

Fireproof Sealing Process for Busbar Cable Trays



Overview

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

Key Takeaways

Busbar cable trays can be effectively fireproofed using certified firestop systems, including intumescent pillows, mortars, sealants, and frame-based units, ensuring compliance with fire-resistance standards.

Key Principles of Fireproof Sealing

Fireproof sealing of busbar cable trays involves preventing the passage of flames, heat, and smoke through walls, floors, or slabs where the trays penetrate fire-rated compartments. Openings must be tightly sealed without visible cracks or voids, and large penetrations may require fire-resistant backing plates before sealing. The sealing process should accommodate maintenance and cable modifications while maintaining fire integrity .

Materials and Methods

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Intumescent Firestop Pillows: Products like AF BAGS are intumescent and ablative pillows certified under EN 1366-3 for up to EI 240 fire resistance. They consist of a non-combustible fiberglass casing filled with intumescent compounds and thermal insulators. They are suitable for cable diameters up to 21 mm and can be inserted into thin structures without additional framing. Pillows are easily repositioned for maintenance .

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Firestop Mortars and Sealants: Systems such as KBS Mortar or FR Caulking provide flame- and smoke-tight sealing around cable trays and busbars. Mortars swell upon curing to fill gaps, while sealants can be applied to complex penetrations. These materials are tested to EN 1366-3, DIN 4102-9, BS 476 Part 20, and UL 1479 standards .

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Frame-Based Firestop Units: Products like CSD FIRSTO® use a metal frame encompassing the cable tray or bus duct at the penetration point. Fire-resistant cellular rubber interlayered with intumescent pads provides up to four hours of fire resistance. These units allow easy installation before or after cable routing and simplify maintenance without additional parts .

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Mineral Wool and Fire-Rated Boards: For slab or wall penetrations, fire-resistant mineral wool, firestop packs, or boards can be used. Packing thickness should meet design requirements (e.g., ≥ 24 cm), and gaps around metal trunking must be sealed internally and externally. Cover plates should be square, consistent, and painted evenly .

Installation Guidelines

- **Sequence:** Install busbars and cable trays first, then position firestop materials. Ensure floor and wall finishes are complete and shaft doors installed .
- **Gap Management:** Keep gaps between firestop packs and cables below 1 cm². For slab penetrations, provide 20–30 mm of firestopping and a fire-support plate at the top .
- **Maintenance Access:** Use repositionable pillows or modular frame systems to allow cable replacement or modification without compromising fire protection .
- **Compliance:** Always select materials and systems certified for the required fire-resistance rating (EI 60, EI 120, EI 240) according to local or international standards .

Summary

Effective fireproof sealing of busbar cable trays requires a combination of certified materials, proper installation, and adherence to fire-resistance standards. Options include intumescent pillows, firestop mortars, sealants, and frame-based units, all designed to maintain compartmentation, prevent fire spread, and allow maintenance. Proper gap management, backing plates, and cover plates ensure a reliable and durable firestop solution .

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Technical Guidelines for Cable Tray Installation and

6.2 Fire Barrier Integration Install fire barriers within the tray to isolate different fire zones. When cable trays

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