

Case Study

HOLMESDALE TUNNEL PROJECT Cafco FENDOLITE® MII

Costain Ltd., Main Contractor for the recently initiated M25 Holmesdale Tunnel widening and maintenance project, has placed what is believed to be the largest single order (2.7m Euros) for spray applied passive fire protection materials in the UK.

Starting in September, spray applied Cafco FENDOLITE® MII is being installed to protect 64,000 square metres of concrete roof beams, the diaphragm walls and a newly constructed three metre high reinforced concrete central dividing wall, both in the east and west bound bores of the tunnel. The material is to be used in conjunction with the impervious basecoat, Cafco Aqualite and Cafco's light reflectant topcoat LRTC 100.

The decision to employ Cafco FENDOLITE® MII was taken by an integrated team of Costain, Capita Symonds and Mouchel Parkman Services and the Highways Agency, following the evaluation of a wide selection of products and systems. The Cafco FENDOLITE® MII system was the only material that fully satisfied the rigorous fire performance, durability, washability and light reflection performance requirements specified for the project. The material is being applied by specialist installers PFP Contracting Ltd, of Grangemouth, Scotland.

Cafco FENDOLITE® MII will insulate the concrete structure from the effects of fire and ensure that the structure does not reach temperatures that would cause the concrete to spall, or the steel reinforcement bars to buckle and collapse. It will ensure that the structure's roof beams, outer and new central dividing walls will be protected from damage and collapse for a minimum of 3 hours under the most extreme fire exposure conditions, including the more significant hydrocarbon conflagrations, such as those caused by a petrol tanker

fire. Hydrocarbon fires, created by a combination of chemicals, gas and petroleum, are far more severe than cellulosic fires and as a result the design team had to consider protective materials that are more commonly used for onshore petrochemical and power complexes and offshore oil and gas production projects.

Cafco FENDOLITE® MII is a single pack, factory controlled premix based upon Vermiculite and Portland Cement. The material has a proven track record of protecting tunnel linings and more than one million square metres have been treated around the world during the past ten years, making it the most widely specified system on the market.

With an average annual daily traffic rate of more than 60,000 vehicles travelling through each bore of the M25 structure, Holmesdale is the busiest road tunnel in the Trans European Road Network (TERN). When refurbishment is completed Holmesdale Tunnel will meet all the requirements for minimum safety standards as defined in The European Directive (2004/54/EC), creating greatly enhanced levels of safety for motorists.

The 18-month tunnel refurbishment project, which also includes safer entry to and exit improvements to junction 25 (with A10) of the motorway to reduce congestion, began in May 2006.

The eastbound carriageway is to be widened by one lane through the junction, with both the east and westbound carriageways being widened on the east side of the junction and through the tunnel. In addition to the installation of fire protection, works will include the replacement of lighting, ventilation equipment, internal cladding, tunnel control systems, traffic monitoring and control systems, emergency phones and the improvement of drainage and the removal of raised walkways.

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