

Installation of tray-type cable trays in vertical shafts



Overview

Cable tray is considered to be a system. It must provide continuous support for cables, and the electrical continuity of the cable tray system must be maintained.

Key Takeaways

Cable tray installation in vertical shafts requires careful planning, proper support, and adherence to safety standards to prevent mechanical failure and ensure compliance with electrical codes.

Key Considerations

Safety Risks: Installing cables in vertical shafts is inherently dangerous due to the weight of hanging cables and the potential for free-fall accidents. It is critical to use professional installation teams experienced in vertical cable handling, as improper handling can lead to severe injury or equipment damage (Cableizer). **Cable Tray Selection:** Choose trays made of materials suitable for the environment, such as aluminum, steel, or FRP, considering corrosion resistance, load capacity, and thermal expansion (Electrical Trader).

Ventilated or solid-bottom trays may be used depending on heat dissipation requirements (ABB Technical Guide). **Support and Spacing:** Vertical shafts require secure, continuous support. Center-hung or side-hung supports are recommended, with maximum support spacing typically around 3.



6 meters (Unitray). Ensure the tray can withstand the weight of the cables and any imposed loads, including wind or seismic forces (BEAMA Guide). Cable Handling: When pulling cables vertically, consider the cable's tensile strength and use pulling grips or socks.

Fail-safe mechanisms, such as secondary steel wires or synchronized pushers, are essential to prevent free-fall in case of a rupture (Cableizer). Pulling upward is generally safer than downward, but installation specifics may dictate the method. Regulatory Compliance: Follow NEC Article 392 for cable tray installation, ensuring proper clearances, fill limits (40% for power cables, 50% for control cables), and separation of high- and low-power circuits to prevent EMI (Electrical Trader).

Cable trays must remain accessible and cannot be installed in hoistways or enclosed spaces. Installation Practices: Offload trays carefully to prevent damage, stack by type and size, and follow a pre-determined layout plan. Only qualified personnel familiar with local codes and equipment specifications should perform the installation (Unitray).

Proper banding and balanced loading of cable bundles are essential to maintain stability during installation (BEAMA Guide). Additional Measures: Consider using cable tray covers for protection, maintain minimum bend radii at tray exits, and ensure grounding of metallic trays if required. For long vertical runs, monitor for thermal expansion and contraction, and use expansion splice plates as needed (ABB Technical Guide, Electrical Trader).

Summary

Vertical cable tray installations demand professional expertise, robust support structures, and strict adherence to safety and code requirements. Proper material selection, secure supports, careful cable handling, and compliance with NEC standards are essential to ensure a safe, reliable, and maintainable installation.

Article Content

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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 to carry loads, providing covers in areas with risk of damage, allowing

Cable Tray Installation Rules (NEC 392) – Electrical Trader

Here's what you need to know: Cable Types: Only use conductors rated for open-air environments, such as Tray Rated (Type TC) or Metal-Clad (Type MC) cables.

Clearances: Maintain

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Key Factors Impacting Cable Tray Spacing Understanding cable tray spacing is key to meeting safety regulations and maintaining system

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11 Types of Cable Tray Covers and How to Choose It New

Cable tray is a structure for supporting and organizing cables. Usually, it has another section that encloses the cables within the tray called a “cover” or “lidding” section. That is, it covers

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Rooftop installations are often subjected to harsh environmental conditions, including extreme temperatures, high winds, and exposure to UV radiation. As a result, cable trays help to

A Guide to Installing and Supporting Electrical Cable Trays

A professional guide to installing electrical cable tray systems per NEC Article 392. Covers support, securing cables, and fill calculations.

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