

120 year design life

Flexcrete products used for Europe's largest infrastructure project



A wet spray cementitious mortar manufactured by Flexcrete Technologies Limited has been used to enhance the durability of the Moorgate Shaft at the new Crossrail Liverpool Street Station in London. The shaft has been newly constructed to provide access and ventilation to the new ticket hall being constructed at the station.

Crossrail is Europe's largest infrastructure project, with a total of 21km of new twin bore tunnels under construction. Crossrail will provide a high frequency rail service that will link parts of Berkshire and Buckinghamshire, via central London, to Essex and South East London, providing additional transport capacity and reducing congestion on London Underground. Services through central London will commence in 2018, around 200 million passengers will travel on Crossrail each year and the route will provide a 10% increase to rail capacity.

New Crossrail stations are being built across London, one of which is at Liverpool Street Station. It is located below London Underground's existing Liverpool Street and Moorgate stations, with both stations providing access to the Crossrail station. At the western end, the new ticket hall is under construction, and the development in which it is housed contains a 42m deep shaft with piles 60m deep and steel reinforced rings to secure the permanent structure for the next 120 years. The final concrete pour of 1,800m³ was one of the largest on Crossrail, and took some 17 hours to complete. A Joint venture with BAM Nuttall and Kier were the main contractors for the works, with Prestec UK Ltd applying the Flexcrete products.

LOW SAG

Flexcrete Monomix WS, a low density, high strength, shrinkage compensated waterproof mortar, was specified to reinstate an area of 50m² to the new concrete shaft walls at a thickness of 20-70mm. Applied by wet process spraying at thicknesses up to 80mm even in vertical and overhead situations, Prestec UK Ltd

was able to achieve the reinstatement in a single application because of its low sag properties.

It is rapid curing, and its high bond exceeds the tensile strength of concrete, ensuring monolithic performance of the repair whilst its dense matrix offers low permeability to water, even at 10 bar positive and negative pressure. Monomix WS is CE marked in accordance with the demands of BS EN 1504 and it is exceptionally well proven in both new build and refurbishment projects.

In order to prevent rapid drying out of the mortar, Flexcrete Curing Membrane WB was applied to the surface immediately after finishing. With a waterborne formulation and backed by British Board of Agrément (BBA) approval, it can be safely applied in enclosed locations as it releases no hazardous solvents or strong odour. This Flexcrete system provided an ideal solution, ensuring full conformance with specification. Flexcrete guaranteed that the system will provide a 120 year design life to match the overall requirements and the strength of the parent concrete.

Flexcrete Technologies Limited is the UK's leading independent manufacturer of technical mortars and high performance coatings. With origins dating back to 1983, the company manufactures a wide range of concrete repair mortars, fairing coats, waterproof cementitious coatings and decorative protective coatings. With its head office and manufacturing complex based in Leyland, North West England, Flexcrete products are available from stockholding distributors all around the UK. The company also has a global presence through international agents and distributors in 65 countries worldwide with export sales accounting for over 50% of its business. ■

