Standard and Non-standard Cable Tray Specifications

Article Overview

Cable trays are specified according to type, material, load rating, and compliance with standards such as NEMA, IEC, BS, and UL, with non-standard trays customized for specific applications or environments.

Types of Cable Trays

Cable trays are available in several standard types, each suited for different applications:

o Ladder Tray: Features side rails with rungs, ideal for heavy power cables and long spans, allowing ventilation and heat dissipation .
o Solid Bottom Tray: Provides full support and protection for sensitive instrumentation or control cables, minimizing dust and debris accumulation .
o Channel Tray: Used for short runs or aesthetic applications, available with ventilated or solid bottoms .
o Wire Mesh Tray: Lightweight, flexible, and suitable for light cabling, often used in data centers or low-voltage installations .
o Trough or Ventilated Tray: Offers partial support with perforations for airflow, balancing protection and heat dissipation . Non-standard trays may include custom dimensions, specialized coatings, or unique configurations to meet project-specific requirements.

Materials and Finishes

Cable trays are manufactured from various materials depending on environmental conditions:

o Steel: Hot-dip galvanized, pre-galvanized, or stainless steel for corrosion resistance and structural strength .
o Aluminum: Lightweight, corrosion-resistant, and suitable for outdoor or humid environments .
o Fiberglass/Non-metallic: Resistant to chemicals and high temperatures, often used in industrial or corrosive environments .

Standards and Compliance

Cable trays must comply with regional and international standards:

o NEMA VE 1 & VE 2: Define metallic tray manufacturing, installation, load/span classes, and maintenance guidelines in accordance with the National Electrical Code (NEC), .
o NEMA FG 1 / UL 568: Cover non-metallic (fiberglass) trays, including performance and safety requirements .
o IEC 61537 / BS EN 61537: International standards specifying design, testing, and installation for both

metallic and non-metallic trays, including corrosion classification and protective earth conductor use .
o ASTM Standards: Include A123, A653, A1011, A1008, and B633 for steel and zinc coatings, ensuring structural integrity and corrosion resistance . Non-standard trays may not strictly follow these standards but are often tested to meet equivalent load, span, and environmental performance requirements.

Installation and Design Considerations

o Maintain proper rung spacing (typically 150-230 mm) to support cables and prevent sagging .
o Ensure minimum bend radius for cables exiting trays to avoid damage .
o Select tray type and material based on load, environmental exposure, and electromagnetic interference requirements .
o Verify field dimensions and routing against drawings, as non-standard trays may require custom supports or fittings .

Key Takeaways

o Standard trays follow NEMA, IEC, BS, or UL specifications for safety, load, and installation.
o Non-standard trays are customized for specific project needs, environmental conditions, or aesthetic requirements.
o Material selection, tray type, and compliance with applicable standards are critical for long-term performance and safety.

Cable Trays are designed to meet most requirements of cable and electrical wire installations and comply to local and international

It"s not just about regulation--it"s about ensuring long-term efficiency and safety in cable

Explore the cable tray standards of 30 countries across five continents. Learn about the key

standards & specifications light & medium duty cable tray sizes essories do not have a return edge. Also light duty tray of widths

The work covered under this section consists of the furnishing of all necessary labor, supervision, materials, equipment, tests and

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

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Many electrical systems employ cable trays. They route cables safely & efficiently. NEC defines minimum cable tray

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

Technical specifications All calculations and data are based on 36 in. wide cable trays with tray supported as simple spans with

IEC 61537:2023 specifies requirements and tests for cable tray systems and cable ladder systems intended for the support and

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

When specifying cable trays for an international project, the first question is always: Which standard applies?

B. Cable tray systems are defined to include, but are not limited to straight sections of [ladder type] [trough type] [solid bottom type]

Standard Cable Tray Dimensions Cable tray dimensions are not chosen at random. Across most global markets, they

This standards publication was developed by the NEMA Metal Cable Tray and Nonmetallic Cable Tray Sections. Section approval of

Do not use a cable tray as a walkway, ladder, or support for people; a cable tray is a mechanical support system for cables and

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