



WALLTITE[®]

The airtight insulation solution

Extension to Tottenham Court Road Underground Station

Best Practice Case Study



 **BASF**

We create chemistry

Extension to Tottenham Court Road Underground Station

Best Practice Case Study



Project data

Project: Extension to underground station

Client: London Underground Ltd.

Main Contractor: Taylor Woodrow/BAM Nuttall

Spray Foam Contractor: Structural Membranes Specialists Ltd

Scope of Project: To provide structural support for waterproofing layers over contiguous piling systems

Year Completed: 2012

Products Used: BASF WALLTITE CL 100 rigid polyurethane foam

Project description

The £480 million upgrade of Tottenham Court Road underground station is possibly one of the most complex schemes ever tackled in the capital. The underground station is currently used by over 150,000 people each day and passenger numbers are expected to surge to 200,000 with the opening of the Tottenham Court Road Crossrail station in 2018.

The station is currently an interchange between the Northern and Central Lines. The congestion relief scheme includes an upgraded and enlarged ticket hall, three new entrances, additional escalator access to the Northern Line platforms, improved circulation space, step-free access throughout and an interchange with Crossrail – including the construction of the eastern ticket hall box.

Waterproofing the underground spaces is a critical part of the project and waterproofing contractor *Structural Membranes Specialists* needed to find the best solution for providing effective waterproofing around the contiguous piles used as part of the structure for the new ticket hall box.

Challenges

Waterproofing was provided with HDPE or polyurea products, but as these needed a sound and flat surface for application, a fill was required between and around the piles.

The traditional solution for this application would have been Shotcrete, but for this project the logistical difficulties were huge. The central London location of the project as well as the fact that it all took place underground made access for Shotcrete product and application technology extremely difficult particularly when taking into account the sheer volume of product required by this traditional approach.

Solution

Looking for an alternative to Shotcrete, the contractor consulted with BASF and WALLTITE rigid polyurethane foam was considered because of its robust test data demonstrating the product's performance characteristics such as: compressive strength, adhesion and waterproofing as well as the compelling advantage of its ease of application in the confined space of this project.

"The fact that WALLTITE provides excellent adhesion to a variety of substrates was an immediate attraction," comments Ashley Thrale of Structural Membranes Specialists Ltd. "London clay, concrete piles or Victorian cast iron. WALLTITE gives us reliable adhesion and provides a stable, flat surface on which to apply our own HDPE or polyurea waterproofing."

WALLTITE is a spray applied polyurethane foam that is applied in liquid state, forming a distinctive purple coloured foam on contact that rapidly cures to give a reliable and robust surface.

In this site the critical advantage was the fact that WALLTITE can be applied by single operatives using compact equipment. Further, the raw materials are packaged in 200 litre drums which were easily stored and transported throughout the site.

Client quote

"WALLTITE is a brilliant solution. It works as a fantastic background for any waterproofing system but gives the added benefit of insulation and a degree of shock resistance. We are now offering it on a number of projects."
Ashley Thrale, Structural Membranes Specialists Ltd.



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