

Construction Technical Requirements for Cable Trays

Article Overview

Cable tray construction must comply with IEC 61537 internationally and NEC Article 392 in the U.S., covering material, load, grounding, and installation safety requirements.

Key Standards and Guidelines

IEC 61537 is the international standard for metal cable tray systems, specifying construction, testing, and performance requirements. It applies to trays made of steel, stainless steel, aluminum, or other metallic materials, ensuring they can support cable loads, resist environmental factors, and maintain electrical continuity for grounding purposes. Compliance ensures safety, compatibility, and long-term reliability. NEC Article 392 governs cable tray systems in the U.S., defining them as support structures rather than enclosed raceways. It specifies acceptable cable types (e.g., Type TC or metal-armored Type MC), installation practices, and optional covers for protection in high-traffic or outdoor areas. Adherence prevents electrical hazards and ensures structural integrity.

Material and Corrosion Considerations

Cable trays can be manufactured from steel, stainless steel, aluminum, or fiberglass-reinforced plastics, with finishes chosen based on environmental exposure. Stainless steel (e.g., AISI 316L) offers high corrosion resistance, while aluminum provides lightweight durability and natural oxide protection. Galvanized steel is commonly used for cost-effective corrosion protection. Material selection must consider mechanical strength, corrosion resistance, and environmental conditions.

Mechanical and Installation Requirements

- o Load Capacity: Trays must support the weight of cables and environmental loads without excessive sagging. IEC 61537 specifies testing for deflection and yield strength at various spans.
- o Spacing and Bend Radius: Rung spacing is typically 150-230 mm, and minimum bend radii must be maintained to prevent cable damage.
- o Supports: Trays should be installed on supports designed for the system, avoiding use as walkways or ladders.
- o Electrical Continuity: Trays used for grounding must maintain resistance below 0.1 ohms across joints to safely carry fault currents.

Safety and Compliance

- o Only competent personnel familiar with electrical installation practices should perform installation.

Construction Technical Requirements for Cable Trays

- o Covers are recommended in areas with potential mechanical impact or outdoor exposure .
- o Systems should be installed using components designed and tested together to ensure safe operation .
- o Compliance with CE marking, UL, or other national certifications may be required depending on the region .

Summary

Construction regulations for cable trays focus on material selection, mechanical strength, proper installation, grounding, and environmental protection. Following IEC 61537 and NEC Article 392 ensures that cable trays safely support electrical and communication cables, prevent hazards, and maintain long-term system reliability . Proper adherence to these standards is essential for both safety and regulatory compliance.

The International Electrotechnical Commission (IEC) provides detailed guidelines for cable tray systems under IEC

Study all aspects of work procedure as per Technical Scope of Work. 4.1 Electrical Superintendent shall study and review all

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

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

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

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

Step-by-step instrumentation cable tray installation guide with safety tips, standards, inspections, and downloadable

This method statement covers the site installation of the cable tray & ladders and the requirements of checks to be

Cable trays, as an important component of modern building electrical systems, play a

Provides technical requirements concerning the construction, testing, and performance of metal cable tray systems. It is the first joint

Construction Technical Requirements for Cable Trays

SPEC Cable Trays - Free download as Word Doc (.doc), PDF File (.pdf), Text File (.txt) or read online for free. This document

The final drawings for a cable tray wiring system may be completed and sent out for bid or construction more quickly

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

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

Installing instrument cable trays properly and in compliance with relevant standards is crucial to ensure

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

Web: <https://bssoda.pl>

