

NEW AND REFURBISHMENT CAR PARK CASE STUDIES NATIONAL

A complete range of car park solutions



Your
partner
for the **new construction, protection and refurbishment** of all types of car parks...

With a complete range of **market-leading products, extensive practical experience and unrivalled technical expertise**, Sika is the perfect partner for new build and refurbishment car park projects. Whether you need the right admixtures for concrete, correct waterproofing solutions for the basement or exceptional joint sealants – **Sika has the solution.**

From the site survey and assessment to product installation and life care maintenance, Sika offers a comprehensive service for the construction of new car parks and extension or refurbishment of existing facilities. The company provides all kinds of integrated construction solutions and services from basement to roof to ensure compatibility, regulatory compliance and long term performance.

Fully tested and appropriate for most car parks, the extensive Sika product range considers type of construction, structural elements and specific combinations of anticipated exposures.

Working closely with engineers, designers, planners and project teams, Sika ensures the performance and safety of car parking structures with high performance products and a service to match.

Sika is the most complete and competent partner for the new construction, protection and refurbishment of all types of car parks.

For further support and information, contact 01707 3944444, email enquiries@uk.sika.com or visit www.sika.com





ALLHALLOWS CAR PARK, BEDFORD

A Bedford car park refurbishment project using high performance decking systems from Sika has picked up the **Best Car Park Refurbishment Award** at the British Parking Awards 2015.

Now in its 14th year, the prestigious awards were hosted by television presenter and Paralympic wheelchair basketball player Ade Adepitan at the Lancaster Hotel on Friday 6th March. Recognising and rewarding leading examples of car park management, enforcement, design and team work, the event's fifteen categories were contested by more than 60 entrants - including two refurbishments using products and systems from global building product manufacturer, Sika.

In the Best Car Park Refurbishment category, two Sika projects were shortlisted - AllHallows MSCP in Bedford and The Merrion Centre Car Park in Leeds. On the day, Makers Construction in partnership with Bedford Borough Council took home the prize for their exceptional renovation of AllHallows MSCP.

Part of a regeneration project to improve Bedford bus station and a gateway to the town centre, the multi-million refurbishment of Allhallows multi-storey car park saw Sika as a single source supply for concrete repairs, corrosion management and both deck and soffit coatings - giving the car park a brand new lease of life and making the area more presentable to the town's visitors.

Shortlisted in the Best Car Park Refurbishment category, The Merrion Centre Car Park has been transformed into the most modern and technologically advanced car park in Leeds by a Sika Specialist Contractor with Sika providing a range of concrete repair, structural strengthening and corrosion management systems during a major refurbishment of the 950 space multi-storey car park.

With two projects shortlisted at one of the parking industry's most prestigious events, Sika has further enhanced its reputation for the manufacture and supply of market leading car park decking systems, concrete repair and protection products and corrosion inhibitors that set the very highest standards.





FARNHAM ROAD CAR PARK

Sika provided a range of proven concrete repair, corrosion management and car parkdeck systems during the major refurbishment of a 917 space multi-storey car park in Guildford, ensuring minimal disruption and allowing 80% of the spaces to remain in use during the works.

Forming part of Guildford Borough Council's £2.5 million plan for the maintenance and upgrades of three local car parks, the Farnham Road car park was in need of a refurbishment following years of exposure to water, de-icing salts, airborne contaminants and the constant use of vehicles. Guildford Borough Council turned to Sika who offered a long term solution which would address the requirement for concrete repair, corrosion protection, and a new highly decorative car park deck system whilst also offering minimal disruption to users of the car park.



Working with a Sika Specialist Contractor on the 12 storey car park, Sika supplied 10,000m² of Sika® Ferrogard® due to the high chloride levels in the car park decks and 12,000m² of the Sikafloor®-EB24 car park deck system. Sikafloor®-EB24 car park deck system is a solvent free, highly durable car park deck system with outstanding abrasion resistance. The ultra-fast setting Sikafloor® Pronto System was used on the ramps and hammerheads of the car park during the phased works programme, allowing works to be completed overnight ready for traffic the following day.

