

Article Overview

Cable tray thickness is primarily governed by IEC 61537:2023, BS standards, and manufacturer load testing, with NEMA relying on performance-based criteria rather than prescriptive thickness.

International Standards

IEC 61537:2023 is the most recent international standard for metal cable tray systems, covering steel, stainless steel, and aluminum trays . It specifies construction requirements, load testing, corrosion resistance, and performance parameters. The 2023 revision introduced more granular corrosion classifications and guidance for using trays as protective earth conductors . IEC and BS standards provide prescriptive thickness tables based on material type, span, and load, ensuring structural integrity under specified conditions . NEMA standards, commonly used in the USA, do not specify minimum thickness. Instead, they rely on the principle that if a tray passes the load test for the specified span, the thickness is considered adequate . This performance-based approach allows flexibility in material selection and design but requires careful verification of manufacturer load data.

Material and Environmental Considerations

Cable tray thickness varies depending on the material and environmental exposure:

- o Steel trays: Thickness is influenced by galvanization type (electro-galvanized or hot-dip) and corrosion protection requirements .
- o Aluminum trays: Selected alloys provide strength and corrosion resistance, with thickness adjusted for mechanical properties .
- o Stainless steel trays: Grades like AISI 316L are used for high corrosion resistance, with thickness determined by load and environmental factors .
- o Fiberglass trays: Retain strength at elevated temperatures, with thickness guided by manufacturer testing rather than prescriptive tables .

Practical Design Implications

When designing or specifying cable trays:

- o Always check the applicable standard for your project location (IEC, BS, or NEMA) and the edition year .
- o Consider load capacity, span, and environmental conditions when selecting thickness .
- o Verify manufacturer test data to ensure compliance, especially for NEMA-based designs where thickness is performance-driven .
- o For corrosive environments, select trays with appropriate coatings or materials, as thickness alone does not

New regulations on cable tray thickness

guarantee durability .

Summary

- o IEC/BS: Prescriptive thickness tables based on material, span, and load.
- o NEMA: Performance-based; thickness determined by load testing.
- o Material choice and environment: Critical for determining effective thickness and corrosion resistance.
- o Manufacturer data: Essential for compliance and safety verification. Following these guidelines ensures that cable tray installations meet current regulatory requirements, maintain structural integrity, and provide long-term reliability in diverse environments.

Explore the intricacies of compliance with medium duty cable trays in construction projects. Learn about regulations,

Choosing the right thickness and width for cable trays is not just a technical decision--it is an investment in the

This document specifies requirements and tests for cable tray systems and cable ladder systems intended for the support and

This guide for engineers and installers has been developed by ABB as a practical reference regarding cable tray characteristics,

All trays must undergo salt spray tests and coating thickness tests to ensure the coatings meet the durability levels

Attaching a channel cable tray by using the method illustrated in Figure 3-88 maintains the electrical requirements, and the bolted

Cable tray system design shall comply with National Electrical Code (NEC) Article 392, NEMA BI-50015 (formerly VE 1), and

75kg/m² in accordance with the NEMA requirements. The data displayed is based on physical test results of a 600 wide section and may

Senior Electrical Engineer Nadeem Sial explains: "The NEC 40% fill rule (NEC Article 392) states that for trays

Tray components must be accurately formed to tolerances with rounded edges. Cable trays installed in hazardous environments

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Understand Cable Tray Regulations worldwide. Learn key standards like NEC (US), BS

Where necessary, cable tray systems and cable ladder systems can be used for the arrangement of cables into groups. This

Cable ladder is more commonly used where heavier cables need to be carried, but is more expensive. Apart from the

Learn how to choose the right cable tray thickness for industrial, commercial, and infrastructure projects. Explore GI

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

Complete cable tray sizing guide with standard size chart, NEC calculation methods, and real engineering

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