

ambitions

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Sika at Work



Sika at the World Cup 2010

Big events need big stadiums. The Nelson Mandela Bay 2010 Multipurpose Stadium in Port Elizabeth, South Africa is such a venue. The two year construction project began in January 2007, presenting a challenge leading to the cup. The appointed building contractors Grinaker Lta – Interbeton JV and the project contracting engineers Dhiroo Kallian (ADA) and Dominic Bonnesse (Bonnesse Architects) faced particular difficulties. The stadium

included approximately 500 m of 10 mm joints with an expected movement of up to 45 mm (450%). Joint design specs were extremely high; joints must resist thermal movement and flexing under full capacity load, plus mechanical stress imposed by people and cleaning machines. The performance of Sika's robust sealing system earned the company the contract.

Some 20,000 × 600 ml sausages of **Sikaflex® AT Façade** were applied between all the precast concrete elements in the stadium, including the seating area. **Sikaflex® AT Façade** is an elastic sealant especially designed for movement and connection joints. It offers excellent weatherability and highest UV resistance. The **Sikadur® Combi-flex** joint system was also in use. The system consists of a flexible Hypalon waterproofing tape and a suitable **Sikadur®** epoxy adhesive. When fixed to the joint, it allows irregular and high movement in more than one direction, while maintaining a high quality seal. Sika has helped make the stadium steady and ready for a successful World Cup 2010. Go! May the best team win!

Tailor-Made

Reflection of Perfection

Jaguar Landrover's "All New XJ" masterpiece is the embodiment of luxury, the reflection of perfection and the mirror of men's dreams. The muscled, sleek curves and lines of the exquisite aluminium exterior are the result of innovative and market leading materials, components and concepts. This vehicle, flagship of Jaguar Landrover, marked a significant turning point in the company's future strategy and an even bigger milestone in the cooperation with Sika Automotive. The car is the first to contain all Sika technologies for bonding, sealing, reinforcement and protection.

A long three year development between Jaguar and Sika Automotive resulted in custom made solutions for application, saving weight, complementing the car's class-leading refinement and the safety targets of the new aluminium design. Sika's expertise was also employed to enable a full range of repair solutions, tailor-made for servicing and repair provided through the Jaguar Landrover dealer network. Sika Automotive's relationship with Jaguar Landrover began in 2003 with the usage of the Sika acoustic baffle packages. Today Sika contributes not only fully integrated concept materials but is also involved in development with Jaguar Landrover on new technologies for future vehicles.



Sika products employed:

SikaReinforcer® components, Expanding **SikaBaffles®**, Sika Expanding Extrusions, **SikaReinforcer®**, Structural NVH Applications, Sika Roof Bonding Adhesives and **Sikaflex®** Direct Glazing Adhesives for the glass.

Service and repair packages:

SikaReinforcer®-900 R Repair Kits. Direct Glazing Repair Kits, **SikaBaffles®-278** Repair Systems





Welcoming for a promising future

In 2010, Sika celebrates its 100 year anniversary and takes this opportunity to campaign for a promising future. On the new Jubilee webpage Sika shares insights into its strategy in terms of sustainability and shows real projects from all over the world where Sika products made a contribution. Furthermore, Sika also aims to invest in young people and offers them the opportunity to visit outstanding construction or industry projects to gather work experience in large-scale, complex construction projects and in industrial research. During the anniversary year Sika offers in total six two-week journeys to projects in Switzerland, Denmark or UK, all of which center on the development of products and processes that align with sustainability. The selection of the young engineers, architects or chemists is being done via a questionnaire.

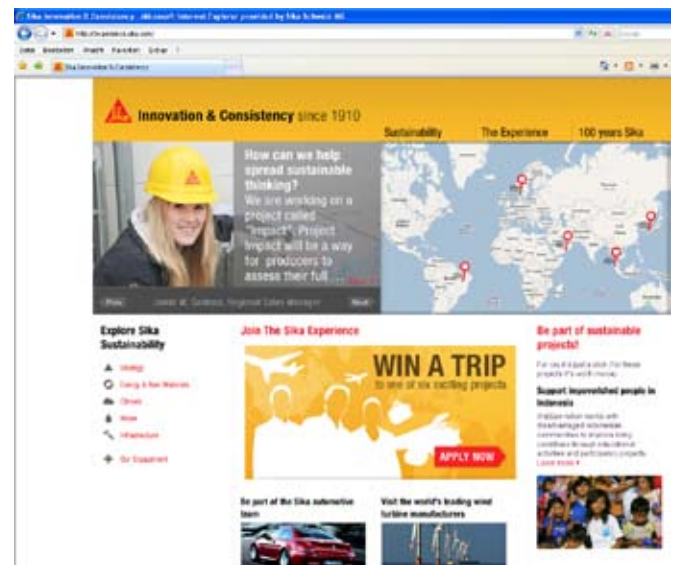
Applications are still running. Visit the <http://experience.sika.com> site to find out about the up-coming projects and recommend it to interested students.

