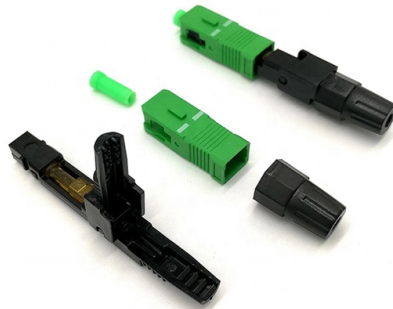


Cable tray support on the ground



Overview

Practices for grounding and bonding of cable traysMetallic Cable Trays Cable tray may be used as the Equipment Grounding Conductor (EGC) in any installatio.

Key Takeaways

Cable trays can be placed on the ground if properly supported, grounded, and compliant with NEC and industry standards.

Ground Support Considerations

Placing a cable tray on the ground is permissible, but it requires careful attention to structural support, load distribution, and environmental protection. The tray must be supported along its length to prevent sagging or mechanical damage. Supports can include concrete pads, steel stands, or insulated supports that maintain the tray level and stable under the weight of cables and potential environmental loads such as wind or vibration.

Material and Environmental Factors

Material selection is critical: steel, aluminum, or fiberglass-reinforced plastic (FRP) trays are commonly used.

FR

P is ideal for moist or corrosive environments because it is non-conductive and corrosion-resistant. Outdoor or wet locations require trays and cables that are sunlight-resistant and moisture-protected to prevent degradation. Ensure adequate clearance around the tray for maintenance and inspection, even if it is on the ground.

Grounding and Bonding

Metallic trays on the ground must be properly grounded. The tray can serve as an Equipment Grounding Conductor (EGC) if it meets NEC requirements, but care must be taken to avoid electrolytic corrosion, especially with aluminum trays in moist conditions. Using insulated grounding conductors and bonding clamps at tray joints is recommended to maintain electrical continuity and safety.

Cable Management and Fill

Maintain fill limits: power cables should not exceed 40% of the tray cross-sectional area, and control cables should not exceed 50%. Separate high-power and low-power cables to prevent electromagnetic interference (EMI). Use ladder or ventilated trough trays depending on cable type and heat dissipation needs.

Ladder trays are preferred for large power cables, while ventilated troughs support smaller control or instrumentation cables.

Safety and Compliance

Cable trays on the ground must remain accessible for inspection and maintenance; they should not be permanently enclosed or placed in areas prone to physical damage. Avoid placing trays in hoistways or confined spaces. Ensure fire-stopping measures if the tray passes through walls or partitions.

By following these guidelines, a ground-supported cable tray installation can be safe, code-compliant, and durable, providing reliable support for electrical conductors in industrial, commercial, or outdoor environments.

Article Content

Practices for grounding and bonding of cable trays

Metallic Cable Trays Cable tray may be used as the Equipment Grounding Conductor (EGC) in any installation where qualified persons will service the installed cable tray system. There is no restriction

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This guide covers the critical steps, from selecting the right electrical cable tray and performing accurate cable fill calculations to managing a safe cable pull through

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Cable Trays

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IEC Standard for Cable Tray: Complete Technical Guide

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NEC Article 392 Requirements for Cable Tray Systems

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

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