

RENOVATE & INNOVATE

BRIDGE CONSTRUCTION AND REFURBISHMENT

Get inspired by worldwide references,
solid knowhow and new innovations



BRIDGE MAINTENANCE CONCEPT

How to select the right
solution to obtain the
desired durability.
Learn from real
experience in Greece

ENHANCING CUSTOMER VALUES REDUCING ENVIRONMENTAL IMPACTS

Get informed on design essentials
for durable and sustainable bridge
repairing solutions

SIKA AROUND THE WORLD

See some of our most outstanding
references done around the globe.
Learn some of the challenges faced
and how they were solved

INNOVATION NEWS

New technologies available for your upcoming projects

DIGITAL ZONE

Get familiar with our calculation software that will ease your work



SOME WORDS FOR INSPIRATION



Welcome to our bridge magazine.

In it, we show you how Sika provides all necessary materials for the construction or restoration of bridges in all ambient conditions combining the good performances and durability with the user-friendly characteristics to avoid problems during the execution of the works.

Besides of showing interesting projects that combine solutions done all over the globe, we included technical articles to learn from our experience gained during our more than 100 years of helping in the construction business.

We linked our photo files, picked the brains of industry experts and gather international best practices to fill this magazine with inspiring projects and practical information that you can use to address these and many other complex issues in today's bridges and auxiliary infrastructures.

If you have known Sika as a leading manufacturer of high-quality engineered and technical mortars that meet the highest specifications for infrastructure projects, this magazine will introduce you to our commitment to bridges projects. It will also build your understanding of the construction and repair options Sika offers – a broad range of integrated solutions for the widest variety of requirements – and our focus on providing high value, sustainable solutions.

Thank you for reading!

Bernard Van Sever
Head of Corporate Target Market Refurbishment
Sika Services AG



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SIKA AROUND THE WORLD

Throughout history, bridges have always been important, valuable structures in their own right. As part of our infrastructure, they allow faster and easier communications and transportation for people, livestock and merchandise. Thus, by their very nature, bridges are built in a variety of areas where the topography, ground conditions, or other existing structures and developments signify locations not otherwise suitable for conventional pathways, roads or railway construction.

Therefore, bridges are found in the most challenging, exposed environments – crossing ravines, around mountains, over valleys, lakes and rivers, seas or other urban buildings and structures. Due to the apparent increase in traffic frequency and design loads across our bridge structures, additional stresses and strains are constantly being imposed on them.

Sika has experience in the construction and refurbishment of all types of bridges structures. With renowned, thoroughly proven and innovative systems in a complete product range. Sika can provide the appropriate solution for all types of bridge projects. Here we show you some nice references around the world where Sika Bridge solutions were involved.

THE RIALTO BRIDGE, VENICE: STRUCTURAL RESTORATION

PROJECT DESCRIPTION

The Rialto Bridge is one of the most well-known bridges in the world. It is certainly the most famous bridge in Venice (Italy), where thousands of tourists every day take pictures, walk over it or sail under it by Gondola. It is one of the four bridges that span "Canal Grande". The other three are Ponte dell'Accademia, Ponte della Costituzione and Ponte degli Scalzi.

Designed by Antonio da Ponte and completed after three years in 1591, the bridge, which rests on two ramps, is 48 meters long with single 22 meter span arch made of stones. On either side of the central portico, the covered ramps carry rows of shops.

During the building of the bridge, many believed the project was too audacious from the engineering point of view, yet the bridge is still standing and has become one of the architectural icons of the city of Venice.

PROJECT REQUIREMENTS

The restoration project was based on the awareness of the Bridge's strong historical, architectural and constructional heritage as a landmark of the city of Venice. For above these reasons, the design took into consideration three main topics: the general architectural design, the preservation of the materials, and the structural strengthening.

Sika was involved in the latter in 2015. The final goals were to pursue the restoration, maintenance and overall refurbishment of the Rialto Bridge, preserving the architectural nature of the original materials and applying non-invasive but efficient structural solutions as well as to stop the decay of its structure and materials.

DESCRIPTION OF THE STRUCTURAL ISSUES

Both sides of the Rialto Bridge are rimmed by a balustrade made of Istria stone. This balustrade protrudes beyond the external edge of the masonry arch and it rests on stone cantilevers anchored underneath the deck. Upon removal of the stone deck, many cantilevers supporting the balustrade

turned out to be cracked and the balustrade slightly rotated outward.

SIKA SOLUTION

Sika provided solutions with FRP structural strengthening system SikaWrap® to reinforce the stone cantilevers and to increase the safety of the balustrade, blocking further rotations. SikaWrap®-300 C, unidirectional carbon fiber fabric, impregnated with Sikadur®-330 epoxy resin was used.

