DANI ALONSO OPTICAL CONNECTIVITY

Flat iron is fixed to the cable tray

Overview

Cable Tray Installation Rules (NEC 392) – Electrical TraderCore rules for selecting, installing, grounding, and filling cable trays—clearances, materials.

Key Takeaways

Flat iron can be used inside a cable tray primarily for structural support, cable separation, or grounding, provided NEC guidelines and tray load limits are followed.Purpose of Flat Iron in Cable Trays

Flat iron, typically a steel bar or strip, is sometimes installed inside cable trays to:

• Provide additional mechanical support for heavy cable bundles, especially in long horizontal runs or vertical risers where cables may sag.

• Separate different cable types, such as power and control cables, to reduce electromagnetic interference (EMI) and maintain NEC-required separation.

• Serve as a grounding or bonding path when metallic trays are used as equipment grounding conductors (EGC), ensuring electrical continuity and safety.
Installation Considerations
• Tray Type Compatibility: Ladder trays, perforated trays, and solid-bottom trays can accommodate flat iron, but the method differs. Ladder trays allow easy attachment to rungs, while solid-bottom trays may require bolting or welding to the tray side rails. Perforated trays can use the holes for mounting flat iron supports.

• Load and Fill Limits: NEC 392 specifies that power cables must not exceed 40% of the tray's cross-sectional area, and control cables 50% . Adding flat iron reduces usable space, so cable fill calculations must account for the flat iron's cross-section.

• Clearances: Maintain at least 12 inches of vertical clearance above the tray for installation and maintenance access . Flat iron should not obstruct cable placement or violate this clearance.

• Grounding: If the flat iron is metallic and in contact with a metallic tray, it can contribute to grounding continuity, but it must meet NEC bonding requirements .

• Attachment Methods: Flat iron can be secured using bolts, clamps, or welding, depending on tray material and environmental conditions. Ensure that attachment does not compromise tray integrity or violate manufacturer specifications .
Best Practices
• Use flat iron only where necessary for support or separation; avoid overloading the tray.

• Ensure smooth edges to prevent cable jacket damage.

• Verify compatibility with tray material (aluminum, steel, or FRP) to prevent galvanic corrosion.

• Follow manufacturer guidelines for tray modifications and NEC compliance to maintain safety and inspection approval . In summary, flat iron can be effectively used inside cable trays for support, separation, or grounding, but careful attention must be paid to load limits, cable fill, clearances, and NEC compliance to ensure safe and code-compliant installation.

Article Content

Cable Tray Installation Rules (NEC 392) – Electrical Trader

Core rules for selecting, installing, grounding, and filling cable trays—clearances, materials,

Cable Tray Installation Guidelines

The document provides installation guidelines for cable trays. It states that cable trays should be individually connected using bolted

Cable Tray Installation Procedure Guide

It describes inspecting and storing cable trays upon receipt, installing trays flat or vertically, fixing trays to structures, designing trays

Full cable tray systems specification document

The resistance of fixed splice connections between an adjacent section of tray shall not exceed .00033 ohm. Splice plate

Document DICOS

To install the cable tray supports, first find the required elevation from the floor to the bottom of the cable tray and establish a level

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