

Industrial Manufacturing

SIKA on SITE

With such a heavy emphasis placed on production and efficiency at major industrial and manufacturing facilities, the concepts for maintenance and upgrade are critical. Sika Australia is a leader in providing systems and solutions for these sites that lead to well maintained and durable facilities, as well as reducing costs and down time. These systems include:

Containment of pollutants:

Chemical spills and leaks are usually contained in bunded areas, protecting ground water and controlling contaminants from harmful exposure. **Sikagard-62** is a chemical resistant coating used in these areas to protect the bund, whilst **Sikagard-63N** can be used where much higher chemical concentrations are involved.

"Green" concrete:

Time is money on site, and damp or fresh concrete can delay the application of flooring and coating systems by weeks. **Sikafloor-81 EpoCem**, is a moisture tolerant floor coating that helps prevent osmosis. Once applied it can be coated with the appropriate coating in days, thus reducing the waiting time.

Industrial flooring:

Sikafloor systems are used extensively in manufacturing and industrial facilities. Hygiene, safety, durability, and comfort are all major issues on a site. Sika provide systems that are rigid or crack bridging, high load bearing, anti-static, chemically resistant, wearing, and slip resistant. These systems are easy to apply, and give the site security for continuous operation.

Structural strengthening:

Large facilities are always subjected to structural issues such as over loading, changes in use, installation of new equipment, removal of structural elements, impact and fire damage, and corrosion of steel reinforcement. The **Sika CarboDur** and **Sika Wrap** systems are carbon fibre plates and fabrics respectively that can be used as external reinforcement due to their flexibility, strength and durability.

Bedding and grouting:

The cementitious series of **Sika Grout** materials can be used to bed bearing and machine base plates, grout anchors and fixings, fill voids and cavities, and structurally connect splice bars and brackets. Easy to use, with excellent strengths, systems can be chosen for rapid strength, shock or vibration dampening, underwater requirements, and high final strengths.

Lasting joint repairs:

Damaged joints due to erosion, corrosion, or impact, can be replaced using **Sika systems**. **Sikaflex** joint sealants are excellent for external joints in concrete and brick work, whilst the **Sikadur-Combiflex** system is ideal for water retaining or water containment areas.

Repair:

Cracks, spalling concrete, mechanical damage, chloride attack, aggressive environments. These factors all lead to concrete repair and protection requirements for durability and increased life spans. The **Sika concrete repair and protection systems** are proven and well used throughout the world under many types of conditions.



Sikagard in bund, Newcastle, NSW.



Sikafloor at meatworks, Corowa, VIC.



SikaGrout at power plant, Millmerran, QLD.



Sika repair and strengthening at nickel smelter, Kalgoorlie, WA.

Sika®

Woomera Water Tanks

A major requirement for repair and protection at the Woomera Village Water Tanks in South Australia resulted in two separate projects.

The tanks were uneven, and over the years had degraded to the point where water was leaking out. Kellog Brown Root were asked to design a watertight joint system, which consisted of **Sikadur-Combiflex**. The two component flexible hypalon system was applied by York Civil over the repaired joints, leaving a durable and flexible solution.



*Water tank to be repaired
(Inset: Sikadur-Combiflex)*



Application of Sika repair materials (inset: Sika Gunite GP).

Concrete Repair: GHD were asked to specify a repair system to the water tanks due to their gradual decline. The repair work, carried out by DSE Civil, consisted of major concrete replacement, using **SikaCem-Gunite-133**, and minor repairs using **Sika MonoTop-615HB**. The tanks were then re-profiled using **Sika MonoTop-620** before an anti-carbonation coating **Sikagard-680S** was added.

Boambee Bridge Repair

The Boambee Rail Bridge located in Sawtell on the north coast of NSW had been subjected to fatigue and dynamic loading for a number of years, as well as being exposed to the sea. As a result, the concrete abutment to the bridge became badly corroded and damaged,

The structural engineers, URS, designed a concept for the repair of the abutment that involved typical concrete repair techniques, followed by confinement measures using carbon fibre fabric to reinstate its strength. Delstey were contracted to

do the repair work, applying **Sikadur-31** as a primer and **Sikadur-41** as an epoxy patching mortar. Any cracks were repaired using an epoxy crack injection resin. The abutment was then confined using the **Sika Wrap-230C** carbon fibre fabric, put in place with the **Sikadur-330** adhesive.

