No bridging in the cable tray section

Overview

This section limits the installation of single conductor cables and Type MV multiconductor cables in cable trays to qualifying industrial establishments as defined in this section.

Key Takeaways

The absence of bridging in a cable tray section can compromise both mechanical support and electrical grounding, potentially leading to sagging, cable displacement, and safety hazards.

Mechanical Implications

Cable trays function like bridges for electrical conductors, supporting cables across open spans. Without proper bridging or connection between tray sections, the system may experience sagging, bending, or misalignment, especially over long spans or under heavy cable loads. This can place excessive tension on cable terminations, reduce airflow, and increase the risk of mechanical damage to cables.

Ladder-type trays, in particular, require intermediate supports and secure connections to maintain structural integrity.

Electrical Grounding Concerns

Metallic cable trays often serve as equipment grounding conductors (EGC). Bridging or bonding between tray sections ensures a continuous electrical path, which is critical for fault current dissipation. Without bridging, the tray may not provide a reliable grounding path, increasing the risk of electrical shock, arcing, or fire hazards.

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C Article 392 allows metallic trays to act as EGCs if they meet minimum cross-sectional area requirements, but proper bonding between sections is recommended to maintain safety.

Best Practices

Use Grounding Clamps or Bonding Jumpers: Even if not strictly required by NEC, bonding each or alternate tray section with a grounding clamp ensures both electrical continuity and mechanical anchoring of the EGC. Insulated Conductors for Aluminum Trays: To prevent electrolytic corrosion, use insulated conductors with exposed ends at bonding points when connecting to aluminum trays. Proper Tray Supports and Accessories: Employ cable tray spacers, clamps, and trapeze brackets to maintain alignment, prevent sagging, and secure cables in place.

Regular Inspection: Check for loose connections, misaligned sections, or missing bridging during installation and maintenance to ensure compliance and safety.

Conclusion

No bridging in a cable tray section can lead to mechanical instability and compromised grounding, increasing the risk of cable damage and electrical hazards. Implementing proper bonding, using appropriate accessories, and following NEC guidelines ensures both structural integrity and electrical safety in cable tray installations.

Article Content

Cable Tray Installation Rules (NEC 392) – Electrical Trader

This section explains where cable trays are appropriate and where their use is restricted. Knowing these details can help you stay compliant and

Cable tray manual

This section limits the installation of single conductor cables and Type MV multiconductor cables in cable trays to qualifying industrial establishments as defined in this section.

Equipment Grounding Conductors for Cable Tray Systems

If the cable trays cross section area is insufficient for the protective device rating, the cable tray can''t be used as the EGC and a separate EGC single conductor cable must be installed in the cable tray or

Practices for grounding and bonding of cable trays

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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

B-Line series Cable Tray Design Considerations

Available in 3, 4, and 6-inch widths with ventilated or solid bottoms, channel cable tray is ideal for smaller instrumentation cables and cable tray runs involving a small number of cables.

INSTALLATION GUIDE

Where metal supports for metal cable trays are bolted to the tray and are in good electrical contact with the grounded structural metal frame of a building, the tray shall be deemed to be bonded to ground.

Cable Tray Technical Guide A practical guide to product selection and ...

In designing supports for a cable tray system, consideration should be given to the loads associated with future cable additions and any additional loading that may be applied to the cable tray system (e.g.,

Guide to cable support systems

The mesh cable trays are suitable for the installation of power cables and cables in various areas of application. The grid spacings mean that cables can be inserted and run out in various directions.

cable tray manfacturing machine

Product Description: Cable Tray Roll Forming Machine Cable tray roll forming machines are commonly used for cable management in commercial and industrial construction. This advanced roll former is

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Cable trays: Cable rails are flat structures that can hold several cables at the same time. They are often used in switch cabinets and industrial systems. Cable

Ecuadorian Standard for Cable Trays

Different cable tray designs are distinguished by factors such as differences in width, height of the side, stair design, maximum space between steps, and connection of the side to the base . These factors

CE Certification Hot-Dip Galvanized Cable Tray

Hot-Dip Galvanized Cable Tray - China Suppliers and Factory for Customized Solutions We are a leading factory and suppliers in China, specialized in manufacturing a diverse range of bridge

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Cable Tray Offset Calculator

Cable Tray Offset Calculator Compute precise cable tray offset geometry, run lengths, and diagonal travel dimensions for tray routing elevation changes. Supports multiple engineering units for NEC

Cable Tray Technical Guide A practical guide to product selection and ...

Cable Tray Technical Guide A practical guide to product selection and installation This guide for engineers and installers has been developed by ABB as a practical reference regarding cable tray

B-Line series Cable Tray Design Considerations

As an industry leader in cable tray, Eaton offers one of the widest ranges of cable management solutions available in the market today with its B-Line series portfolio. With unmatched quality and service, we

Equipment Grounding Conductors for Cable Tray Systems

NEC Section 318-3(c) Equipment Grounding Conductors states that metallic cable trays shall be permitted to be used as EGCs where continuous maintenance and supervision ensures that qualified

Precautions for Cable Tray Installation

Cable Tray Installation Guide The correct installation of cable trays is crucial for establishing a reliable and efficient cable system. It ensures that cables are properly supported and protected, reduces the

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