

Article Overview

The 2016 National Standard for cable trays is primarily covered under NEMA VE1, VE2, FG1, UL 568, and NEC Article 392, providing specifications for materials, construction, load ratings, and installation practices.

Overview of Standards

NEMA VE1 specifies the manufacturing requirements for metal cable trays, including ladder, ventilated trough, channel, solid-bottom, and wire mesh types, along with associated fittings. It also defines load/span class designations and ensures compliance with the National Electrical Code (NEC) for safe installation and support of power and control cables . NEMA FG1 addresses nonmetallic (fiberglass) cable trays, covering ladder, channel, ventilated, and solid-bottom types. It includes construction, testing, and performance requirements for continuous nonmetallic systems, ensuring compatibility with NEC rules . NEMA VE2 provides installation guidelines for aluminum or steel cable tray systems, including shipping, handling, storage, and maintenance. It is a practical guide for engineers, contractors, and maintenance personnel, reflecting current construction techniques and technology . UL 568 is the Underwriters Laboratories standard for fiberglass cable trays, covering performance requirements for safe application in electrical installations . NEC Article 392 outlines installation requirements for cable trays, including:

- o Permitted uses for wiring methods
- o Maximum allowable fill area for single- and multi-conductor cables
- o Cross-sectional area requirements when used as an equipment grounding conductor
- o Ampacity of conductors (referenced in NEC Article 310) IEC-61537 is the international standard specifying requirements and tests for both metal and nonmetallic cable tray systems, ensuring proper support and accommodation of cables and other electrical equipment .

Key Installation Guidelines

- o Cable trays must be supported to allow lateral insertion and removal of cables without disturbing other layers .
- o Maintain a minimum 3 cm separation between electrical and non-electrical pipes to prevent damage during maintenance .
- o Avoid placing cables carrying 1000 volts or more in the same tray or duct as lower-voltage cables .
- o Protect cables from mechanical impacts at floor feedthroughs and ensure proper sheathing or conduit with at least IP5 protection .
- o Cable layers should be clearly identified using UV-protected labeling systems .

Materials and Quality Requirements

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- o Metal trays: High-quality steel or aluminum with smooth surfaces, uniform material, and no defects. Mechanical performance testing includes hardness, tensile strength, and yield strength .
- o Nonmetallic trays: Fiberglass systems must meet UL 568 performance requirements and NEC compliance .
- o Inspection: Factory and type inspections ensure dimensional accuracy, coating integrity, and corrosion resistance .

Summary

The 2016 National Standard for cable trays integrates NEMA, UL, and NEC requirements to ensure safe, durable, and efficient cable support systems. Compliance covers material quality, load ratings, installation practices, and maintenance, providing a comprehensive framework for industrial and commercial electrical installations .

The National Electrical Manufacturers Association (NEMA) Standards and guideline publications, of which the document herein is

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

ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated

This standard specifies the requirements for nonmetallic cable trays and associated fittings designed for use in accordance with the

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

The dimensions of the cable trays must be sufficient, with 50 % spare space, and calculated so as to hold only one layer of cables.

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

Cable Support Systems are well designed to provide necessary support for cable trays, cable ladders and trunkings. Cable supports

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

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The Cable Tray Institute (CTI) was founded in 1991 to support the cable tray industry by engaging in research, development,

In accordance with its continuous improvement policy, Legrand reserves the right to change the specifications and illustrations

It provides rules for acceptable wiring methods that can be installed in cable trays, including conditions for use. It addresses uses

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

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

Grounding and bonding of cable trays There are three wiring options for providing an EGC in

The National Electrical Manufacturers Association (NEMA) also publishes three consensus standards that apply to the proper

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