Electrical Conductors

A. Material Information

1. Provide Type THHN insulated conductors in accordance with the NEC. Insulated conductors shall be of the same size as indicated on the plans. Length of conductors shall be determined by the plans.

2. Provide ground rods as called for in the plans. Ground rods shall be of the same type as shown on the plans. Ground rods shall have a minimum embedment of 2 in. past both sides of the splice. Where heat shrink tubing is used, ensure the ground rod is extended past the splice by a minimum of 2 in.

3. Provide ground rods according to OMS 1500 and the plans. Larger diameter or longer rods may be called for in some specific locations. See individual plan sheets.

4. Install insulation resistance tests in accordance with Item 620. Coordinate with the electrical service to the concrete encased grounding electrode or the ground rod at each accessible location. Provide tags with color code for identification. For ground rods installed in concrete, ensure the connection of the conductor to the ground rod is readily accessible for inspection or repairs. For ground rods installed in concrete, ensure that the upper end is at least 2 ft. above finished grade.

5. Install ground rods so the imprinted part number is at the upper end of the conductor. Ensure that the ground rod is installed horizontally from any metal structure. Where installing temporary conductors for traffic operations, a minimum of 3 ft. is recommended.

6. Remove all non-conductive coatings such as concrete splatter from the conductor prior to installing the clamp.

7. Route all conductors as short as possible for connection to lighting protection ground rods. When a conductor is required, ensure a minimum radius of four inches for these conductors.

8. Unless otherwise specified for in the plans, provide ground rods as specified. Provide grounding electrode conductors with metallic conductors. Provide grounding electrode conductors with metallic conductors. Provide grounding electrode conductors with metal conduit. Provide and install a grounding type bushing to connect the ground rod to the grounding electrode.

9. Written authorization is required before installing a ground rod in a horizontal trench for rocky soil or a rocky soil bottom.

10. Provide and install a ground rod at each accessible location. Provide a minimum size 8 AWG EGC. The EGC is paid for by the contractor. Unless shown elsewhere, size the EGC to be the same size as the largest current-carrying conductor contained in the conduit unless otherwise specified. EGCs are to be factory-sealed at every accessible location. For specific locations, see individual plan sheets.

11. Install breakaway connectors on conductors bid under Item 620 whenever those conductors pass through or near concrete encased operations. Follow manufacturers' instructions when installing breakaway connectors. Proper torque and tightening procedures shall be followed to ensure proper installation.

12. Provide and install a separate stranded equipment grounding conductor (EGC) in all conductors rated 50 volts or more. Where shown elsewhere, size the EGC to be the same size as the largest current-carrying conductor contained in the conduit unless otherwise specified. EGCs are to be factory-sealed at every accessible location. For specific locations, see individual plan sheets.

B. Construction Methods

1. Provide and install a ground rod at each accessible location. Provide a minimum size 8 AWG EGC. The EGC is paid for by the contractor. Unless shown elsewhere, size the EGC to be the same size as the largest current-carrying conductor contained in the conduit unless otherwise specified. EGCs are to be factory-sealed at every accessible location. For specific locations, see individual plan sheets.

2. Provide a ground fault circuit interrupter (GFCI) for power outlets for portable electrical equipment, power tools, ice machines, ice storage bins, and refrigerators located outdoors at grade. GFCI may be any one of the following: a Listed connector, a listed flush or recessed, or a circuit breaker type. Use listed wire nuts with factory applied temporary wiring where approved.

3. Use listed wire nuts with factory applied temporary wiring where approved.

4. Use listed compression or screw type pressure connectors, terminal blocks, or split bolt connectors for splicing as specified in OMS 1500. Use hot melt adhesive tape to fill the gap and seal the ends of heat shrink tubing. Provide listed compression or screw type pressure connectors, terminal blocks, or split bolt connectors for splicing as specified in OMS 1500. Use hot melt adhesive tape to fill the gap and seal the ends of heat shrink tubing.

5. Provide and install a ground rod at each accessible location. Provide a minimum size 8 AWG EGC. The EGC is paid for by the contractor. Unless shown elsewhere, size the EGC to be the same size as the largest current-carrying conductor contained in the conduit unless otherwise specified. EGCs are to be factory-sealed at every accessible location. For specific locations, see individual plan sheets.

6. Install ground rods so the imprinted part number is at the upper end of the conductor. Ensure that the ground rod is installed horizontally from any metal structure. Where installing temporary conductors for traffic operations, a minimum of 3 ft. is recommended.

7. Provide and install ground rods as specified. Provide grounding electrode conductors with metallic conductors. Provide grounding electrode conductors with metallic conductors. Provide grounding electrode conductors with metal conduit. Provide and install a grounding type bushing to connect the ground rod to the grounding electrode.

8. Written authorization is required before installing a ground rod in a horizontal trench for rocky soil or a rocky soil bottom.

Electrical Details

Conductors

ED(3)-14

Texas Department of Transportation