

How to ground the outgoing wire in the distribution box

Article Overview

Properly grounding the outgoing wires of a distribution box involves connecting them to a dedicated grounding bar or PE bar, using appropriately sized copper wires, and verifying low-resistance continuity to ensure safety.

Step-by-Step Grounding Procedure

1. Locate the Grounding Bar (PE Bar) Open the distribution box and identify the grounding bar, often marked as "PE" or with a grounding symbol. This bar serves as the central point for all grounding connections inside the box . 2. Connect the Outgoing Ground Wires

- o Use a yellow-green insulated copper wire with a cross-sectional area meeting local standards (typically ≥ 6 mm² outside the US, or 10 AWG in the US), .

- o Strip the insulation for a sufficient length and attach the wire securely to the PE bar using a screw or approved terminal. Tighten firmly to ensure a reliable connection .

- o If the outgoing wires are connected to devices or circuits, ensure each device's ground wire is also bonded to the PE bar to maintain a continuous low-resistance path . 3. Ground the Distribution Box Itself

- o For metal boxes, attach a grounding pigtail from the box to the PE bar using a green grounding screw or listed grounding lug .

- o For plastic boxes, connect the ground wire to any metal components or grounding terminals inside the box, then run it to a buried ground rod . 4. Connect to the Earth Ground

- o Install a ground rod or use an existing grounding system. Connect the PE bar to the rod with a continuous copper conductor. Ensure the rod is buried properly and provides a stable grounding point .

- o The total ground resistance should ideally be below 25 ohms for safety, and all connections should be tested with a voltmeter or continuity tester . 5. Verify Grounding Effectiveness

- o Use a multimeter or continuity tester to measure resistance between the distribution box, outgoing wires, and the earth ground. A very low resistance reading confirms a solid grounding path .

- o Inspect all connections visually to ensure screws are tight and wires are properly secured. Clearly label the grounding points for future maintenance . 6. Additional Precautions

- o Avoid loose connections and double-tapping neutrals on the grounding bar.

- o Use high-quality copper wires and connectors to prevent corrosion and maintain long-term reliability .

- o Ensure compliance with local electrical codes and standards for grounding and wire sizing . By following these steps, the outgoing wires of a distribution box will be safely grounded, minimizing the risk of electrical faults, shocks, or equipment damage.

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