

SECTION 16060P GROUNDING AND BONDING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes:
 - 1. Rod electrodes.
 - 2. Mechanical connectors.
 - 3. Exothermic connections.

1.2 SYSTEM DESCRIPTION

- A. Grounding systems use the following elements as grounding electrodes as necessary:
 - 1. Metal underground water pipe.
 - 2. Metal building frame.
 - 3. Ground ring.
 - 4. Metal underground gas piping system.
 - 5. Rod electrode.
- B. Coordinate ground of tel/data grounding system.

1.3 PERFORMANCE REQUIREMENTS

- A. Grounding System Resistance: 5 ohms maximum.

PART 2 - PRODUCTS

- A. Product Description:
 - 1. Material: Copper-clad steel.
 - 2. Diameter: 3/4 inch (19 mm).
 - 3. Length: 10 feet (3.0 m).
- B. Connector: Connector for exothermic welded connection.

2.2 WIRE

- A. Material: Stranded copper.
- B. Grounding Electrode Conductor: Copper conductor bare.
- C. Bonding Conductor: Copper conductor insulated.

2.3 GROUNDING WELL COMPONENTS

- A. Well Pipe: 8 inches NPS (DN200) by 24 inches (600 mm) long fiberglass pipe with belled end.
- B. Well Cover: Cast iron with legend "GROUND" embossed on cover.

2.4 MECHANICAL CONNECTORS

- A. Description: Bronze connectors, suitable for grounding and bonding applications, in configurations required for particular installation.

2.5 EXOTHERMIC CONNECTIONS

- A. Product Description: Exothermic materials, accessories, and tools for preparing and making permanent field connections between grounding system components.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Bond together metal siding not attached to grounded structure; bond to ground.
- B. Equipment Grounding Conductor: Install separate, insulated conductor within each feeder and branch circuit raceway. Terminate each end on suitable lug, bus, or bushing.
- C. Connect to site grounding system.
- D. Bond to lightning protection system.
- E. Install continuous grounding using underground cold water system and building steel as grounding electrode. Where water piping is not available, install artificial station ground by means of driven rods or buried electrodes.
- F. Permanently ground entire light and power system, including service equipment, distribution panels, lighting panelboards, switch and starter enclosures, motor frames, grounding type receptacles, and other exposed non-current carrying metal parts of electrical equipment.
- G. Accomplish grounding of electrical system by using insulated grounding conductor installed with feeders and branch circuit conductors in conduits. Install from grounding buss of serving panel to ground buss of served panel, grounding screw of receptacles, lighting fixture housing, light switch outlet boxes or metal enclosures of service equipment. Ground conduits by means of grounding bushings on terminations at panelboards with installed number 12 conductor to grounding buss.

3.2 FIELD QUALITY CONTROL

- A. Inspect and test in accordance with NETA ATS, except Section 4.
- B. Grounding and Bonding: Perform inspections and tests listed in NETA ATS, Section 7.13.
- C. Perform ground resistance testing in accordance with IEEE 142.
- D. Perform leakage current tests in accordance with NFPA 99.
- E. Perform continuity testing in accordance with IEEE 142.
- F. Visually inspect all exothermic connectors. Do not backfill until approved.

END OF SECTION