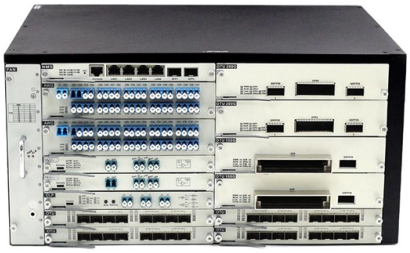
Construction of Lateral Seismic Bracing for Cable Trays



Overview

design and installation of our Seismic Cable Bracing System. All of the materials and products presented have been design d and tested to exceed the requirements set forth in NFPA-13.

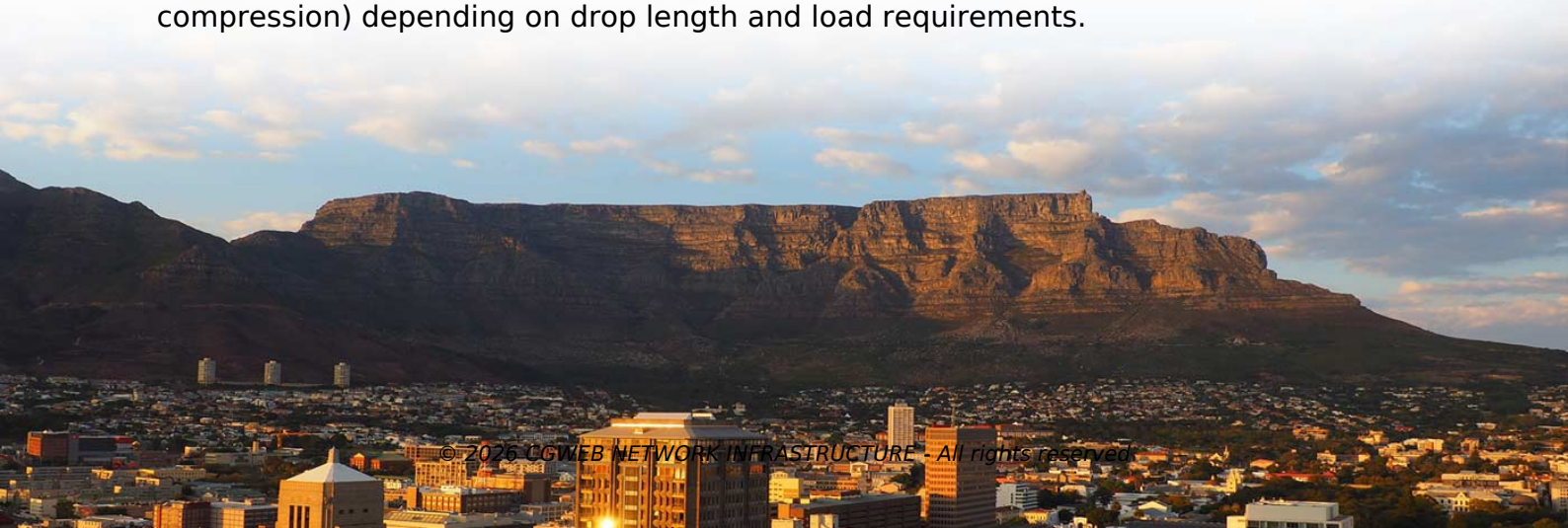
Key Takeaways

Lateral seismic bracing for cable trays involves designing, manufacturing, and installing tension or rigid braces to stabilize cable systems during seismic events, following building codes and industry standards.

Design Considerations

Lateral seismic bracing is essential for MEP systems to prevent damage to cable trays during earthquakes or vibrations. The design must comply with International Building Code (IBC), ASCE 7, and NFPA 13 standards, and consider the weight, layout, and seismic category of the system. Bracing is typically required at changes in direction, pipe ends, risers, and every 30–40 feet along the tray, in both longitudinal and transverse directions.

The design may include cable braces (tension-only) or rigid braces (tension and compression) depending on drop length and load requirements.



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Materials and Components

Seismic bracing assemblies generally consist of: System brace: The main structural element connecting the tray to the building. Brace member: Rods, cables, or rigid bars that provide lateral support. Structural attachment: Anchors, eye bolts, or swivel connectors to secure the brace to the building structure.

High-strength cables or rods are used for tension-only bracing, while rigid braces can resist both tension and compression. Components must meet minimum breaking strength requirements and be compatible with materials like CPVC or steel trays.

