International

London Underground Substation

Case study 2014

Focus products: Intercrete® 4850, Intercrete® 4841

Location: West Ham, London, United Kingdom

Client: London Underground

Contractor: Global Rail Construction Ltd

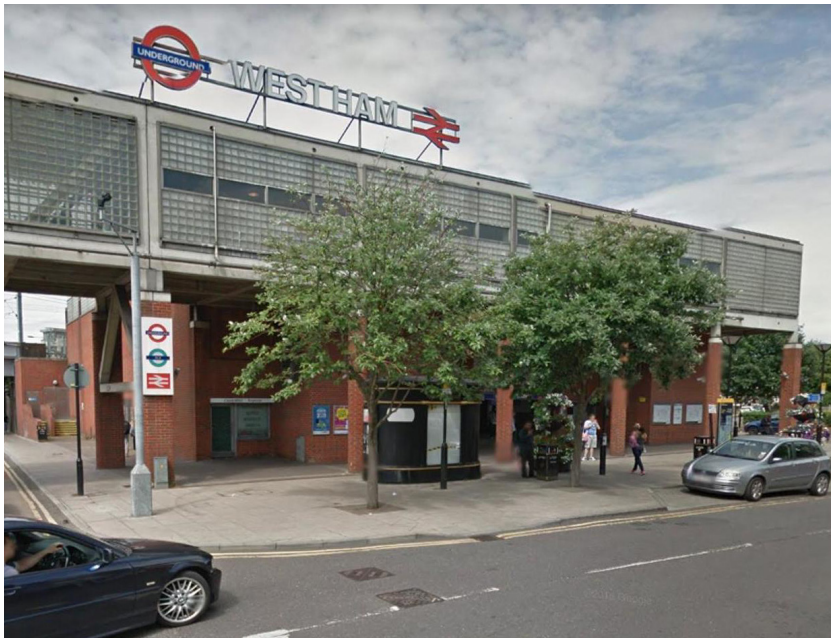
Summary: Enhancement of cover to a freshly laid ground fl oor slab of approximately 500m^2

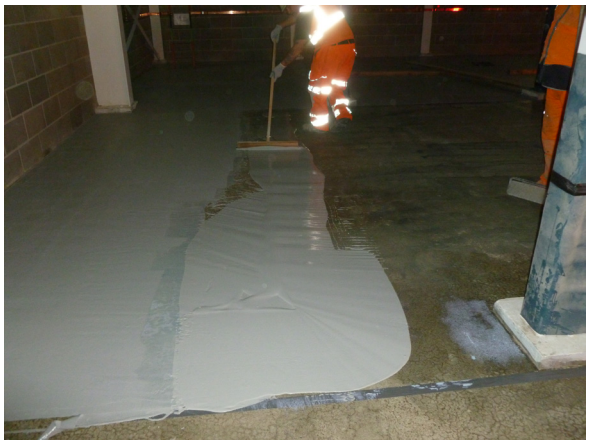
Background

West Ham London Underground connects to the Circle, District, Hammersmith and City, Jubilee Underground lines and the Docklands Light Railway. It is a busy transport hub in East London and was made one of three transport 'hotspots' feeding the London 2012 Games.

As part of plans to strengthen the rail network and upgrade the power supply, a new substation was built at West Ham London Underground. The new substation is designed to help power the rail system and facilitate the introduction of new trains, increased capacity and improvements such as air conditioning and electronic signage.

During construction of the substation, a new ground floor slab was installed totalling approximately 500m^2. However, low cover was detected on the concrete and an economical and practical solution was sought to enhance effective cover and ensure that the design life of the basement slab was achieved and extended.





The solution

Intercrete 4850 was first used to prime and seal the substrate prior to the application of Intercrete 4841, a high performance, two component, waterborne cementitious modified polymer coating which provides reinstatement of effective cover on precast and in-situ reinforced concrete, enhancing durability to achieve specified design life.

A 2mm application of Intercrete 4841 is equivalent to 100mm of good quality concrete. Being cement based, it chemically reacts with the substrate to form an integral part and has a design life equivalent to that of the concrete to which it is applied. Intercrete 4841 can be applied to green concrete, exhibits minimal hazard during application and is non-toxic when cured.

Intercrete 4841 is ideal for the structural waterproofing of concrete, resisting positive and negative pressure under a 100 metre head. It forms a hard, highly alkaline coating which not only protects concrete from the effects of aggressive acid gases, moisture and chlorides, but also has greatly enhanced chemical resistance. CE marked in accordance with BS EN 1504, it is also compliant with LU Standard 1-085 'Fire Safety Performance of Materials' and independent tests carried out by the VINCI Construction Technology Centre have proven that Intercrete 4841 will resist chloride ion penetration for at least 25 years.

AkzoNobel