

News Release

24 November 2016

Lee Tunnel is the first (Steel Fibre Reinforce Concrete) Tunnel Project to win the Concrete Society Award.

The LEE TUNNEL IN BECKTON, LONDON, a MVB JV (Morgan Sindall/Vinci Grand Projets and Bachy Soletanche) joint-venture project is the first tunnel ever to be nominated and has won this prestigious award in 48 years of the awards, the Concrete Society is celebrating its 50th anniversary this year.

The project comprises five shafts, with the diaphragm walls the deepest recently undertaken in the UK at 90m. A 7m-diameter 7 km-long tunnel connects the shafts. The innovative Dramix® 5D steel fibre reinforced concrete (SFRC) for the slip formed tunnel lining took 18 months to develop, resulting in the use of a steel fibre reinforced self-compacting concrete. The 5 shafts were also designed and constructed using an innovative slip formed type of shaft construction, which also incorporated steel fibre reinforced concrete that reduced substantially the quantity of structural reinforcement, thus enabling a faster and safer construction process.

The Dramix® 5D steel fibres provided excellent bending hardening properties to the concrete section, thanks to the high ductility wire, ultra-high tensile strength and perfectly shaped hooks.

The designer (UnPS) and MVB JV decided to replace the traditional reinforcement with steel fibres, about 17000 tons of rebar was replaced with >2000 tons of the Dramix® 5D steel fibres.

In this way they eliminated the very large and difficult logistical challenge that would have been placed before the contractors' underground team.

This game-changing Dramix® 5D series provides designers with new opportunities to design steel fibre concrete structures for both underground and surface works and enables contractors to build faster and safer solutions.

Peter Remory, General Manager of Bekaert Maccaferri Underground Solutions: *"We are grateful we were a contributor to this award winning project. Thanks to the innovative fibre solutions we offer and our experienced team we were able to bring added value to the project and its stakeholders. The use of the newly developed Dramix® 5D steel fibres opens up more reinforcement possibilities and allows higher productivity, it is also more cost effective and offers enhanced durability."*

The Society Awards judging panel said, *"The Lee Tunnel was the most outstanding structure and therefore outright winner for its technical achievements in the use of concrete, its demanding placement conditions and innovative structural solutions. The statistics for concrete volume placed are impressive; the innovation required and final execution is exemplary. This project pushed the technical boundaries of what is possible with concrete."*

Richard Kershaw of CEMEX UK Materials, concrete supplier to the project, said, *"We are very honoured to receive such acclaim from this most prestigious of awards. Concrete was the only realistic material choice for this structure. CEMEX is proud to be part of this momentous scheme and be part of a legacy to London, which will help prevent 16 million tonnes of sewage entering the River Lee and Thames each year."*

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Bekaert Maccaferri Underground Solutions, your global partner for smart fibre reinforcement of your tunnelling and mining project. Our wide range of fibres give you the support your project needs. Depending on the application, we have the right fibre for you at the right price. Our Dramix® 3D fibres are at their best in shotcrete applications for first lining and temporary support. The Dramix® 4D product range is ideal for final lining of tunnels or shafts, either to be used in spray concrete linings or precast segments. Dramix® 5D offers superior results in final lining cast in-situ. Synmix® fibres are macro-synthetic fibres and can be used for temporary support in mining.

To complete our portfolio, we also offer micro-synthetic fibres called Duomix® M6 Fire that increase the fire resistance of concrete.

Bekaert Maccaferri Underground Solutions understands you.

Because we are tunnelling.