



ENG. REFURBISHMENT TOTAL CONCRETE REFURBISHMENT MANAGEMENT



TOTAL CONCRETE REFURBISHMENT MANAGEMENT

REINFORCED CONCRETE is a composite material especially used in civil engineering structures for its strength and durability.

Sika has the most innovative products to prolong the life of a structure, improve the concrete quality and protection, reducing the need to demolish and rebuild structures that could otherwise be saved.

Sika is the only manufacturer able to supply a fully comprehensive range of integrated products and systems for Total Concrete Refurbishment Management. Sika can help you ensure that the right solution is selected for each specific project.



CORROSION MANAGEMENT

All reinforced concrete structures can suffer from damage and deterioration at some stages during their life span. Total Corrosion Management Systems from Sika encompasses an effective range of complete corrosion protection solutions.

- Cathodic Protection
- Passive Corrosion Inhibitor
- Active Corrosion Inhibitor



REPAIR MANAGEMENT

When reinforced concrete is affected by corrosion, some intense repair work shall be undertaken. Repair Management concept from Sika encompasses a full range of material for concrete restoration.

- Steel Bar Protection
- Structural Repair Mortars
- Resurfacing Mortars



STRENGTHENING MANAGEMENT

When reinforcement has corroded to such an extent that affects the structural capacity of the structure, strengthening shall be carried out to reinstate it. Strengthening Management concept from Sika provides solution for all types of strengthening requirements.

- Flexural Strengthening
- Confinement
- Shear Strengthening
- Deflection Reduction
- Active Strengthening



PROTECTION MANAGEMENT

Once the appropriate renovation and corrosion management works have been carried out, protecting the concrete against penetration of deleterious elements will help to prolong the design life of the structure.

Protection Management from Sika provides all types of concrete protection solution from invisible protection to crack bridging system.

- Hydrophobic Impregnation
- Protective Coating

CORROSION MANAGEMENT

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CATHODIC PROTECTION

Halo Effect Mitigation: In chloride contaminated concrete, after repair is carried, the polarity is displaced due to the installation of freshly very alkaline repair mortar. This trigger accelerate corrosion along the side of the repair areas. To eliminate this risk, galvanic anodes are placed either in the patch zones or in the surrounding concrete. The galvanic anodes will corrode preferentially and maintain the steel in passive condition.

- Sika® FerroGard®-500's Patch Galvanic Anodes
- Sika® FerroGard®-700's Reba & -600's Galvanic Anodes

Corrosion Prevention/Control: The second zone of the concrete to be protected is the zone that seems sound – no external sign of corrosion – but where chloride and water are already present; with advanced corrosion.

If corrosion is already advanced, galvanic anodes on their own may have some difficulties to arrest the corrosion. Hybrid anodes combining the efficiency of Induced Current Cathodic Protection and Galvanic Protection can prolong the life of the structure without the need of continuous monitoring which is required when ICCP alone is being used.

- Sika® FerroGard®-300's Duo Hybrid Anodes
- Sika® FerroGard®-400's Patch CC Galvanic Anodes

PASSIVE CORROSION INHIBITOR

One of the methods recommended by EN 1504-9 to mitigate corrosion is to increase the resistivity of the concrete surrounding the reinforcing steel bars. These products can be considered as Passive Corrosion Inhibitors.

If the moisture content falls below a certain level, even in chloride contaminated or carbonated concrete, corrosion is significantly reduced.

Another advantage to use this system is that further ingress of chloride is arrested.

This is efficiently done with Sikagard Silane Compound:

- Sikagard®-705 L
- Sikagard®-706 Thixo

ACTIVE CORROSION INHIBITORS

Active corrosion inhibitors act by migrating through the concrete cover to reach the reinforcing steel and forming a protective film around it.

In carbonated induced corrosion concrete, these active corrosion inhibitors are particularly effective method to decrease corrosion. This is one of the method recommended by EN 1504-9 (method 11.3 of Principle 11).

