Grounding between cables and cable trays



Overview

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

Key Takeaways

Proper grounding and bonding of cable trays ensure electrical safety, prevent faults, and maintain system reliability.

Purpose of Grounding and Bonding

Grounding connects the cable tray system to the earth, providing a safe path for fault currents and preventing electric shocks, equipment damage, and fire hazards. Bonding electrically connects all metallic components of the tray system, maintaining equal potential across sections and preventing voltage differences that could cause arcing or interference. Together, grounding and bonding stabilize voltage levels and protect sensitive equipment.

Using Cable Trays as Equipment Grounding ConductorsMetallic cable trays can serve as Equipment Grounding Conductors (EGC) if they meet NEC requirements. This involves ensuring the tray has sufficient metal cross-sectional area to carry fault currents safely, as specified in NEC 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.

© 2026 AK OPTICAL SYSTEMS - All rights reserved

If an EGC conductor is installed in the tray, it is recommended to bond it to each or alternate tray sections using grounding clamps to maintain mechanical and electrical continuity. Grounding MethodsFull-Length Grounding Conductor: A continuous wire runs along the tray length, providing a reliable path for fault currents. Using the Tray as Grounding Conductor: Suitable for metallic trays that meet conductivity and strength requirements.

Bonding Clamps: Connect EGCs to tray sections, mechanically securing the conductor and ensuring electrical continuity.

Material Considerations

Copper Wire: Excellent conductivity, corrosion-resistant, ideal for most installations.

Hot-

Dip Galvanized Steel: Durable and corrosion-resistant, cost-effective for industrial environments. Stainless Steel: Suitable for harsh or corrosive environments. Avoid placing bare copper conductors in aluminum trays in moist environments to prevent electrolytic corrosion; insulated conductors with exposed bonding points are preferred.

Installation Best Practices

Ensure all tray sections are bonded to maintain electrical continuity. Inspect connections regularly to prevent loose or corroded joints.

Follow NE

C Article 392 for tray installation, grounding, and bonding requirements. Maintain proper separation between power and data cables to reduce electromagnetic interference. Proper grounding and bonding of cable trays are essential for safety, compliance, and long-term reliability of electrical systems in industrial and commercial installations.

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

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

Understanding Cable Tray Grounding: A

© 2026 AK OPTICAL SYSTEMS - All rights reserved

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

Equipment Grounding Conductors for Cable Tray Systems

Connections of conduits and/or cables (Bonding and/or EGC) to the cable trays should be made with UL Listed Connectors that are properly installed to insure that there is good electrical continuity between

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

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.

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

Grounding & Bonding Wire Mesh Cable Trays

Learn grounding and bonding requirements for wire mesh cable tray systems. Stay NEC compliant while safely installing power, control, Ethernet, and fiber...

Grounding and Bonding of Cable Trays | PDF | Electrical Wiring

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).

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 unique features plus the proper design and installation of the cable tray

How to Check if Your Cable Trays are Grounded and Safe

Learn how to verify the safety of your electrical systems with our guide on testing cable tray grounding, ensuring full compliance and effective

Cable Tray Grounding: Power, Instrumentation, and Telecommunications

© 2026 AK OPTICAL SYSTEMS - All rights reserved

Where cable tray systems contain only signal and communication circuits that operate at low energy levels, power grounding per NEC Section 318-7 is not appropriate, but cable tray grounding for

Grounding Inspection of Steel and Aluminum Cable Tray Systems

Steel and aluminum cable tray systems are excellent equipment grounding conductors if they are properly designed, specified, installed, and inspected. The NEC requirements for cable tray

Safely Installing, Maintaining and Inspecting Cable Trays

Where a cable tray includes only multiconductor cables, there is generally no need to use the tray as an equipment grounding conductor because each multiconductor cable should have integral equipment

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 against faults caused by electrical disturbances, lightening, failures

Cable tray manual

Typical 300 volt insulated multiconductor instrumentation tray cables (ITC) and power limited tray cables (PLTC) cost the same for both cable tray and conduit wiring systems.

Bonding and Grounding wire mesh cable tray.

Recent claims have suggested a field cut (modification) to cable tray for the creation of bends and turns will cause that system to lose its UL Classification. If you take what UL states literally, ANY cut to tray

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 are in the path of ground fault currents. Cable tray systems are

Related Video Reference

This video was associated with the source search result. Verify technical details against current product documentation and project requirements.

© 2026 AK OPTICAL SYSTEMS - All rights reserved

Contact Us

Continue your research online:

Website: https://aboutkitchens.biz
Technical inquiry: https://aboutkitchens.biz/project-desk.html
North American project location: Research Triangle Park, North Carolina, United States

This document is for preliminary research. Verify specifications against current standards, product documentation and project requirements.

© 2026 AK OPTICAL SYSTEMS - All rights reserved