The first tour was realized in April and took participants to the world's largest tunnel in Switzerland. At Sika's Gotthard construction site they could see, hear and feel how the world's largest tunnel is being built and experience together with Sika's technical support manager the excavation work on the tunnel job site. The students learned how different concrete technologies fulfill the requirements of the contractor and about admixtures for onsite recycling of excavated material. An insight into

on-site quality control and into the tremendous logistic challenge completed the trip. Sika is one of the main partners for concrete and shotcrete admixtures as well as for the waterproofing systems used in tunnels and has much knowledge and experience to convey.

Each participant has the possibility to share impressions with friends and interested people via an online blog.

<http://experience.sika.com/category/resources/>



Blog statements of the participants



Left: Anca Itul
Middle: Jamie Ferguson
Right: Alberto Lago

Anca Itul (Romania), University Politehnica Bucharest, Master of Science and Engineering

"Thanks to a happily chain of events, here I am embarked on an experience of a life time."

"Being in the tunnel at 30 degrees and 100% relative humidity was really exciting."

"The tour was very instructive with lots of practice perspectives."

"I see Sika as a very well organized, student-friendly company that is open to innovation."

Jamie Ferguson (New Zealand), University of Canterbury, Bachelor of Civil Engineering

"Visiting the TBM was an experience, different to my expectations. It is extremely warm the further the chainage. Second day of going underground we were involved in applying the waterproofing system; here we helped apply the membrane. We also attempted to make a shotcrete and concrete."

"We received a guided tour of the test gallery, this consisted of 5 km of various profiles in which a range of companies could trial their latest versions of a product."

"I got even more that I expected. Seeing almost every aspect of tunnel construction will be very beneficial for me."

Alberto Lago (Italy), Rose School (IUSS) Pavia, Master of Science in Civil Engineering

"This tunnel was my first experience underground and I can say that it's kind of a mystic experience. We had an overview of what constructing a tunnel means and I can say that it's among the most complicated civil engineering construction in the world because it involves a lot of jobs that are closely interconnected to each other."

"For fun we had the possibility to do some of the tasks involved, such as shotcreting and applying waterproof membranes!"

"I understood what a hard job the workers are doing in order to construct something that would be useful for a lot of people. Working in these conditions is not easy and I really admired these people!"



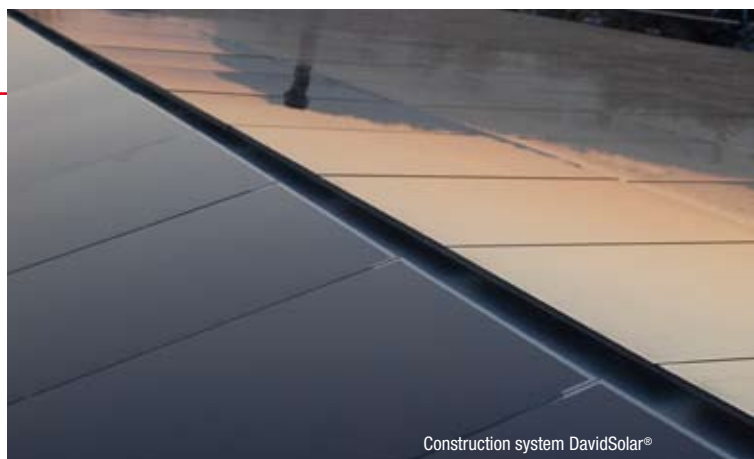
Sustainable Solutions

Turning old into new

Solar energy in building renovation is a topic with increasing importance. By renovating existing roofs with innovative solar concepts, one can benefit from an enormous energy saving potential while upgrading the architectural design components.