Especially suitable for lower temperatures, Sikafloor® Pronto can be applied in a wide range of climatic conditions. Comprising Sikafloor®-15 Pronto Resin, Sikafloor® Pronto Hardener and Sika® Quartz Sand, the system also offers excellent mechanical and chemical resistance which makes it ideal for multi-storey

and underground car parks. As well as a market leading range of products, Sika also provides a free comprehensive car park survey service. The Sika technical team will visit the site and produce a visual site report that highlights the immediate issues and can be used in conjunction with advice from a qualified structural engineer to formulate a life care plan as recommended by the Institute of Structural Engineers.

With the renovation of this busy town centre car park complete, the specification of a range of innovative products from Sika ensured the car park returned to its best within the shortest time frame possible and with minimal disruption to users.



PARADISE ROAD

When Paradise Road multi-storey car park in Richmond upon Thames required a new **fast-setting and durable waterproof deck system, Sikafloor® Pronto car park deck system** from Sika provided the perfect solution and returned the car park to its best whilst allowing 80% of the 337 parking spaces to remain in use for the duration of the works.

In the heart of the town, the multi-storey car park is used every day by shoppers, visitors and town-centre workers. To minimise disruption and ensure it could remain in use for as long as possible, client London Borough of Richmond upon Thames appointed a main contractor and a Sika Specialist Contractor to complete a phased refurbishment programme.



Due to the necessity of keeping as many car park spaces available as possible, Sika's market leading product reliability, technical experience and practical expertise proved essential. To meet the client's demands for durability and a fast, reliable application, Sika supplied over 2,000m² of Sikafloor®-RB25 – a three-part flexible, PMMA Car park deck system. Especially suitable for lower temperatures, Sikafloor® Pronto can be applied in a wide range of climatic conditions. Comprising Sikafloor®-15 Pronto Resin, Sikafloor® Pronto Hardener and Sikafloor® Pronto Filler, the system also offers excellent mechanical and chemical resistance which makes it ideal for multi-storey and underground car parks.

To suit a multitude of clients' needs,

Sikafloor® Pronto is available in a variety of different surface finishes while multi-coloured surfaces can be obtained by broadcasting with quartz sand or coloured quartz sand.

The system can also be individually designed to fulfil a series of specific requirements, including crack-bridging properties, impact or temperature resistance.

With the renovation of one of Richmond upon Thames' busiest car parks completed with minimal disruption to users, local residents and workers, the specification and high quality application of Sikafloor® Pronto from Sika ensured the car park



ONE ST GEORGE WHARF

One St George Wharf is one of the tallest residential towers in Europe where a **Sikafloor® decking system** has been installed throughout an underground car park to provide a highly decorative and hard wearing surface that will offer exceptional resistance to water and chlorides for years to come.

Located on the southern bank of the River Thames by Vauxhall Bridge, One St George Wharf is a new luxury residential development comprising 52 floors, more than 200 flats and with a basement car park. For developer St George and end client Berkeley Homes Group, the car park had to provide a safe and durable surface for constant trafficking by both cars and pedestrians – with an attractive aesthetic befitting the project's high-end specification



Utilising over 40 years' experience in car park flooring and a range of waterproofing, decking and repair products, Sika provided the ideal solution. Offering waterproofing integrity, a stunning finish and a fast application, Sika's market leading Sikafloor system ensured a high performance, long term solution for the client.

Installed by a specialist contractor, Sika supplied its highly moisture resistant Sikafloor®-EB24 car park deck system. As movement on site had caused the power floated concrete slabs to crack, these were pre-filled with a Sikafloor®-161 primer prior to the application of the system. Following the successful preparation works, the Sikafloor®-161 car park base coat delivered a fast application for the contractor and a reliable, high quality finish for the client.

To create the aesthetically appealing finish, a top seal coat of

Sikafloor®-264 was then applied. Suitable for medium to heavy usage, Sikafloor®-264 is a two part, coloured, epoxy resin that is ideal for the rigorous daily usage that a residential car park would undergo. With its very low odour, the system could be applied within the basement with relative ease and gave a fantastic, hard-wearing surface finish.

At the prestigious One St George Wharf project, Sika demonstrated its ability to deliver at challenging city centre car park projects.

Following the successful Chelsea Bridge Wharf Car Park resurfacing project, a comprehensive system of Sikafloor® products once again combined to meet the client's exact requirements and create a durable car park deck that is water-resistant, slip-resistant and with a decorative, long lasting finish.



