



# Electric Service Standards

DATE  
**01-18-12**

PREPARED BY

**Delivery Assurance –  
Design Support**

SUBJECT

## **VIII. GROUNDING**

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### **VIII. GROUNDING**

#### **A. General**

The Customer's service entrance installation shall satisfy all grounding requirements of the National Electrical Code (NEC) and any applicable building codes, and is subject to acceptance of local inspecting authorities.

FPL's service drop or service lateral includes a grounded conductor. This conductor is grounded at the source transformer location and generally interconnected with other grounded conductors. This grounded conductor will normally be attached to a grounding connector in the meter socket and also to one in the service equipment and to the neutral or ground bus in the service equipment. When meter sockets with Customer owned isolated neutrals are required by local codes, a separate Customer owned grounding conductor shall be run by the Customer from the service equipment to the grounding connection of the meter socket.

The NEC allows several methods of supplying a grounding electrode. A ground rod is not the only means of supplying the grounding electrode. A brief discussion of the NEC requirements is provided in the following notes and is not intended to be all-inclusive. The NEC and your local inspecting authorities should be consulted for additional details and for those that may have changed since the time of this printing. FPL accepts any method which satisfies the NEC and the local inspecting authorities.

Local inspecting authorities may have more stringent requirements than the NEC. For example, some inspecting authorities require the use of a concrete-encased electrode as described in **Article 250.52**. This electrode would consist of at least 20 **continuous** feet of one or more bare or zinc galvanized or other electrically conductive coated steel reinforcing bars or rods of not less than 1/2 inch in diameter or of at least 20 feet of bare copper conductor not smaller than No. 4. The electrode would be encased in at least 2 inches of concrete and located within or near the bottom of a concrete foundation or footing that is in direct contact with the earth (no vapor barrier).

#### **B. Notes on Grounding Customer's Service Entrance:**

1. FPL's point of delivery includes a grounded conductor. The point of delivery is normally at the weatherhead (in the case of an FPL overhead service lateral), the meter can (in the case of an FPL underground service lateral), a padmounted transformer, or a vault.
2. The customer shall connect this FPL grounded conductor to the service equipment by extending a customer-owned grounded conductor along with the other conductors of the customer's service entrance which attach to FPL at the point of delivery. This grounded conductor shall be extended even though it may not be required as a circuit conductor by the NEC and shall be sized according to NEC Article 250.
3. The customer's service entrance wiring shall be grounded as required by the NEC, Article 250, and any local code in effect.
4. The grounded wiring system to each premise shall have a grounding electrode conductor connected to a grounding electrode meeting the requirements of the NEC. This grounded conductor shall be connected to the grounded service conductor at any accessible point on the load side of the service drop or lateral to and including the service equipment terminals provided to connect the grounded service conductor.
5. The equipment grounding conductor and the service equipment enclosure shall be connected to the grounded conductor of the system within the service equipment or within the service conductor enclosure.



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6. The grounding electrode system is discussed in Article 250.52 of the NEC. Article 250.52 states that, if available on the premises, each of the following along with any "derived" electrodes shall be bonded together to form the grounding electrode system: (1) metal underground water pipe 10 feet or more in length, (2) metal frame of building in direct contact with the earth for 10 or more feet or with concrete encased hold down bolts that are connected to a concrete encased electrode, (3) concrete encased electrode at least 20 feet in length, (4) ground ring at least 20 feet in length, (5) rod and pipe electrodes at least 8 feet in length, (6) other listed electrodes, or (7) plate electrodes. The rod or pipe electrode may be a 5/8" diameter stainless steel, copper or zinc coated steel rod, or a smaller diameter listed rod, or a pipe of at least 3/4" diameter (galvanized or coated if steel), all driven 8' into the earth. A plate electrode shall expose not less than two square feet of surface to exterior soil. Iron or steel plates shall be at least 1/4 inch thick and nonferrous plates shall be at least .06 inch thick. A single rod, pipe, or plate electrode having a resistance to earth of more than 25 ohms shall have a supplemental electrode installed no closer than 6 feet away. Aluminum electrodes ARE NOT PERMITTED. A metal underground gas piping system SHALL NOT BE USED AS A GROUNDING ELECTRODE.
7. For additional grounding information, see the National Electrical Code, Article 250, and local building codes in effect in the area. If local building code requirements exceed those of the National Electrical Code, installations shall comply with the local codes.