

PART 1 - General

1.1 RELATED SECTIONS

- .1 Section 26 05 01 - Common Work Results - Electrical.

1.2 REFERENCES

- .1 American National Standards Institute /Institute of Electrical and Electronics Engineers (ANSI/IEEE)
 - .1 ANSI/IEEE 837-02, IEEE Standard for Qualifying Permanent Connections Used in Substation Grounding.
- .2 Canadian Standards Association, (CSA International).

1.3 WASTE MANAGEMENT AND DISPOSAL

- .1 Collect and separate plastic, paper packaging and corrugated cardboard in accordance with Waste Management Plan.
- .2 Fold up metal banding, flatten and place in designated area for recycling.

PART 2 - Products

2.1 EQUIPMENT

- .1 Grounding equipment shall be to CSA C22.2 No.41.
- .2 All clamps and fittings to be bronze or brass. All ground plate clamps and fittings to be bronze or brass.
- .3 Ground conductors to be to ASA-G7.1.
- .4 Insulated ground conductors are to be RW90, green, for sizes up to and including #2. Insulated ground conductors #1 and larger to be TWH, green. All ground conductors to be copper without exception.
- .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 Bonding jumpers, straps.
 - .5 Pressure wire connectors.

PART 3 - Execution

3.1 INSTALLATION GENERAL

- .1 All equipment and exposed non-current-carrying metal, conduits and parts shall be permanently and effectually grounded to meet minimum requirements of the C.E.C., and as indicated on the drawings and further specified. Standards set either by drawings or specifications which are above those covered by C.E.C. shall not be reduced under any circumstances.
- .2 Generally, minimum grounding shall be provided by the metallic conduit/outlet box system and by the bond wire in cables. Additional insulated ground wires, sized as per the drawings, shall be provided as follows:
 - .1 In all EMT conduit feeders that supply panelboards, CDP panels, FDP panels, MCC's, and transformers - all sized as per C.E.C. Table 16A.
 - .2 All non-metallic conduit systems (i.e., - PVC conduit).
 - .3 A separate green bond conductor sized as per Table 16A of the C.E.C. shall be installed in each EMT & RGS conduit run for branch circuit wiring.
 - .4 Where ground conductors terminate at ground buses in switchboards or panelboards, the connection shall be made with a compression lug, which shall be secured to the bus with nut, bolt and two Belleville washers. Size of bolts shall be to suit lug and shall be properly torqued and marked.
- .3 Install connectors in accordance with manufacturer's instructions.
- .4 Protect exposed grounding conductors from mechanical injury.
- .5 Use mechanical connectors for grounding connections to equipment provided with lugs.
- .6 Install bonding wire for flexible conduit, connected at one end to grounding bushing, solderless lug, clamp or cup washer and screw. Neatly cleat bonding wire to exterior of flexible conduit.
- .7 Connect building structural steel and metal siding to ground by welding copper to steel.
- .8 Make grounding connections in radial configuration only, with connections terminating at single grounding point. Avoid loop connections.
- .9 Bond single conductor, metallic armoured cables to cabinet at supply end, and provide non-metallic entry plate at load end.
- .10 Provide isolated ground as indicated on the drawing.

3.2 SYSTEM AND CIRCUIT GROUNDING

- .1 Install system and circuit grounding connections.

3.3 EQUIPMENT GROUNDING

- .1 Install grounding connections to typical equipment included in, but not necessarily limited to following list. Service equipment, heat trace equipment, transformers, switchgear, duct systems, frames of motors, motor control centres, starters, control panels, building steel work, elevators and escalators, distribution panels, outdoor lighting.

3.4 FIELD QUALITY CONTROL

- .1 Perform tests in accordance with Section 26 05 01 - Common Work Results - Electrical.
- .2 Perform ground continuity and resistance tests using method appropriate to site conditions and to approval of Departmental Representative and local authority having jurisdiction over installation.
- .3 Perform tests before energizing electrical system.
- .4 Disconnect ground fault indicator during tests.

END OF SECTION