Active corrosion inhibitor:

- Sika® FerroGard®-903 Plus

REPAIR MANAGEMENT

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STEEL BARS PROTECTION

Especially when concrete cover is below requirement, additional corrosion protection is required on the exposed prepared reinforcing steel. The product shall comply with EN 1504-7. For general protection in carbonated structures, or in building/structures with not too high chloride contamination:

1 Component Cement Based

- Sika MonoTop®-1010

For high aggressive environment (e.g. marine structures, waste water treatment plant, cooling tower, etc.):

3 Component Epoxy Cement Based

- SikaTop® Armatec®-110 EpoCem®

STRUCTURAL REPAIR MORTARS

Repair material shall be able to provide retrofitting of the structure and to prevent further deterioration. Repair mortar shall comply with EN 1504-3 and according to the strength of the structure, shall be R3 or R4.

Hand Applied Mortar / Wet Spray Application/Pump-Fix

- Sika MonoTop®-4012
- Sika MonoTop®-412 NFG/SFG

Dry Spray Application

- SikaCrete Gunite-133

RESURFACING MORTARS

In order to provide a pore free surface and in some case to increase the concrete cover to provide the suitable durability, resurfacing mortar complying to EN 1504-3 and/or EN 1504-2 can be used.

1 Component Resurfacing/Pore Filler Mortar

- Sika MonoTop®-3020

3 Component Resurfacing – High Aggressive Environment

- Sikagard®-720 EpoCem®

STRENGTHENING MANAGEMENT

When reinforcement has corroded to such an extent that affects the structural capacity of the structure, strengthening shall be carried out to reinstate it.

Strengthening Management concept from Sika provides solution for all types of strengthening requirements.

- Flexural Strengthening
- Shear Strengthening
- Confinement
- Deflection Reduction
- Active Strengthening



FLEXURAL STRENGTHENING

For positive and negative moments, Sika products prevent bending of beams and slabs, and enable them to take higher loads. They are applied externally or in slits in the substrate.

- Sika® CarboDur® carbon fibre laminates
- Sika® CarboDur® carbon fibre rod

SHEAR STRENGTHENING

The Sika solutions for shear strengthening improve the shear capacity of beams and walls and prevent diagonal cracks.

- SikaWrap® carbon fibre fabric (230 – 1,300 g/m²)
- Sika® CarboShear carbon fibre laminates L-Shape

CONFINEMENT

For the column confinement wrap around square, rectangular or round columns to improve their load carrying capacity.

- SikaWrap® carbon fibre fabric (230 – 1,300 g/m²)
- SikaWrap® glass fibre fabric (430 – 930 g/m²)

DEFLECTION REDUCTION

Sika solutions for deflection reduction are based on high performing CFRP systems that can be applied on the concrete surface or in slits in the substrate.

- Sika® CarboDur® carbon fibre laminates
- Sika® CarboDur® carbon fibre rod

ACTIVE STRENGTHENING

For special higher strengthening needs, the active strengthening system based on pre-stressed CFRP plates is the most effective.

- Sika® CarboStress® external prestressed system with carbon fibre laminate

PROTECTION MANAGEMENT

Once the appropriate renovation and corrosion management works have been carried out, protecting the concrete against penetration of deleterious elements will help to prolong the design life of the structure.

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- Hydrophobic Impregnation
- Protective Coating



HYDROPHOBIC IMPREGNATION / INVISIBLE PROTECTION

Many modern architects want to maintain the natural mineral look of their structure. Hence to increase and/or maintain their durability, invisible protection against moisture ingress and soluble deleterious elements.

Silane Based

- Sikagard®-705 L/-706 Thixo
- Sikagard®-740 W

Silane/Siloxane Based

- Sikagard®-730 CPT/-704 S/-700 S

PROTECTIVE COATING

Sika range of protective coatings cover all the different requirements from crack bridging to rigid coating and from vapour permeable to vapour impermeable for almost all project types and can perform in completely opposite environmental conditions e.g. from the cold climate of Sweden, to the hot and dry weather of Saudi Arabia and the humid and hot conditions of Colombia.

