

SECTION 16450
GROUNDING

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 01300.
- 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, $\frac{5}{8}$ " 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). This bonding conductor shall be continuous through raceway system from main switch ground bus to panelboard ground bus and to each branch circuit outlet or switch, using terminal bars, screws, lugs, expressly designed for that purpose. Raceways and metal enclosures shall not be used for ground path.
- B. Connect grounding electrode conductors to metal water pipe using a suitable ground clamp.
- C. Supplementary Grounding Electrode: Use driven ground rod in main service equipment area. Use effectively grounded metal frame of the building. Use minimum of 20' bare copper wire embedded in concrete foundation.
- D. Use minimum 6 AWG copper conductors for communications service grounding conductor.
- E. Exothermic weld (Cadweld) all ground wire to ground rod connections.
- 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.

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 suitable ground testing equipment. Resistance shall not exceed 25 Ohms. Extend depth of rod until minimum resistance is met. Test is to be observed by the Electrical Engineer and Owner.

END OF SECTION