

Multiple distribution boxes can be connected in series for grounding

Article Overview

Multiple distribution boxes can be grounded in a series-like arrangement, but each box must maintain proper equipment grounding conductor continuity according to NEC 250.148.

NEC Requirements for Grounding

According to NEC 250.148, all equipment grounding conductors (EGCs) within a box must be connected together to ensure a continuous path for ground-fault current. This applies whether the box is metal or nonmetallic. In metal boxes, the EGC can be attached to the box using a grounding screw or clip, while in nonmetallic boxes, the EGCs are joined together inside the box to maintain continuity without connecting directly to the box .

Series Connection Considerations

While multiple boxes can be connected along a circuit, each box must independently maintain grounding continuity. This means that even if boxes are "in series" along a circuit, the removal or disconnection of a device in one box must not interrupt the grounding path for other devices . This is typically achieved by splicing all EGCs together in each box or using a jumper conductor between groups of grounds when multiple circuits are present .

Practical Implementation

- o Metal Boxes: Connect the EGC to the box and to all devices inside. If using metal raceways like EMT, the raceway itself can serve as the grounding path, reducing the need for additional conductors inside the box .
- o Nonmetallic Boxes: Join all EGCs together inside the box. If multiple circuits enter the box, a single conductor can bridge separate groups to ensure continuity .
- o Multiple Circuits: It is not strictly necessary to tie all grounds from different circuits under the same wire nut, but all EGCs must be connected in a way that maintains a continuous path back to the source for proper breaker operation .

Key Takeaways

- o Continuity is mandatory: Each box must maintain a continuous grounding path regardless of series connections.
- o Connection method depends on box type: Metal boxes can use screws or clips; nonmetallic boxes require internal splicing.
- o Multiple circuits: Grounds can be grouped, but a jumper ensures overall continuity.
- o Code compliance: NEC 250.148 governs these connections to ensure effective ground-fault protection . In



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summary, connecting multiple distribution boxes in series is permissible, but each box must independently ensure grounding continuity to comply with NEC requirements and maintain safety.

What can be done to prevent this situation? In order for a grounding conductor to not be a current-carrying conductor in

1) ALL grounds in a box MUST be connected together. 2) If the box is plastic ALL devices MUST be connected to

Why Do Neutral and Ground Conductors Need to Be Bonded in the Main Panel? According to NEC Article 250, both the neutral and

Deadly Grounding Mistakes and How to Avoid Them I've fixed more botched grounding jobs than I can count. Here are

What has changed here, with the 2017 NEC? The requirement to use either structural metal or water piping as the preferred

Section 250.148 provides all of the methods permitted for ensuring proper continuity between the equipment grounding conductors

Common grounding electrodes include rods, plates, pipes, ground rings, metal in-ground support structures and

By understanding the deeper principles behind grounding standards, avoiding common installation pitfalls, and

As can be seen from the code text, the requirement is to ensure the bonding of all the related equipment grounding

Technicians often have an "Anything Goes; It's Temporary" attitude about grounding,

It is absolutely necessary to implement efficient grounding in distribution systems in order to guarantee the

Article 250 of the NEC covers the grounding and bonding of electrical systems. By definition, as well as by function, grounding and

The National Electrical Code (NEC) lists eight specific methods to make grounding and bonding connections

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Learn how to connect equipment grounding conductors to receptacles and keep their continuity in boxes.

Grounding electrode conductors must be connected at accessible points from the load end of service conductors, with specific rules

If you have more than one circuit in the box, tying all the grounds together is not necessary as long as you separate

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