

Should cables inside cable trays be armored



Overview

Armored and Unarmored Cable Options & Cable Tray Guide This guide explores armored and unarmored cable solutions, cable tray systems, installation considera.

Key Takeaways

Cables in cable trays do not always need to be armored; they must be either tray-rated (Type TC) or metal-clad (Type MC) depending on the installation and exposure conditions. NEC Requirements

According to NEC Article 392, cable trays are considered a support system, not a fully enclosed raceway. This distinction means that cables installed in trays are exposed to the open air, so they require a durable outer covering. The NEC specifies that cables in trays must be either Type TC (Tray Cable) or metal-armored (Type MC) to ensure mechanical protection and fire safety, but armor is not universally required for all installations . Cables with sufficient insulation and tray rating can be installed without additional armor, especially in indoor, low-risk environments. Covers for trays are optional but recommended in high-traffic areas or outdoor installations to protect against physical damage and environmental exposure .

Practical Considerations

- Cable Type: Power, control, communication, and optical fiber cables can be installed in trays. Type TC, PLTC, ITC, MC, and MI cables are commonly used .

- Separation: High-power and low-power cables should be separated to prevent electromagnetic interference (EMI) and maintain signal integrity .
 - Environmental Exposure: In areas exposed to sunlight, moisture, or potential mechanical damage, armored cables or tray covers may be preferred for added protection .
 - Grounding: Metallic trays can serve as equipment grounding conductors if installed according to NEC requirements .
- IEC Perspective

Under IEC standards, armored cables may be required in certain hazardous locations, such as gas compressor areas, but this is location-specific and not a general mandate for all cable tray installations .

Summary

- Armor is not mandatory for all cables in trays.
- Tray-rated (Type TC) or metal-clad (Type MC) cables are typically sufficient.
- Additional protection (armor or tray covers) is recommended in high-risk or outdoor environments.
- Compliance with NEC Article 392 ensures safety, proper support, and fire protection. By selecting the appropriate cable type and following NEC or IEC guidelines, cable tray installations can be both safe and cost-effective without requiring armor in every case.

Article Content

Armored and Unarmored Cable Options & Cable Tray Guide

This guide explores armored and unarmored cable solutions, cable tray systems, installation considerations, industry applications,

Types of Cable Typically Used in Cable Tray

They are protected by either a plastic Jacket or metal armor over individual conductor insulations. They can be rated for outdoor,

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Cable tray installed in a hazardous location must contain only those cables that are appropriate for this type of environment as

Best Practice Guide to Cable Ladder and Cable Tray Systems

This guide covers cable ladder systems, cable tray systems, channel support systems and associated supports intended for the

Does a Metallic Cable Tray Require Earthing or Bonding?

The cable tray carries metallic sheathed cables, such as bare micc. – In the event of a fault on the circuit the fault path will be the

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Answer: Yes, there are NEC rules. Instrumentation, signal, and telecommunications cabling should be separated from power cabling.

Tray-Rated Cable 101

Tray cable is sunlight, heat, and moisture resistant and adheres to UL specifications. Both 300V and 600V tray cables are tested to

Installation Of Cable In Cable Trays: NEC, Safety

With this growth in the use of tray, it is increasingly important that the tray and cable be installed within industry recognized practices.

Wiring in Cable Trays: Your Guide to Tidy and Safe Systems

Learn essential principles for wiring in cable trays. Our guide covers segregation, fill, bending, grounding, and labeling

Does Metallic Cable Tray Require Bonding?

If the tray/ladder is carrying sheathed and/or armoured cables (which it most likely will be) then the nature of that type

Cable Tray Technical Guide A practical guide to product selection

SOLID-BOTTOM CABLE TRAY Providing additional cable protection, solid-bottom cable tray is sometimes preferred to support and

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

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Adequate room should be provided around the cable tray to allow for the set-up of cable pulling equipment and to provide easy

Conduit, trunking and cable trays

7.5.18 Armoured cables must be terminated using suitable cable glands which incorporate a suitably rated Earth tag or other purpose

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