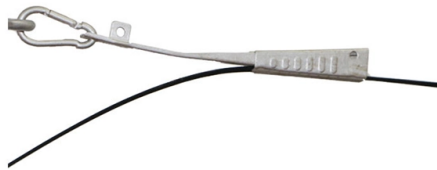


Should grounding wires be installed in cable trays



Overview

Key Takeaways NEC Article 392 governs cable tray systems. Only approved tray-rated cables should be installed.

Key Takeaways

Metallic cable trays must be properly grounded to ensure electrical safety, either by using the tray itself as an equipment grounding conductor (EGC) or by installing a separate grounding wire.

Purpose of Grounding Cable Trays

Grounding cable trays provides a safe path for stray electrical currents to flow into the earth, reducing the risk of electric shock, equipment damage, and fire hazards. It also stabilizes the electrical system and helps clear fault currents efficiently, ensuring protective devices operate correctly .

Methods of Grounding

- Using the Cable Tray as the EGC Metal trays can serve as the equipment grounding conductor if they meet NEC cross-sectional area requirements. Steel trays are suitable for circuits with ground-fault protection up to 600 amperes, while aluminum trays can handle up to 2,000 amperes. The tray must be electrically continuous, and bonding connections should be made at joints using tin- or zinc-plated connectors .



- **Full-Length Grounding Conductor** A continuous insulated grounding wire can be run along the length of the tray. This wire is bonded to each tray section using grounding clamps, providing a reliable path for fault currents and mechanically securing the conductor to prevent displacement under magnetic forces .
- **Parallel EGCs** For multi-circuit trays, a single conductor can serve as a common EGC for all circuits, or individual EGCs can be paralleled with the tray to ensure low impedance and safety compliance .

Material Considerations

- **Copper Wire:** Excellent conductivity and corrosion resistance, ideal for most installations.
- **Hot-Dip Galvanized Steel:** Durable and corrosion-resistant, cost-effective.
- **Stainless Steel:** Suitable for harsh or corrosive environments . Note: Bare copper should not be used in aluminum trays due to the risk of electrolytic corrosion; insulated conductors are preferred, with insulation removed only at bonding points .

Installation Guidelines

- Ensure all metallic trays are grounded according to NEC Article 250.96, even if the tray is not used as an EGC .
- Maintain electrical continuity across tray sections using bonding clamps or connectors.
- Keep grounding conductors clear of flammable materials and corrosive environments.
- Verify grounding resistance is low (ideally 4 ohms or less) to ensure effective fault current diversion .
- For wire mesh trays supporting cables with built-in EGCs, a separate grounding wire is usually not required, but the tray should have a low-impedance path to a non-system ground .

Summary

Proper grounding of cable trays is essential for safety and system reliability. Depending on the installation, either the tray itself or a separate grounding conductor can be used, with careful attention to material selection, bonding, and NEC compliance. Following these practices ensures that fault currents are safely conducted to ground, protecting both personnel and equipment .

Article Content

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

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

NEC Standards for Cable Trays: Grounding, Fill Capacity

Key Takeaways NEC Article 392 governs cable tray systems. Only approved tray-rated cables should be installed.

Grounding & Bonding Wire Mesh Cable Trays

Improper grounding in metallic cable tray systems can lead to serious safety and operational risks. Without a reliable

Grounding Inspection of Steel and Aluminum Cable Tray Systems

For safety reasons, the grounding should be right before the wire is energized. This is true for cable tray, conduit, cable, or any

Cable Tray Grounding: Power, Instrumentation, and

The purpose of power grounding (Article 250) is to minimize the damage from wiring or equipment ground fault. Cable tray systems

Equipment Grounding Conductors for Cable Tray Systems

Cable tray wiring systems have excellent safety and dependability records. These excellent records are the result of cable tray's

Cable Tray SHIB NAL

Where a cable tray includes only multiconductor cables, there is generally no need to use the tray as an equipment grounding

Understanding Cable Tray Grounding: A Comprehensive Guide

Cable tray grounding is an indispensable aspect of electrical installations that plays a pivotal role in ensuring safety,

Cable Tray Grounding: Power, Instrumentation, and Telecommunications

Cables with equipment ground conductors within the cable are an accepted practice in industry. They provide a two-point connection

Grounding cable trays: requirements, norms, instructions

How to ground cable trays and what requirements should be considered? Which wire do you need to use to ground the cable

Grounding & Bonding Wire Mesh Cable Trays

However, while wire mesh trays offer mechanical and thermal advantages, proper grounding and bonding are critical

What Are Equipment Grounding Conductors (EGC) for Cable Trays?

6.1 Does every cable tray need a green wire? 6.2 Can stainless steel trays be used for safety grounding? 6.3 What is

Cable Tray Grounding: Electrical and Non-Power Conductors

In addition to simply routing and protecting cables a cable tray system must provide protection to life and property

grounding cable trays

Seems to tell us IF you are using a cable tray as an equipment grounding conductor, it needs to be installed properly

Types of Cable Typically Used in Cable Tray

Communication Cables – types CMP, CMR, CMG, CM, CMX Fire Alarm Cables – type NPLF – NPLFP, FPL-FPLP (CI) Type TC –

Cable Trays and Reels – Is cable tray bonded or grounded?

One UL listed clamp is installed on each section of cable tray. In these three scenarios the cable tray is required to be bonded, the

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

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