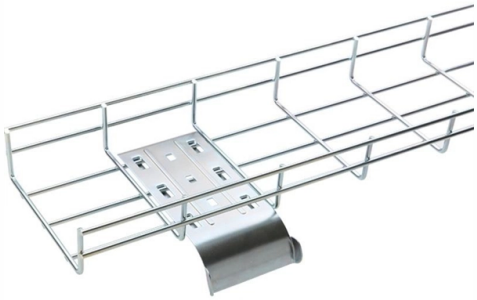
Is it okay to connect the ground wire to the cable tray



Overview

If you must earth a tray for functional reasons (static discharge, RFI), do it at one end only. Bonding both ends can form a loop, increasing magnetic coupling and nuisance RCD trips.

Key Takeaways

Yes, a ground wire can be connected to a cable tray, and in some cases, the cable tray itself can serve as the equipment grounding conductor (EGC) if it meets NEC requirements. Using Cable Trays as Grounding ConductorsMetallic cable trays can serve as the equipment grounding conductor (EGC) in installations where qualified personnel will service the system. This means the tray itself can provide a low-impedance path for fault currents, reducing the risk of electric shock or equipment damage.

All metallic trays must be grounded according to NEC Article 250. 96, regardless of whether they are used as the EGC. Connecting a Separate Ground WireEven when the tray is used as an EGC, it is often recommended to run a separate grounding conductor along the tray, especially for wire mesh trays or when supporting cables with built-in EGCs.

This wire is typically bonded to each or alternate tray sections using grounding clamps, which also mechanically secure the conductor to prevent displacement under fault conditions.

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Key Guidelines for Ground Wire Connection

Material Selection: Use copper, hot-dip galvanized steel, or stainless steel for corrosion resistance and good conductivity. Insulation: For aluminum trays, use an insulated conductor to prevent electrolytic corrosion, removing insulation only at bonding points with tin- or zinc-plated connectors. Continuity: Ensure the grounding path is electrically continuous and capable of safely carrying fault currents, with low impedance to facilitate protective device operation.

Size Requirements: The cross-sectional area of the tray side rails or the grounding conductor must meet NEC Table 392. 60(A) and 250. 122 for the specific circuit rating.

Limitations

High Fault Currents: Steel trays should not be used as EGCs for circuits with ground-fault protection above 600 A, and aluminum trays above 2000 A. Wire Mesh Trays: Using wire mesh trays as EGCs is generally not recommended; a separate ground wire is preferred.

Summary

A ground wire can and often should be connected to a cable tray to ensure safety, continuity, and compliance with NEC standards. Depending on the tray type and installation, the tray itself may serve as the EGC, but a separate conductor bonded to the tray provides additional reliability, especially in aluminum or wire mesh trays. Proper material selection, bonding, and adherence to NEC requirements are essential for effective grounding.

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This comprehensive guide delves into the complexities of cable tray grounding, offering in-depth insights into its importance, principles, design

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Grounding in cable trays is an important practice to increase electrical safety and prevent hazards in case of faults. The methods and materials used may vary depending on the structure of

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Cables must be secured to the cable tray prior to and after the transition, and protected by guarding or location. The electrical connection between sections can be maintained with bonding jumpers or a

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Practices for grounding and bonding of cable trays

A bare copper equipment grounding conductor should not be placed in an aluminum cable tray due to the potential for electrolytic corrosion of the aluminum cable tray in a moist environment. For such

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