

Regulations on the Location of Grounding Bolts in Distribution Boxes



Overview

The box must be properly sized, supported, accessible, grounded where required, and suitable for the actual environment.

Key Takeaways

Grounding bolts in distribution boxes must be installed to ensure continuity of equipment grounding conductors, with metal boxes requiring a dedicated grounding screw and nonmetallic boxes requiring internal conductor connections.

General Requirements

According to the National Electrical Code (NEC) Article 250, all grounding and bonding work must provide a low-impedance path for ground-fault current and maintain continuity even if devices are removed from the box. Grounding bolts or screws are used to connect equipment grounding conductors to metal boxes, ensuring that the box itself is part of the grounding path.

Metal Boxes

Grounding bolts or screws must be installed in metal boxes to connect one or more equipment grounding conductors. The grounding screw must be used solely for grounding purposes and can be a listed grounding device or part of the equipment listed for grounding. Connections should maintain continuity so that removing a receptacle, luminaire, or other device does not interrupt the grounding path.



Direct metal-to-metal contact between device yokes and the box may sometimes eliminate the need for a separate bonding jumper, provided the connection is reliable.

Nonmetallic Boxes

Nonmetallic boxes cannot provide grounding continuity through the box itself. All equipment grounding conductors entering the box must be connected together inside the box using wire nuts or listed connectors, allowing any device in the box to be grounded. A grounding bolt is not attached to the box itself but may be used to facilitate connections to devices requiring grounding.

Placement Considerations

Grounding bolts should be located where they are accessible for inspection and testing. They must allow for proper connection of all conductors without creating strain or interference with other wiring. The arrangement should prevent hazardous differences in electric potential, as emphasized in OSHA protective grounding guidelines for distribution equipment.

Testing and Resistance

Proper grounding installations should be tested to ensure maximum resistance of 25 ohms or less, confirming effective dissipation of fault currents. Connections must be secure and corrosion-resistant to maintain long-term reliability.

Summary

In practice, metal distribution boxes require a dedicated grounding screw or listed device, while nonmetallic boxes require internal conductor connections. All grounding connections must maintain continuity, be accessible, and comply with NEC Article 250 and OSHA safety standards to ensure protection against electrical faults and hazards.

Article Content

NEC Junction Box Code: What Installers Must Know 2026

The box must be properly sized, supported, accessible, grounded where required, and suitable for the actual environment. Most inspection failures come from a few basic mistakes:

NEC Junction Box Code: Avoid Costly Mistakes [July 2026]

NEC junction box code covers box fill, access, covers, grounding, support, and location suitability for safer, inspection-ready box selection.

Grounding System Installation Standards for Distribution Boxes and ...

Whether you're a seasoned pro or just starting out, this comprehensive guide will give you practical insights into proper grounding techniques, with a special focus on how selecting quality

GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

Connect the conductor from the panel ground bus or connector at the source to all items to which the conduits or raceways connect. Bond to a ground lug within each panel, box or equipment.

NEC Article 250: Grounding and Bonding (Sections 250.1 to 250.197)

NEC Article 250 covers the general requirements for grounding and bonding of electrical installations. Grounding and bonding are critical for the safe operation of electrical systems, preventing electrical

A Complete Guide to NEC Article 314 on Electrical Boxes and Conduit

Metal boxes are grounded and bonded to maintain electrical continuity and ensure safety. Fasteners entering the wiring compartment must not damage conductors or compromise

NEC Article 250 Grounding.

Equipment grounding must be done in accordance with the National Electrical Code (NEC).

National Electrical Code 2023 Basics: Grounding and Bonding Part 15

Section 250.80 requires the connection of metal service enclosures and raceways to the grounded conductor in grounded systems and the grounding electrode conductor in ungrounded

National Electrical Code 2023 Basics: Grounding and Bonding Part 1

Learn about the general requirements for grounding and bonding in line with the NEC 2023.

Grounding and Bonding Requirements in the NEC

Section 250.4 lays out the performance requirements of grounding and bonding electrical systems. The rest of Article 250 covers how to achieve this desired level of protection.

DUKE UNIVERSITY CONSTRUCTION STANDARDS 1

Introduction Grounding is utilized within electrical distribution systems to provide an alternative, low- impedance path around the electrical system for short circuit current to flow during a line to ground

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[Grounding Practices in Power Distribution Systems](#)

Location and Installation: Grounding transformers should be strategically placed, often at substations or along distribution lines. This is particularly important when it comes to the installation process.

[Does the Distribution Box Door Need Grounding? Safety Standards FAQ](#)

Choose a dedicated grounding screw or clip —not a reused bolt or hinge. Run a separate copper wire (usually 12 AWG) from the door to the cabinet's grounding bar.

[The installation requirements for the distribution box](#)

Learn how to install a distribution box safely and correctly. Covers wiring, placement, standards, and expert tips for a compliant setup.

[Understanding Grounding and Bonding: A Practical](#)

Proper grounding and bonding are fundamental to the safety and functionality of any electrical system. Whether you're a homeowner, an electrician, or an engineer,

[A Full Guide to the NEC Code for Junction Boxes](#)

Section 250.110 outlines the grounding requirements for electrical equipment, including junction boxes. Junction boxes must be grounded to provide a path for

[The Basics of Grounding and Bonding](#)

Article 250 of the NEC covers the grounding and bonding of electrical systems. By definition, as well as by function, grounding and bonding are not the same thing. However, they do work closely together

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