SECTION 16450D - GROUNDING SYSTEM

A. DRAWINGS AND SPECIFICATIONS: Drawings shall show ground systems, protective conduit sizes, and relative locations.

Specifications and drawings shall include detailed requirements of the grounding system. A reference only to the National Electric Code without elaboration has proven to be insufficient. Specifying requirements only by referencing the code is prohibited.

All connections to the grounding system shall be exothermic welding, cad weld or equivalent. It is required that the grounding system be tested and have a resistance reading of less than 5 ohms.

B. SERVICE GROUND: Ground rod shall be a minimum size of 3/4” inch x 10 feet copper clad steel and shall not be placed in backfill. Service ground shall meet requirements of NEC Code 230-63.

1. Interconnection of the service ground, system neutral, and equipment ground conductors shall be made within the service equipment.
2. Grounding path through feeder conduits must be kept at less than five ohms resistance. All the feeder conduit shall include a grounding conductor. Equipment enclosures (transformer case, etc.) shall not be used as the sole means for a grounding path.
3. Grounding conductors shall be 600-volt insulated when installed in rigid galvanized protective conduit. Protective conduits for ground conductors shall be bonded at both ends to reduce impedance in the ground path under fault current flow.

C. TRANSFORMER GROUNDS

1. Building Service Transformers: Secondary neutrals shall be grounded separately from the neutral ground at the service main, unless close coupled in unit substation construction.
2. Low Voltage Transformers: Secondary neutrals shall be grounded in the low-voltage service equipment, as required by NEC for services.

D. EQUIPMENT GROUNDS: An equipment ground conductor shall be installed within branch circuit conduits and be grounded to a separate equipment ground bus bonded to the panelboard enclosure. The neutral bar of the panel shall not be used for equipment grounds.

1. Equipment grounds and the identified neutral shall not be electrically interconnected on the building side of the service ground.

E. RECEPTACLES: Equipment ground conductor shall be provided for continuity of ground path from the device grounding pole. Provide ground fault interrupter outlets where required in wet conditions and by NEC.
F. EXTERIOR LIGHTING STANDARDS: Provide a driven ground rod bonded to the ground lug of all exterior light poles. Ground shall also be bonded to the reinforcing steel of the concrete pole base. All circuits to light poles shall contain an equipment ground wire in addition to the ground rod, to aid in operating the overcurrent device under ground fault conditions.

G. PROTECTION IN HAZARDOUS ATMOSPHERES

1. Hospital Operating Rooms: Isolation transformers and ungrounded neutral systems with ground detectors shall be used unless otherwise directed by the University Architect.

2. Other areas where used of such a system may be desirable shall be called to the attention of the University Architect during the design stage.

END