Should cable trays and supports be grounded



Overview

All metallic cable trays shall be grounded as required in Article 250.96 regardless of whether or not the cable tray is being used as an equipment grounding conductor (EGC).

Key Takeaways

Yes, all metallic cable trays and their supports must be grounded to ensure electrical safety and compliance with NEC standards.

NEC Requirements and Safety Rationale

Metallic cable trays are required to be grounded according to NEC Article 250. 96 and Article 392, regardless of whether the tray is used as an equipment grounding conductor (EGC) itself. Grounding ensures that any fault current or electrical leakage is safely directed to the earth, reducing the risk of electric shock, equipment damage, and fire hazards.

Proper grounding also minimizes electrical noise and interference, which is critical in environments with sensitive electronic equipment.

Methods of Grounding



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Tray as EGC: In some installations, the metallic tray itself can serve as the EGC if it meets cross-sectional area requirements and is electrically continuous across sections. Steel trays are limited to circuits with ground-fault protection up to 600 amperes, while aluminum trays can handle up to 2,000 amperes. Separate Grounding Conductor: A separate EGC (minimum #4 AWG) can be installed inside or attached to the tray.

This conductor is bonded to each tray section using grounding clamps or bonding jumpers to maintain electrical continuity. Bonding Jumpers: Where mechanical connections alone do not ensure continuity, flexible bonding jumpers are used to connect tray sections, supports, and conduit drops back to the main grounding system. Both side rails of ladder or trough trays should be bonded together to the next section to maintain a reliable path for fault currents.

Supports and Non-

Metallic Trays

Supports: Metallic supports for cable trays must also be bonded to the grounding system to ensure the entire tray assembly is electrically continuous.

Non-

Metallic Trays: Non-metallic trays cannot serve as grounding conductors. In such cases, a separate EGC must be provided within or alongside the tray.

Best Practices

Use insulated conductors when bonding to aluminum trays to prevent electrolytic corrosion. Ensure all tray sections are mechanically tight and electrically continuous. Verify grounding conductor sizing according to NEC tables to handle potential fault currents.

For installations with sensitive electronics or telecommunications circuits, additional grounding for EMI and lightning protection may be required. In summary, grounding metallic cable trays and their supports is mandatory for safety, regulatory compliance, and system reliability. Proper bonding, conductor sizing, and continuity checks are essential to maintain an effective grounding system.

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Article Content

Practices for grounding and bonding of cable trays

All metallic cable trays shall be grounded as required in Article 250.96 regardless of whether or not the cable tray is being used as an equipment grounding conductor (EGC).

Cable Tray Installation Rules (NEC 392) – Electrical Trader

All metallic cable trays must be grounded as outlined in NEC Article 250.96, even if the tray isn''t being used as an equipment grounding conductor (EGC). This precaution helps prevent

Understanding Cable Tray Grounding: A

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

NEC Standards for Cable Trays: Grounding, Fill Capacity

Grounding is one of the most critical NEC considerations when installing metallic cable trays. To comply with code requirements and ensure system safety, metallic trays must be

Cable Tray Grounding: Power, Instrumentation, and Telecommunications

Cable tray systems that contain signal and communication circuits should be grounded and, in some situations, shielded from external electrical and magnetic disturbances.

Earthing or Bonding a Metallic Cable Tray: What the Regs Really Say ...

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.

Earthing & Bonding in Cable Tray Systems

Learn why earthing and bonding in cable tray systems is essential for electrical safety, grounding, compliance, and preventing faults in modern installations.

The Importance of Grounding in Cable Trays and How to Do It?

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

NEC Article 392 Guide: Ensuring Compliance for Cable Tray Systems

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Master NEC Article 392 with our comprehensive guide. Learn essential cable tray requirements for installation, grounding, and fill capacity to ensure full electrical compliance.

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NEC Article 392 sets the rules for cable tray systems, from permitted wiring methods and installation requirements to cable fill and ampacity adjustments.

Common Issues in Steel Cable Tray Installations

This article delves into typical troubleshooting scenarios encountered with cable tray systems, highlighting practical prevention methods and best

Cable Tray Sizing Calculator | IEC 61537 & NEC 392

Use this cable tray sizing calculator to check fill %, select tray size, and comply with IEC 61537 & NEC 392 with formulas, example and checklist.

How to Choose the Best Cable Tray Accessories: A Complete Buying

Do cable tray accessories need to be grounded? Metal accessories in energized systems should be bonded to maintain electrical continuity and meet NEC Article 250 requirements.

REBT 2026 Updates for Installers, Cable Trays and PV

Explore the REBT 2026 updates and their real impact on installers, cable trays, electrical routing and ground-mounted photovoltaics.

Grounding Requirements for Electrical Cables, Cable Trays, and

Guidelines for grounding electrical cables, busbars, and cable trays in wiring projects, ensuring safety and compliance with industry standards.

Cable Tray Grounding: Power, Instrumentation, and

Cable tray systems that contain signal and communication circuits should be grounded and, in some situations, shielded from external electrical and magnetic disturbances.

Safely Installing, Maintaining and Inspecting Cable Trays

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Cable trays are not raceways, but they are treated as a structural component of a facility''s electrical system. Cable trays are a part of a planned cable management system to support, route, protect and

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