CES cable tray standards



Overview

This guide for engineers and installers has been developed by ABB as a practical reference regarding cable tray characteristics, installation, and requirements.

Key Takeaways

CES cable tray systems must comply with international, North American, and European standards, including IEC 61537, NEMA VE 1/VE 2, UL 568, and CE marking requirements. Key Standards OverviewIEC 61537 is the internationally recognized standard for metallic cable tray systems, covering construction, mechanical strength, corrosion resistance, electrical continuity, fire resistance, ventilation, fill ratio, and installation compatibility. It applies to steel, stainless steel, aluminum, and other metallic trays, ensuring safe and efficient cable management across diverse environments.

NEMA V

E 1 and VE 2 provide North American guidelines for metal and non-metallic cable trays, including ladder, ventilated, solid bottom, and channel types. These standards specify manufacturing requirements, load/span designations, shipping, handling, storage, installation, maintenance, and system modifications in accordance with the National Electrical Code (NEC) and Canadian Electrical Code (CEC) Part 1.

U

L 568 covers non-metallic cable trays, defining construction and testing requirements for continuous systems designed to support power or control cables safely.

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E marking and European directives ensure compliance with EU safety and performance regulations. Manufacturers self-declare conformity, and third-party audits (e.g., LCIE, IMQ) verify adherence to mechanical, electrical, and fire safety standards.

Material and Design Considerations

Cable trays can be made from steel, stainless steel, or aluminum, with finishes selected for corrosion resistance and environmental suitability. Aluminum offers excellent atmospheric corrosion resistance due to its natural oxide layer, while steel may require galvanization or coatings for protection. Tray types include ladder, ventilated, solid bottom, wire mesh, and channel trays, each suited for specific applications such as power distribution, instrumentation, or aesthetic requirements.

Installation and Safety Guidelines

Support spacing: Determined by load and span requirements; brackets, wall supports, or ceiling suspensions are used to secure trays. Bend radius and rung spacing: Maintain minimum bend radius for cables and rung spacing of 150–230 mm for proper cable support. Environmental factors: Consider exposure to water, oil, chemicals, and mechanical loads; additional loads like wind or snow must be evaluated by engineers.

Electrical continuity: Trays often serve as grounding paths; standards require verification of electrical continuity. Fire and heat resistance: Proper ventilation and fill ratios prevent overheating and ensure compliance with fire safety requirements.

Practical Implications

Compliance with CES cable tray standards ensures safety, reliability, and long-term performance of electrical installations. Engineers, contractors, and maintenance personnel can use these standards to select appropriate tray types, materials, and installation methods while meeting regulatory requirements and minimizing risks of electrical hazards, corrosion, or mechanical failure.

Article Content

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This guide for engineers and installers has been developed by ABB as a practical reference regarding cable tray characteristics, installation, and requirements.

Cable Tray

This standard specifies the requirements for nonmetallic cable trays and associated fittings designed for use in accordance with the rules of the Canadian Electrical Code (CEC) Part 1, and the

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Codes and Standards | Cable Tray Institute

This standard specifies the requirements for nonmetallic cable trays and associated fittings designed for use in accordance with the rules of the Canadian Electrical Code (CEC) Part 1, and the National

CEC Code Rule 12-2200 CT Clearances | PDF

Cable trays shall be installed as a complete system using fittings or other means to provide adequate cable support and bending radius before the conductors are installed.

Metal cable tray systems | Standards Council of Canada

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IEC 61537:2023 | IEC

IEC 61537:2023 specifies requirements and tests for cable tray systems and cable ladder systems intended for the support and accommodation of cables and possibly other electrical equipment in

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Specifies requirements for metal cable trays and associated fittings designed for use in accordance with the rules of Canadian Electrical Code, Part I and the National Electrical Code®

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Cable Tray SHIB NAL

The National Electrical Manufacturers Association (NEMA) also publishes three consensus standards that apply to the proper manufacture and installation of cable trays: ANSI/NEMA-VE 1-1998, Metal

Cable Trays

Heavy duty cable trays and cable ladders are manufactured from pre-galvanized or hot-dipped galvanized sheet metal, designed to meet ideal environmental working conditions for indoor and

CABLE TRAY SYSTEMS GUIDE

Cable Tray Systems Guide HUBBELL Hubbell Wiring Device-Kellems and Hubbell Premise Wiring are divisions of Hubbell Incorporated, a U.S. headquartered manufacturer with over 130 years of

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