Cable trays with gaps



Overview

Core rules for selecting, installing, grounding, and filling cable trays—clearances, materials, separation, and bonding explained.

Key Takeaways

Gaps are allowed in cable trays, but they must comply with minimum spacing and support requirements to ensure safety, accessibility, and proper heat dissipation.

Spacing and Clearances

Cable trays must maintain adequate gaps both vertically and horizontally to allow for maintenance, inspection, and airflow. For vertical spacing between floor-mounted trays or between upper and lower trays, a minimum clearance of 150 millimeters (6 inches) is recommended to prevent obstruction, reduce cable interference, and allow for heat dissipation. Horizontal spacing between parallel trays should generally be no less than 0.

6 meters (24 inches) to provide sufficient access and prevent cables from touching, which could lead to short circuits or electromagnetic interference. When power and signal trays are installed near each other, a minimum horizontal separation of 0. 5 meters (20 inches) is advised to minimize EMI, though shielding can reduce this distance to less than 0.

3 meters.

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Support and Span Requirements

Cable trays must be supported at regular intervals to prevent sagging and maintain structural integrity. Horizontal runs typically require supports every 1. 5 to 3 meters (5–10 feet), while long-span trays may extend up to 6 meters (20 feet) between supports if designed for heavier loads.

Supports should be installed at tray ends, corners, T-junctions, and any span exceeding 30 meters to distribute weight evenly. Ladder-type trays have rungs spaced no more than 9 inches apart to ensure uniform support.

Compliance and Safety Considerations

Cable trays must remain accessible and cannot be installed in enclosed spaces or hoistways. Fill limits should not exceed 40% for power cables and 50% for control cables to prevent overheating. Properly maintaining gaps and supports ensures compliance with NEC Article 392, reduces fire hazards, and allows for future expansion or rearrangement of cables.

Summary

Gaps in cable trays are permissible and necessary for safety, maintenance, and performance, but they must follow minimum clearance and support guidelines. Vertical and horizontal spacing, tray fill limits, and support intervals are critical to prevent overheating, EMI, and structural issues while ensuring compliance with NEC standards.

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GUIDE CABLE TRAYS TECHNICAL

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NEMA VE 1-2017 Specifies requirements for metal cable trays and associated fittings designed for use in accordance with the rules of Canadian Electrical Code, Part I and the National Electrical Code®

Cable Trays | Cable Management Trays

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