Renovation strives for a balance of maintenance, improvement and architectural topics within a given budget. Durable solutions pay off in terms of input and benefit. In this sense, Sika and the company DavidSolar are cooperating to achieve innovative and durable applications.

Together with architects and engineers, DavidSolar develops and implements solar power plants and roof solutions based on an innovative wooden structure designed by architect David Muspach. Wood is a competitive and ecological material for trend-setting design and clean energy production especially since it withstands atmospheric conditions without extra treatments and has a low CO₂ demand. The solar cells are affixed to the construct with Sika adhesives. No additional tiles are needed. The adhesives show an outstanding resistance to weathering, UV and heat degradation and maintain a very strong, yet flexible, bond between parts over a wide range of temperature and climatic exposures. No frame or mechanical fastening is used; an elegant roof results and completes the overall picture of an esthetic building.



The lightweight photovoltaic cells are easy to work with and can also withstand high pressure of heavy snow loads and severe storms. The cells are extremely robust and last for at least 20 years. For maintenance they can be accessed and even walked on. Swiss know-how and quality distinguish the brands and cooperation of DavidSolar and Sika.

- Energy capacity of the new roof: 50'000 kWh per year (approx. the yearly consumption of 14 family houses)
- Size of the roof: 1000 m²
- Year of construction 2009
- Location: Germany



The old roof before refurbishment



The new clean energy roof

Company Investments



Leo Scheiwiler, Corporate Market Field Manager Solar Energy

Imaging tomorrow's future today

Sika is committed to the guiding idea of sustainable development, closely linked to megatrends that shape our future. The Earth's climate is changing more quickly than ever. Resources such as oil, coal, natural gas or water are becoming more limited, while developing nations increase demand for investments in energy, transportation or water. Sika is committed to addressing environmental and safety concerns throughout the whole value chain, targeting the internal organization as well as the external environment. We constantly work to optimize resource consumption and the safety of products and strive to develop new solutions.

“To contribute to sustainable energy systems, Sika focuses strongly on the solar industry. The solar industry consisting of photovoltaic and solar thermal systems has grown in the last years from a niche industry to a substantial contributor to the alternative energy mix. As long term investments, solar systems and their components face tough environmental conditions for a long period of time. Additionally the industry is challenged by the need for cost reduction and scale-up techniques. Sika's solar solutions align with the demands of an outstanding efficiency and quality-focused business. Sika is therefore providing proven high performance adhesive and sealing solutions of our **Sikasil® AS** range for pv-module, solar thermal flat collector and csp-mirror production.”



Fascination

Concepts for “green” cement

Cement is a major part of today’s construction industry and accounts for approximately 5% of the world’s carbon dioxide emissions. The manufacturers are therefore continuously striving to achieve more efficient and environmentally-friendly production methods.

About 60% of the clinker-related CO₂ is released in unavoidable chemical reactions as the limestone decomposes. The remaining 40% is generated from the vast amounts of energy needed to heat the clinker to about 1450 °C. Additionally, the grinding of the raw materials and the finished cement grinding consumes a high amount of electric energy.

Chemical processing agents like Sika grinding aids and performance enhancers represent creative solutions developed to improve the production efficiency of cement grinding plants as well as the cement quality.

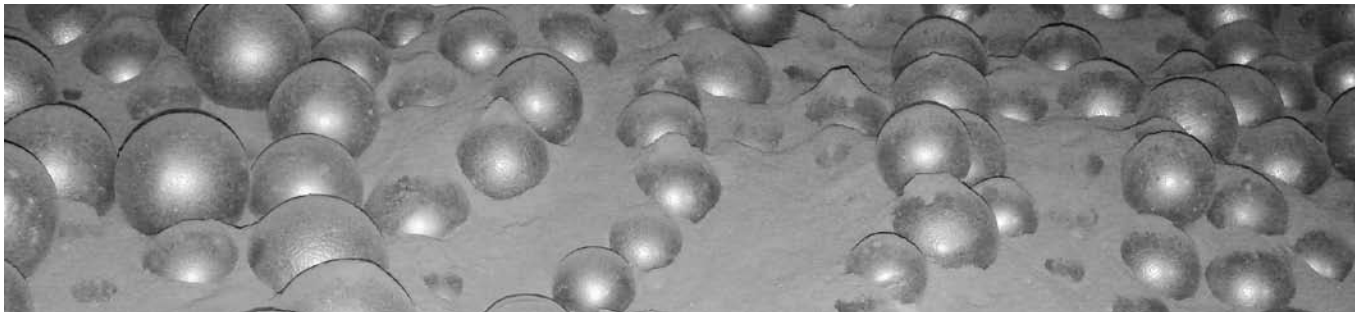
Sika offers a new and unique grinding aid technology which uses polycarboxylate polymers to generate the highest mill output. A typical dosage of Sika’s grinding aid increases the throughput of the cement mill by over



