



Car Parks

Product in Action

Coventry University MSCP, Coventry, UK

Client: COVENTRY UNIVERSITY

Main Contractor: McLAREN CONSTRUCTION

Authorised Contractor: STIRLING LLOYD CONSTRUCTION

As part of Coventry University's £160m ten year development to meet the needs of their 14,000 full time students and 2,000 staff, the fragmented campus parking was addressed with the construction of a modern, vibrant multi-storey car park (MSCP).

The £5.6m MSCP comprises 457 spaces, including thirty disabled parking bays, motorcycle parking, storage for bicycles and ten electric vehicle charging points. Designed by architect Ingleton Wood; the eight storey, fifteen split-level car park incorporates an elegant curved design clad with vertical steel panels providing natural ventilation and light.



Important to the project was the safety and security of the car park users, consequently the design included a security desk, segregation of pedestrians and vehicles, a well lit environment and clear demarcation. To protect the car park McLaren Construction, required a long lasting waterproofing solution together with vibrant coloured surfacing and selected Stirling Lloyd's Decseal system, which was applied by Stirling Lloyd's Authorised Contractor who won the contract for the work, Stirling Lloyd Construction. Stirling Lloyd and Stirling Lloyd

Construction's ability to deliver the specified colours in good time, their reputation for excellent service and their capability to reduce programme time assisted in both the product and Stirling Lloyd Construction winning the work.

A Colourful Scheme

The unique colour scheme consisted of eight vivid colours, with each storey being treated in a different colour, which was used on the pedestrian walkways and associated masonry. Although Stirling Lloyd offer a wide range of standard colours, to meet the specified colours Stirling Lloyd produced Decseal in bespoke colours to the requirements of this project. Consequently Decseal pigmented 'Lemon', 'Pastel Orange', 'Traffic Red', 'Signal Violet', 'Signal Blue', 'Sky Blue', 'Chrome Green' and 'Pale Green' was used. In addition the system pigmented 'Mid Grey' was used to demarcate the main roadways while 'Asphalt Grey' was used for the parking bays.



Decseal was produced in a range of bespoke colours to meet the requirements of this project

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Available from stirlinglloyd.com



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THE TECHNOLOGY OF PROTECTION

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A Tight Schedule

Though the work schedule totalled 14 months, just eight weeks were allocated to Stirling Lloyd Construction to carry out their works. Decseal's simple, rapid application combined with its fast cure meant that the system could easily meet this tight deadline, one of the reasons for Decseal's specification.



Top Decks and Ramps

To protect the top decks and ramps from water ingress, which could lead to rusting of the steel reinforcement and cause safety issues, 3,000m² of the MSCP was protected using the full Decseal waterproofing and wearing course system.

Prior to the application of the system the deck was prepared by captive shot blasting. Tensile adhesion tests were then taken over the two top decks and ramps to assess the bond strengths the system would achieve. The tests found bond strengths in excess of 1MPa with the mode of failure being within the concrete itself, confirming that the Decseal system would easily resist the shear forces it would be subject to. The decks and ramps were then primed using Stirling Lloyd's Decseal primer. This was roller applied to the substrate, sealing the concrete, preventing any natural outgassing and enhancing the adhesion of the subsequent membrane.

Once the primer had cured, always taking less than an hour, the first coat of the waterproofing membrane was spray applied into which reinforcement scrim was embedded, whilst the material was still wet, to help ensure that any natural movement in the structure will not compromise the integrity of the waterproofing. A spiked roller was then used to release any trapped

air and once this reinforced coat had cured the second coat of the waterproofing membrane was spray applied. Once the second coat had cured, also taking less than an hour, the pigmented wearing course was applied.

The roadways, parking bays and pedestrian walkways were marked off with tape to ensure a clean edge was achieved. The pre-batched wearing course, which contains aggregate to provide appropriate skid-resistance, was then mixed together and poured onto the area to be coated and spread out using a notched squeegee to a minimum thickness of 2mm. The wet material was then back rolled to achieve the required texture. Once cured, pendulum tests were carried out to measure the SRV values being obtained. Results were in the mid to high seventies confirming the system was providing the required slip resistance.

Lower Levels

The lower levels, which are not exposed to the elements, did not receive the waterproofing element of the Decseal system, however the primer and wearing course have inherent waterproofing properties sufficient to resist the water brought in on cars tyres. Consequently, on levels 1-13, the deck was prepared, then primed and the wearing course applied using the same techniques as on the top decks and ramps.

A Long Design Life

In line with the planning application made by the University, all materials used on the car park are of the highest quality, robust, with a long design life, reducing the whole life environmental footprint of the structure. In addition as the Decseal system utilises high quality pigments, which do not fade or degrade when exposed to UV, the University and its Students are assured of having a colourful, well protected car park for a many years to come.