An ending anchorage with carbon fiber rope SikaWrap® FX-50 C impregnated with Sikadur®-52 Injection epoxy resin was installed on both ends of each fabric strip. The connector was anchored in stone with Sika AnchorFix®-3+

epoxy resin. The entire strengthening solution is absolutely non-invasive and invisible as it is hidden under the deck. Manual dry application was used for SikaWrap®-300 C system. Sikadur®-330 serves as primer, levelling and impregnating resin.

A special procedure developed by Sika was used for the application of SikaWrap® FX-50 C connectors. This procedure allows the application of the connectors "all-at-once". At first holes in the stone were drilled and cleaned thoroughly with compressed air and round brush, then the holes were partially filled with Sika AnchorFix®-3+ from the bottom up.

SikaWrap® FX-50 C carbon fiber connectors were impregnated with Sikadur®-52 Injection, inserted in the holes and spread on the surface of the stone. SikaWrap®-300 C carbon fiber fabric was cut in size, impregnated with Sikadur®-330 epoxy resin directly on the substrate, after the accurate preparation and cleaning of the stone surface.

PRODUCTS/SYSTEMS USED

SikaWrap® FX-50 C
Sika Anchorfix®-3+
SikaWrap®-300 C
Sikadur®-330
Sikadur®-52 Injection

Year of work execution: 2015

**REHABILITATION OF THE BERGBACH FREEWAY VIADUCT
ST. GALLEN, SWITZERLAND**



PROJECT DESCRIPTION

The freeway viaduct Bergbach was built between 1970 and 1973 in a steel-concrete composite construction as two single 6-span bridges and carries the A1 near St. Gallen with a length of 480 meters over the Bergbach valley. The supporting piers were made of concrete, the superimposed structure of steel. As a permanent formwork for the deck, 12 meter wide and 3 meter long prefabricated concrete distribution slabs were laid in solid construction. Due to the severe corrosion damage and the insufficient load-bearing capacity of the old coating, the client decided on a more economical full renewal of the corrosion protection coating and comprehensive repair work to be carried.

PROJECT REQUIREMENTS

During the winter months, the viaduct is subjected to de-icing salt and spray that is whirled up into the supporting structure of the bridge. After the rehabilitation, the owner expected a service life of at least 40 years. Furthermore, only corrosion protection systems with proven long-term experience were to be used. Therefore, only a corrosion protection system that meets the requirements of the corrosion protection category C5-I with the protection duration "High" according to SN EN 12944-5 could be used. In addition, a high-quality waterproofing system was required to protect the joint between the concrete elements and the steel girder top chord from chloride penetration into the load-bearing structure.

SIKA SOLUTION

Corrosion protection: 4-layer SikaCor® EG system, 2-component zinc dust primer SikaCor® Zinc.

Concrete repair and surface protection: Sika MonoTop®-412 N "R4" repointing mortar in combination with the system bonding bridge SikaTop® Armatec®-110 EpoCem®. Crack-bridging surface protection coating of the concrete surfaces with Sikagard®-550 W Elastic.

Joint sealing: Sikadur-Combiflex® SG System.

**REHABILITATION OF THE RUSANOVSKAYA METRO BRIDGE
KIEV, UKRAINE**



PROJECT DESCRIPTION

The Metro bridge across Rusanovskaya duct in Kiev is an important link in the infrastructure of the city as it connects the western and eastern part of the metropolis.

PROJECT REQUIREMENTS

Besides the recovery and protection of existing bridge elements, the owner also wanted to reinforce the bridge in order to accommodate for the expected increase of carrier capacity as well as improve upon the bridge's aesthetics.

SIKA SOLUTION

For fixing the bridge reinforcement details, the 2-component adhesives Sika AnchorFix®-3+ and Sikadur®-31 were used. For the repair and protection of the concrete structures, the Sika MonoTop® system alongside Sikagard®-680 S were used. The leveling horizontal surfaces was realized by using Sika MonoTop®-452 and Sikadur®-12 Pronto. For modification of the concrete for a laid plate, Sikaplast®-2508, SikaFume® and SikaMix® Plus were used. Finally, the joint insulation was made possible by using Sika® Primer-3 N and Sikaflex® PRO-3.

**REHABILITATION OF THE BAGO BRIDGE
NEGROS OCCIDENTAL, PHILIPPINES**



PROJECT DESCRIPTION

Old Bago Bridge used to be a steel span structure, 200 meters long and 12 meters above the Bago River. The bridge was able to withstand threats of time and war until 1991, when typhoon Ruping hit Negros. The bridge was destroyed by floods induced by strong wind and rain. One of Bago City's iconic landmarks, the bridge acted as the primary access to the South Negros Island and needed to be rebuilt.

PROJECT REQUIREMENTS

Since the bridge was reconstructed at 270 meters long, traffic loads have increased. This is related to the main crop in the island, sugar cane, which is quite heavy when transported by truck. As a result, the existing infrastructure strength became insufficient to handle current traffic conditions. The retrofitting method had to ensure minimal disturbance for public commuters, since no traffic detour was possible due to the distance of 17 kilometers to the nearest alternative route.

