

## DIVISION 28

Bureau of Workers' Compensation  
Entry Modification

## Section 28 05 26.00 40

GROUNDING (WIRED SYSTEM)  
BWC-080003-01

### SECTION 28 05 26.00 40 – GROUNDING (WIRED SYSTEM)

#### PART 1 GENERAL

##### 1.01 SCOPE

- A. Grounding of the service and service entrance equipment shall be in accordance with the National Electric Code.
- B. All feeders and branch circuits over 100 volts shall include a Grounding Conductor sized in accordance with NEC Table 250-95, except not be smaller than #12 for power and lighting circuits and #14 for control circuits. All ground conductors shall be Green, or as specified under Section 16120, "WIRE AND CABLE".
- C. The Contractor shall, in the presence of the Engineer, test all system neutrals to prove they are free of grounds except at the source.

#### PART 2 PRODUCTS

##### 2.01 GENERAL

- A. All ground clamps shall be Penn-Union "GPL" type or similar by O.Z. or Burndy.
- B. All cable connections to ground rods shall be by "Cadweld", "Thermoweld", or "Heliarc" welding process by using recommended molds, compound and correct gas mixtures.
- C. Conduit grounding type bushing shall be T & B Series 3870 with appropriate size ground wire terminal.
- D. Conduit for solitary ground conductors shall be rigid PVC non-metallic electrical conduit with U.L. label.
- E. All panels shall be furnished with a copper ground bar similar to the neutral bar and having the same number, size and type of lugs. The ground bar shall be factory bonded to the panel tub above or below the neutral assembly, but shall not be in a gutter.
- F. Enclosures, junction and pull boxes shall utilize a "panel" type ground bar or U.L. listed grounding lugs or screws, as the number of ground conductors dictates.

#### PART 3 EXECUTION

##### 3.01 INSTALLATION

- A. Ground transformer neutrals and furnish and install ground rod arrays with 5/8" x 10'-0" copperweld ground rods as shown on the Drawings or called for herein. All connections to ground rods shall be by Caldwell, Thermoweld or Heliarc welding process.
- B. The ground conductor shall be connected to the neutral in only two locations - on the supply side of the service disconnect means per NEC-250-23 and on separately derived systems per NEC 250-26. Because the ground is lost through the transformer, it must be re-established by use of a grounding conductor, minimum size per NEC Table 250-94 (a),

connecting the transformer secondary neutral point to the transformer enclosure and to the ground rod array as shown on the Drawings.

- C. All solitary ground conductors shall be run in rigid PVC non-metallic conduit except 500 MCM and larger insulated cables may be run exposed on walls or ceilings of Equipment Rooms. Solitary ground conductors shall not be placed through metallic sleeves or conduits and shall not be completely encircled by metallic hangers or supports.
- D. All conduits entering switchboards and substations shall be bonded together with #4 AWG wire connected to a conduit grounding bushing. These shall then be bonded to the ground bus in the equipment item.
- E. All enclosures, boxes, fixtures, receptacles, etc., shall be grounded by being securely bonded to the grounding conductor. Boxes, conduit, etc., shall not be used as part of the grounding "conductor" system.
- F. Enclosures not requiring a ground bar shall have all ground conductors connected together and a pigtail the size of the largest conductor bonded to the enclosure with a single ground connector used for no other purpose.
- G. At each receptacle box, the ground conductor shall enter and connect, with normal wiring connector, to: 1) The ground pigtail to receptacle; 2) The ground pigtail to box ground screw; and 3) The outgoing ground conductor to next device, if not at end of run. Metal to metal contact between the device yoke and the outlet box is not acceptable as a bond for either surface mounted boxes or flush type boxes.
- H. Motor terminal boxes shall be grounded by the use of manufacturer- supplied ground lug or by drilling and tapping a hole for a ground screw. Remove paint prior to making the connection.
- I. Lighting fixtures shall be grounded by the use of a manufacturer- supplied ground lug or pigtail or by the use of ground clips fastened on bare metal that is free of paint.
- J. Conduit system shall be electrically continuous. All locknuts shall cut through enameled or painted surfaces on enclosures. Where enclosures and non-current carrying metals are isolated from the conduit system, use bonding jumpers with approved clamps. Where reducing washers are used and where concentric or excentric knockouts are not completely removed bonding bushings shall be required.

End of Section