Manufacturing and Production

Production involves cutting, crimping, and assembling the brace components according to manufacturer specifications. Cable sleeves are crimped to secure connections, and rod stiffeners may be added to maintain system rigidity. Quality control ensures that all components meet code requirements and load ratings, with testing for tensile strength and durability.

Companies like Loos & Co. and Eaton TOLCO provide pre-engineered seismic bracing kits that simplify production and installation while ensuring compliance.

Installation Guidelines

Preparation: Identify support locations, verify system parameters, and check tools and equipment.

Cable-to-

Structure Connection: Anchor one end of the cable or rod to the building using approved hardware. Crimp sleeves according to manufacturer specifications. Tensioning and Clearance: Maintain proper tension and ensure the maximum angle for longitudinal braces does not exceed 45°, with a minimum clearance of 1.

5 times the tray diameter. Inspection: Verify all connections, tension, and alignment to ensure compliance with seismic design criteria.

Best Practices

Use pre-fabricated bracing kits to reduce installation time and ensure consistent quality. Follow manufacturer instructions and local authority approvals for all components. Consider both lateral and longitudinal bracing to provide full seismic protection.

Regularly inspect and maintain bracing systems to ensure long-term performance. By adhering to these design, production, and installation practices, lateral seismic bracing for cable trays can effectively protect MEP systems and personnel during seismic events while meeting all relevant codes and standards.

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Article Content

SEISMIC BRACING OF A DISTRIBUTED CABLE TRAY SYSTEM

The proprietary channels provided an effective method of transferring lateral forces from the upper and lower levels of cable trays to the HSS bracing elements, however the middle level of cable trays did

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

Installation Guide for Seismic Lateral Bracing in MEP

This guide focuses on cable lateral bracing, a common flexible bracing method, and outlines standard installation steps following manufacturer

Understanding Seismic Support for Electrical Installations

By understanding and implementing the maximum design spacing for rigid and flexible cable trays, accurately placing lateral supports, and utilizing gate-type seismic braces, the resilience of electrical

800.321.LOOS (5667) SEISMIC DESIGN GUIDE CABLE BRACING

design and installation of our Seismic Cable Bracing System. All of the materials and products presented have been design d and tested to exceed the requirements set forth in NFPA-13. In fact, the

UNISTRUT Seismic Bracing Solutions

Requirement: Each straight run requires a minimum of (2) transverse braces and (1) longitudinal brace.

Performance-based optimum seismic design of cable tray system

To clarify the performance objectives of the cable tray, hanging rod, and seismic brace, as well as perform the integrated design of the cable tray system, as shown in Fig. 10, the paper

Cable Tray Checklist for High-Seismicity Projects

In seismic design, the support and bracing system is often more critical than the tray section itself. A standard gravity-only support layout is not enough for a high-seismicity installation.

Seismic and cable tray solution flyer

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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 MEP Solutions | Eaton

First, lateral braces, also called transverse braces, are installed across or perpendicular to the system. Second, longitudinal braces are installed parallel to the system. Seismic bracing also uses rod

Essential Steps for Cable Tray Installation on Roof

Learn essential steps for cable tray installation on roof, including support systems, material selection, and environmental considerations for optimal performance and durability.

Design and Installation Manual for Seismic Bracing of Cable Trays

Cable tray runs in seismic zones need more than normal hanger spacing. A standard trapeze support carries gravity load; it does not reliably stop lateral sway, longitudinal movement,

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

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.

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

Kit contains items needed for seismic bracing long cable tray runs. Each kit contains: (4) 11'' cables with mounting eyelets (2) Metal brackets for attachment to support members (4) Cable clamp collars (4)

Multi-Directional Bracing ForElectrical Conduit, Cable Tray And ...

Multi-Directional Bracing ForElectrical Conduit, Cable Tray And Mechanical Piping Systems INTRODUCTION What is Seismic Bracing? Seismic forces are exerted on a building and its contents

Vogtle Electric Generating Plant (VEGP) Units 3 and 4 Updated ...

Cable Trays and Cable Tray Supports This appendix provides the design criteria for seismic Category I cable trays and their supports. Seismic Category II cable trays and their supports are also designed

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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

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This document is for preliminary research. Verify specifications against current standards, product documentation and project requirements.

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