

Cable trays passing through expansion joints



Article Overview

Cable trays passing through building expansion joints must include properly designed expansion joints and guides to accommodate thermal expansion, contraction, and structural movement.

Key Considerations

Thermal Expansion and Contraction: Cable trays, especially metal ones, expand and contract with temperature changes. Steel and aluminum trays have different expansion rates; for example, a 100-foot aluminum tray can expand about 2 inches with a 100°F temperature change, while steel expands less, around 1 inch for the same conditions. Without proper accommodation, trays can bend, “snake,” or tear from supports.

Expansion Joints Placement: Expansion joints should be installed at or near building expansion joints, typically within 500 mm (about 20 inches) on both sides. The joint must allow movement equal to the building joint width plus an additional 20 mm to ensure full compensation. For long straight runs, NEMA VE 1 and VE 2 standards recommend spacing based on material and temperature differential: steel trays every 128 feet and aluminum trays every 65 feet for a 100°F differential.

Support and Anchoring: Supports should be located within 2 feet of each side of the expansion joint splice plates. Trays must not be clamped too tightly; expansion guides should be used at all other support points to allow sliding movement. The tray should be anchored at the midpoint between expansion joints with hold-down clamps.

Splice Plates and Hardware: Standard splice plates are insufficient for expansion. Slotted or elongated holes in expansion plates allow bolts to slide as the tray moves...

Article Content

Dec 17, 2025

Fiberglass Cable Tray Thermal Expansion Data

Technical data on fiberglass cable tray thermal expansion, contraction, installation, and gap settings. Includes tables and diagrams.

Oct 05, 2025

Cable tray expansion joint setting method

Reasonable setting of cable tray expansion joints is a key link to ensure the safe operation of the cable tray system,

Jun 02, 2026

Microsoft Word

The cable tray needs to be anchored at the support closest to the midpoint between the expansion joints with hold down clamps and

Nov 07, 2025

Expansion joint

Cable ladders PTR type have been tested to verify the electrical continuity in accordance with CEI EN 61537 standard. The test

May 18, 2026

Cable Tray Thermal Expansion Guidelines | PDF

Thermal expansion and contraction of cable trays must be accounted for through the use of expansion joints. Proper installation of

May 29, 2026

392.44 Expansion Splice Plates.

2020 Code Language: N 392.44 Expansion Splice Plates. Expansion splice plates for cable trays shall be provided where necessary

Dec 07, 2025

Thermal Contraction and Expansion of Cable Tray

The cable tray needs to be anchored at the support closest to the midpoint between the expansion joints with hold down clamps and

Apr 12, 2026

Thermal Expansion of Cable Tray

A cable tray system may be affected by thermal expansion and contraction, which must be taken into account during

Jul 31, 2025

INSTALLATION OF EXPANSION JOINTS IN CABLE SUPPORTED

Abstract The proper installation of sensibly selected, well designed expansion joints in bridges is a key factor in ensuring durability

Jan 02, 2026

Managing Thermal Expansion and Contraction in Cable Tray Systems

Learn how to manage thermal expansion and contraction in cable tray systems with expert tips on expansion joints,

May 13, 2026

THERMAL EXPANSION DESIGN IN CABLE BUS

We are familiar with expansion joints in bridges, and expansion fittings in long pipe runs. These are examples of situations in which

Nov 24, 2025

Cable Tray Thermal Expansion Guidelines

1) Cable trays need expansion joints to allow for thermal contraction and expansion due to temperature changes. The NEC requires

Nov 26, 2025

Cable Tray Installation Guidelines for Engineers

Cable trays shall not be used to support any rigging for cable installation Guidelines for Engineers. Cable clamps or straps suitable

Nov 14, 2025

Cable Tray Expansion Joint Installation: Comprehensive Guide

Discover best practices for cable tray expansion joint installation to accommodate thermal changes, ensuring

Sep 24, 2025

Cable Tray Thermal Expansion Guides | TechLine Mfg

Our thermal expansion guides are recommended to provide longitudinal movement from a fixed point. Two guides should be used

Feb 09, 2026

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

Apr 02, 2026

CTI-S65001_A01

Thermal Expansion and Contraction of Cable Tray All materials expand and contract due to temperature changes. It is important that

Jun 12, 2026

Expansion joint

The CEI EN 61537 standard states that the maximum acceptable longitudinal inflexion is 1/100 of the distance between supports, and

Jul 26, 2026

INSTALLATION GUIDE

At the midpoint between two expansion joints the tray should be secured (no longitudinal movement). At all other support locations,

Aug 01, 2025

Best Practice Guide to Cable Ladder and Cable Tray Systems

This guide covers cable ladder systems, cable tray systems, channel support systems and associated supports intended for the

Jun 14, 2026

What is Expansion Joint Cable Tray Installation

Learn the essentials of expansion joint cable tray installation and how they ensure safe and durable cable tray

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