

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 01 11 00 - General Requirements.
- .2 Section 26 05 00 - Common Work Results for Electrical.

1.2 REFERENCES

- .1 American National Standards Institute (ANSI)/Institute of Electrical and Electronics Engineers (IEEE)
 - .1 ANSI/IEEE 837-2002, Qualifying Permanent Connections Used in Substation Grounding.
 - .2 Canadian Standards Association, (CSA International)

Part 2 Products

2.1 EQUIPMENT

- .1 Clamps for grounding of conductor: size as required to electrically conductive underground water pipe.
- .2 Copper conductor: minimum 6m long for each concrete encased electrode, bare, stranded, soft annealed, size as indicated.
- .3 Insulated grounding conductors: green grounding conductor, sized as indicated.
- .4 Ground bus: copper, complete with insulated supports, fastenings, connectors.
- .5 Non-corroding accessories necessary for grounding system, type, size, material as indicated, including but not necessarily limited to:
 - .1 Grounding and bonding bushings.
 - .2 Protective type clamps.
 - .3 Bolted type conductor connectors.
 - .4 Thermit welded type conductor connectors.
 - .5 Bonding jumpers, straps.
 - .6 Pressure wire connectors.

Part 3 Execution

3.1 INSTALLATION GENERAL

- .1 Install complete permanent, continuous grounding system including, conductors, connectors, accessories. Where EMT is used, run ground wire in all conduit.
- .2 Install connectors in accordance with manufacturer's instructions.
- .3 Use mechanical connectors for grounding connections to equipment provided with lugs.
- .4 Soldered joints not permitted.
- .5 Install bonding wire for flexible conduit, connected at both ends to grounding bushing, solderless lug, clamp or cup washer and screw. Neatly cleat bonding wire to exterior of flexible conduit.
- .6 Install flexible ground straps for bus duct enclosure joints, where such bonding is not inherently provided with equipment.
- .7 Make grounding connections in radial configuration only, with connections terminating at a single grounding point. Avoid loop connections.
- .8 Bond single conductor, metallic armoured cables to cabinet at supply end and at load end.

3.2 SYSTEM AND CIRCUIT GROUNDING

- .1 Install system and circuit grounding connections to neutral of primary system and secondary system.

3.3 EQUIPMENT GROUNDING

- .1 Install grounding connections to typical equipment included in, but not necessarily limited to following list. Service equipment, transformers, switchgear, duct systems, frames of motors, motor control centres, starters, control panels, building steel work, generators, elevators and escalators, distribution panels, outdoor lighting.
- .2 Surge Protective Device Grounding: Ensure that SPD units ordered conforms to the grounding type at the panel and install according to manufacturer's instructions. Run SPD grounding conductor back to the panel.

3.4 GROUNDING BUS

- .1 Ground items of electrical equipment in electrical room to ground bus with individual bare stranded copper connections size 2/0AWG.

3.5 FIELD QUALITY CONTROL

- .1 Perform tests in accordance with Section 26 05 00 - Common Work Results - Electrical.
- .2 Perform ground continuity and resistance tests using method appropriate to site conditions and to approval of Engineer and local authority having jurisdiction over installation.
- .3 Perform tests before energizing electrical system.
- .4 Disconnect ground fault indicator during tests.

END OF SECTION