SIKA SOLUTION

The Sika solution was based on the SikaWrap® and Sika® CarboDur® CFRP range, which provided a simple, efficient solution. The application of the products did not modify the existing traffic patterns, thereby avoiding interference with the daily activities of inhabitants of Negros Island.

**RENOVATION OF OLD LIBERTY BRIDGE OVER THE DANUBE
BUDAPEST, HUNGARY**



PROJECT DESCRIPTION

On the 333 meter long bridge, tram rails run down the middle flanked by roadways and sidewalks. Per the historic 19th century design, it's a steel lattice-bridge. From 1998 to 2000 the visible steel structure had been fully maintained with a modern corrosion protection system. During the renovation between 2007 to 2009, some elements were changed or strengthened. According to the new plan, the deck and steel elements work as a composite structure. Thus, a new concrete bridge-deck was installed which would transmit stresses to the steel elements.

PROJECT REQUIREMENTS

Due to the composite structure, the level of concrete deck shrinkage had to be kept low with a special concrete mix at a low cost. For this matter, the structural engineers and the ready-mix supplier wanted at least two different possible solutions.

SIKA SOLUTION

The winning mix design which met all requirements included the following components: Sika® ViscoCrete®-1035 and Sika® Control-40. For corrosion protection, the following were used: SikaCor® Zinc R (zinc-rich primer), SikaCor® EG 1 (epoxy MIO intermediate layer) and Sika Permacor®-2330 (acrylic polyurethane topcoat).

**BRIDGE REHABILITATION
LORCA, SPAIN**



PROJECT DESCRIPTION

Lorca, located in southwestern Spain, was a significant frontier town in the Middle Ages between Muslim and Christian territories. The town was severely damaged by an earthquake in 2011. The seismic movements exceeded the anticipated magnitudes of the existing national seismic code. Constructed in 1910, the bridge is considered as the second oldest reinforced concrete bridge in Spain and is thus part of the town's heritage.

PROJECT REQUIREMENTS

Although the structure was showing signs of deterioration before the earthquake, the subsequent seismic accelerations caused significant damages in the form of cracks and breakage of the concrete members. This led local authorities to carry out a complete rehabilitation of the structure, including existing damage repair as well as structural retrofitting of the arches.

SIKA SOLUTION

The structural rehabilitation included injection of cracks with Sikadur®-52, and structural repair and restoration done with the Sika MonoTop® mortar range. The main longitudinal arches were confined with SikaWrap®-230 C laminates, which drastically limits lateral expansion of the member under compressive forces and increases their load-carrying capacity. This solution allowed for more efficient control of the limited execution time. The new techniques will provide a longer lifespan for this centenary bridge.

**CONSTRUCTION OF THE PENANG BRIDGE
PENANG ISLAND, MALAYSIA**



PROJECT DESCRIPTION

The Second Penang Bridge in Malaysia is a dual carriageway toll bridge connecting Bandar Cassia on mainland Peninsular Malaysia with Batu Maung on Penang Island. It is the second bridge to link the island to the mainland after the first Penang Bridge. The total bridge length is 24 kilometers, with the section over water being 16.9 kilometers, making it the longest bridge in Southeast Asia.

PROJECT REQUIREMENTS

Two major requirements for the bridge were to build it to last 120 years without major maintenance and to withstand earthquakes up to a 7.5 magnitude on the Richter scale.

SIKA SOLUTION

To achieve a long lifespan, the concrete was designed with low chloride permeability and a thick cover. As an additional measure, deep penetrating hydrophobic impregnation Sikagard®-705 L was used to protect 180,000 square meters of concrete surface area including the piers, pile caps and spun piles (exposed part during the low tide). Sika also supplied Antisol A curing compound, to improve concrete quality.

Installed with a high damping natural rubber (HDNR) bearing, an effective seismic isolation system enables the bridge to withstand a maximum 7.5 earthquake. The bridge is the longest bridge in the world to be installed with such a system. It is also the first in Malaysia to be installed with seismic expansion joints, which allow movements during an earthquake.

**REHABILITATION OF THE REUSS RIVER WOODEN BRIDGE
SINS, SWITZERLAND**



PROJECT DESCRIPTION

The famous wooden bridge over the Reuss River is over 200 years old and was built in 1807 with an original design capacity of 12 tons. Today, the bridge also serves as a back-up route for heavy vehicles, with required loading of 20 tons.

PROJECT REQUIREMENTS

The residents opposed an option to replace the historic bridge with a new structure, so refurbishment and strengthening to upgrade the whole structure was done in 1991.

The structural strengthening of this timber bridge was part of a long-term study and was one of the first Sika CarboDur® strengthening projects on wooden structures. The system solution was selected for its excellent mechanical properties and minimal visual impact, as retaining the visual appearance of the bridge was a key decision factor.

