

Grounding of the meter inside the secondary distribution box

Article Overview

The meter inside a secondary distribution box should be grounded at a single point, typically at the meter base, with a properly sized grounding conductor connected to the grounding electrode system.

Single-Point Grounding

For safety and compliance, grounding must be done at a single point to prevent objectionable currents and ensure proper fault clearing. In systems with a single meter base and service box, the grounding connection can be made either at the meter base or the service box, but not at multiple points on the supply side of the distribution system . In multi-gang meter bases, grounding must be at the meter base, with bonding conductors connecting each service box to maintain continuity .

Grounding Conductor and Electrode

The grounding conductor (also called the Grounding Electrode Conductor, GEC) connects the meter box to the grounding electrode, such as a ground rod or Ufer ground. The conductor must be mechanically secure, corrosion-resistant, and sized according to the largest ungrounded service conductors . The grounding electrode should be installed near the meter box, with at least 8 feet of its length in continuous contact with the earth, and the top flush with or below ground level .

Bonding and Metal Parts

All metal parts of the distribution box, including the enclosure and any service panels, must be bonded to the grounding system to maintain equal electrical potential and prevent shock hazards . Bonding ensures that if a live conductor contacts a metal part, the fault current flows through the low-impedance path, tripping the breaker and de-energizing the system . In industrial or specialized equipment, additional bonding may be required between mounting plates and connected components to maintain resistance below 0.1 ohm .

Compliance and Safety

Grounding must comply with local electrical codes, such as the Ontario Electrical Safety Code (OESC) or the National Electrical Code (NEC), depending on jurisdiction. Key rules include:

- o Grounding at a single point only on the supply side .
- o Using separate conduits for grounding if the meter base is ahead of the utility ownership demarcation .
- o Properly sizing bonding conductors between service boxes and the meter base .
- o Ensuring all connections are secure and capable of carrying fault currents safely . By following these



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guidelines, the meter inside a secondary distribution box will be safely grounded, minimizing the risk of electrical shock, equipment damage, and ensuring proper operation of overcurrent protection devices.

Learn electrical meter grounding basics, NEC code rules, common mistakes, and when to call a

2) For stabilizing the voltage to earth during normal operation. Thus, improper grounding could result in equipment damage and fire

Electrical Panel Grounding involves connecting the panel to the earth using a grounding rod and a grounding wire, ensuring any

Properly grounding a meter box is essential for electrical safety, preventing shocks and protecting your home's

Improper grounding in secondary systems can cause safety issues including fire and failure of equipment in homes.

The service panel houses incoming cables from the meter as well as the breakers and wires that distribute

Electrical grounding and bonding is one of the many misunderstood topics of discussion in

I think the electrical panel may not be grounded correctly. The main shutoff is outside in a

5.7. All meter boxes shall be installed at a height of 200 mm from ground to the bottom of the meter box. Civil construction

Distribution System Grounding Fundamentals Edward S. Thomas, PE - Senior Member Richard A. Barber - Member Utility Electrical

The topic of grounding and bonding is a never ending area of confusion. The difference between a service panel and

Electrical Grounding Techniques Grounding and bonding are the basis upon which safety and power quality are built.

subpanel grounding violations. The grounded conductors and the equipment grounds are connected to the same terminal bar,

Examples of ground-fault current paths are any combination of equipment grounding conductors, metallic

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raceways

JLC Field Guide: Grounding The purpose of grounding is safety: A ground wire generates a short circuit and trips the

Underground secondary service laterals may be served directly from overhead distribution if the existing overhead facilities have

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