

PART 1 - GENERAL

1.1 SUMMARY

- A. This section includes general requirements, products and methods of execution relating to the furnishing and installation of a complete grounding system as required for this project.

1.2 REFERENCES

- A. The publications listed below form a part of this specification. The publications are referred to in the text by basic designation only, latest edition.

NUMBER	TITLE
ANSI/IEEE C2	National Electrical Safety Code
ANSI/NFPA 70	National Electrical Code
ANSI/TIA/-606-C	Administration Standard for Commercial Telecommunications Infrastructure
ANSI/TIA-607-C	Generic Telecommunications Bonding and Grounding (Earthing) for Customer Premises
IEEE C62.41	Recommended Practice on Surge Voltages in Low-Voltage Surge Protective Devices
IEEE C62.42	Guide for the Application of Gas Tube Arrester Low-Voltage Surge Protective Devices
IEEE Draft P1250 (D4)	Guide on Service to Equipment Sensitive to Momentary Voltage Disturbances
IEEE Std 1100	Recommended Practice for Powering and Grounding Sensitive Electronic Equipment
IEEE Std 142	Recommended Practice for Grounding of Industrial and Commercial Power Systems
IEEE STD 81	Recommended Guide for Measuring Ground Resistance and Potential Gradients in the Earth
NFPA 70	National Electric Code (NEC) - Codebook and Handbook
REA PE-33	(1985) Shield Bonding Connectors
UL 1449 Edition 3	Surge Protective Devices (SPDs)
UL 467 Edition 6	Grounding and Bonding Equipment
UL 497 Edition 5	Protectors for Paired Conductors for Communication Circuits
UL 497A Edition 1	Secondary Protectors for Communication Circuits
UL 497B Edition 1	Protectors for Data Communication and Fire Alarm Circuits

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1.3 SUBMITTALS

- A. Provide submittals for products in accordance with Section 260000 - Electrical General Requirements and Division 1. Include copies of catalog cuts, data sheets and other descriptive information for all specified materials.

1.4 MINIMUM REQUIREMENTS

- A. The minimum requirements for the system shall conform to Article 250 of the NEC.

1.5 SPECIAL REQUIREMENTS

- A. Unless specified elsewhere, the ohmic values for grounds and grounding systems from system to earth shall be as follows:
  - 1. For grounding metal enclosures and frames for electrical and electronically operated equipment -- 5 ohms maximum.
  - 2. For grounding systems to which electrical utilization equipment and appliances are connected -- 5 ohms maximum.
  - 3. For grounding secondary distribution systems, neutrals, noncurrent carrying metal parts associated with distribution systems, and enclosures of electrical equipment not normally within reach of other than authorized and qualified electrical operating and maintenance personnel -- 10 ohms maximum.

PART 2 - PRODUCTS

2.1 CONNECTIONS

- A. Clamps, lugs, connectors, bonding bushings, and other such grounding and bonding items shall be:
  - 1. Labeled or listed for the purpose.
  - 2. Shall be made (both body and hardware) of hot dip galvanized steel, bronze, or other corrosion resistant alloy (except bushing throats shall be plastic).
  - 3. Shall be the products of O-Z/Gedney, T & B, Raco, or accepted equals.
  - 4. In outdoor, damp, or corrosive environments, metals for these items shall be copper (with or without tin-plating), bronze, or other corrosion resistant alloys only; O-Z/Gedney or accepted equal.

2.2 TELECOMMUNICATIONS GROUNDING AND BONDING SYSTEMS

- A. Bond telecommunication racks and/or cabinets, ladder racks, cable trays, conduits, and all other telecommunication room and equipment room metallic components to either a PBB or SBB with a green TEBC with a minimum specification of #6 AWG, 600-volt, insulated copper conductor.

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- B. Bond telecommunication equipment located within a telecommunication rack or cabinet to a local RBB with an UBC with a minimum specification of #6 AWG, 600-volt, insulated copper conductor. Each piece of equipment shall be connected back to the local RBB in a radial configuration, i.e., equipment ground connections shall not be "daisy chained".

### 2.3 IDENTIFICATION AND LABELING

- A. Grounding conductors shall be labeled in accordance with Specification Section 260553 and TIA/EIA-606-C.

## PART 3 - EXECUTION

### 3.1 EQUIPMENT GROUND

- A. The raceway system shall be bonded in conformity with NEC requirements to provide a continuous ground path. Where required by Code or Ordinance or where called for on the plans an additional grounding conductor shall be provided, sized in conformity with Table 250.122 of the NEC, unless larger size is noted.
- B. Provide separate grounding conductor securely bonded and effectively grounded to the enclosures at both ends of all non-metallic raceways and all flexible conduit.
- C. Provide an equipment grounding conductor sized in conformity with Table 250.122 of the NEC, unless larger size noted, for new feeder and branch circuit conduits. Where conductors are adjusted in size to compensate for voltage drop, equipment grounding conductors shall be adjusted proportionately according to circular mil area.

### 3.2 CONCEALED CONNECTIONS

- A. Permanent grounding connections, where permitted by the NEC to be concealed, shall not be so concealed until inspected and accepted by the Contracting Agency. Failure to comply with this requirement shall make the Contractor liable for all expenses incurred in the process of re-exposing the connections for inspection, and subsequent repair and patching of the concealing construction, including the work of other trades. The Contractor shall schedule inspection of such connections at least one work week in advance of concealment, and shall not be entitled to any additional compensation or time extension for delays caused by inability of the Contracting Agency's representative to be available at the desired time.

### 3.3 CORDS AND NONMETALLIC CABLES

- A. Unless specifically permitted otherwise, cords and nonmetallic cables shall be furnished with integral Code-sized grounding conductor. Securely bond metal components and effectively ground the entire electrical system.

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3.4 TELECOMMUNICATIONS GROUNDING AND BONDING SYSTEMS

- A. Alternating Current Equipment Ground (ACEG): When an electrical panelboard is located in the same room or space as the PBB or an SBB, that panelboard's ground bus shall be bonded to the PBB and/or SBB with an ACEG.
- B. Conductors
  - 1. Where insulated, the TBC and each TBB, BBC, TEBC, and UBC, shall be green, green with yellow stripe, or marked with a distinctive green color.
- C. Bonding and Connections:
  - 1. General:
    - a. Insulated wire splices shall be insulated with preformed wire covers.
- D. Identification and Marking:
  - 1. Show conductors on neatly marked record drawings. Submit to the Contracting Agency.
  - 2. Grounding conductors shall be marked per ANSI/TIA/EIA 606-C and as directed by the Contracting Agency. Mark each cable end using tie wrap style cable markers.

END OF SECTION 260526