SIKA SOLUTION

To refurbish the bridge, the deck was removed and rebuilt. Sika CarboDur® CFRP plates were bonded to the bottom of the crossbeams to reduce deflection and were left exposed and uncoated to facilitate inspection and assessment. To date, the installation remains maintenance free.

**REHABILITATION OF THE BELTON LANE BRIDGE
GRANTHAM, UNITED KINGDOM**



PROJECT DESCRIPTION

Belton Lane Bridge crossing the Whitham River, had an old worn asphaltic concrete overlay with a traditional bituminous sheet waterproofing layer underneath. Over time, water ingress had started to attack the concrete structure below the waterproofing, resulting in a potential reduction in design life of the bridge.

PROJECT REQUIREMENTS

Lincolnshire County Council decided to take away the whole existing system including the bituminous sheet waterproofing, level out the slightly attacked concrete surface and install a new fast curing, crack bridging, spray applied waterproofing membrane & innovative tack-coat system, fully tested and certified according to BBA-HAPAS, and finished with a new asphaltic concrete overlay.

SIKA SOLUTION

Sika offered the already ETA 033 certified, fast curing, bridge deck waterproofing system consisting of Sika® Concrete Primer, Sikalastic®-841 ST spray applied membrane and a tack coat for the asphalt overlay consisting of Sika® Concrete Primer broadcast with our innovative Sikalastic®-827 HT hot melt pellets.

This system provides excellent tensile and shear strength properties with an increased bond to both the concrete substrate and the asphaltic concrete overlay, increasing driver safety & potentially reducing long term maintenance costs.

RENOVATION OF THE BRESKA BRIDGE NOVI SAD, SERBIA



PROJECT DESCRIPTION

Breska Bridge, located near Novi Sad, Serbia, is the longest bridge over Danube river. It was built in 1975 as a pre-stressed concrete bridge. In April 1999 it was bombed twice during the operation Allied Forces. It could be managed to stabilise the bridge provisionally as it is an important part of the Europa Route E75. In 2011 the second bridge could be finalized and the maintenance of the first build bridge started. Finishing the construction at the end of 2013 the two bridges provide now 3 lanes in each direction of the E 75.

PROJECT REQUIREMENTS

Due to the bad conditions of the bridge ingress of water started to attack the concrete. The existing epoxy resin based waterproofing system had to be replaced. A high performing spray applied polyurethane waterproofing system has been specified for the refurbishment to ensure an extended life time of the old bridge and to reduce the maintenance work.

SIKA SOLUTIONS

Primer and Levelling coat: Sikafloor®-161 on 12.500 m² bridge deck and 4.000 m² sideways
Waterproofing Membrane: Sikalastic®-821 LV on 12.500 m² bridge deck and 4.000 m² sideways
Tack Coat: Sikafloor®-161 broadcasted with Sikalastic-827 LT pellets on 12.500 m² bridge deck
Epoxy Primer underneath the torched bituminous membrane: Sika® Ergodur 500 on 12.500 m² bridge deck
Overlay: Hot Rolled Asphalt
Refurbishment and strengthening: Sika Carbodur® and SikaWarp®

This system is fully bonded to the concrete substrate and the asphalt overlay and provides excellent adhesion and shear strength. Due to project related reasons and the bankruptcy of the main contractor, the waterproofing system had to be changed to a torched bituminous membrane when half of the surface was already waterproofed. As a solvent free epoxy primer underneath the torched membrane Sika® Ergodur 500 has been applied.

RENOVATION OF OVERPASS ON BORSCHAGIVSKA STREET KIEV, UKRAINE



PROJECT DESCRIPTION

The overpass on Borschagivska street is an important part of the infrastructural arteria that connects the suburban area with the business centre of Kyiv. The axis of the street is occupied by a separated tram track. Built across rail tracks, and after decades of poor maintenance, the overpass has reached an emergency state and had to be rebuild.

PROJECT REQUIREMENTS

The four requirements were: Provide a comfortable and service free path for trams, reduce the vibration impact on the overpass, repair and protect damaged elements of the concrete overpass and increase the load bearing capacity.

SIKA SOLUTION

The concrete repair was done using the Sika® MonoTop® system and Sikagard® -680 protective coating. Sika® Carbodur® and SikaWrap® systems provided the requested increase of load bearing capacity. Icosit® KC340/45 was used for rail embedding into the concrete slab. Additionally, Icosit® KC330 Primer and Icosit® KC330FK NEW were supplied for rail priming and concrete filler blocks adhering. The channels were primed with Sikadur® -53.

RENOVATION OF THE N9 MOTORWAY BRIDGE VIADUCT PALURE – BALLAIGUES, SWITZERLAND



PROJECT DESCRIPTION

This is an important bridge in the Swiss National Road Network (N) with frequent heavy volumes of traffic. After many years' service with exposure to the extremes of weathering between summer and winter in this part of Switzerland, plus the additional impact of de-icing salts used on the carriageways, the reinforced concrete bridge deck was suffering increasing damage and so required extensive repair and reinstatement.

