

Grounding of electrical cable trays and supports



Overview

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).

Key Takeaways

Metallic cable trays and their supports must be properly grounded and bonded to ensure electrical safety, provide a low-impedance path for fault currents, and comply with NEC and industry standards.

Grounding Requirements

All metallic cable trays must be grounded regardless of whether they are used as an Equipment Grounding Conductor (EGC). The grounding ensures that any fault current is safely conducted to earth, preventing electric shock and equipment damage (NEC Article 250.96).

Cable trays can serve as the EGC in qualifying installations, but the tray must meet minimum metal cross-sectional area requirements based on the circuit's fault protection rating (Table 392.60(A)). Steel trays should not be used as EGCs for circuits with ground-fault protection above 600 A, and aluminum trays above 2000 A.

Bonding Practices

Bonding connects all metallic components of the tray system to maintain equal electrical potential. This includes connecting tray sections, supports, and any installed EGCs. Bonding prevents voltage differences that could cause arcing, reduces electromagnetic interference, and ensures continuity under fault conditions.

Grounding clamps or tin/zinc-plated connectors are recommended to mechanically and electrically secure EGCs to the tray. Bare copper conductors should not be used in aluminum trays in moist environments due to corrosion; insulated conductors with exposed bonding points are preferred. Equipment Grounding Conductor (EGC) Options Tray as EGC: The tray itself can serve as the EGC if it meets NEC requirements and is electrically continuous.

Parallel EG

C: A single conductor cable can run along the tray as a common EGC for all circuits, bonded to the tray at intervals.

Individual Cable EG

Cs: Each multi-conductor cable may have its own EGC, which should be bonded to the tray sections for mechanical stability and electrical continuity.

Practical Considerations

Ensure electrical continuity across all tray sections and supports. Use insulated or plated connectors to prevent corrosion and maintain reliable bonding. Maintain proper separation of power and data cables to reduce interference.

Regularly inspect grounding and bonding connections to ensure long-term safety and compliance.

Follow NE

C Article 392 for tray installation, fill limits, and grounding requirements. Proper grounding and bonding of cable trays and supports not only protects personnel and equipment but also enhances system reliability, reduces fire hazards, and ensures compliance with electrical codes.

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

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

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

Earthing & Bonding in Cable Tray Systems: Complete Guide for

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

NEC Standards for Cable Trays: Grounding, Fill Capacity

This article provides a comprehensive framework that governs various aspects of cable tray installations, including the types of cables that are deemed acceptable for use, requirements for

Cable Tray Grounding Wire: What You Need to Know

Discover the best practices for Cable Tray Grounding Wire installation. Learn key requirements, safety tips, and material choices to ensure a

Equipment Grounding Conductors for Cable Tray Systems

The intent of this article is to review grounding practices for cable tray wiring systems. The Equipment Grounding Conductors are the most important conductors in the electrical systems. The Equipment

Practices For Grounding and Bonding of Cable Trays

The document discusses grounding and bonding practices for metallic and non-metallic cable trays. Metallic cable trays must be grounded and can serve as an equipment grounding conductor if the

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.

Prevent Fire and Electric Hazards When Cable Trays Used

If not designed and installed properly, wiring inside cable trays may pose hazards such as fire, electric shock, and arc-flash blast events.

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.

Common Cable Tray Failures and How to Resolve Them

Learn about common cable tray failures, their causes, and practical solutions for ensuring the longevity and safety of your cable tray system,

Cable Trays

Cable trays, In order to transport and protect electrical cables in a safe way, in accordance with the weight and width of the cable ...

Cable Tray Institute

The Cable Tray Institute (CTI) was founded in 1991 to support the cable tray industry by engaging in research, development, education, and the dissemination of information designed to promote,

Cable Tray, Earthing & Lightning Protection

Explore Our Complete Earthing & Cable Tray Product Range Complete range of electrical grounding, bonding, and cable management systems for projects

Aluminum Cable Tray | EAE USA

Aluminum Cable Tray Systems – Extra Heavy Duty Industrial Cable Ladder The aluminum cable tray is a lightweight, durable, and cost-effective solution used for organizing and safely carrying electrical

How to Choose Cable Tray for High Voltage System

Discover key engineering considerations on selecting cable tray for high voltage system, covering ampacity derating, material standards, EMI

Cable Tray Installation

Learn everything about cable tray installation with our complete guide. Discover types, steps, and safety tips for efficient electrical cable management.

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