



Case Study:
Installation of FireBarrier® 135
in Verla Di Giovo Tunnel, Italy

FIREMASTER®

The challenge

The Verla Di Giovo tunnel, near Trento in Italy, was the first tunnel in the European Union to use a false wall constructed from corrugated stainless steel, to create a space running along the side of the tunnel to serve as both a ventilation shaft and escape route. Furthermore, the external face of the steel wall formed an interior wall of the tunnel.

Specifications required that the steel wall be clad in fire protection that would provide 120 minutes of resistance to a 1,100°C hydrocarbon fire, and that would maintain the temperature of the wall at less than 300°C during that fire.

The fire protection product chosen by the Verla Di Giovo project leads was Morgan's FireBarrier 135, which has several relevant advantages, including ease of application: it can be sprayed in a single application, using standard spraying equipment, onto a concrete or metal substrate, and has a quick drying time. Furthermore, FireBarrier 135 is a refractory cement product that can withstand repeated exposure to 1350°C for long cycle times and has high adhesion strength. FireBarrier 135 was specifically developed to deal with the very high temperatures encountered in tunnel fires.

How Morgan worked to show the capability of FireBarrier 135 to protect the steel false wall

Using finite element modelling, in conjunction with substantial fire test data generated by various full-scale, high temperature hydrocarbon fire tests (RWS and HCM fire curves), it was established that the steel false wall could be protected to the required level using just 30mm to 58mm of FireBarrier 135 - thus the average thickness applied was 44mm.

FireBarrier
135 can easily
be applied to
concrete or metal
substrates.



The Result

The steel false wall was clad in FireBarrier 135 during the summer of 2005; a total of 5,500m² (the equivalent of 300 tonnes) was applied. The FireBarrier 135 was sprayed onto installed onto the corrugated steel cladding, and a high quality surface was achieved by levelling the product.

FireMaster Expanding Felt was used to seal the gap between the bottom of the cladding and the top of the wall below.

A high-quality surface finish was achieved by levelling the surface of the FireBarrier 135.

**5,500m²
of FireBarrier
135
were applied**

FireBarrier 135 can be levelled to give a smooth, high quality finish that can be painted, or not, as required. This surface can serve as the final tunnel lining, and thus eliminate the need for expensive and time-consuming secondary cladding.



ABOUT MORGAN ADVANCED MATERIALS



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