PROJECT REQUIREMENTS

The extensive repairs to the concrete carriageways were specified to be in compliance with SN EN 1504 (CR principle 3 / method 3.3), to be achieved by applying an "R4" high performance mortar with corrosion inhibiting properties, because of the levels of steel reinforcement corrosion revealed after initial removal of the damaged original concrete cover. This was over an area of around 2000 m², where an average replacement layer thickness of 35 mm was required. The damaged concrete areas had to be removed by using high pressure water jetting rather than any other mechanical means and dust pollution throughout the works had to be minimized.

SIKA SOLUTION

Following their evaluation and tender process, the responsible Road Authority Engineers and their contractors selected Sika MonoTop®-412 NFG with integrated corrosion inhibitors for these extensive repair and replacement works. Continuous dust-free application of this advanced material was ensured by using an Inotec OWC delivery pump mixer that was fed from bulk one-way containers (OWC) of the material. In this way a single trained and experienced operative could provide and control the rate and volume of the mixed material's delivery, over the whole site and with minimal physical effort. As a result they were also able to achieve optimum efficiency and cost effectiveness, as well as using an ergonomic and dust-free solution for the operatives and the public using the adjacent carriageways that had to remain open.

REHABILITATION OF THE MELLOR SPODDEN BRIDGES ROCHDALE, LANCASHIRE, UNITED KINGDOM



PROJECT DESCRIPTION

The Mellor Spodden north and south bridges, which span the River Spodden in Rochdale, Lancashire have been a feature on the local landscape since their construction in the early 1900s. Spalls and cracks, which were large in places, had begun to appear on the bridges' soffits and front and rear elevations in part due to the age of the bridges and the occurrence of latent defects such as low concrete cover. In the most deteriorated areas, the bridges' steel reinforcement had become exposed through expansive corrosion and spalling the cover concrete.

PROJECT REQUIREMENTS

Contractors, APA Concrete Repairs Ltd completed a programme of remediation to restore the protective cover to structural reinforcement and improved the durability of the structure overall by preventing further corrosion. As the town's designated 'main river', all access to the riverbed and works required prior approval from the Environment Agency, specific control measures were implemented as part of the planned works to reduce environmental impacts.

SIKA SOLUTION

SikaCem®-133F Gunit provided the high-performance, cement and fibre based repair mortar, dry spray-applied over a 700 m² area and finished to provide a range of finishes sympathetic to the original features and overall style of the bridge. To manage the steel corrosion within the structures, products from Sika's Total Corrosion Management (TCM) portfolio were utilized: Sika® Ferrogard®-903+, a surface-applied, migrating multi-functional liquid corrosion inhibitor. Applied to a 700 m² area of the bridges' concrete surface, the liquid forms a protective layer around the reinforcement. Where chlorides were high, 150 Sika® Galvashield® XPT galvanic, sacrificial anodes were installed to prevent the formation of new corrosion sites adjacent to the repaired concrete: A small, circular-shaped cementitious shell encasing a zinc core which is quickly and easily fastened to exposed steel reinforcement. Once installed, the anode's zinc core corrodes sacrificially to the surrounding rebar, therefore protecting the rebar.

BRIDGE MAINTENANCE CONCEPT

Bridges are essential infrastructures that enable the perfect functioning of societies nowadays. They are designed to withstand for very long periods of time, quite often exceeding 100 years of expected life span. This durability can only be achieved with a correct design and a correct choice of the materials for the construction, but also when a suitable maintenance strategy is followed.

This article links you to the technical paper presented at the Hydrophob conference in HK, where the actions determined for the protection of the specific concrete elements of a bridge in Greece against future water and chloride-ion ingress are described. The paper presents the investigation and assessment procedure for the selection of an appropriate concrete protection system within the framework of the European Standards EN 1504. A hydrophobic impregnation and a cementitious flexible waterproofing mortar were both selected as possibly being suitable to prevent further water ingress. In order to investigate the potential of these materials, an evaluation was made, with appropriate testing defined and carried out. The test results highlight the efficiency of the cream consistence hydrophobic impregnation, even when applied on dense concrete substrates. The paper also contains the results and conclusions from a full scale trial application which was undertaken starting in 2014.

The paper describes all the actions for the implementation of protection materials against water and chloride ingress in a concrete area which serves as protection cap for prestressing anchorages. The application selection parameters are also presented. From the analysis of the selection parameters, a cementitious waterproofing mortar and a material for hydrophobic impregnation were finally selected. In order to investigate the efficiency of the hydrophobic material a test campaign was launched. The penetration depth of hydrophobic material and the water uptake values were set as the key performance criteria under investigation. Also tests for the characterization of compatibility between the hydrophobic material and the cementitious waterproofing mortar (in case of parallel use) were performed. The whole set of action lies in the context of the global maintenance concept of the Concessionaire which is based on the triptych Inspection-Analysis-Maintenance.

