

STRUCTURES CASE STUDY

Highly Flexible Waterproofing To Failed Asphalt Decks

MAKERS

...makes the difference

PROJECT

High Chelmer MSCP
Chelmsford

STRUCTURE

MSCP

CLIENT

Chelmsford City Council

CONTRACT VALUE

£281,000

CONTRACT



Owned by Chelmsford City Council and located adjacent to Chelmsford's High Chelmer Shopping Centre, this reinforced concrete multi-storey car park provides in excess of 1,000 parking spaces. Having undergone a major programme of refurbishment to the internal elements of the structure some four years ago, it was now the turn of the top deck to be completely re-waterproofed.

The top deck – split over three levels – had been waterproofed with a mastic asphalt wearing surface since its original construction in the 1960's however given long-term exposure to the elements combined with constant vehicular traffic, the asphalt layer had developed many splits and cracks allowing water to enter into the car parking decks underneath.

Makers were awarded a 14-week contract by Witham-based Principal Designer & Project Manager J P Chick & Partners, to fully re-waterproof the top decks of the car park including alterations and additions to the existing drainage system, washing down and painting the reinforced concrete parapet walls (including the application of a migratory corrosion inhibitor) and the replacement of failed movement joints.



Before



Before

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Registered in England No: 6348341 Registered Office as above

Association Membership



Accreditations



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Banding to cracks / day joints



Cleaning parapet walls



Pre-filling

A long-term issue with the top deck had been excessive ponding of surface rainwater as a result of inadequate and poor original drainage detailing. Apart from there being insufficient drainage gullies, the drains were set too high - preventing the rainwater falling towards the drains. The drains were also blocked as a result of a lack of maintenance. In the areas where rainwater was ponding, the cracks & splits in the asphalt surface was allowing water into the structure below.

The surface of the existing asphalt deck was first prepared by captive grit-blasting onto which Sika's RB28A car park decking system (specifically designed to be applied to asphalt surface) could be applied. All existing line markings were also removed by planing. To enhance the drainage of the car park, 38 no. 200mm holes were cored through the top decks at various locations into which new drainage gullies and traps were installed and connected to the existing drainage system.

In order to ensure complete watertightness around the perimeter of the gullies at the junction with the existing asphalt, Sika's fibre reinforcement mesh was dressed down into the gulley mouths. With the repaired cracks in the asphalt also overbanded locally with mesh to ensure full crack-bridging performance, the Sika deck waterproofing system was applied to all three top decks; an area of 5,400m² in total.

The reinforced concrete parapet walls were powerwashed to remove existing dirt and surface laitance and Sika's migratory corrosion inhibitor – Ferrogard 903 – was applied for additional corrosion protection. A Sikagard anti-carbonation & protective coating was also applied. Failed mechanical movement joints were removed and replaced with Emseal's 50mm wide DSM joint system.



Additional Drainage



Emseal Movement Joint



Complete & back in use

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