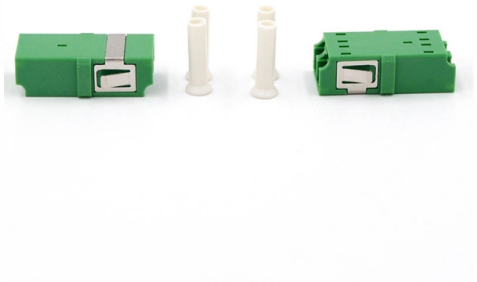
JEWELBLU OPTICAL SYSTEMS

How to seal up cables in vertical shaft cable trays



Overview

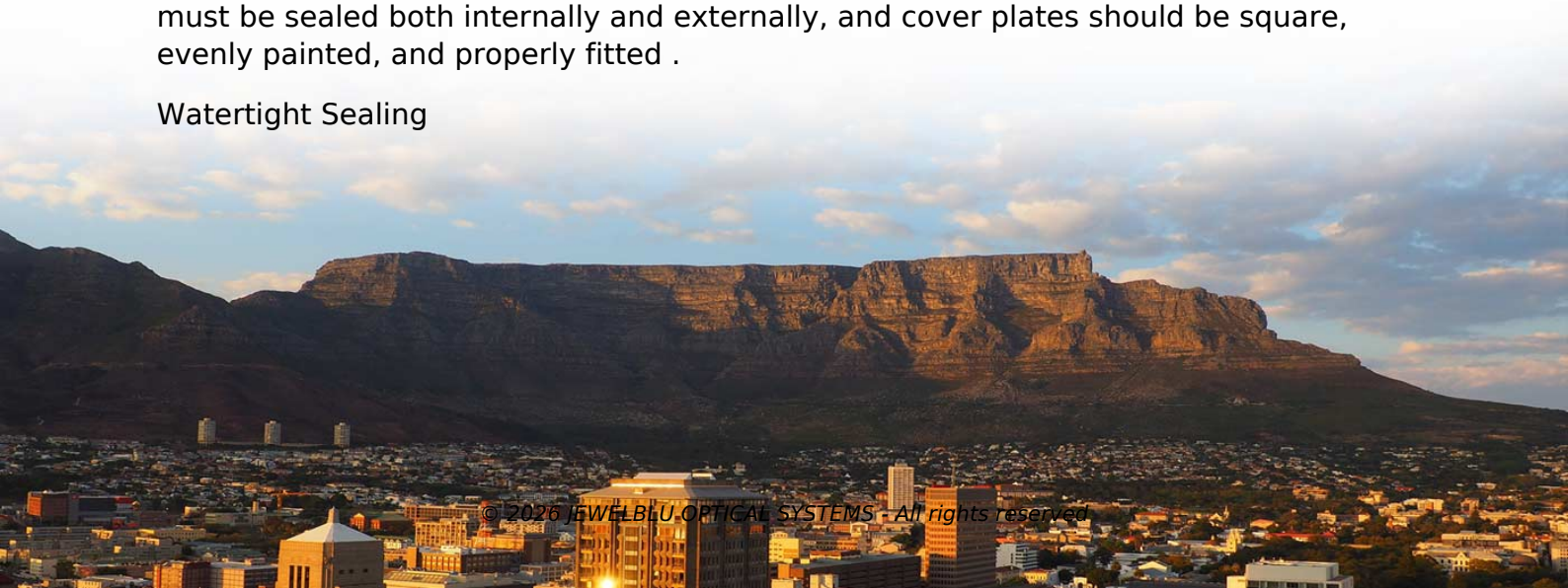
Firestopping Requirements for Cable Trays and Sealing shall be tight and reliable, without visible cracks or voids. For large openings, install Watertight.

