

Ship shape car parking

Brighton & Hove City Council has invested £2.8m in upgrading its Regency Square car park

Water and road salts can have a corrosive effect on concrete car parks, which means that car parks in coastal resorts are especially vulnerable. This has been the case with parking facilities belonging to Brighton & Hove City Council, which has embarked on a programme of upgrading its structures.

The most recent is a three-storey underground car park located in Regency Square on Brighton's seafront. The Regency Square car park, constructed in 1969 from reinforced in situ concrete, has a capacity of 499 car parking spaces with 77 on the top level, 184 in the middle and 238 on the lower level.

Following more than 40 years of exposure to water, de-icing salts, airborne contaminants the reinforced concrete structure had, in some areas, suffered from extreme corrosion.

Specialist contractor Makers Construction was appointed by main contractor Westridge Construction to treat and repair the car park's concrete structure and apply new waterproof and decorative decking systems. The work was carried out one level at a time to ensure minimal disruption to residents and visitors.

After refurbishments of The Lanes and London Road car parks which have proved popular with drivers and cut crime and anti-social behaviour, Brighton & Hove City Council proposed the refurbishment of the Regency Square site as part of a £2.82m package of improvements. The project was funded through capital funding from the council to be repaid over a 10-year term through increased revenue.

"We invested in the car parks to provide a safe, attractive environment for visitors and residents, and support local businesses and the tourist industry. They are light, bright, and energy efficient," says Ian Davey, Brighton and Hove City Council's cabinet member for transport and public realm. "Improving these parking facilities as well as providing a simpler, more direct access route to Regency Square Car Park will provided visitors with an alternative to city centre car



Sikafloor at Regency Square

parks in West Street, helping to ease congestions and queues in the area," says Davey.

A complete overhaul

The following measures were implemented at the car park:

- The provision of secure parking, restricting vehicular and pedestrian access to customers only
- Replacement of parking management systems, fire alarm and CCTV which were connected to the traffic control centre
- A new lighting system was installed throughout, using low energy fluorescent fittings that dim to 15% using integral PIR sensors
- The entire sprinkler system was replaced and new mechanical ventilation was installed with CO2 sensors to ensure clean air for visitors
- The site's health & safety was enhanced by creating pedestrian designated walkways and provision of barriers and railings
- The reconfiguration of parking spaces to provide additional spaces and defined disabled parking spaces
- A new signage strategy allows easier wayfinding
- Alteration works to 'close off dead areas' to discourage anti-social behaviour.

Choosing the right materials

To deliver the comprehensive renovation package, Makers required a range of products that would ensure any past damage was repaired and future damage prevented as much as possible.

Hove-based consultant engineer Hemsley

Orrell Partnership specified materials produced by Sika, whose products had been used on previous Brighton projects. "We specified Sika systems, firstly because they have great technical support but also they have a long track record of good performance in the industry," says Jon Orrell, director of the Hemsley Orrell Partnership. "This technical support helped us at the early design stage right through to construction."

Before applying the waterproofing and surface finishes to the car park decks, the substrates were cleaned and prepared using a vacuum shot blasting operation. This removes the latence (small particles of weak concrete) and contaminants from the surface of the concrete.

Due to high chlorides and low concrete cover to the structure, a corrosion management system was required to be incorporated as part of the refurbishment works.

Sika Galvashield sacrificial anodes were applied to the concrete patch repairs to protect against incipient anode corrosion.

Sika Rapid Repair Mortar was used for the concrete repairs due to its fast application process, excellent adhesion and long-term performance. Offering high early strength, this fast-setting cementitious repair mortar exceeds the BS EN1504 regulations for concrete repair and protection and is ideal for use on both horizontal and vertical concrete surfaces. For deeper repairs, Sika Armorex Armocrete was used.

The high-build repair and reprofiling mortar Sika Monotop 610 and 615 was used to repair soffits and columns and to complete the system, the Sikagard 675W high performance decorative anti-carbonation coating was applied.