The cement mill is the last production step in cement manufacturing

10% while simultaneously reducing the relative power consumption per ton of ground cement by about 10%.

Each percent of reduced clinker content lowers carbon dioxide emission by 8,300 tons CO₂ per 1 Mt blended cement, but also adversely affects the strength development. Strength enhancing solutions with Sika’s performance enhancers allow reduction of the clinker content in blended cements by 10 – 16% while maintaining the desired cement quality. In that way, savings of annually 80,000 – 130,000 tons carbon dioxide per 1 Mt blended cement are possible.



Steel balls are used to grind the clinker into fine cement powder

Extraordinary

Visionary construction art

R-O-B, the not so ordinary artist, gave us a real taste of future building design. He showed all his technical expertise in a breathtaking installation at Storefront for Art & Architecture, a renowned art and architecture gallery in New York City.

R-O-B has abilities that are superhuman, so it is no surprise that he is a brick-laying robot and the baby of Swiss architects Gramazio & Kohler, brick manufacturers Keller AG Ziegeleien and the Swiss Federal Institute of Technology. The new robot allows the production of freely selectable motifs while maintaining a high degree of stability thanks to modern adhesives. What this actually means was demonstrated on a digitally designed, 22 m long brick structure. More than seven thousand bricks were used to form an infinite loop that weaved along a pedestrian island. In changing rhythms the loop lifted off the ground and intersected with itself at its peaks and valleys. Where the loop rises, the bond becomes stretched and thus lighter; where it rests the bond becomes jagged and heavier, thus wider and more stable. With the massive weight of the bricks and the tension as well as compression, one can only imagine the delicate brick bonding and suspension. Innovative adhesive technologies, digital design and digital fabrication make it possible. Sika as a leader in bonding technologies cooperated in the mentioned project, offering all the used **Sika® AnchorFix®-3+** adhesive free of charge. With these new construction opportunities, one wonders how future buildings will be shaped and what they will look like.



© Gramazio & Kohler, ETH Zürich



© Gramazio & Kohler, ETH Zürich

No limit to creativity

The times that a roof mainly had to serve its function are past. Nowadays new building techniques allow variations like green roofs or extraordinary roof shapes. In the 21st century the roof becomes a design element as for example at the “Gorki” shopping center in Chelyabinsk, Russia. The architect, Mr. Kukovyakin of the Alkuta Architect Buro decided against a common flat or steep roof and focused from the beginning on the roof as one of the main possible attractions of the center. The large “Gorki” shopping center is located just east of the Ural Mountains, on the Miass River. It really stands out with its 8000 m² complex roof shape. Originally a metal roof was planned but this solution presented difficulties. Waterproofing of flat roof parts needed to be solved. Different flashings were hard to achieve with a regular metal roof system. Sika proposed an alternative, a single-ply membrane system and highly aesthetic imitation of the metal



roof, which at the same time provides better watertightness and is more economical. Sika won the job and successfully realized the project with **Sarnafil® S 327**, Decor profiles and **Sarnafil® G/S Metal Sheets**.

Our Employees



Hans Baumann, Plant Manager
Sika Sarnafil Manufacturing AG,
gives an insight into his job.



New production line 3



Central control desk of line 3

A Plant Manager's challenging dream

The Sika Sarnafil Manufacturing plant in Duedingen, Switzerland is well located between the railway line and the highway connection to the two Swiss economic centers Zurich and Geneva. In 2007, markets for Sika Sarnafil membranes were booming like never before. As production capacity of the plant was exceeded, the Sika Group commissioned “line 3” – the most sophisticated Sika production line in the entire world, incorporating the experience of sister plants in Sarnen, Canton (USA) and Shanghai (China).

