

Earthquake-resistant cable tray installation in New Zealand



Overview

Seismic restraint of non-structural elements in buildings All cable tray systems must also be restrained for earthquake loads unless they are used to support.

Key Takeaways

All cable tray systems in New Zealand must be seismically restrained according to NZS 4219: 2009, unless supporting only non-essential services or suspended less than 400mm below structural support.

Key Standards and Requirements

Cable tray installations must comply with NZS 4219: 2009, which governs the seismic performance of non-structural building elements. Key points include: Mandatory Restraints: All cable trays must be restrained to prevent movement in all directions during an earthquake, except for non-essential electrical services or trays suspended less than 400mm from the structural support. Fixings and Bracing: Use bolts, anchors, brackets, cleats, gusset plates, or similar devices to attach trays to the building structure.

Fixings must transfer seismic forces effectively and employ positive locking mechanisms to prevent disengagement. Load Classification: Emergency electrical systems should be classified as P4, while non-essential systems are P7. P4 systems include critical services like emergency lighting and must remain operational during seismic events.



Design Considerations: Restraint systems should accommodate building drift, vibration, and floor movement without damaging the cable tray or connected equipment.

Installation Practices

Transverse and Longitudinal Bracing: Horizontal cable trays require at least two transverse restraints and one longitudinal restraint per straight segment. Vertical trays require two transverse restraints in each orthogonal direction. Suspended Trays: Ensure that suspended trays are supported with seismic hangers or wire systems that can resist earthquake forces.

Avoid long unsupported spans and provide lateral bracing where necessary. Critical Equipment Support: Any heavy or essential equipment mounted on trays, such as power distribution units or communication hubs, should be independently braced to prevent damage during seismic events.

Engineering and Supplier Support

Specialist seismic engineering services in New Zealand, such as MSS, Gripple, and USL Multistrut, provide: Seismic load calculations and compliant bracing designs. Full documentation and installation guidance aligned with NZS 4219. Upgrades for existing cable tray systems to meet seismic requirements.

Certified seismic restraint products, including brackets, channels, and fixings suitable for New Zealand conditions.

Practical Recommendations

Engage a certified seismic engineer to design and verify cable tray restraints, especially for critical infrastructure like hospitals, data centers, or schools. Use positive locking fixings and ensure all connections are capable of transferring seismic forces to the building structure. Document all installations for compliance and project certification, including PS1 and PS4 forms where applicable.

Consider retrofitting older installations with seismic bracing to improve resilience and minimize operational disruption during earthquakes. By following these standards and best practices, cable tray systems in New Zealand can remain secure, functional, and compliant during seismic events, protecting both equipment and building occupants.

Article Content

Seismic restraint of non-structural elements in buildings

All cable tray systems must also be restrained for earthquake loads unless they are used to support non-essential electrical services, or they are suspended less than 400mm below the

Engineering Services

Our certified engineering function provides the most complete, end to end service for all non-structural seismic bracing requirements across the construction market

Gripple Wire Seismic Bracing

Here are projects Gripple Seismic Bracing Systems have been installed. For more information or details regarding completed projects, please contact the Polyplas International Area Manager in your region.

Seismically Resilient Non-Structural Elements #3: Restraint systems

All cable tray systems must be seismically restrained, unless the cable tray supports only non-essential electrical services and is suspended less than 400 mm below the structural support.

Seismic Restraints (Full)

All seismic restraint materials and installation must comply with NZS4219:2009. Achieving clearance to non-structural components is critical to achieving compliance with NZS4219. This includes vertical

Earthquake performance – non-structural elements

The failure of non-structural elements during earthquakes can be a life-safety hazard and cause significant disruption and economic loss. Attention to the design of non-structural elements is

Cable Tray EzyTray

Steel & Tube offer a full range of cable trays and cable ladders suitable for all cable containment, and additionally can provide full take-offs from plans through to a complete quotation.

FRP Cable Ladders and Trays | Treadwell Group NZ

We construct and supply both solid and ventilated trays with pre-assembled fittings with pre-drilled straight sections. This allows faster installation and uninterrupted daily operation onsite.

EXduro™ Solutions | Treadwell Group NZ

Built to withstand the corrosive nature of Australia's and New Zealand's environments, EXduro™ offers a corrosion-resistant, non-conductive, and lightweight alternative for industrial cable management.

Seismic Bracing

Gripple Seismic Bracing Systems are specifically designed and engineered to brace and secure suspended non-structural equipment (VAV boxes, fans, unit heaters,

Cable Trays | Mechanical Support Systems New Zealand

Light to Medium Duty Cable Trays Mechanical Support Systems supplies a versatile range of light to medium duty cable trays designed for fast installation and flexible routing across commercial and

Gripple Wire Seismic Bracing

Gripple seismic bracing Gripple Seismic Bracing Systems are specifically designed and engineered to brace and secure suspended non-structural equipment (VAV

The 14th World Conference on Earthquake Engineering

The weight of the cables supported by the cable trays was a critical component of the seismic design of the cable tray bracing system. The electrical engineering consultants for the project provided a layout

Wire Mesh Cable Trays & Components

Using wire mesh cable tray systems involves selecting the right components, planning the layout, and following precise installation steps. Proper installation ensures efficient cable management, safety,

IEC Standard for Cable Tray: Complete Technical Guide

Understanding the IEC Standard for Cable Tray Cable trays play a vital role in supporting electrical cables and wires in commercial, industrial, and

Seismic Standards: Cable Management Guide – Electrical Trader

It applies to metallic and nonmetallic cable tray and ladder systems used to support cables in electrical and communications installations. In plain terms, IEC 61537 is a product standard, not a

University of Otago Building Technologies Standards Suite

Cable tray fill shall not exceed maximum values as stipulated below without prior approval of the UoO project manager or nominated representative, as a guide the table below indicates the maximum

The shake on seismic bracing

Seismic bracing against the wrath of earthquakes is an increasing concern for today's data-communications and telecommunications cable installer, and efforts to minimize the damage...

Related Video Reference

This video was associated with the source search result. Verify technical details against current product documentation and project requirements.

Contact Us

Continue your research online:

Website: <https://ensaa.es>

Technical inquiry: <https://ensaa.es/contact.html>

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

