

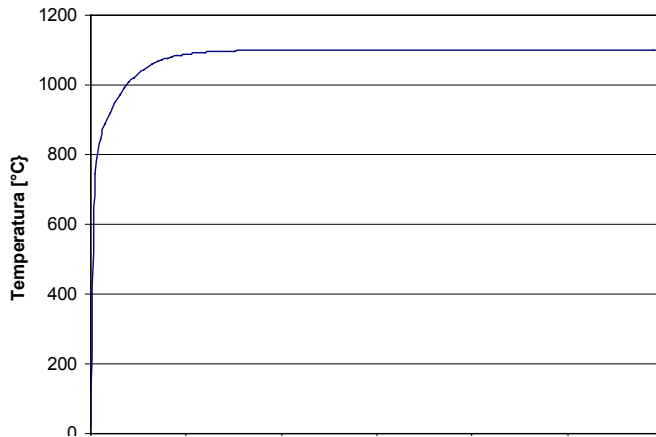
Installation of FireBarrier 135 in Verla Di Giovo Tunnel Italy 2005



Background

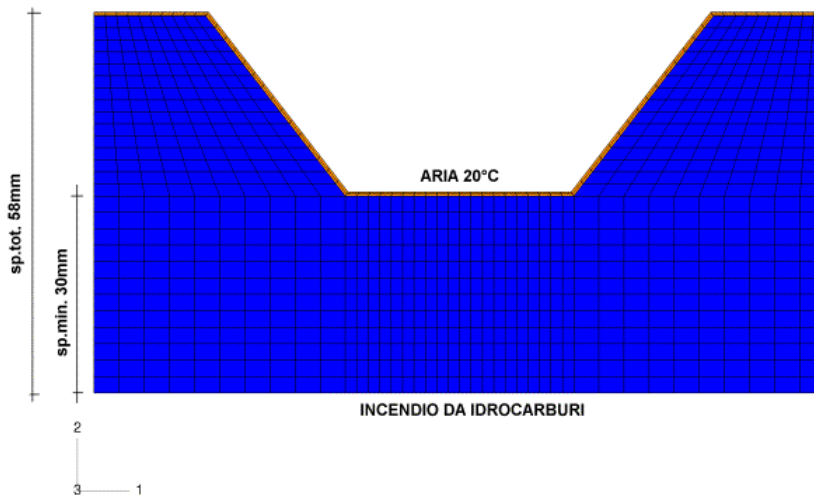
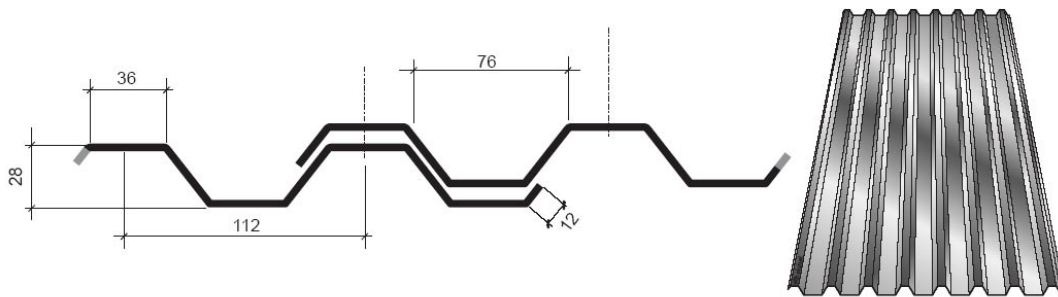
The unusual design of the Verla Di Giovo Tunnel near Trento in Italy is the first of its type in the EU. It utilises a false wall constructed from corrugated stainless steel to form a combined ventilation shaft and escape route (seen on the right hand side of the portal on the picture above). This wall required a 120-minute fire resistance against a standard 1100 ° C hydrocarbon fire. This fire protection was provided using FireBarrier 135 spray applied cementitious fire protection manufactured by Thermal Ceramics.

Fire Protection was required to maintain the profiled steel wall below 300°C during the fire. Finite Element modelling was utilised together with the extensive fire test data available from over 7 full-scale high temperature hydrocarbon fire tests (RWS and HCM fire curves) already carried out using FireBarrier 135 on concrete substrates, confirming that the steel panel could be adequately protected using 30mm to 58mm of FireBarrier 135, giving an average applied thickness of 44mm applied.

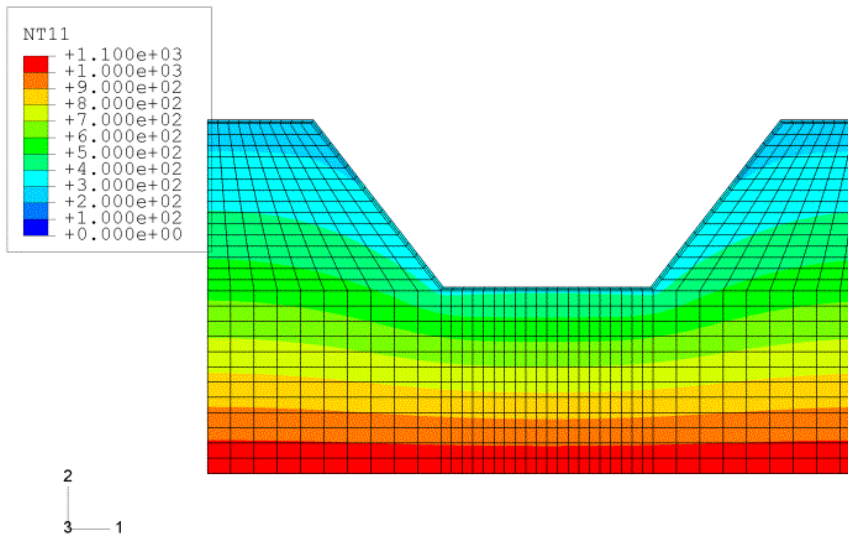


Opposite left: The 1100 °C hydrocarbon fire temperature-time curve

Below: The Alubel 28 corrugated steel panel used to form the ventilation/escape wall



Above: Proposed lining to corrugated cladding panel. To achieve a flat surface 30mm of FireBarrier 135 is installed on the top of the corrugations and 58mm into the trough, averaging 44mm.



Above: FEM modelling of the temperature profile showing the steel surface temperature is limited to 300 °C

Installation

The FireBarrier 135 lining was installed during the Summer of 2005. Overall a total of 5500m²(equivalent to 300 Tonnes) of FireBarrier 135 was installed.



Above: The Alubel 28 cladding insalled on the wall. FireMaster Expanding Felt is used to seal the gap between the bottom of the cladding and the top of the wall below.



Spray Installation of FireBarrier 135 onto mesh installed onto the corrugated steel cladding (video is available on request)



Above: A high-quality surface finish is achieved by levelling the surface of the FireBarrier 135.

Below: Completed Tunnel lining. The FireBarrier 135 lining can be seen on the right-hand side of the picture.



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