

Standard Requirements for Cable Tray Joints



Overview

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

Key Takeaways

Cable tray joints must comply with standards such as NEMA VE 1/VE 2, IEC 61537, and CSA guidelines to ensure mechanical integrity, electrical safety, and proper load support.

Key Standards and Guidelines

NEMA VE 1 and VE 2 provide detailed requirements for metal and non-metallic cable trays, including ladder, ventilated, solid bottom, channel, and wire mesh types. VE 1 focuses on manufacturing requirements, while VE 2 addresses installation, handling, and maintenance of cable tray systems, including joints and fittings to ensure proper alignment, load distribution, and grounding continuity .

IEC 61537:2023 is the international standard for cable tray systems, specifying mechanical, electrical, and environmental performance for joints, fittings, and complete tray assemblies. It ensures that joints maintain structural integrity under load, resist corrosion, and provide safe cable support .

CSA Standards (Canadian Electrical Code) complement NEMA and IEC standards for installations in Canada, particularly for non-metallic trays and associated fittings, ensuring compliance with local electrical codes .

Joint Requirements

- **Mechanical Integrity:** Joints must maintain alignment and support the rated load of the tray system. Bolted or welded connections are common for metallic trays, while non-metallic trays use compatible fittings and fasteners .
- **Electrical Continuity:** Metallic trays require grounding continuity across joints to prevent electrical hazards. Bonding jumpers or conductive fittings are often specified .
- **Environmental Protection:** Materials and finishes must resist corrosion, heat, and chemical exposure according to the installation environment. Aluminum, galvanized steel, and stainless steel are commonly used .
- **Fitting Types:** Standard fittings include straight couplers, elbows, tees, crosses, reducers, and end caps. Each fitting type must comply with the load and dimensional requirements of the tray system .
- **Spacing and Support:** Proper rung spacing, support intervals, and minimum bend radii for cables at joints are specified to prevent cable damage and maintain system performance .

Practical Considerations

- Always verify that the joint components are compatible with the tray type and material.
- Follow manufacturer instructions and applicable local electrical codes.
- Periodic inspection and maintenance are recommended to ensure joint integrity over time.
- For specialized applications, such as instrumentation or high-voltage cables, additional protective measures may be required, including covers or insulated fittings .

By adhering to these standards, cable tray joints will provide safe, reliable, and code-compliant support for electrical and control cables in industrial, commercial, and institutional installations.

Article Content

Codes and Standards | Cable Tray Institute

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Cable Tray Installation Rules (NEC 392) – Electrical Trader

Here's what you need to know: Cable Types: Only use conductors rated for open-air environments, such as Tray

NEMA Standards Publication VE 2-2018

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NEMA BI 50016-2024

Foreword 267 For cable tray installers: NEMA BI-50016-2024 (hereinafter referred to as NEMA BI-50016) is intended 268 as a

NEMA VE2 Cable Tray Installation

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Cable Tray Installation and Cable Handling Method Statement

Cable Tray Installation Method Statement 1. Cable Tray Installation Cable trays should be installed in accordance with the latest

26 05 36 Cable Trays for Electrical Systems

Install expansion connectors where cable trays cross building expansion joints and in cable tray runs that exceed recommended

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Cable tray manual

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

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This standard outlines the construction requirements, testing methods, and performance

NEC Standards for Cable Trays: Grounding, Fill Capacity

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Thermal Contraction and Expansion of Cable Tray

They each require unique solutions for their thermal compensation and expansion. In the NEMA Metallic Cable Tray Systems

12-SDMS-06

4 Design and Construction Requirements 4.1 General 4.1.1 Metallic cable trays shall specification in all respects. 4.1.2 The Metallic

Cable Tray Support Spacing: Key Guidelines Explained

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Best Practice Guide to Cable Ladder and Cable Tray Systems

This guide covers cable ladder systems, cable tray systems, channel support systems and associated supports intended for the

392.44 Expansion Splice Plates.

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B-Line series Cable Tray Design Considerations

Is your cable tray system optimized for safety, dependability, space and cost savings? Cable tray (or cable ladder) systems are a

Standard for Installing Metal Cable Tray Systems

Metal cable tray systems for power communications cabling shall be installed in accordance with NECA/NEMA 105, Standard for

Practices for grounding and bonding of cable trays

A bare copper equipment grounding conductor should not be placed in an aluminum cable tray due to the potential for electrolytic

Cable Tray Installation Rules (NEC 392) - Electrical Trader

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

INSTALLATION GUIDE

All Unitray standard cable trays are classified by Underwriter's Laboratories per US NEC Table 392-7 based on their cross sectional

SECTION 260536

Shop Drawings: For each type of cable tray. Show fabrication and installation details of cable tray, including plans, elevations, and

GUIDE CABLE TRAYS TECHNICAL

s and development projects. This standard specifies the requirements and test methods for cable trays, cable ladders, supports and

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NEC Standards for Cable Trays: Grounding, Fill Capacity

This article provides a comprehensive framework that governs various aspects of cable tray installations, including

NEMA VE2 Cable Tray Installation

The NEMA VE2 publication was written by a committee of member cable tray companies and defines the industry standard for cable

Full cable tray systems specification document

A. Submittal Drawings: Submit drawings of cable tray and accessories including clamps, brackets, hanger rods, splice plate

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For a 100° F differential (winter to summer), a steel cable tray will require an expansion joint every 128 feet and an aluminum cable

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