THE LANES, BRIGHTON

The typically shady and inhospitable environment of underground car parks has been radically transformed in Brighton, where the 350 space 'The Lanes' facility has received a **welcoming and flawless finish thanks to the Sikafloor® System.**

Developed by Sika, global leader in specialist construction materials, the Sikafloor®-EB24 car park inter deck system was selected for its outstanding surface finish. Previously dark and cracked, the floor now presents visitors with an attractive coloured surface that shines under the lights. Complete with a unique silver and black parking finish, which eliminates the need for white lines and creates easy definable spaces, the car park now has a safer and more welcoming atmosphere.



Situated in Brighton's city centre, the newly refurbished 'The Lanes' car park, operated by Brighton and Hove City Council, provides parking for thousands of visitors looking to shop and relax in the bohemian streets.

In total, 10,000m² of the Sikafloor® system was applied by a Sika Specialist Contractor to the car park decks. It was provided in a combination of silver and black to create a modern design, matching the town's artistic nature.

Hard-wearing and economical, the Sika system was applied to the floor at a minimum thickness of 4mm. This was important as the original concrete surface was uneven and cracked. The thickness of the Sika system enabled the creation of a smooth, level finish.

With the work taking place underground, it was important

to protect the public and the contractor's health and wellbeing. As Sikafloor®-EB24 products are very low in odour, they offered the perfect decking solution that would provide workers and car park users alike with a comfortable and safe environment whilst the refurbishment works were being carried out.

Once finished, the system provided not only a stunning appearance, but also created a waterproof system that ensured protection to the concrete structure. The Sikafloor® system is part of Sika® Ecoline range of resin based flooring products. Produced from next generation low allergy resin, reducing the risk of applicator sensitivity, they are CE marked for performance. They are available in tins and economically and ecologically advantageous drums, that help reduce the amount of packaging required.



MARKET WAY CAR PARK

A public roof top car park had water ingress into shop retail units below and required a new car park waterproofing system. It was vital the new decking system was fast-curing and of the highest waterproofing specification to ensure **refurbishment works were completed in the shortest possible time to minimise potential loss of trade for nearby retailers.**

Sika Specialist Contractor needed to replace the existing mastic-filled expansion joints and apply the fully fleeced non slip high crack bridging car park waterproofing system. The Sikafloor®-RB 58 system was applied to the car park's deteriorating concrete surface following the removal of the failing expansion joints. Sikafloor®-RB 58 comprises several layers to guarantee a robust, watertight, performance and comes with a 10-year warranty, has been tested in accordance with DIN EN 1062-7.



Firstly, Sikafloor® -11 Pronto, a two-part, medium-viscosity, fast-curing primer was applied to the car park's 1,000m² shot-blasted concrete substrate. To fully waterproof the deck, Sikafloor®-32 Pronto base layer was applied with glass fibre reinforcement mat, Sika® Reemat Premium, then a further layer of Sikafloor®-32 Pronto was used to encapsulate the Sika® Reemat Premium, and once cured, a hard wearing layer using Sikafloor®-32 Pronto filled with 1:2 Sikafloor® - Pronto Filler was installed and whilst wet, aggregate broadcast into the resin and finally sealed using Sikafloor®-18 Pronto. Sikafloor®-18 Pronto, which offers excellent mechanical and chemical resistance, provided the system's fast-curing, solvent-free seal, giving the floor a superb skid and slip-free finish sufficient to meet HSE regulations.

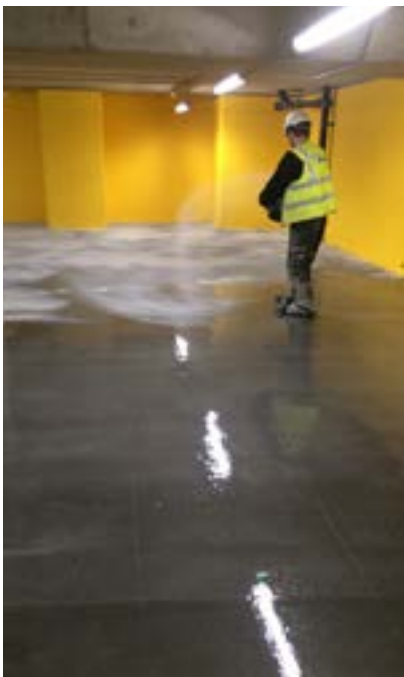
Sika Specialist Contractor was able to sequence and complete repair works in sections to ensure expansion joints were not exposed to potential water ingress. This negated the cost of providing temporary roof protection. The works were completed without undue inconvenience to users of other areas of the car park, retailers and shoppers, thus ensuring the site's reopening on the agreed deadline and to the client's total satisfaction.

