



# Car Parks

## Product in Action

### Gloucester Quay MSCP, Gloucester, UK

Client: PEEL GROUP

Main Contractor: BOVIS LENDLEASE

Authorised Contractor: STIRLING LLOYD CONSTRUCTION

Gloucester's £200M redevelopment includes a 60 acre mixed-use development on the site of the city's historic docks and surrounding area. An integral part of the scheme was the construction of Gloucester Quay, a designer outlet village which is owned by Peel Group, who also own The Trafford Centre, Liverpool John Lennon Airport and The Manchester Ship Canal.

To service the shopping centre Bovis Lendlease built a MSCP. This multi-storey car park was incorporated into the Gloucester Quay retail development to provide parking for visitors to the shopping centre and the bars, restaurants and attractions in the recently renovated docklands. The car park required a light weight, durable waterproofing membrane and wearing course system to protect the structure from water ingress and provide an aesthetically pleasing, anti-slip running surface. Stirling Lloyd's Decseal, a rapid curing, liquid applied system based on the companies advanced MMA technology, was the chosen system.



### Top Deck Protection

Stirling Lloyd Construction, the Authorised Contractor who won the contract to apply the system, coated some 28,100m<sup>2</sup> over four storeys of the Car Park. On the exposed top two decks of the car park, the full system, including reinforcement scrim to help maintain the integrity of the system against any natural movement in the structure, was applied. On the un-exposed levels the waterproofing element was omitted, with just the primer and wearing course being applied.

Prior to application of the full system tensile adhesion tests were taken to confirm that the system would achieve the required bond strength to the concrete substrate. This was more than met with the actual mode of failure being within the concrete itself. The substrate was then primed using Decseal primer and once cured, which always occurred in under an hour, the first coat of waterproofing membrane was spray applied. The reinforcement scrim was embedded into the material whilst it was still wet and then a spike roller was used



to release any trapped air. This cured in under an hour at which point the second coat of membrane was sprayed over the cured first coat. As the waterproofing membrane is a spray applied liquid it ensured a seamless finish, with no vulnerable seams which would be susceptible to water ingress and also simplified the detailing on-site.

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Available from [stirlinglloyd.com](http://stirlinglloyd.com)



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THE TECHNOLOGY OF PROTECTION

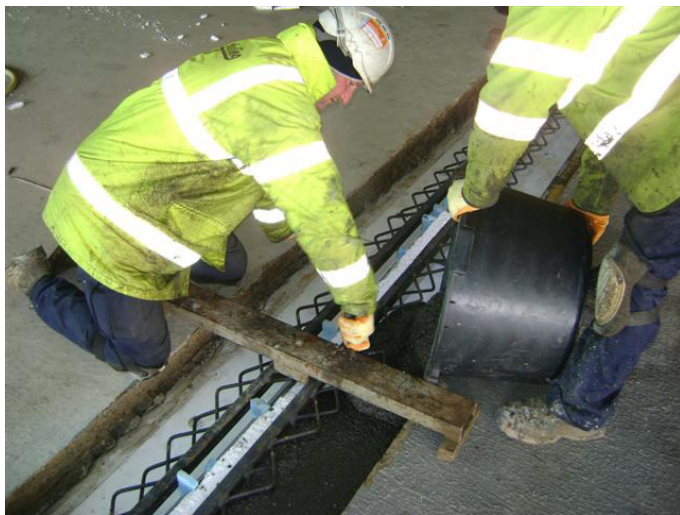
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With the second coat cured, again in under an hour, the anti-slip wearing course was applied. This utilised a very simple application technique with the cold liquid material which, has aggregate embedded into the matrix of the material, being poured over the membrane, spread out to achieve the required thickness and then back rolled to achieve the required slip-resistant finish.

On the un-exposed levels, the same simple technique was used to apply the wearing course over the cured primer.

### Expansion Joints

Several of Stirling Lloyd's Sentinel Expansion Joints were also used at the Gloucester Quay Car Park; Sentinel EMR (Elastomeric in Metal Rails) was used on the main deck



areas as it could accommodate the high level of movement anticipated by the Engineer. Sentinel Saba, a unique cold, liquid applied system which accommodates movement in three dimensions and so can be used to fit any profile and shape was also utilised by the designers on the project.

At Gloucester Quay, Sentinel Saba was bonded to the Sentinel EMR joint sealing the main deck and then applied up and over the parapet walls to provide a continual solution and remove the risk of water ingress at these usually vulnerable points. Also in several locations along the main body of the expansion joint back to back pillars, which sat either side of the joint presented the contractor with a potential issue. The gap between these pillars was not wide enough to accommodate the Sentinel EMR

joint and an engineering solution was quickly required on site. Fortunately Sentinel Saba provided this solution and was used to seal the gap between the pillars and then bonded to the Sentinel EMR on either side to provide a continual joint along the whole length of the deck.

This project highlighted the diversity and flexibility of the Stirling Lloyd range of expansion joints and provided the car park's designers with a comprehensive range of detailing solutions.



### Long Term Effective Protection

For what is to become a much used car park, protecting the structure and extending its life was imperative; by selecting the Decseal system the Peel Group and the eager shoppers using the car park can be confident that they have a car park that will provide a long service life and retain its aesthetic finish for years to come.