

**SECTION 26 05 26**  
**GROUNDING and BONDING of ELECTRICAL SYSTEMS**

**PART 1 GENERAL**

1.1 WORK INCLUDED

- A. Power system grounding
- B. Communication system grounding
- C. Electrical equipment and raceway grounding and bonding

1.2 SYSTEM DESCRIPTION

- A. Ground the electrical service system neutral at service entrance equipment to metallic water service and to all available grounding electrodes.
- B. Ground each separately-derived system neutral to nearest effectively grounded metallic water pipe or nearest effectively grounded building structural steel member.
- C. Provide communications system-grounding conductor at point of service entrance and connect to nearest effectively grounded metallic water pipe or nearest effectively grounded building structural steel member.
- D. Bond together system neutrals, service equipment enclosures, exposed non-current carrying metal parts of electrical equipment, metal raceway systems, grounding conductor in raceways, receptacle and switch ground connectors, and plumbing systems.

1.3 SUBMITTALS

- A. Submit shop drawings under provisions of Section 01 33 00.
- B. Indicate location of system grounding electrode connections, and routing of grounding electrode conductor.

**PART 2 PRODUCTS**

2.1 MATERIALS

- A. Ground Rods: Copper-clad steel, 5/8" diameter, minimum length 10'.
- B. Bonding Bushings: Steel lay-in type

**PART 3 EXECUTION**

3.1 INSTALLATION

- A. Provide a separate, insulated equipment-grounding conductor in feeder, branch circuit, or grounded control circuit conduit(s).
  - 1. This bonding conductor shall be continuous through raceway system from main switch ground bus to panelboard ground bus and to each outlet, switch, device, box, or equipment using terminal bars, screws, lugs, expressly designed for that purpose.
  - 2. Do not use raceways and metal enclosures for ground path.
- B. Connect grounding electrode conductors to metal water pipe using a suitable ground clamp.
- C. Supplementary Grounding Electrode:
  - 1. Use driven ground rod in main service equipment area.
  - 2. Use effectively grounded metal frame of the building.
  - 3. Use minimum of 20' bare copper wire embedded in concrete foundation.
- D. Use minimum 6-AWG un-spliced copper conductors for communications service grounding conductor from the grounding collector plate in the nearest electrical room.
- E. Exothermic weld (Cadweld) or approved equal all ground wire to ground rod connections.

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- F. Separate buildings or buildings connected by a breezeway shall have main feeder(s) grounding conductor(s) connected to all of the available grounding electrodes of that structure.
  - G. Ground the equipment grounding conductor for temporary wiring to the available electrodes, metal piping, and metal components of a building when run inside a building.
  - H. Install a ground rod at all freestanding exterior electric scoreboards and electric signs.
- 3.2 FIELD QUALITY CONTROL
- A. Inspect grounding and bonding system conductors and connections for tightness and proper installation.
  - B. Measure ground-rod resistance when not connected to electrode conductor, using approved ground testing equipment.
    - 1. Resistance shall not exceed 25 ohms.
    - 2. Extend the rod as deep as necessary to meet the minimum resistance.
    - 3. The Electrical Engineer and Owner shall observe the test.
  - C. Contractors' tests shall be scheduled and documented in accordance with the commissioning requirements.
    - 1. Refer to Section 01 91 00, Commissioning, for further details.
  - D. Contractor shall provide ground rod resistance report to the Commissioning Agent, with the following information:
    - 1. Date of test
    - 2. Manufacture and model number of the test equipment
    - 3. Documentation of the last re-calibration of the test equipment
    - 4. Weather conditions, including the humidity during the test
    - 5. Sign-in sheet of witnesses to the test
    - 6. The results in a numerical value
    - 7. Location of the rod(s) tested

END OF SECTION