

# STRUCTURES CASE STUDY

## Car Park Re-waterproofing

### PROJECT

County Hall Car Park, Hertford

### STRUCTURE

Tiered Car Park

### CLIENT

Hertfordshire County Council

### CONTRACT VALUE

£427,849

### CONTRACT

County Hall car park is a tiered multi-storey car park, built in two phases in the 1960's & 1970's. Built into the hillside at the rear of County Hall, Hertford, the first phase of the reinforced concrete structure was built in the mid 1960's providing 80 parking spaces. The second phase of the structure was added in 1973 adding some 180 extra parking spaces.

Mastic asphalt was originally used to waterproof both parking decks which have been exposed to the elements since day one. Over time, the surface had badly degraded. Splits in the surface, failed movement joints and blistering were all failures allowing surface water to ingress the structure below resulting in paintwork damage to vehicles parked underneath. The failure of joints combined with cracks in the surface was also creating serious health and safety issues for the car park's users.

Acting as Principal Contractor, Makers' scope of work was to completely remove 4,000m<sup>2</sup> of asphalt surface and re-waterproof the car park deck with a fully-bonded, crack-bridging wearing surface as well as replacement movement joints and new crash-barrier protection. The Principal Designer of the scheme was Stirling Maynard Consulting Engineers.



Before



Before

# MAKERS

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## CASE STUDY

### Car Park Re-waterproofing



Asphalt removal



Concrete deck planed



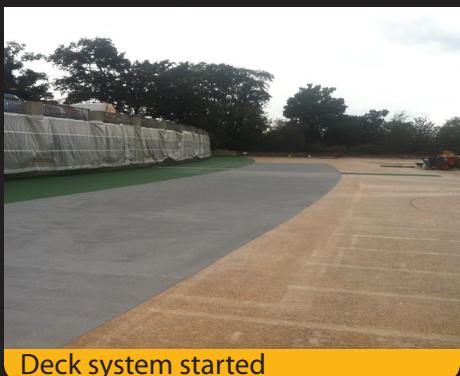
Joint repairs

Given that asphalt is not bonded to its parent substrate, any breaches in its waterproof integrity through splits and failed movement joints leads to water underflow between the asphalt and concrete deck. As a result of the serious defects that had developed over the years at County Hall car park, water (including salt-chlorides from de-icing salts) was constantly seeping through into the parking deck below, dripping onto vehicles and regularly damaging vehicle paintwork.

The 30mm thick asphalt layer was removed by Bobcat and loaded into tipper vehicles via a purpose-built chute and the spoil then removed from site to a local recycling facility. The exposed reinforced concrete deck surface was prepared by planing to remove surface laitance & contaminants to provide a suitable substrate onto which Sika's fully mesh-reinforced & rapid curing Pronto 32 car park decking system was applied. The 4,000m<sup>2</sup> wearing surface was applied in contrasting colours – mid-grey for drive aisles and green for the parking bays - all outlined with white, thermoplastic markings. Designated 'Small Car' spaces were also highlighted in strategic areas of the car park adjacent to lighting columns.

The perimeter reinforced concrete parapet wall had previously been protected from vehicle impact by pre-cast concrete kerbs embedded into the asphalt. New protective measures were put in place using 220 linear metres of A-SAFE Single Rail Armco Safety Barrier bolted to the deck, protecting against impact from vehicles.

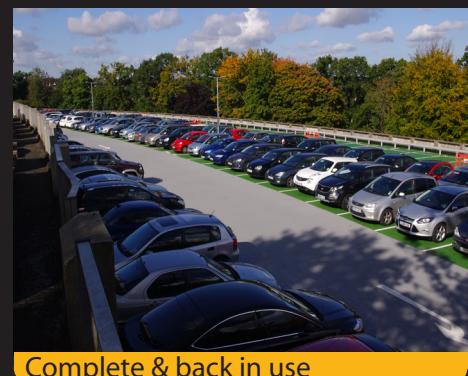
Included within the 11-week contract was the installation of 36 linear metres of Emseal's 50mm wide DSM movement joint system along with the replacement of all lighting masts. The contract was completed strictly on time despite frequent weather disruptions.



Deck system started



A-Safe crash barrier



Complete & back in use

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