The Sikafloor system, which is formulated to provide a hard-wearing finish, is part of Sika's Ecoline range of resin based flooring products. Produced from a low allergy resin to reduce the risk of sensitivity among the contractor's staff, the range is made available in tins and drums to reduce the amount of packaging required, which results in less waste on site.

Several different Sikafloor systems were used to meet the specific requirements of the different parking levels. Each area had to be durable and resistant to chemicals and abrasion. Sikafloor Pronto was used for the ramps. Based on PMMA resin technology, the ramp system could be applied in low temperatures with a cure time of less than one hour between coats. This facilitated the application of the car park ramp system to be applied overnight, allowing the car park to be open to vehicles the following morning. This process reduced the disruption to the public during the refurbishment works and allowed the car park to remain open during normal hours.

Working in partnership

The car park remained open to the public throughout the one-year contract period by phasing works, with work areas isolated by fencing and dust screens.

Brighton & Hove City Council worked closely with Makers and building product supplier Sika to ensure that the car park structures were repaired to provide a safe environment for all car park users when reopened.

Environmental conditions during refurbishment could be extreme, with prolonged cold temperatures during long winter; lots of rain and much noise and dust from concrete repairs. Daily monitoring of dust and noise levels during the works by Westridge and Makers ensured conditions were safe for workers, car park users and neighbours.

Repairs and finishes to the access ramp were done by allowing users to enter the car park up until 10am then parking on the lower level, which enabled ramp work to proceed unhindered for the rest of the day.

An energy-efficient car park

The programme of works required the car park's lighting levels to be brought up to current standards. The use of sustainable materials wherever possible led to the specification and installation of low-energy lighting and controls in order to reduce electricity consumption and enhance the environment for customers.

Lights were also replaced on the car park's circulation ramps to improve visibility for motorists and pedestrians.

Makers incorporated light-reflective coatings which were applied to internal



Makers carried out the refurbishment

walls, soffits, columns and decks of the lower levels to utilise ambient light and headlight beams and create a brighter environment.

Varying the deck surface through the use of colours and reflective coatings improved both the usability and aesthetic appeal of the car park to provide a safer and more welcoming appearance.

Clear circulation paths

The car park utilises a simple one-way system that ensures cars only pass each other on the segregated ramps for a safer and more efficient process.

The project team adopted a signage strategy that seeks to ensure easy wayfinding and co-ordination with principal destinations for pedestrians and drivers.

New directional signage has also been installed throughout the car park to ensure the car park is easy to navigate and clear to drive in.

The car park features three separate colours of decking – black for parking spaces, grey for circulation paths and blue for disabled access.

Health & safety has been enhanced by creating pedestrian designated walkways and provision of barriers and railings.

The Regency Square has been awarded a Park Mark for safer parking.

Keeping things ship shape

Brighton and Hove City Council has put in place processes to ensure its car parks are properly inspected and maintained. It has set up Life Care Plans for all city car parks through Pyle Car Park Consultants' Reportal System.

In relation to Regency Square, Sika supplied the council with an O&M (operation and maintenance) manual covering its systems which covers the frequency of cleaning required, the approved products and machinery to use.

Follow us on Twitter:

[@parkingreview](https://twitter.com/parkingreview)

Sika: Your Refurbishment Solution



Sika offers a comprehensive range of products for the refurbishment and repairs of buildings and structures. Backed with technical support and over 100 years of experience and proven performance, trust Sika with the refurbishment of your buildings.

SECTOR: INFRASTRUCTURE | Brighton Car Parks

An effective corrosion management system and refurbishment programme to two multi-storey car parks. The solution included Sika® Galvashield® Sacrificial Anodes, Sika® Ferrogard® corrosion inhibitor and a range of Sikafloor® car park deck solutions

To find out more, visit www.sika.co.uk

BUILDING TRUST

