

# Wembley National Stadium

Wembley, UK



Completed construction of Wembley stadium

## The Site

The new Wembley Stadium is the first of a new generation of sports stadia, with services unmatched around the world. The 90,000 capacity bowl stadium, with state-of-the-art facilities, is the ultimate and most versatile stage for major sporting and musical events.

**'The presence of high voltage electrical transformers and heating necessitated a high grade waterproofing system.'**

## The Challenge

The design required a complete waterproofing system, which would provide high grade waterproofing for the basement area and retaining walls, due to the presence of high voltage electrical transformers and heating, to power the stadium.

Waterproofing continuity was essential for the basement and exposed deck areas, to achieve a complete solution. The design also required numerous movement joints in the basement structure, which are always the highest risk of any waterproofing system.

## The Solution

Grace offered a comprehensive waterproofing system, which comprised Technical Design service, on-site technical support, as well as a waterproofing membrane and waterstop combination.

A complex network of waterstops with movement joints was detailed. The AT system waterstops provided the security required to deal with water pressure due to the systems continuously active sealing element. The hydrophilic elements swell when in contact with water, which then actively seal plug voids created by concrete shrinkage.

Grace included Bituthene® 4000 & 8000, a self-adhesive water and vapour proof membrane for protection of basements, and Preprufe® 300R a pre-applied bonded waterproofing membrane.

Being a fast track project required a system with fast application, as well as being able to withstand different seasonal temperatures and conditions associated with the lengthy timescale; this suited Bituthene® and Preprufe®.

Procor® Deck System 2 and 4R, and Procor, 75 were spray applied to the elevated deck areas, due to its quick application over vast areas and ability to reduce construction programme times.

Servidek®/Servipak® system, appropriate for heavily trafficked decks, suited the ramp areas leading to the decks. This system allowed the surface to be trafficked immediately after the Servipak® protection boards were laid, hence work commenced without delay.

'The fast track nature of the project required a system able to withstand different seasonal temperatures and conditions associated with lengthy timescales – this suited both Preprufe and Bituthene.'



## PRODUCTS USED

**Preprufe® 300R**  
**Bituthene® 8000 Membrane**  
**Bituthene® 4000 Membrane**  
**Procor® 75 Liquid Waterproofing**  
**Procor® Deck System 2 & 4R**  
**Servidek® / Servipak® System**  
**AT System - Serviseal® AT 240**  
**Servistrip® AH 205**

## CREDITS

**Client:** Wembley National Stadium  
**Main Contractor:** Multiplex Constructions (UK) Limited  
**Concrete Contractor:** PC Harrington Group  
**Architects:** World Stadium Team – HOK Sport/ Foster & Partners  
**Structural Consulting Engineer:** Mott McDonald Ltd

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