Sikafloor®-RB 58 has helped ensure Coventry's bustling city centre has a car park which safeguards traders against the perils of water ingress and guarantees motorists a safe and comfortable stay.

KINGS CROSS UNDERGROUND

A decking system from Sika has provided a highly decorative and hard-wearing surface for a basement car park at the new Kings Cross T1 development. With a **fast and simple application that overcame the complex challenges of a central London new-build project**, the Sikafloor® system has ensured residents at one of the city's largest mixed-use developments will benefit from a smooth, attractive car park surface for many years to come.

Kings Cross T1 building is a mixed-use development of 10-15 storeys comprising a 427 space multi-storey car park, more than 200 flats and an underground car park. For developer Argent, the car park had to provide a safe and durable surface for constant trafficking by cars and pedestrians.



Sika provided the ideal solution. Offering exceptional resistance to water and chlorides, a stunning finish and a hassle-free application, the Sikafloor® EB24 -2.3 system ensured a high performance, long-term solution for the client. To meet the client's demands for durability and a fast application, Sika supplied more than 12,000m² of Sikafloor®-161 to be installed by a Sika Specialist Contractor. Highly moisture-resistant and offering excellent bond strength, the epoxy base coat ensured a fast and user friendly application for the contractor and a reliable, high quality finish for the client.

The system was sealed with a layer of flexible seal coat Sikafloor®-18 Pronto, which can be applied in a wide range of climatic conditions. It also offers excellent mechanical and chemical resistance which makes it ideal for multi-storey and underground car parks.

Sika Specialist Contractor commented: "Temperature was a challenge during the application but having previously used Sikafloor®-18 Pronto, we were confident that it would deliver and be more useable at lower temperatures."

To create the aesthetically appealing finish required, The Sikafloor®-18 Pronto was pigmented to the clients chosen colour scheme. Suitable for medium to heavy usage, the coloured PMMA resin is ideal for rigorous daily usage of a city centre car park.

Following the completion of the Kings Cross T1 car park, the specification of a comprehensive range of Sikafloor products has once again met the client's exact requirements by creating a durable decking system with a highly decorative, long-lasting finish.

THE POTTERIES

Sika provides a rapid decking solution at the intu Potteries shopping centre in Stoke-on-Trent, the asphalt deck on the annex level of the car park was showing signs of aging and weathering.

With removal and replacement costly and time-consuming, Sikafloor®-32 Pronto deck system from Sika was **laid directly onto the existing asphalt to create a watertight, non-slip deck** whilst minimising waste and returning the car park to full use within the shortest time possible.



Following a successful trial to demonstrate its bond to the substrate, approximately 2,000m² of Sikafloor®-32 Pronto was applied over the existing asphalt to provide a slip resistant and hard wearing waterproof surface. Utilising the fast setting properties of Sikafloor®-32 Pronto decking system also ensured works could be completed quickly, with minimal disruption and eliminating the need for material to go to landfill.

Offering excellent mechanical and chemical resistance, Sikafloor®-32 Pronto has been fully tested to meet the highest crack bridging standards available on the market – including BS EN1062-7 Method B, which tests the complete system through 20,000 crack cycles up to 0.5mm @ -20C °C. This demonstrates the system's ability to protect against water penetrating through the membrane and ensures the future integrity of the deck.



MERRION CENTRE

The Structural Engineering design brief for the project was to carry out refurbishment of the existing multi- storey car park, including construction of new vertical circulation cores and change of use for retail units where necessary with a proposed **design life of 20 years**.

The 110m long by 48m wide car park is of split level deck (SLD) design and one-way flow configuration, providing parking for 1050 vehicles over eight separate decks. Even numbered decks are 110m long and 32m wide and feature four lines of parking bays with two driving aisles, whilst the odd numbered decks are 110m long by 16m wide featuring one driving and two lines of parking bays.



