



The new look top deck

Making a multi-storey smart again

Makers Construction revamps Mansfield's Walkden multi-storey

Mansfield District Council's Walkden multi-storey car park has been refurbished at a cost of £477,000.

Walkden Street is a reinforced concrete 'waffle-pot' structure built in 1964. It comprises six parking decks split over three levels. It originally provided 433 parking spaces, which included provision for disabled people, Shopmobility and motorcycle users.

The car park was built over the top of retail premises. The shop units were vacated when the retailer moved to an out-of-town location, leading to a dramatic reduction in the car park's patronage.

The reinforced concrete top deck had a waterproof membrane that had degraded and failed in many areas, allowing the ingress of de-icing salts – carried into the car park by vehicles – through the original daywork and failed

movement joints in the concrete deck.

The consequence of this was a significant volume of spalling and corrosion damage to the concrete soffits. This resulted in the top deck being closed to vehicles in 2012 for safety reasons.

With utilisation down to just 80 spaces per day, and a consequent significant decline in parking revenues, Mansfield District Council embarked on a programme of internal and external refurbishment to bring the structure back to life.

Following a competitive tender process, Makers Construction was awarded the contract to carry out the works. These comprised top deck re-waterproofing, concrete repairs and coatings, replacement of movement joints and line marking, including re-sizing the parking bays throughout.

Graeme Middleton, business development manager at Makers, said: "The failure of the original top-deck waterproofing membrane had caused significant water ingress into the decks below through the original daywork



The failing top deck

construction joints.

"The reinforced concrete on the corresponding soffits below was demonstrating a range of defects as a result of salt chlorides getting in to the substrate. Prior to the works commencing, a detailed hammer survey was carried out which identified a significant volume of delaminated concrete as a result of reinforcement corrosion.

"Following removal of the defective concrete and thorough preparation of the exposed reinforcing bars, a full programme of concrete repairs were carried out using the Sika Monotop system with some 5m³ having to be reinstated. A migratory corrosion inhibitor was also applied along the daywork joint

lines for added protection.

"The top deck was completely re-waterproofed with the fully-fleeced Sika Pronto deck waterproofing system to ensure that the previously leaking daywork joints could not fail again. The system was applied to some 4,600m² of deck area including the up and down access ramps between the upper decks.

"In order to improve the customer experience, and given the past low utilisation of the car park, the decision was taken to re-size the parking bays throughout, increasing their width to 3m instead of 2.4m. The additional space makes for a much improved user experience making it easier not only to park in the bays, but to physically get in and out of vehicles. Pedestrian-only walkways have also been added. Though the number of spaces has been reduced from 433 to 368, there has been an immediate significant increase in utilisation of the car park."

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Soffits: Before



Soffits: After



Pillars: Before



Pillars: After

