

Installation of seismic isolation cable trays

Article Overview

Seismic isolation cable trays require proper tray selection, bracing, and anchoring to withstand earthquake forces and maintain system integrity.

Key Considerations for Seismic Cable Tray Installation

1. Confirm Seismic Design Basis Before installation, verify the project-specific seismic criteria, including expected lateral and vertical accelerations, building drift, and vibration levels. These inputs determine tray type, support spacing, brace layout, and cable retention strategy, ensuring compliance with local building codes and standards such as IBC, ASCE 7, and NFPA 13 . 2. Select Appropriate Tray Type

- o Ladder trays are preferred for primary distribution due to their structural strength and efficient weight-to-strength ratio.

- o Perforated or trough trays may be used if evaluated for mass, support spacing, and cable retention.

- o Wire mesh or basket trays are suitable for complex configurations but require careful splice and support design.

- o Channel trays are generally reserved for light-duty runs . 3. Implement Seismic Bracing Seismic bracing secures trays to structural members, allowing controlled movement during earthquakes:

- o Lateral (transverse) braces: Installed perpendicular to the tray.

- o Longitudinal braces: Installed parallel to the tray.

- o Rod stiffeners: Maintain system rigidity. Bracing can be cable-based (tension only, requiring two opposing assemblies) or rigid (tension and compression, one assembly per location, limited by drop length), . 4. Cable Retention and Support Cables must be secured to prevent displacement during seismic events. Use predrilled tabs, clamps, or wire assemblies to attach cables to trays or structural supports. Spacing for seismic bracing is typically every 30 feet or as specified by the design engineer . 5. Installation Best Practices

- o Use tool-less clamps like KwikWire for faster installation and visual verification of correct wire size.

- o Ensure all attachments are stamped by a Professional Engineer and tested for seismic performance.

- o For long drop lengths or vibration isolation, cable bracing is mandatory.

- o Verify compatibility with anchors, fasteners, and hanger products used in the project . 6. Inspection and Compliance After installation, inspect all braces, supports, and cable retention points. Ensure compliance with seismic codes and project specifications to prevent system failure during an earthquake . By following these guidelines, seismic isolation cable trays can maintain structural integrity, protect critical electrical systems, and minimize damage during seismic events.

Using the following table, select how the equipment is to be installed, select the attachment type that best



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matches the installation

Cable trays support cables across open spans in the same way that roadway bridges support traffic. Cable trays can provide a safe

Eaton's TOLCO seismic bracing solutions help protect people and non-structural components during an earthquake. For over 60

For those installations, Seismic Restrained Cable Tray Wiring Systems may be obtained by providing the proper multidirectional

For cables or anything else that runs in a line, the seismic force acts in two directions: transverse (perpendicular) and longitudinal

This article will explore the importance of seismic resistance in cable trays, discuss when seismic braces are

A series of cable trays in multiple layers were installed above the equipment rack to provide cabling for the equipment. The cable tray

Our seismic cable bracing systems are easy to install and require minimal maintenance, making them a cost-effective

Suspended systems such as piping, equipment and ductwork need seismic braces to keep them from swaying during an

A performance-based optimum seismic design procedure for cable tray systems is given and verified by three studied

Seismic engineering services to help customers from pre-bid to inspection walk-through Full portfolio of seismic bracing solutions and

Tested by an independent lab and stamped by a Professional Engineer, the seismic cable kits are designed to brace non-structural

Seismic restraint devices include vibration isolation systems, cable or strut suspension systems, roof attachment systems, and steel

Overview of a cable tray seismic bracing load path from tray rail to structure. This guide serves EPC engineers, MEP

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When those elements are coordinated early, cable tray systems can perform far more reliably under earthquake

1. Route Planning and Layout Principles Coordinate with Building Structure: Cable tray routing should align

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