“For me as plant manager, this was the realization of my dreams and the start of a very exciting and challenging time. During the building period we had to keep production going at maximum capacity while at the same time relocating people to get them familiarized and trained in the extruder technology. Imagine an extruder as a long barrel in which there are two turning screws, which compress and advance the powder. Friction and externally applied heat transform the powder into a molten mass, which

is then pressed through a die with a gap of a millimeter. An endless sheet is formed which is later processed into a membrane. Although Sika has a long experience in extruding waterbars made of PVC, the new line was a completely different dimension in size, comfort and complexity. Used to working on calenders with the same overall throughput of 4.5 to/h, the crew nevertheless had to start from scratch, develop new skills and get the right feeling for the line – not achievable overnight. We experienced highs and lows but the positive spirit, the teamwork and our continuous improvement helped us to master the hurdles. Now “line 3” is fully commissioned and regularly produces Sikaplan G – a PVC membrane for sealing of large roof expanses. The greatest advantage of the new line is the ability to produce the entire membrane in a single run, whereas with the old calenders two passes were needed. The integrated packaging further boosts overall performance. The new technology enables us to reduce energy consumption; this promotes safe and sustainable operation.

My team and I are proud to be part of the primary, most advanced Sika production site for PVS membranes in the world.”



Roof to Floor contribution



In the North of Amsterdam (NL), the first sports and leisure centre in Western Europe for children with a disability is being built: the **Ronald McDonald Centre Only Friends**.

Children and youngsters up to the age of 25 suffering from physical or mental disabilities or chronic complaints can come here and enjoy sports and leisure activities. This unique centre was designed by Peer Glandorff from Fact Architects, whose design won the BNA Young Architects' Award. The 'Stadion Park' offers sports fields, an athletics track, a playground, a cycling course, fitness room, swimming pool and a large sports hall. But there is more than just physical exercising: there are also board and computer games, and there is a play corner for the very youngest.

The architect Peer Glandorff says "I wanted to create a place where children would feel both at home and top athletes. It shouldn't look like a sports centre for the disabled, but a place where everyone plays a valid role."

The selection of the building materials is important to specify the details of the design. The architect had clear ideas on the use of colors for the various floors in the centre. The clubhouse should have a red floor, near

the sports hall the floor is green; and blue indicates that one is in the swimming pool area. "Descol sports surfaces" was the project leader and the project was a co-production of Descol, Sika Netherlands and Sika Belgium. Sika was able to supply the right floors and was positively inclined towards the project. Sika proposed an idea to develop a solution for the maze of lines on sports floors. With **Pulastic® LED Court**, during a sports game, only the particular game is lightened; the other lines are not illuminated so the sports court is much more comfortable for users' eyes. **Pulastic® LED Court** can also be used as a safety feature in buildings, indicating escape routes in case of emergency situations. Sika's contribution didn't involve just floors but extends from roof to floor involving sealing and the roofing of 5100 m² with **Sarnafil® FPO**.

The Sika sales team showed good grasp of social responsibility and made a meaningful contribution with its know-how and experience. Big global companies such as McDonald's, Pepsi, Philips, and Volker Wessels also took part in the project.

Company News

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Sika' international newsletter to customers

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Interaction between countries, nationalities, cities and nature

From the 1st of May until the 31st of October the World Expo 2010 takes place in Shanghai with the motto "Better City, Better Life" bringing in focus the importance of rural-urban interaction. In 1800, 2% of the global population lived in cities. In 1950, the figure reached 29% and in 2000 almost half the world population lived in cities, figure rising. The important topic will attract approx. 70 million visitors from around the world and more than 190 countries and 50 international organizations have registered to participate and present themselves and their approach to the theme.

The Swiss Pavilion is a hybrid construct of technology and nature that combines town and country in a perfect balance. Via a chairlift the visitors get the chance to enjoy a peaceful landscape and explore the green roof from a bird's eye view – a first hand experience of sustainability.

Sika is a Silver sponsor of the Swiss Pavillion. Sika Sarnafil Shanghai provided root-resistant **Sikaplan® F 30-15 PVC** membranes and services for the construction of the green roof of the Swiss Pavillion.

<http://en.expo2010.cn/>

<http://www.swisspavilion.ch/>