Have a look at the complete technical paper to learn more about bridge maintenance concept.



ENHANCING CUSTOMER VALUE

AND REDUCING ENVIRONMENTAL IMPACTS is one of our key pillars. Our goal is to provide the most innovative and effective solutions with reduced environmental impacts to fulfill all the technical needs of the projects and at the same time protect and respect our commitment of keeping our impact to the environment as low as possible.

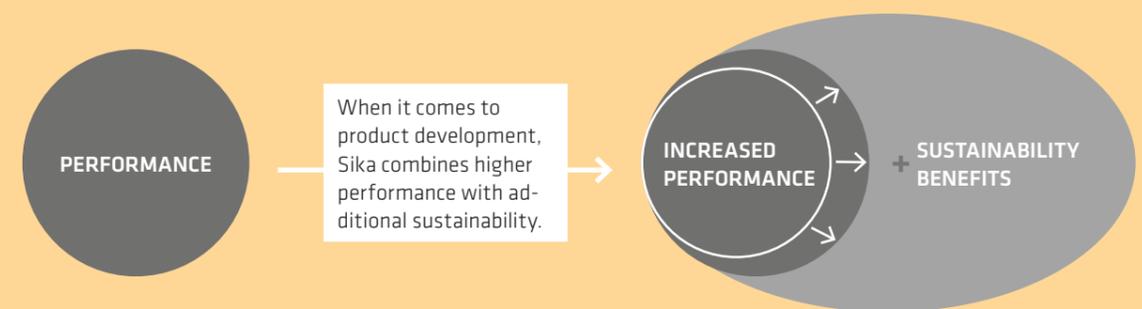
Aiming for this goal, Sika has been developing the Sustainability Portfolio Management (SPM) Methodology. It is the mechanism used by Sika in order to evaluate and classify its products in terms of both Performance and Sustainability.

The objective of Sika's SPM approach is to manage innovation and sustainability, minimizing the risks and maximizing the opportunities associated with our products.



The outcome of the SPM is a portfolio of "Sustainable Solutions" - products with combined significant Sustainability and Performance benefits.

INNOVATION - STRONGER FOCUS ON PRODUCT SUSTAINABILITY



THE NEW INNOVATIVE AND DURABLE Sika MonoTop® CONCRETE REPAIR SYSTEM

SIKA HAS DEVELOPED A UNIQUE TECHNOLOGY that allows us to offer innovative and durable concrete repair mortars with a reduced carbon footprint.

This new Sika MonoTop® concrete repair mortar range was developed after years of research and is formulated to achieve a long lasting service life in all the remedial works of damaged concrete due to corrosion, structural damages, water infiltration, freeze and thaw cycles, seismic activity, reactive aggregates, etc. The range forms a complete system that will allow you to maximize the durability of your structure while minimizing the resources used.

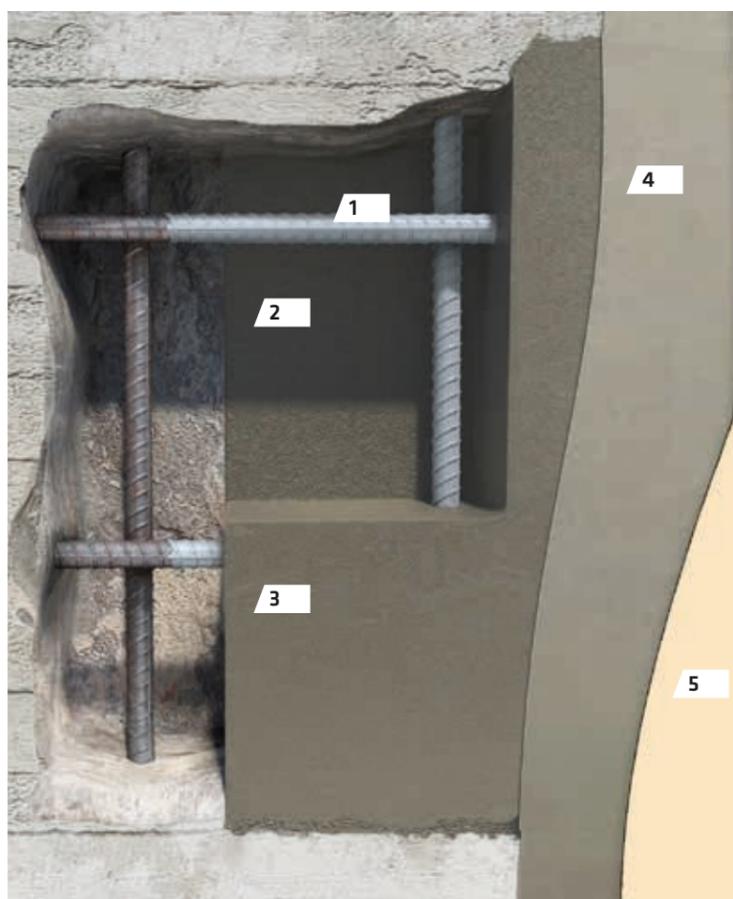
The complete range has the following products:

- Sika MonoTop®-1010, bonding primer and reinforcement corrosion protection slurry
- Sika MonoTop®-4012, concrete repair mortar
- Sika MonoTop®-3020, pore sealer and levelling mortar

Optional:

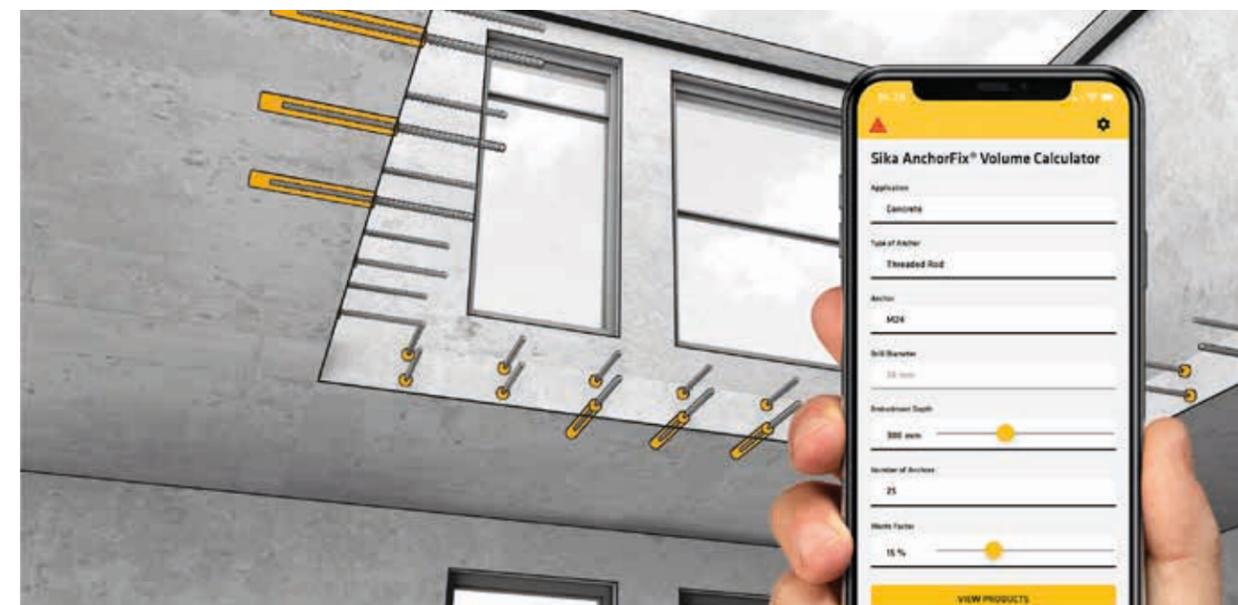
- Sikagard®-5500, concrete protective coating

Sustainability Portfolio Management



- 1 Reinforcement Corrosion Protection Sika MonoTop®-1010**
 - To prevent further corrosion of steel reinforcement
- 2 Bonding Primer Sika MonoTop®-1010**
 - To promote adhesion of the repair mortar on demanding substrates
- 3 Repair Mortar Sika MonoTop®-4012**
 - To repair concrete defects
 - To restore structural integrity
 - To improve durability
 - To improve appearance
 - To extend the structure's design life
- 4 Pore Sealer / Levelling Mortar Sika MonoTop®-3020**
 - To restore durability
 - To restore aesthetic appearance
 - To restore geometric appearance
 - To provide a surface for over-coating
- 5 Concrete Protective Coating Sikagard®-5500**
 - To prevent further concrete degradation
 - To bridge post occurring cracks
 - To restore aesthetic appearance

DIGITAL ZONE: Sika AnchorFix® CONSUMPTION CALCULATOR APP BASED ON EUROPEAN AND US STANDARDS



TO IMPROVE YOUR EFFICIENCY and save unnecessary material cost in your project, you may calculate the anchoring material consumption using the Sika app before your jobsite starts.

Sika always aims to serve our customers with innovative and convenient tools.

Install the calculator



Sika AnchorFix® Calculation Software for chemical anchors (threaded rods and rebars) is available for free downloads. The software considers the American code for anchoring (ACI 318-08, -11 & -14) and the European design code TR029 for anchoring with threaded rods and rebars and TR023 for post installed rebar connections.

The Software is split in 2 Modules and is available to make calculations according to the following design standards.