Acrylic Flexible System

- Sikagard®-5500
- Sikagard®-550 W Elastic

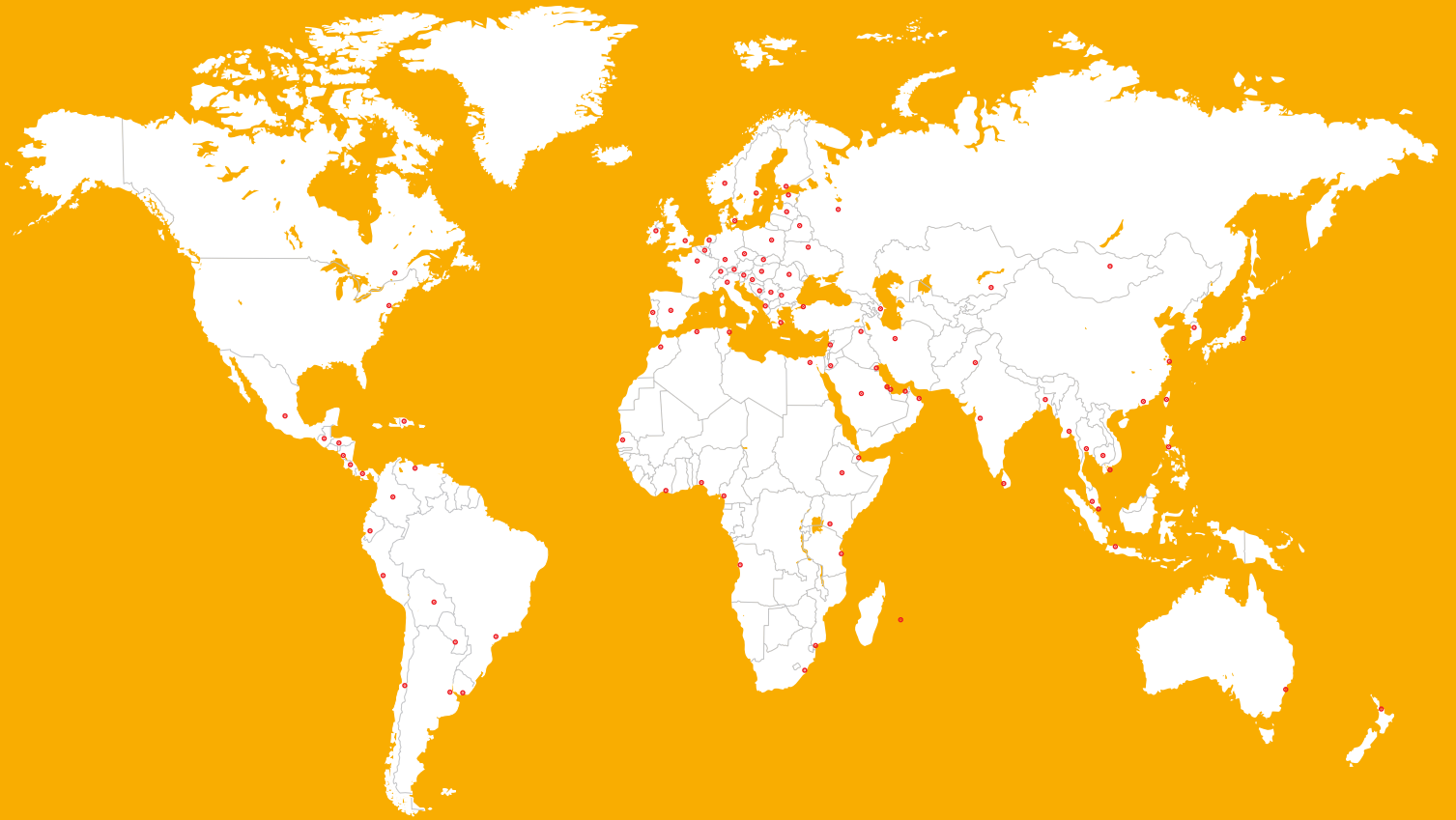
Acrylic "Rigid" System

- Sikagard®-680 S BetonColor
- Sikagard®-675 W ElastoColor

Reactive Coating

- Sikagard®-340 WCT
- Sikagard®-260 W PU
- Sikagard®-2406 Protection
- SikaCor® SW-500
- Sikagard®-62

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, 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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