Once the adhesive had cured, a protective and decorative coating, **Sikagard-670W**, was applied over the top. As a result the bridge can remain in service without structural concerns of the abutment.



The "Sika Wrapped" abutment.



The final finish coated with Sikagard-670W

The Sika House

A residential 5-storey house in Sandy Bay, Hobart, was recently constructed using steel framing fabricated off site and craned into position due to access problems with the block. The architect, Leon Jenkin Interact Architect, specified a number of Sika products to be used in conjunction with the construction because of ease of application and finish and experience with other commercial and residential buildings.

Where possible, adhesive bonding techniques were adopted in the construction of the house. **Sikaflex-252** was

used to adhere the cladding panels to the framework because of its high bond strength, and adhesion was promoted using the primers **Sika Activator** and **Sika Primer 206 GP**. **Sikaflex-11FC** was used because of its excellent bond characteristics and fast curing times, whilst **Sikafast-5215** was utilised because of its high strength bonding capabilities for small components. The builder, Stuart Ims, was given the task to apply the Sika

adhesive bonding techniques in the construction. The builder observed a stiffening and strengthening of the structure when the exterior cladding panels were bonded on.

Further works included the use of **SikaGrout 212HP** as the cementitious grout for structural steel columns, and liquid membranes such as **Sika Tite-LM** for bathrooms and **Sika Tite-WB** for box gutters.



The framework for the house.



Panel bonding using Sikaflex-252.

Laminex Bonded in Adelaide

The great advantage of direct bonding adhesive is the absence of mechanical fixings. **Sikaflex-252** bonding adhesive allows this process to be achieved with excellent adhesion and long term durability. This is why the architects Matthews and Associates chose to use this material to bond trespas meteor laminex panels to top hat galvanized sections on the Laminex office in Adelaide. The contractor Glenn Surface Coatings, cleaned the sections using **Sika Activator** before applying the **Sikaflex-252**.



Before the application,



After the application.

Sika Systems “Mushroom”

The Elf Farms in Mulgrave, NSW, are the largest mushroom producers in the country. To ensure production could meet demand, the farm required expansion and maintenance works, which included the addition of large compost tanks to facilitate mushroom growing.

The maintenance works revolved around repair and protection of a number of old concrete tanks using a number of systems. The **Sika MonoTop-615HB** polymer modified repair mortar, and the **Sika MonoTop-620** cementitious fairing coat were placed in any sections requiring concrete to be broken out and replaced. Any large voids were repaired using the **Sikadur-31** epoxy adhesive and **Sikadur-41** epoxy repair mortar. Cracks and joints were covered with the **Sikadur-Combiflex** elastic



An existing tank being repaired.

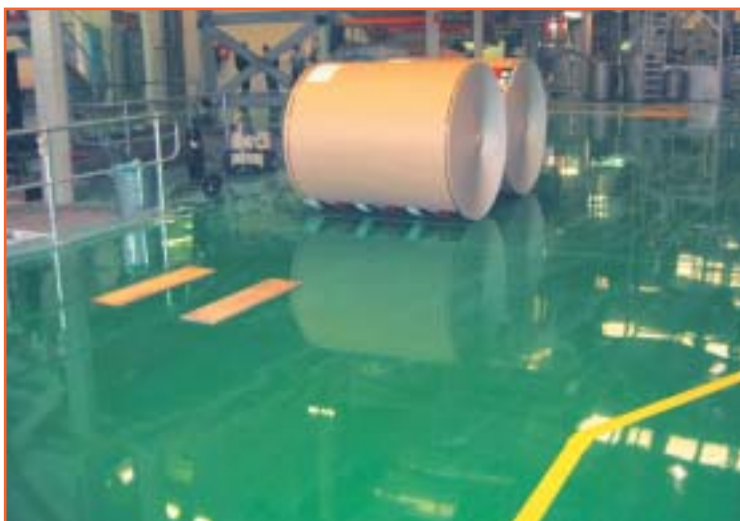


joint sealing system, whilst corrugated steel sheets were coated with the **Sika Multiseal** self adhesive bitumen tape. In addition to this, **Sikadur-42** flowable epoxy grout was utilised to fill the corbels required to carry the large cranes used on the site.

With respect to the new compost tanks, they required waterproofing on the inside. **Sika Tite-BE**, the multipurpose liquid applied bitumen acrylic, was used to make the tanks watertight. Easy to apply, the membrane gives the new tanks a durable and flexible coating to ensure a long service life.

