

Article Overview

Cable tray bridging locations must be supported at recommended spans, typically 1/4 of the tray length, to minimize deflection and stress, following NEC, NEMA, and manufacturer guidelines.

Support and Span Guidelines

Cable trays must be supported at regular intervals to maintain structural integrity and prevent excessive deflection. According to NEMA BI 50015 and BI 50016, the recommended support location for bridging or splice points is at 1/4 of the tray span. This ensures that stress and deflection are minimized at splice plates or fittings, which are common bridging points in a tray system .

- o Straight sections: Support should be placed at both ends and at intermediate points according to the tray's load rating.
- o Splice plates: Use vertical adjustable or heavy-duty expansion splice plates at bridging locations to accommodate thermal expansion and maintain alignment .
- o Rung spacing: For ladder-type trays, a rung spacing of 6 to 9 inches (150-230 mm) is recommended to support cables and prevent sagging .

Load and Material Considerations

- o Ensure the tray material (steel, aluminum, or FRP) is suitable for the expected load and environmental conditions .
- o Avoid placing excessive cable weight at bridging points; adhere to fill limits: 40% for power cables, 50% for control cables .
- o For metallic trays used as equipment grounding conductors, verify that the cross-sectional area of side rails meets NEC requirements for the specific circuit rating .

Thermal Expansion and Environmental Factors

- o Bridging locations should account for thermal expansion and contraction, especially in outdoor or sun-exposed installations. Expansion splice plates or adjustable supports help prevent stress on the tray and cables .
- o Nonmetallic trays may require additional support or spacing adjustments due to lower rigidity .

Best Practices

- o Maintain clearances for maintenance access (minimum 12 inches above trays) and avoid prohibited areas such as hoistways .

Cable tray bridging location

- o Separate high-power and low-power cables to prevent electromagnetic interference at bridging points .
- o Ensure proper bonding and grounding at bridging locations, using insulated conductors and grounding clamps where necessary . By following these guidelines, cable tray bridging locations will remain structurally sound, electrically safe, and compliant with NEC and NEMA standards, while minimizing maintenance issues and potential system failures.

The Cable Tray Institute (CTI) was founded in 1991 to support the cable tray industry by engaging in research, development,

Cable tray installed in a hazardous location must contain only those cables that are appropriate for this type of environment as

Core rules for selecting, installing, grounding, and filling cable trays--clearances, materials, separation, and bonding

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

Cable Tray Technical Guide A practical guide to product selection and installation This guide for engineers and installers has been

Cable ladder and cable tray systems The following recommendations are intended to be a practical guide to ensure

Despite their versatility, cable trays are not suitable for every situation. They are strictly

The following recommendations are intended to be a practical guide to ensure the safe and proper installation of cable ladder and

For ladder or ventilated trough trays, the total sum of the cross-sectional areas of all the cables to be installed in the cable tray must

Cable tray systems are engineered support structures designed to route, support, and protect insulated electrical

The document discusses cable trays, which are structures used to securely support and distribute cables. It describes the different

Explore the essential cable tray support spacing requirements for safe and efficient installations. Learn NEC

Cable tray bridging location

guidelines

In industrial settings, electrical and instrumentation (E&I) cable trays or bridge racks play a critical role in

System Overview The Wire Basket Overhead Cable Tray Routing System is composed of pathways, splices, mounting brackets, and

Cable Trays are rigid structural system, comprising of unit or assembly of units/sections and associated fitting for

Ladder tray comes under its greatest stress all fitting locations during cable pulls. It is critical that the structural integrity of the system

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