Key Takeaways

Cables in vertical shaft trays should be sealed using firestop packs, intumescent caulks, or watertight seals to ensure fire protection, water resistance, and mechanical stability.Firestopping in Vertical Shafts

When cables pass through vertical shafts, walls, or slabs, all openings must be tightly sealed with firestopping materials to prevent fire and smoke spread. Common materials include fire-rated boards, firestop packs, firestop mastic, and fire-resistant mineral wool. For large openings, a fire-resistant backing plate should be installed before sealing. Firestop packs should be placed in an orderly sequence, ensuring that gaps between packs and cables do not exceed 1 cm^2 and packing thickness is sufficient, typically not less than 24 cm. All gaps inside and around metal trunking must be sealed both internally and externally, and cover plates should be square, evenly painted, and properly fitted .

Watertight Sealing



For vertical cable tray runs, especially in concrete pull boxes or outdoor/wet environments, watertight penetration is critical. Individual cable seals using pressure-fit seals are recommended for a truly watertight solution. Specialist products like Roxtec or Hawke transit systems can be used if installed correctly. Alternatively, a dam can be built around the cable penetrations and filled with flowable silicone, such as Dow Corning 734, which fills all crevices and cures to form a watertight barrier .

Mechanical Fixation and Cable Management

Vertical cable installations must account for cable weight and tension. Use high-tensile steel wire armor, pulling grips, or socks to prevent cable rupture during installation. Fail-safe mechanisms should be in place to prevent free fall in case of a pulling wire failure. Once installed, cables should be properly fixed with mounting brackets, clamps, or cleats that maintain constant lateral clamping force, avoiding slippage or mechanical deformation due to thermal expansion or load cycling .

Installation Sequence
• Complete floor and wall finishes in the shaft and install shaft doors.

• Install cable trays and busways, ensuring proper alignment.

• Route cables carefully, considering weight and bend radius.

• Apply grounding and waterproofing measures.

• Seal all penetrations with firestop packs, mastic, or watertight seals.

• Install cover plates or protective barriers to complete the seal .
Key Considerations
• Ensure no closed loops of ferromagnetic steel in the shaft to avoid interference.

• Maintain minimum bend radius for cables exiting trays.

• Use UL-listed firestop systems and follow manufacturer instructions for compliance.

• Plan installation carefully to allow for maintenance and future cable additions . By combining firestopping, watertight sealing, and mechanical fixation, vertical shaft cable trays can be safely and effectively sealed, ensuring compliance with safety standards and long-term reliability.

Article Content

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NEMA VE2 Cable Tray Installation

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Cable Tray and Raceway Installation Specification

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Cables

FIRSTO firestops are designed to seal multi-cable and cable tray penetrations of fire-rated walls and floors.

Penetration Seals

The vast number of different building materials and different service and the types of penetrations that can be required, leads to a

A Guide to Installing and Supporting Electrical Cable Trays

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

Method Statement installation of Cable Trays and Ladders

This method statement covers the site installation of the cable tray & ladders and the requirements of checks to be

GENERAL INFORMATION

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Complete cable tray manual for electrical engineers and designers

The final drawings for a cable tray wiring system may be completed and sent out for bid or construction more quickly

CABLE TRAY INSTALLATION PROCEDURE

On vertical cable trays and on edgewise – horizontal cable trays, each cable shall be fixed with 20mm wide stainless

Cable Tray Installation

Once the cable is installed in an open cable tray installation, take care to protect the exposed cables from falling objects or debris

Performance Evaluation of Cable Shaft Fireproof Sealing System

The effectiveness of fireproof sealing systems in preventing the spread of fire in high-rise building cable shafts relies

Connecting Cable Trays: Your Guide to Secure and

Learn common methods for connecting cable trays safely and efficiently. Our guide covers

A Guideline for Laying of Cables and Installation of Sleeves

The connection of two or more cables within boxes or cable sleeves must be undertaken with the greatest care and be protected

NEMA Standards Publication VE 2-2006

If a wire mesh cable tray is supporting cable with a built-in equipment grounding conductor or control or signal cables, then the tray

Cable Tray Trunking & Ladder Installation Method for Projects

Cable Tray, trunking and ladder will be properly supported and stacked in a flat surface. Tray, trunking and ladder will

Cable Trays Installed Vertical In A Different Manner

Added to what Mike has stated, I doubt the cable tray manufacturer has had these structurally tested, and UL listed in

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