

## SECTION 26 05 26 - GROUNDING AND BONDING

### PART I - GENERAL REGULATORY REQUIREMENTS

- A. National Electrical Code Compliance: At a minimum, all grounding shall be in accordance with the National Electrical Code, Article 250.

### PART 2 - PRODUCTS

#### 2.1 GROUNDING

- A. ELECTRICAL EQUIPMENT: The metallic enclosures, equipment, metal raceways, and supports, etc., shall be bonded together to form a low-impedance ground-fault current path.
- B. Unit Substation Transformer Room Ground Bus: The Transformer Room Ground Bus shall be a copper bar,  $\frac{1}{4}$ " x 2", a minimum of 18" long, supported by 1" insulators, anchored to the wall. Anchors shall be installed a minimum of every 30". The Ground Bus shall be a Hargar GBI, or approved equal. All conductor terminations at the Ground Bus shall be by fittings UL Listed for grounding, such as Burndy YGA Series compression lugs, or approved equal. The Transformer Room Ground Bus shall be connected to all of the following Grounding Electrodes, when present.
  - A. Structural Steel
  - B. Underground Metal Water Pipe
  - C. Concrete Encased Electrode
  - D. Ground Rods
  - E. Ground Ring
- C. Structural Steel: A copper Grounding Electrode Conductor shall bond the building structural steel to the Transformer Room Ground Bus. The conductor shall be sized per NEC Table 250.66 as a minimum. Fittings for connection to the building steel shall be UL Listed for the purpose.
- D. Underground Metal Water Pipe: A copper Grounding Electrode Conductor shall bond the Transformer Room Ground Bus to the Water Main ahead of the meter, within 5' of entrance to the building. Connection to the water pipe shall be by means of a fitting UL listed for grounding, similar to a Burndy Model C-4, or approved equal. A similar sized bonding conductor shall be furnished across the water meter, using the same fittings. Bonding conductors shall be sized per NEC Table 250.66.
- E. Concrete Encased Electrode: Rebar in the building footings of 20' or more in length shall be bonded to the Transformer Room Ground Bus by a copper Grounding Electrode Conductor. Connection to the rebar shall be by fittings that are UL listed for the purpose. Burndy GAR series, or approved equal.
- F. Ground Rods: A grounding triangle shall be created with at least 3 copper ground rods. Rods shall be spaced at least 10 feet apart. Rods shall be copper clad steel, 10' long,  $\frac{3}{4}$ " diameter. Grounding triangle shall be bonded to the Transformer Room Ground Bus by a copper Grounding Electrode Conductor, sized per NEC or drawings, whichever is larger. Connection to the ground

rods shall be by fittings that are UL listed for the purpose. Connection to the rods shall be by exothermic welds, or fittings similar to a Burndy GP6429 or approved equal.

- G. Service Entrance Grounding: Bond the Transformer Room Ground Bus to the Ground Bus of the Unit Substation. All Ground bus within the Unit Substation sections shall be bonded together, including the Medium Voltage sections, transformer section, and secondary sections. The Grounded Conductor (Neutral) of the Substation secondary shall be bonded to the Ground Bus in the secondary section by a Main Bonding Jumper, sized per NEC.
- H. Distribution Transformers: All transformers shall have their secondary Grounded Conductor (Neutral) bonded to the building Transformer Room Ground Bus. If the transformers are located more than 100' from the Transformer Room Ground Bus, they can bond to the building structural steel, when present, instead of the Transformer Room Ground Bus.
- I. Lightning Protection Systems: Lightning Protection systems shall have their ground field bonded to the building grounding electrode system, per NEC requirements.

### PART 3 - EXECUTION

All grounding work shall be done per manufacturer's instructions, and NEC requirements.

END OF SECTION 26 05 26

This section of the *U of I Facilities Standards* establishes minimum requirements only.  
It should not be used as a complete specification.