New tanks waiting to be waterproofed (Inset – Sika Tite-BE coated inside).

Sika Encore at Amcor



Amcors Packaging in Victoria recently recognised the need to upgrade a large part of their Scoresby plant. As part of the upgrade they wanted to take the floor from the existing damaged concrete to a hardwearing, visually pleasing surface.

The new floor system had to withstand constant forklift traffic, loaded with heavy paper and plastic rolls, as well as resistance to printing inks. It was also important for the floor to be aesthetically pleasing for clients visits.

Able Industrial Flooring were selected as the contractor for the installation of **Sikafloor-261** self levelling epoxy flooring system at 2.5mm thickness.

The project had to be completed within a tight time frame whilst still delivering a high class finish. Amcor are very pleased with the result and are considering further use of the **Sikafloor** system in other sectors of the plant.

The finished floor at Amcor.

Sika Speciality Grouts



Self leveling SikaGrout Ultra.

Sika's range of cementitious grouts has grown with the addition of three new speciality grouts to compliment the general purpose **SikaGrout GP** and high performance **SikaGrout 212HP**. These grouts include:

SikaGrout UW: A flowable cementitious grout for underwater applications. **SikaGrout UW** can be used to repair or reprofile concrete elements found underwater, with significant wash out of the cementitious content of the grout. The material can achieve high strengths after 28 days and has good setting times for underwater applications.

SikaGrout HES: A high early strength grout, **SikaGrout HES** can achieve 20 MPa after 2 hours. The high alumina cement content in the grout will allow it to reach high early strengths whilst remaining a very workable grout.



Underwater concrete grouting with SikaGrout UW.

SikaGrout Ultra: A self leveling cementitious grout that can reach 100 MPa compressive strength after 28 days. Ideal for structural or critical grouting applications where strength is the vital factor.

Sika Fast Fast Reaction, Superior Strength

This unique range of fast-curing, flexible, low odour **SikaFast®** two-component adhesive systems are derived from the **Sika® ADP** technology (acrylic double performance). This user-friendly, solvent-free adhesive technology forms the basis for a new generation of Sika adhesives, which are characterised by rapid strength development, outstanding adhesion and optimal flexibility.

The development of the **Sika® ADP** technology has given the industry a new generation of fast-curing, flexible adhesives, which can be used instead of welding, riveting, clinching and other mechanical fastening techniques.

Thanks to the high strength of **SikaFast®** adhesive systems and its excellent adhesion to a wide range of substrates, the bonded joints are capable of transmitting large mechanical forces. This and the strength development within minutes make **SikaFast®** a safe and economical alternative to conventional mechanical fastening technologies.

In its uncured state **SikaFast®** is a non-sagging material of paste-like consistency that allows for precise and easy application. The adhesive system is suitable for structural and semi-structural bonding of a wide range of substrates used in the assembly and trim shop, such as metals, plastics, glass, coil coated steel, etc.



The Sika Fast product.



SikaFast application guns.

Sika Training Seminar

Sika Australia and Sika New Zealand's Branch Managers and Construction Product Managers all took part in the Sika Asia Pacific Training Seminar held in the excellent facilities found at Sika Kimia (Malaysia). A wide range of topics were included such as industrial flooring, sealing and bonding, concrete repair and structural strengthening.

A number of new products and systems were introduced which will find their way into the Australian market over the course of the year.

SIKA "HARD" AT WORK IN MALAYSIA

R to L: Dick Semler (SA manager), Hugh McCook (WA manager), Noel Oliver (Flooring manager), David Millar (Product Engineer), Greame Chambers (Christchurch manager), Neal Jensen (NSW manager).



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Sanctuary Cove Boat Show



Sika Australia was again amongst the best displays at the recent Sanctuary Cove Boat Show in Queensland. Sika have been present at the show for a number of years and always view the show as an excellent opportunity to touch base with the boat and yachting customers. The **Sikaflex** marine range of sealants and adhesives are extremely popular in the marine industry.

The Sika stand at Sanctuary Cove.

Floating Sikaflex

Kee an eye out for the inflatable **Sikaflex** cartridges at your local hardware store, DIY distributor, trade show or major sporting event. The "larger than life" **Sikaflex** cartridges require plenty of air and should be handled with care, just like the real **Sikaflex** when it is put into place!



Sikaflex cartridge found at the Hong Kong 7's tournament.

For further information on the enclosed topics, or any other product contact your local Sika office.