

Article Overview

Cable tray thickness is governed by standards such as NEMA VE 1, UL 568, and NEC/CSA codes, which specify minimum material thickness based on tray type, material, and load requirements.

Key Standards

NEMA VE 1 specifies manufacturing requirements for metal cable trays, including ladder, channel, wire mesh, and solid-bottom types. It provides load/span class designations that indirectly determine the minimum thickness of steel or aluminum trays to safely support electrical cables under expected loads and spans . UL 568 applies to fiberglass (nonmetallic) cable trays, defining performance and construction requirements, including wall and base thickness to ensure structural integrity and fire safety . NEC (NFPA 70) and CEC (C22.1 Part 1) cover installation and safety requirements, including ampacity considerations and mechanical support, which influence the selection of tray thickness to prevent sagging or deformation under load .

Material and Thickness Considerations

- o Steel trays: Typically manufactured from hot-dip galvanized, pre-galvanized, or stainless steel. Thickness varies with tray width, rung spacing, and load class. For example, a standard ladder tray may range from 14 to 12 gauge (2.0-2.5 mm) for common industrial applications .
- o Aluminum trays: Lightweight and corrosion-resistant, often 1.5-2.0 mm thick, depending on span and load requirements .
- o Fiberglass trays: Thickness is determined by UL 568 and NEMA FG-1 guidelines, typically 6-12 mm, depending on tray width and load .

Design Factors Affecting Thickness

- o Tray type: Ladder trays require thicker rungs for load support, while solid-bottom trays may need thicker sidewalls for rigidity .
- o Span and load: Longer spans or heavier cable loads require increased thickness to prevent deflection .
- o Environmental conditions: Corrosive or high-temperature environments may necessitate thicker or specially coated materials .
- o Compliance: Always verify that tray thickness meets NEMA, UL, NEC, or CSA requirements for the specific application .

Practical Guidance

- o Consult NEMA VE 1 tables for metal tray thickness based on width, rung spacing, and load class.
- o For fiberglass trays, refer to UL 568 for minimum wall and base thickness.

- o Ensure installation follows NEC Article 392 for spacing, support, and mechanical integrity.
- o Consider environmental factors such as corrosion, temperature, and exposure to chemicals when selecting tray material and thickness . By adhering to these standards, engineers and contractors can ensure structural integrity, safety, and compliance in cable tray installations.

As an industry leader in cable tray, Eaton offers one of the widest ranges of cable management solutions available in the market

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

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

In practice, cable tray dimensions are a system of interrelated measurements --width, depth, length, and material

Cable tray supports shall have a maximum of 6 m spacing on horizontal run and 2.4 m spacing on the vertical runs. However, when

NEMA VE 1-2017 standard for metal cable tray systems. Covers construction, materials, dimensions, load capacity, and testing.

Cable Tray Systems Guide HUBBELL Hubbell Wiring Device-Kellems and Hubbell Premise Wiring are divisions of Hubbell

A practical guide to product selection and installation This guide for engineers and installers has been developed by ABB as a

IEC 61537 is a crucial international standard established by the International Electrotechnical Commission (IEC). The Chinese

Hexagon head bolts, screws and nuts. For hot dip galvanising of steel & surface pre treatment. For testing of zinc coating. For

The Cable Tray Institute is making available the current edition of this practical guide for the proper installation of aluminum or steel

National tolerance for cable tray thickness

This standard is based on corresponding IEC publication 61084-1:1991 "Forcable trunking and ducting system for electrical

NFPA 70 - The National Electrical Code covers the installation requirements for the safe application of cable tray systems including

The thickness standard for galvanized (steel) Cable Trays is based on GB/T 14540-2020 "Cable Trays" (the latest

Cable Tray Width Selection for Installations with 600 Volt Single Conductor Cables National Electrical Code (NEC) Section 318-11

Not all cable trays are equivalent. The mechanical and electrical characteristics, tests, certifications, overall quality management,

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