

SECTION 16060

GROUNDING

PART 1 - GENERAL

1.1 RELATED WORK

A. Section 02581: Underground Power Duct and Substructures

1.2 SYSTEM DESCRIPTION

A. Provide : conduits, wires, ground rods, and other miscellaneous materials as specified and as required for a complete electrical grounding system per Article 250 of the latest applicable California Electrical Code.

1.3 QUALITY ASSURANCE

A. All material shall be U.L. listed and labeled.

1.4 REFERENCES

A. ES-07 / Ground Details For Pad-mount Transformers

B. ES-09 / Standard Service Grounding in the Facility Design Guide.

PART 2 - PRODUCTS

2.1 GROUND RODS

A. Solid copper or copper clad steel rod. Rod shall be  $\frac{3}{4}$ " diameter 10' in length

2.2 BARE COPPER GROUND WIRE

A. Medium hard drawn copper conductor, standard, sizes as shown on drawings.

2.3 HARDWARE

A. Bolts, nuts, and washers shall be bronze, cadmium plated steel, or other non-corrosive material, approved for the purpose

2.4 INSULATED GROUND WIRE

A. Soft drawn stranded copper rated for 600V.

PART 3 – EXECUTION

3.1 GROUNDING ELECTRODE SYSTEM

- A. Grounding electrode system shall consist of the following electrodes
- B. The above grounding electrodes are bonded together to form a grounding electrode system. The bonding conductor shall be #4/0 copper.

3.2 CIRCUIT AND SYSTEM GROUNDING

- A. Separately derived systems shall be grounded in accordance with Article 250-5 (d) of the latest applicable California Electrical Code.
- B. Grounding conductors shall be copper.

3.3 ELECTRICAL EQUIPMENT GROUNDING

- A. Grounding non-current carrying metal parts of electrical equipment enclosures, frames, conductor raceways or cable trays to provide a low impedance path for line-to ground fault current and to bond all non-current carrying metal parts together. Install a ground conductor in each raceway system where shown or where required by code. Equipment ground conductors shall be electrically and mechanically continuous from the electrical circuit source to the equipment to be grounded. Size ground conductors per latest applicable California Electrical Code.
- B. Equipment grounding conductors shall be identified with green insulation. Where green insulation is not available, on larger sizes, black insulation may be used and suitably identified with green tape at each junction box or device enclosure.
- C. Install metal raceway couplings, fittings and terminations secure and tight to insure good ground continuity. Provide grounding bushings and bonding jumper where metal raceway is not directly attached to equipment metal enclosure and at concentric knock-outs.

3.4 BONDING

- A. Bonding shall be provided to assure electrical continuity and the capacity to conduct safely and fault current likely to be imposed.
- B. Bonding shall be in accordance with the latest applicable California Electric Code

3.5 INTERCONNECTON OF GROUNDING SYSTMMS

- A. Bond lighting protection grounding system, if provided, to building grounding electrode system.
- B. Bond all wall mounted ground busses to building grounding electrode system.

3.6 GROUNDING RESISTANCE TEST

- A. Three point fall-of-potential ground resistance measurements for the grounding electrode system shall be taken and submitted to the Owner.
- B. Test results shall be in writing, and shall show temperature and humidity. The ground resistance shall not exceed .5 ohms at 60 hertz.

END OF SECTION