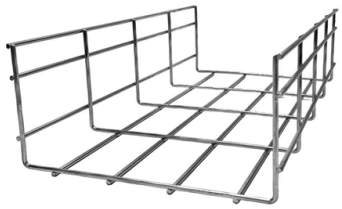
Requirements for connecting mesh cable trays



Overview

Grounding & Bonding Wire Mesh Cable Trays Learn grounding and bonding requirements for wire mesh cable tray systems. Stay NEC compliant while safely instal.

Key Takeaways

Connecting mesh cable trays requires proper mechanical splicing, electrical bonding, and grounding to ensure structural integrity and NEC compliance.

Mechanical Connection

Mesh cable trays are typically joined using splice plates, connectors, or the manufacturer's proprietary systems such as the Magic connector system for GRM and G-GRM trays, which allow for secure attachment while maintaining flexibility for bends, branches, and exits. When connecting sections: Ensure alignment of tray ends and maintain the correct spacing for cable support. Use manufacturer-supplied hardware such as bolts, nuts, and clamps to secure the trays.

Maintain the minimum bend radius for cables exiting the tray to prevent damage. Support trays at recommended intervals (typically every 50–65 feet) using threaded rods, trapeze supports, or other mounting hardware.

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Electrical Bonding and Grounding

For metallic wire mesh trays, electrical continuity is critical: All tray sections and fittings must be electrically continuous and properly bonded to prevent shock hazards and ensure fault current paths. Bonding at splice points is mandatory. If mechanical connections do not guarantee continuity, use bonding jumpers.

Connect the tray system to the building grounding electrode system to complete the fault current path. If the tray supports cables with built-in equipment grounding conductors (EGC), it is recommended to bond the tray to the EGC using grounding clamps, ensuring mechanical anchoring and electrical continuity. Avoid placing bare copper conductors in aluminum trays to prevent electrolytic corrosion; use insulated conductors with insulation removed at bonding points and tin- or zinc-plated connectors.

Compliance Considerations

Follow NE

C Article 392 for cable tray grounding and bonding requirements. Ensure that the grounding conductor size is adequate to safely carry potential fault currents. Maintain low impedance paths for signal or control cables to reduce noise and stray currents.

Use UL-classified splices and connectors where applicable to meet safety standards. By adhering to these mechanical and electrical requirements, mesh cable tray systems can be safely connected, maintain structural integrity, and comply with electrical codes.

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There are three wiring options for providing an EGC in a cable tray wiring system: An EGC conductor in or on the cable tray. Each multi-conductor cable with its individual EGC conductor. The cable tray

Bonding and Grounding wire mesh cable tray.

These installations must be bonded per NEC 392.7(A) which states: “Metallic cable trays that support electrical conductors shall be grounded as required for conductor enclosures in accordance with

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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 line with a laser or a nylon string.

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A bare copper equipment grounding conductor should not be placed in an aluminum cable tray due to the potential for electrolytic corrosion of the aluminum cable tray in a moist environment. For such

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