SECTION 16450
SECONDARY GROUNDING

PART 1  GENERAL

1.01 SUMMARY

A. Section Includes:

1. Power system grounding.
2. Communication systems grounding.
3. Electrical equipment and raceway grounding and bonding.

B. Related Sections:

1. Section 16110 - Raceways
2. Section 16420 - Service Entrance
3. Section 16425 - Medium Voltage Switchboards
4. Section 16460 - Medium Voltage Transformers
5. Section 16470 - Panelboards

1.02 REFERENCES

A. Specify Underwriters Laboratories (UL) listed equipment, assemblies and materials.

B. National Electrical Code (NEC) (Current Edition)

1.03 SYSTEM DESCRIPTION

A. Ground the electrical service system neutral at service entrance equipment to grounding electrode system: metallic water service, effective building steel, and to supplementary grounding electrodes in compliance with NEC.

B. Ground each separately-derived system neutral (transformer secondary) to nearest effectively grounded metallic cold water pipe or building structural steel (preferred source) or ground bus. Provide detailed information on type, size, location, etc.

C. Provide communications system grounding conductor at point of service entrance and connect to service grounding electrode system.

D. Bond together service equipment enclosures, exposed non-current carrying metal parts of electrical equipment, metal raceway systems, grounding conductor in raceways and cables, receptacle equipment ground conductors and plumbing systems in accordance with NEC requirements.

E. Provide full sized equipment ground conductor in all feeders regardless of type of raceway.
F. Provide equipment grounding conductor in all branch circuit conduits.

1.04 Submittals

A. Require submittals under provisions of Section 16010 - Basic Electrical Requirements and Section 01300 - Submittals.

B. Include product data on rods, conductors, methods of connection, etc. and field testing reports.

PART 2 PRODUCTS

2.01 MATERIALS

A. Ground Rods:

   1. Copper encased steel, 3/4” diameter, minimum length 10’.

PART 3 EXECUTION

3.01 INSTALLATION

A. Grounding Requirements:

   1. Provide a separate insulated equipment grounding conductor in all feeder circuits. Terminate each end on a grounding lug, bus or bushing.

B. Require connection of grounding electrode conductors to metal water pipe. Connections are to be made to flange piping at the street site of the flange. Require bonding jumper around water meter.

C. Provide minimum #6 AWG copper conductor in conduit for communications service grounding conductor terminated at building grounding electrical system.

D. For isolated grounding systems, specify an insulated full size grounding conductor terminated at the nearest grounding electrode in compliance with NEC.

E. Require field testing of ground resistance from service neutral connection to ground reference point. Maximum permitted resistance 0.5 ohms. Perform fall of potential test with results not greater than 5 ohms.

F. Require tests to be performed in the presence of a representative of the Department of Facilities Management. Test shall be documented and report turned over to the University.

END OF SECTION 16450