

# CASE STUDY

## Car Park Refurbishment

# MAKERS

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### PROJECT

The Watergardens Harlow

### STRUCTURE

Single Storey Steel Frame

### CLIENT

Aberdeen Asset Management

### CONTRACT



Located in Essex just off the M11 this popular car park serves the town centre and the Watergardens Shopping Centre, consisting of over 300,000 sqft of retail space and parking for 1200 cars completed in 2004.

The car park originally constructed by Wilson Bowden Developments had a history of waterproofing. Initially the project had a Flowcrete DeckShield which failed due to poor deck preparation and bond.

The car park is very heavily used as it serves TK Max, Matalan and ASDA, each with their own demographic of customer.

The car park is incredibly flexible due to the shallow depths of the steel beams and because of the poor construction of the structure topping, resulting in cracking and reflected through all of the plank to plank junctions.

Unfortunately, following extensive investigation it was found that the reinforcement within the structural topping was not placed in the correct position, causing the structural topping to debond from the precast planks, placing greater stress on the waterproof coating resulting in extensive cracking and leaking into the deck below.

In 2011 a Sika Rb28 system was specified but prior to application the concrete structural topping had to be case hardened to achieve the minimum adhesion levels. Although the system was well bonded it unfortunately could not deal with the volume of traffic and so areas became prematurely worn.

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Before



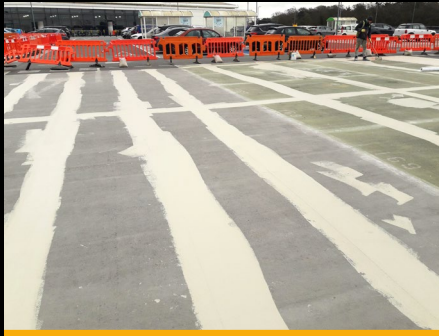
Before



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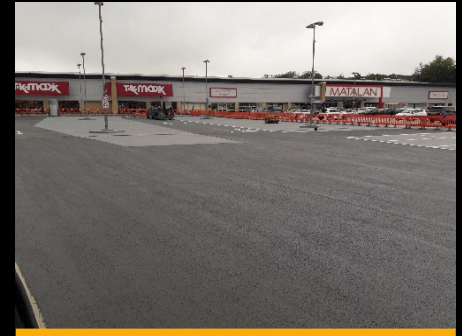
...makes the difference



Reinforced Banding



Triflex Fully Fleece ProPark



Emery Quartz Aggregate

In 2023 Makers won a competitive tender to design a solution in conjunction with Triflex to resolve the issues of the car park build and extensive cracking to the 15,000m<sup>2</sup> car park deck.

It was decided to build off the existing well bonded system but to increase the reinforce banding over the existing crack lines. Above this the Triflex fully fleeced ProPark system was added with a further upgrade of emery quartz and a blend of 2mm quartz aggregate to cope with the 3,000 vehicle movements the car park experiences most days due to the shopping offer and ASDA Supermarket.

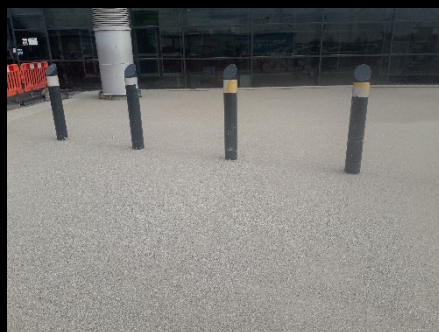
The ProPark system is dealing with cracks in excess of 0.5mm and continues to perform well. All leaks have now been resolved and we have not seen any reflective cracking through the system. The R230 flexible resin was used for the reinforced banding and fully fleeced approach due to the significant movement within the car park.

Emery was used throughout all of the main drive lanes and turning circles to cope with the volume of traffic, previously the smaller aggregate and thinner Sika top coat had worn out within 5 years putting the steel structure at risk.

The existing top deck was thoroughly tested for adhesion to meet the 1.5kn requirement and as the original system was based on PMMA technology the new Triflex System could be applied directly to the existing surface. The deck was prepared as per manufacturers instructions and any failing coatings removed, then the system applied.

The project was carried out over 32 weeks in 6 phases agreed between ourselves and the Centre Management ensuring the car park was kept live for the duration of the works.

We executed 15,000lm of reinforced banding together with an upgraded ProPark system to 15,000m<sup>2</sup> of exposed deck area together with thermoplastic line markings due to the coarseness of the aggregate finish. The project currently has a 10-year warranty position.



After



After



After

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