounding system. Equipment rated above 480 volts or 600 amps shall be grounded by a minimum of two independent grounding conductors.

D. Bond transformer, UPS system, central battery/inverter system, emergency generator, and separately derived electrical system neutrals to the building grounding system.

E. Ground motors rated 460 volts and below by motor feeder equipment grounding conductors. Stranded copper grounding conductors connected to building steel shall also bond motors rated over 460 volts.

F. Provide green insulated equipment grounding conductors in all service, feeder, and branch circuits for connection of load devices to the power source ground. Raceways shall not be used as equipment grounding conductors.

1. Equipment grounding conductors shall not be daisy-chained.
2. Bond equipment-grounding conductors in boxes and enclosures where the grounding conductors are terminated or spliced.

G. Bond conduits, cable trays, wireways, surface raceways, boxes, and enclosures together, and to the building grounding system. Provide bonding bushings and bonding jumpers to bond conduits where they enter a box or enclosure.

H. Ground the lightning protection system with separate ground rods. The building grounding system ground rods shall not be used. After completion of both systems, the lightning protection system shall be bonded to the building grounding system.

I. Protect separately routed grounding conductors subject to damage or physical abuse by Schedule 40 PVC nonmetallic conduits. Grounding conductors shall not be routed in metallic conduits except when routed with phase conductors.

3.2 FIELD QUALITY CONTROL

A. Test the grounding in accordance with Specification Section 260800, and submit a test report.

B. When the total grounding system fails its test by having a higher resistance to ground than specified in Section 260800, contact the Project Electrical Engineer for corrective action.

3.3 COMMISSIONING

A. Perform commissioning activities in accordance with Related Sections.

END OF SECTION 260526