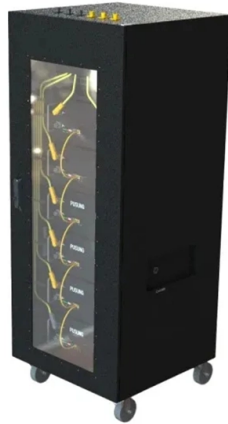


Fireproof tunnel for vertical bridge structure



Article Overview

Vertical bridge structures with tunnel-like passages can be effectively protected from fire using a combination of passive fireproofing systems, including spray-applied coatings, fire boards, and reinforced concrete fire-resistive designs.

Passive Fire Protection Systems

Spray-applied fireproofing is widely used for tunnel and vertical structures. Systems like CAFCO FENDOLITE M-II / ISOLATEK Type M-II are internationally tested and can be optimized for thickness to prevent concrete spalling and structural collapse under fire exposure. These coatings are designed to keep concrete surfaces below 380°C (716°F) for up to two hours, simulating severe fire scenarios such as a gasoline tanker fire over a large surface area. Components include keycoats, retention meshes, anchors, and optional reflective topcoats for durability and visibility. Fire boards and cladding provide protection for steel elements within tunnel-like structures. These panels, often referred to as steel encasement or fire cladding, shield structural steel from high thermal loads and are integrated with emergency escape routes or maintenance walkways. Fire-rated cable trough covers can also be installed to protect electrical systems while sustaining dynamic loads.

Concrete Fire-Resistive Design

Reinforced concrete in vertical tunnels is vulnerable to explosive spalling, which occurs when trapped water vapor rapidly expands at temperatures between 300°C...

Article Content

Oct 13, 2025

NFPA 502 Standard Development

This standard provides fire protection and fire life safety requirements for limited access highways, road tunnels, bridges, elevated

Aug 21, 2025

Passive fire protection system with fire-proof cable and pipe seals ...

Roxtec cable and pipe entry seals provide certified protection against multiple hazards – including smoke and fire. The

May 01, 2026

Experimental study on fireproof board insulation technique for steel ...

Fire insulation measures must be implemented in order to lower the surface temperature of the tunnel elements, which

Mar 20, 2026

Fire protection in tunnels with fireproof boards Tecbor®

In the last years, due to fire events occurred in tunnels, efficient solutions have been sought to safeguard

Apr 02, 2026

Fire Protection in Tunnels

ECO Tunneling and Aestuver® provide a fire-protection solution for tunnels that meets all structural and fire-performance requirements.

May 09, 2026

Transient temperature analysis and engineering application of steel ...

The segment structure of the undersea immersed tunnel of the Shenzhen-Zhongshan Link is a rectangular section,

Mar 02, 2026

Tunnel fire boards

Aestuver® fire protection boards are used as independently fixed or directly concreted (Permanent Formwork) tunnel cladding in

Apr 24, 2026

Experimental study on thermal bridge effect of steel-concrete-steel ...

The study in this paper addressed the shortcomings in the early research on fireproof insulation schemes for steel

Apr 13, 2026

(PDF) Fire Resistance Test and Numerical Simulation on the Tube ...

To provide references for the fire prevention design of steel-concrete-steel immersed tube tunnels, four types of test

Sep 13, 2025

Fire-resistance design and experimental research for the ...

The cables are crucial to the service life of cable supported bridges. Fire accidents involving bridge cables may cause

Apr 26, 2026

E3134 Standard Specification for Transportation Tunnel Structural ...

The test methods covered by this specification are used to determine the performance of tunnel construction elements

Mar 23, 2026

Experimental study on thermal bridge effect of steel-concrete-steel ...

Abstract Read online Steel embedded parts welded on the surface of steel-concrete-steel tunnel elements serve as thermal bridges

Nov 09, 2025

Firestop Systems

Modern building frameworks are interspersed with multiple utility and network services including cables, pipes and ventilation ducts in

Nov 15, 2025

Chapter 17 Fire and Smoke Control in Transport Tunnels

Chapter 17 Fire and Smoke Control in Transport Tunnels A transport tunnel is an enclosed facility that carries different type of traffic

Sep 23, 2025

Structurae

With more than 85 000 projects listed from around the world Structurae has one of the largest project database specifically for works

May 01, 2026

5HVHDFK

hnology. It introduced the development of fire protection technology for tunnel structures, fire protection technology for concrete

Oct 05, 2025

Study on Fire Temperature Field in Small-Section Steel-Shell ...

Small-section steel-shell concrete immersed tube tunnels are intended for minibuses and have a low fire heat release

Jan 06, 2026

Tunnel Fire Protection

We support tunnel engineers, contractors and operators with engineering, design, testing and supply of

Oct 10, 2025

NEW Tunnel Brochure ENGLISH

FireBarrier 135 - high performance fire protection in tunnels FireBarrier 135 is a refractory cement fire protection developed for the

May 02, 2026

Approach to Tunnel Design for Fire Loads

In conclusion, by developing project-specific fire curves, assessing each fire event for its specific features, assessing

Dec 04, 2025

Fire Safety Guidelines for Road Tunnels | PDF | Tunnel | Road

This document provides a summary of guidelines for fire safe design of road tunnels from various countries. It includes a list of safety

Dec 27, 2025

(PDF) Review on the Development Status of Tunnel ...

With the economic development and technological innovation, the number of domestic tunnels has increased year by

Nov 14, 2025

Passive Fire Protection in Tunnels – an introduction

This underscores the importance of robust passive fire protection measures tailored specifically to tunnel

Jul 29, 2025

Tunnels | Passive Fire Protection Systems

Our systems insulate the main concrete structure of road and rail tunnels to prevent collapse in a fire and to also provide fire

Jan 30, 2026

Structural Fire Protection For Road Tunnels

Structural Fire Protection For Road Tunnels As an addition to PIARC guidelines, the scope of this ITA document is to provide

Mar 27, 2026

GUIDANCE NOTES ON THE USE OF WATERPROOFING MEMBRANES ON CONCRETE BRIDGE ...

For the purpose of these Guidance Notes, road tunnel structures should include all major structures of a road tunnel, including

Oct 17, 2025

Enhancing tunnel safety through passive fire protection

Some of the most recognised global codes and standards for tunnels are: • NFPA 502 standard for road tunnels, bridges, and other

Oct 14, 2025

Tunnel Products

This ensures that tunnel owners and designers can be confident that once installed, our systems will

Contact Us

For more information, pricing, or custom solutions, please contact us:

Website: <https://khanimamboguesthouse.co.za>

Email: sales@khanimamboguesthouse.co.za

Phone: +27 64 852 1973

Address: Unit 7, Greenway Business Park, 8 Innovation Drive, Centurion, 0157, South Africa

This document is for informational purposes only. Specifications subject to change without notice.