The decks are constructed from precast, pre-stressed concrete planks, spanning between precast, pre-stressed inverted T bridge beams, with an insitu concrete topping providing the wearing surface for the car park. The bridge beams are supported simply on corbels on columns or primary beams running between columns. Car park level decks were originally designed for 1.9kN/m^2 (40 lbs/ft²).

To achieve the 20 year life extension brief, a design incorporating the management of the existing corrosion within the structure by an agreed method of corrosion protection, repair to all observed deficiencies in the concrete structure, application of carbon fibre strengthening where it is believed that corrosion of the steel had resulted in a reduced capacity of the structure, either directly or through changes in articulation and finally seal the concrete structure from ingress by water, was required.

MERRION CENTRE continued/,,,



The refurbishment proposed that:

1. Delaminated insitu concrete topping shall be removed from the existing concrete floor slabs.
2. Where exposed, corroded transverse reinforcing bars (10mm dia) shall be replaced along their full length (1200mm) or lapped minimum 400mm with existing uncorroded bars.
3. Remaining mild steel reinforcement should be protected by either the use of a corrosion inhibitor or galvanic anodes; the concentration or frequency depending upon chloride content of the original remaining concrete substrate shall be determined by a concrete repair specialist.
4. Migrating Corrosion Inhibitor (MCI) or Galvanic anodes should be used to provide corrosion control to the entire intact (sound) concrete deck surface including top and soffits, surfaces and downstand bridge beams. A decorative protective anticarbonation paint should also be spray applied onto the downstand bridge beams.
5. Areas where concrete had been removed should be replaced with new pre-bagged concrete repair mortar of equal or higher compressive strength and all concrete repairs should be



6. Carbon fibre anchorage points should be drilled into the existing or repaired concrete slab above the pre-stressed bridge beams.
7. Carbon fibre wrap should be installed using the dry method to the entire soffit of the existing car park planks and vertically down the vertical face of the downstand bridge beams, a minimum length of 200mm.
8. Carbon fibre anchors should be installed into the existing or repaired concrete slab or perimeter edge beams, to a suitable depth depending on installation. The existing slab was approximately 110mm thick, or 220mm at an inclination of 30 degrees above the horizontal.
9. Carbon fibre plate bonding to

strengthen long span traditionally reinforced beams.

10. Elastomeric waterproof decking should be applied to the entire top surface of each car park deck.

The primary objective of the repair and corrosion protection strategy was to replace all structurally damaged or delaminated concrete and manage the future corrosion of the mild steel reinforcement within the in-situ concrete topping and precast concrete planks, beams, cladding panels and columns, in line with the 20 year design life of the project.

The full range of technical specialist refurbishment materials were supplied by Sika Limited, which included strengthening, repair and protection, corrosion control and car park deck waterproofing systems.



SECTORS FOR TOTAL CORROSION MANAGEMENT:



BRIDGES



CAR PARKS



INDUSTRIAL FACILITY



STEEL FRAMED
MASONRY BUILDINGS



REINFORCED CONCRETE
BUILDINGS



MARINE STRUCTURES

FOR FURTHER INFORMATION:



WHO WE ARE

Sika Limited and Sika Ireland Limited are part of the global Sika Group, specialising in the manufacture and supply of chemical based products. Sika have a leading position in the development and production of systems and products for bonding, sealing, damping, reinforcing, and protecting in the building sector and the motor vehicle industry. Sika has subsidiaries in 93 countries around the world and manufactures in over 170 factories. With approximately 17,000 employees Sika generates annual sales of CHF 5.49 billion (£3.98bn). We are also committed to providing quality, service, safety and environmental care.

In the UK and Ireland, we provide market-leading solutions for concrete, waterproofing, roofing, flooring, refurbishment, sealing & bonding, and industry, and have manufacturing sites in Welwyn Garden City, Preston, Leeds and Dublin with more than 700 employees and a turnover of more than £130 million.

The information, and, in particular, the recommendations relating to the application and end use of Sika® products, are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The proprietary rights of third parties must be observed. Please refer to our homepage www.sika.co.uk for our current standard terms & conditions applicable to all orders. Users should always refer to the most recent issue of the Product Data Sheet for the product concerned, copies of which will be supplied on request.



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BUILDING TRUST

