

Specifications of seismic-resistant cable tray tie rods



AI Overview

Seismic-resistant cable tray tie rods are designed to secure cable trays during earthquakes, with specific load ratings, materials, and installation methods to comply with building codes and ensure system integrity.

Key Specifications

Material and Construction: Seismic tie rods are typically made from high-strength, zinc-coated steel or pre-stretched wire rope/cable assemblies to provide both tensile strength and flexibility under seismic loads. Pre-stretching allows the tie rod to act elastically, absorbing seismic energy like a shock absorber.

Load Ratings and Safety Factors: Tie rods are rated based on minimum breaking strength and allowable load, often with a safety factor of 1.5. Standard sizes include:

- 12 mm (Red) – 900 lbs breaking strength, 600 lbs allowable load
- 18 mm (White) – 1650 lbs breaking strength, 1100 lbs allowable load
- 36 mm (Blue) – 4000 lbs breaking strength, 2667 lbs allowable load
- 48 mm (Yellow) – 6600 lbs breaking strength, 4400 lbs allowable load

Components: A typical seismic tie rod assembly includes:

- Wire Rope/Cable™ – the main tensile element
- Stake Eye End – factory-attached for anchoring to the building structure
- Oval Sleeve – secures the cable loop through the restraint clip
- Universal Restraint Clip (URC) – connects the tie rod to the cable tray support member

Installation Guidelines: Tie rods are installed in 4-way sway brace configurations to resist multi-directional seismic forces. Hardware for connecting the tie rod to the building structure (e.g., 3/8" or 1/2" bolts) is selected based on the tie rod size and load rating. Pre-approved assembly drawings and engineering services are available for systems like Eaton's B-Line series with TOLCO seismic bracing, ensuring compliance with IBC, ASCE, and local seismic codes.

Design Considerations: Tie rod placement depends on cable tray load, tray span, and seismic zone. Critical systems (hospitals, data center...

Article Content

Seismic and cable tray solution flyer

Our team of experts can help you select the best cable tray series for your application, as well as designing your seismic bracing layout to ensure it meets applicable building codes and standards.

Seismic Bracing Ensures Stability and Safety of Cable Trays

Seismic Bracing – Enhancing System Stability and Seismic Resistance Seismic bracing, typically made of high-strength metal, is key component specifically designed to enhance the stability and safety of

V.C. Summer Nuclear Station, Units 2 and 3, Rev. 3 to Updated ...

Cable ties are provided at spacing greater than 4 feet, thereby permitting cable movement within the trays. The damping ratio used for the cable tray system is dependent on the level of seismic input

Seismic analysis and design of electrical cable trays and support ...

The design aspects of electrical cable trays and support systems are discussed from the seismic and structural standpoint. The effects of the inherent flexibility of commonly used cable trays

SECTION 270536

Seismic-Restraint Details: Signed and sealed by a qualified professional engineer, licensed in the state where Project is located, responsible for their preparation.

Design Calculations: Calculate

Document DICOS

Wrapping cable tray in a flame-resistant blanket might create a cable-heating problem without a fire. Installing a physical fire shield beneath a cable tray system may provide only limited improvement

Design and Installation Manual for Seismic Bracing of Cable Trays

Overview of a cable tray seismic bracing load path from tray rail to structure. This guide serves EPC engineers, MEP contractors, procurement teams, and site inspectors working on

Guide to cable support systems

Universal systems for cable support structures are used for small loads. The systems are suspended from the ceiling with threaded rods, stand-off brackets allow raised floor mounting of cable trays,

Seismic and cable tray solution flyer

Eaton's B-Line series cable tray with TOLCO seismic bracing is the recommended total solution for your project. Our cable tray, bolted framing, and seismic bracing are approved as one system through

Seismic Bracing Kit | Seismic Bracing | Wire and Cable Hangers | Wire ...

Cablofil Wiremesh Cable Tray concept based upon performance, safety and economy; three qualities which make Cablofil Wiremesh Cable Tray system preferred by installers. Cablofil adapts to the most

OSHPD Pre-Approval OPM-0295-13

UNISTRUT Seismic Bracing Solutions Unistrut is a global leader in seismic bracing solutions and is a go-to resource for Engineers, Contractors, Specifiers, and others. We have decades of experience

SOLUTIONS

Engineer certified designs and site inspections Ezystrut offers a range of seismic solutions that comply with Australian Standard AS1170.4. Our one-stop solution for seismic bracing, cable tray, pipe

E-Line Seismic

EAE Seismic Support Systems offer rigid solutions for installations that require earthquake protection. The seismic supports, which can be utilized in any type of

Installing Seismic Restraints for Electrical Equipment

INSTALLING SEISMIC RESTRAINTS FOR ELECTRICAL EQUIPMENT Notice: This guide was prepared by the Vibration Isolation and Seismic Control Manufacturers Association (VISCMA) under

UNISTRUT Seismic Bracing Solutions

UNISTRUT Seismic Bracing Solutions ntractors, Specifiers, and others. We have decades of experience with real-world applications in severe seismic zones, supplying world-class products and solutions.

Cable Tray Technical Guide A practical guide to product selection and ...

A practical guide to product selection and installation This guide for engineers and installers has been developed by ABB as a practical reference regarding cable tray characteristics, installation, and

Performance-based optimum seismic design of cable tray system

The seismic performance levels of cable tray systems are presented according to current seismic design codes. A performance-based optimum seismic design procedure for cable tray

Verification of Japanese seismic design guidelines for suspended cable ...

In this study, the dynamic behavior of a suspended cable tray system was investigated through testing with a large earthquake shaking table. Moreover, a reinforcement method is proposed to improve

Seismic MEP Solutions | Eaton

Eaton's TOLCO seismic bracing solutions help protect people and non-structural components during an earthquake. For over 60 years, the mechanical, electrical, and fire protection trades have relied on

Seismic Rod Reinforces

Cable trays are systems used for the safe transportation and protection of electrical cables, designed to fit the pathways within buildings and structural installations.

Seismic Bracing Systems for Cable Trays Catalog

Explore seismic bracing solutions for cable trays. Catalog details wire rope/cable systems, specs, design for earthquake protection.

Westinghouse AP1000 Design Control Document Rev. 19

Cable ties are provided at spacing greater than 4 feet, thereby permitting cable movement within the trays. The damping ratio used for the cable tray system is dependent on the level of seismic input

SECTION 26 0536

Section Includes Metal cable tray and fittings. Related requirements. Seismic: If the cable tray is exempt from seismic design then delete both of the following subparagraphs. Otherwise, see the "seismic

CABLE TRAY

Prior to installing cable in the cable tray, examine cable paths to ensure all areas are free of debris that may interfere with the cable's installation. The cable tray should never be used as a walkway.

SEISMIC BRACING OF A DISTRIBUTED CABLE TRAY SYSTEM

Above these cabinets, are cable trays that provide power and communications cabling to the cabinets. Since the facilities were located in a area of high seismicity, the cable tray system was required to be

Contact Us

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