

Crossrail Stations Gain Superior Waterproofing Solution

PREPRUFE® waterproofs major UK construction project

Project	Crossrail Stations
Owner	Crossrail
Tottenham Court Road Contractor	BBMV (consortium - Balfour Beatty, Alpine BeMo Tunnelling, Morgan Sindall & Vinci Construction)
Liverpool Street Contractor	Engineers Mott Macdonald/Arup and contractor Laing O'Rourke
Canary Wharf Contractor	Canary Wharf Contractors Limited
GCP Solution	PREPRUFE® waterproofing



Project Profile

Supporting a highly anticipated transportation project

Crossrail is one of the UK's largest and most complex construction projects. This highly anticipated project is expected to transform the transportation rail network in London and the southeast region of the country, reducing journey times and increasing rail capacity in central London by 10%. Since work commenced in May 2009, 42 kilometers of new tunnels have been constructed beneath the streets of London, reaching depths of 30 meters. There will be 40 stations in total providing services for Crossrail passengers.

As part of the construction, the new £1 billion Tottenham Court Road Station, £300 million Liverpool Street station, and £500 million Canary Wharf Crossrail station required a waterproofing membrane to ensure that each site remained watertight.

Ensuring waterproofing underground

The new Crossrail station at Tottenham Court Road is the length of four football pitches and three stories underground. The Liverpool Street station includes two new ticket halls, as well as a 40-meter deep shaft to accommodate ventilation, electrical, mechanical, and systems equipment for the station in one of the busiest parts of London. Both transport stations required a high level of reliable waterproofing, particularly for confined spaces.

Construction of the new Canary Wharf Station has proven a complex engineering, technical, and logistical challenge including extracting 100 million liters of dock water. After draining the site and constructing a deep anchored cofferdam to provide a dry work environment, the next key step was waterproofing.

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Unique technology prevents water migration

GCP's was the obvious choice, based on its reputation providing a reliable waterproofing solution, preventing water ingress through and around the base slab. Its patented ADVANCED BOND TECHNOLOGY™ enables concrete to aggressively adhere to PREPRUFE®, forming a unique intimate seal that prevents any water migration between the waterproofing and the structure, substantially reducing the risk of leaks. With long-term waterproofing performance, reliability, and success at high-profile projects worldwide, GCP PREPRUFE® membrane offered the perfect solution to ensure waterproof protection for these transport stations.

Utilizing an advanced acrylic surface coating, the PREPRUFE® membrane also simplified the installation process. The solution removed multiple layers and complicated detailing, reducing the depth of excavation and spoil and minimizing the number of materials to be sourced. This accelerated the waterproofing stage of the project, ensuring the transportation project was delivered on time.

For the Tottenham Court Road Station, more than 2000 m² of GCP's PREPRUFE® waterproofing membrane delivered the high level of required water tightness for this transportation project.

For the Liverpool Street station, over 5000 m² of PREPRUFE® waterproofing membrane provided exceptional water tightness, below ground protection, and proven performance.

At the Canary Wharf Crossrail station, 6,000 m² of PREPRUFE® waterproofing membrane ensured the site remained watertight – holding back up to 10 meters of Thames dock water.

GCP also provided comprehensive waterproofing solutions for the city's other critical transport stations, including Bond Street, Farringdon, Whitechapel, Pudding Mill Lane, and Custom House.

Blue360SM Product Performance Advantage.

Because every project, large or small, deserves the best level of protection.

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