ANCHOR CALCULATION MODULE

- EOTA TR029 for design using an ETA according to EAD 330499-00-0601
- TR045 for seismic design using an ETA according to EAD 330499-00-0601
- ACI 318-08 for design using an IAPMO/ICC-ES report (IBC 2009)
- ACI 318-11 for design using an IAPMO/ICC-ES report (IBC 2012)
- ACI 318-14 for design using an IAPMO/ICC-ES report (IBC 2015)

REBAR CONNECTION MODULE

- EOTA TR023 for rebar connection design using a TR023 ETA

It has been developed as a user-friendly, professional design tool to provide engineer a state-of-the-art support:

- Design of anchors and post installed rebar connections
- Multiple languages (currently 10 available)
- 3D graphic is a visual aid from all user inputs
- Metric and fractional (imperial) system units
- Upgradeable via Internet Connection

Sikagard®-5500 HIGHLY ELASTIC AND SUSTAINABLE CONCRETE PROTECTIVE COATING

BY PROTECTING AGAINST HARSH EXPOSURE AND CONTAMINANTS, the formulation increases the technical and application performance compared with older products and is an esthetic improvement. Moreover, this innovative product was designed with a dispersion derived from renewable feedstock (biomass) with sustainable features.

MORE PERFORMANCE

- Higher crack bridging with less material
- Time saving – fewer application steps
- Less maintenance – reduced green growth

MORE SUSTAINABLE

- Reduced carbon footprint
- Dispersion based on renewable feedstock
- Meets LEED v4 requirements



Sikadur®-31+ ALL-IN-ONE LOW VOC EPOXY ADHESIVE

NEWLY FORMULATED EPOXY ADHESIVE
Structural Adhesive – Sealant – Filler –
Reprofiling – Structural Repair Mortar

Sustainability Portfolio Management



MORE PERFORMANCE

- Double CE marking for structural bonding and concrete repair
- Superior adhesion performance on various substrates
- Longer open time and pot life

MORE SUSTAINABLE

- Very low VOC emission and low odor
- Not regulated as a dangerous good, suitable for professional and DIY
- Meets LEED v4 requirements



SikaGrout®-340 HIGH PERFORMING, CEMENTITIOUS, SHRINKAGE COMPENSATED GROUT

WHEN STRENGTH COUNTS, this grout is the right choice which has high early and final strength providing premium bearing capacity.

SikaGrout®-340 is a high performing, cementitious grout which provides the following characteristics:

- High early and final strengths
- Shrinkage compensated
- Premium bearing capacity

SikaGrout®-340 main uses are:

- Restoration work → Repair of spalling and damaged concrete in buildings, bridges, infrastructure and superstructure works
- Load transfer → Transfer loads from heavy equipment, machines to their foundations
- Filling gaps and voids → Filling and sealing joints in pre-cast concrete sections or around penetrations



BUILDING TRUST SINCE 1910

SIKA HAS PROVIDED WATERPROOFING SOLUTIONS FOR MORE THAN

100 YEARS

THE FIRST PRODUCT – Sika®-1 – IS STILL ON THE MARKET

EVERY YEAR SIKA SUPPLIES ENOUGH ROOF MEMBRANES TO COVER THE

WHOLE OF MANHATTAN

MORE THAN

30%

INTERIOR NOISE REDUCTION IN VEHICLES THANKS TO SIKA'S ACOUSTIC SOLUTIONS

USING SIKA'S LONG-LASTING WINDOW INSTALLATION SEALANTS, MORE THAN

1 MILLION

WINDOW FRAMES ARE SEALED EACH YEAR HELPING TO SAVE MORE THAN

10,000

TANKER LOADS OF HEATING OIL OVER THEIR COMPLETE LIFETIME

SIKA'S CLEANROOM FLOORING SYSTEMS RELEASE

1,000 TIMES LESS EMISSIONS

THAN STANDARD LOW VOC SYSTEMS

WITH

84 AWARDS

IN 16 YEARS, SIKA IS THE COMPANY WITH THE MOST CONCRETE REPAIR PROJECTS AWARDED WORLDWIDE

THANKS TO SIKA'S RANGE OF WATER REDUCERS OVER

25,000 MILLION LITERS OF WATER

ARE SAVED ANNUALLY IN CONCRETE PRODUCTION

IN OVER 80 COUNTRIES, MORE THAN

10,000 ROOFING CONTRACTORS

ARE TRAINED AND CERTIFIED BY SIKA

50%

OF ALL CARS PRODUCED WORLDWIDE USE SIKA PRODUCTS

UNTIL NEXT TIME!



GLOBAL BUT LOCAL PARTNERSHIP



WE ARE SIKA

Sika is a specialty chemicals company with 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's product lines feature concrete admixtures, mortars, sealants and adhesives, structural strengthening systems, industrial flooring as well as roofing and waterproofing systems.

Our most current General Sales Conditions shall apply. Please consult the most current local Product Data Sheet prior to any use.



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BUILDING TRUST

