Requirements for cable tray supports in building construction projects

Article Overview

Cable tray supports must be designed and installed to safely carry the weight of cables, withstand environmental and mechanical loads, and comply with recognized standards such as IEC 61537, NEC 392, and BS EN 61537.

Support Spacing and Load Capacity

Cable trays must be supported at intervals that prevent sagging and maintain structural integrity. Typical support spacing depends on tray type and load: ladder trays often require supports every 1.5 to 3 meters, while solid or ventilated trays may need closer spacing for heavier or densely packed cables . Supports must be capable of handling the weight of the cables, tray, and any additional imposed loads such as wind, snow, or seismic forces . Load calculations should consider both static and dynamic forces, including short-circuit electromagnetic forces for power cables.

Material and Environmental Considerations

Supports and trays are usually made from steel, stainless steel, or aluminum, with galvanization or other corrosion-resistant coatings applied for durability in industrial or outdoor environments . In corrosive or high-moisture environments, fiberglass-reinforced plastic (FRP) may be used for non-conductive, corrosion-resistant support . Materials must withstand temperature variations, chemical exposure, and mechanical stress.

Mounting Methods

Cable tray supports can be mounted on ceilings, walls, floors, or structural beams using brackets, hangers, or center suspensions . Common support elements include wall brackets, suspended rods, and channel supports. Mounting elements such as plates or clamps secure trays and fittings, ensuring alignment and stability. Supports should be installed level and plumb, with proper anchoring to the building structure.

Standards and Safety Compliance

Installation must comply with recognized standards:

o IEC 61537 / BS EN 61537: Defines cable tray systems, load classifications, and mechanical requirements .
o NEC Article 392: Covers bonding, grounding, and cable fill calculations to prevent overheating and ensure electrical safety .
o BS 6946: Applies to channel support systems and safe working loads . Supports should be installed by

competent personnel familiar with electrical installation practices, ensuring trays are not used as walkways or ladders, which could compromise safety .

Practical Installation Guidelines

o Maintain minimum bend radii for cables at tray exits to prevent damage .
o Use adequate banding and balanced loading to prevent uneven stress on supports .
o Ensure continuous bonding and grounding for metallic trays to provide a low-impedance path for fault currents .
o Plan tray routing to allow future maintenance and cable additions, avoiding overcrowding and excessive cable fill . By following these requirements, cable tray supports will provide a safe, durable, and code-compliant infrastructure for electrical and communication systems on construction sites.

Cable Tray Installation General Requirements Approved site fabricated trays shall be used as per site conditions. Only approved

In industrial and commercial construction, ensuring compliance with regulations is critical to project management.

Master NEC Article 392 with our comprehensive guide. Learn essential cable tray

This document provides a method statement for installing cable trays and trunking systems for building electrical services. It outlines

Learn how to choose the right cable tray sizes to meet Australian electrical standards and

This guide covers the critical steps, from selecting the right electrical cable tray and performing accurate

This method statement covers the site installation of the cable tray & ladders and the requirements of checks to be

In the electrical wiring of buildings, a cable tray system is used to support insulated electrical cables used for power distribution,

How to design cable tray? Most projects are roughly defined at the start of cable tray design. For projects that are not

This document provides guidance on best practices for installing cable ladder and cable tray systems,

including channel support

NEC Article 392 explains cable trays, their components, appropriate wiring methods for

Core rules for selecting, installing, grounding, and filling cable trays--clearances, materials, separation, and bonding

Cable Tray Technical Guide A practical guide to product selection and installation This guide for engineers and installers has been

Introduction This publication is intended as a practical guide for the proper and safe* installation of cable ladder systems, cable tray

INTRODUCTION The B-Line series Cable Tray Manual was produced by our technical staff. We recognize the need for a complete

Where cable ladder and cable tray support systems are fixed to primary supports (e.g. structural steel work or elements of the

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