

# AMBITIONS

A dive into Sika's world



## COLORS IN ARCHITECTURE

Experience the difference.

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## SUSTAINABILITY - A CHALLENGE

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## HIGH-TECH LIBRARY

Visit a reading palace with 1 million books.

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## RIDE THROUGH IRAN

Have an amazing trip with us to the Middle East. Look behind the scenes of this often unknown country and discover its beauty.

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# COMMUNITIES



The word “community” is derived from the Old French “comuneté” which is derived from the Latin *comunitas* (from Latin “things held in common”), a term for a fellowship or organized society. A community is a social unit of any size that shares common values. Although embodied or face-to-face communities are usually small, larger or more extended communities such as a national community, international community and virtual community are also studied. In human communities, intent, belief, resources, preferences, needs, risks, and a number of other conditions may be present and common, affecting the identity of the participants and their degree of cohesiveness. The main realistic meaning of a community is a group of people who connect well together socially, mentally or economically.

Since the advent of the Internet, the concept of community has less geographical limitation, as people can now gather virtually in an online community and share common interests regardless of physical location. Prior to the Internet, virtual communities were far more limited by the constraints of available communication and transportation technologies. And it is not only a virtual community or a neighborhood; communities are also created and grow in other places, such as in Europe’s largest public building, the new high-tech library in Birmingham, UK (p. 5). On more than 10 levels people from young to old can share over one million books, more than 200 computers, gather in the music room, meet up in theatres or the café and go to the exhibition gallery.

On other occasions, supporting people in a neighborhood and training them in refurbishing their homes (p. 43) gives a whole community access to an easy solution for making housing more comfortable again. A Buddhist monastery is meant to be a center of community and worship, meditation and teaching. Situated about 100 km west of Leh in Ladakh high up in the Himalayas, the 700-year-old Wanla temple underwent refurbishment (p. 24) so that monks can meet and use the temple again as their community center. People need space and secure rooms to create durable social relations, and they mutually define that relationship as important to their social identity and social practice.

Yours sincerely,

ASTRID SCHNEIDER

ASTRID SCHNEIDER  
Marketing & Product  
Communications Manager  
Sika Services

# CONTRIBUTORS



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Product Engineer  
Sika Switzerland

The 2,000 m<sup>2</sup> gym and spa was a challenging project with high demands and many interfaces.

As temperatures in the saunas are up to 90°C, thermally highly resistant systems were needed.



NADINE THURTELL  
Marketing Manager  
Sika South Africa

Sika South Africa is constantly growing with so many opportunities locally and in the emerging markets around us. This kind of project just shows how successful the Sika brand is and how Sika is used in everyday life.



WOLFGANG ACKERL  
Senior Sales Representative  
Roofing, Sika Austria

It’s rare that we can support with our know-how such remote areas in the world. We donated as well materials and it makes me proud to have contributed to restore a world cultural heritage for future generations.



CATALINA ESTEVEZ  
Product Sustainability Advisor,  
Sika Services AG

From more sustainable products to more efficient production processes, Sika is emerging as an active player on sustainability.

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## IMPRINT

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This building is expected to attract around 3.5 million visitors annually and millions more online.

# A PEOPLE'S PALACE: EUROPE'S LARGEST PUBLIC LIBRARY

It is estimated that up to 13 million people a year walk past the high-tech Library of Birmingham in the UK. It is centrally located on Centenary Square, the city's most important public open space, in the heart of the Westside district.

TEXT: YASSAR ALTAF, ASTRID SCHNEIDER  
PHOTO: SIKA LIMITED

- > The new library is adjacent to and physically connected with Birmingham Repertory Theatre. Other important cultural venues, including the ICC, Symphony Hall, the NIA, the Town Hall and Birmingham Museum and Art Gallery, are located very close by. The site has excellent public transport links and is on a major pedestrian route. At 31,000 m<sup>2</sup>, it is one of the largest public libraries in the world. Also accommodating modern new back-of-house facilities, the new construction development covers a total of 35,000 m<sup>2</sup>.

Europe's largest public building, the library was designed by internationally acclaimed Dutch architects Mecanoo. They have conceived a building to capture the imagination and provide an exciting showcase for the library's impressive collections and rich cultural programs brought alive with the help of new digital technologies. The library is there for everyone, regardless of age, background or circumstances. Architect Francine Houben of Mecanoo describes the Library of Birmingham as the 'people's palace' – a highly accessible and family-friendly place that welcomes all. It is expected to attract around 3.5 million visitors annually and millions more online – including the citizens of Birmingham and the West Midlands Region, as well as national and international guests.

The building is spread over 10 levels and comprises four box-shaped structures that are staggered to create various canopies and terraces. Strikingly, the exterior is clad with a filigree pattern of concentric metal rings over glass, silver and gold facades. The library, which has a BREEAM rating of Excellent, houses over one million books in both an adult and children's library, has more than 200 computers with public access, a music room, theatres, a cafe and an exhibition gallery. Its most valuable books are copies of Shakespeare's First Folio and John James Audubon's Birds of America, which are worth between £6 million and £7 million each.

>

Some 1,000 m<sup>3</sup> of Sika® Watertight Concrete were supplied to this project. The guaranteed Sika® Watertight Concrete System offers a comprehensive solution in the waterproofing of concrete structures.



> During the construction phase, a cost-effective, guaranteed watertight solution was required for the concrete basement and terraces. The Sika® Watertight Concrete System was specified for both applications. The system satisfies requirements for habitable areas where no water penetration is acceptable, an essential consideration for the basement area. On the terraces, Sika® Watertight Concrete was chosen as a secondary defense should the waterproof decking above become damaged and allow water to penetrate. 1,000 m<sup>3</sup> of Sika® Watertight Concrete were supplied to the project. The guaranteed Sika® Watertight Concrete System offers a comprehensive solution in the waterproofing of concrete structures. State-of-the-art Sika admixtures are added to the concrete to prevent water penetration. The system is completed with carefully selected water stops for construction and movement joints to produce a waterproof structure.

The library has more than 100,000 books available to borrow, including fiction, non-fiction and graphic novels. Its intended purpose is to be a center of excellence for knowledge and discovery for all ages. The Music Library contains an impressive range of specialist collections, with expert

librarians on hand to help you find what you need. The Library of Birmingham is home to an internationally significant collection of archives, photographs and rare books and offers an exceptional free business information, advice and planning service.

This place is true testimony to why reading is so important. Books, magazines

and the Internet are great learning tools which require the ability to read and understand content. If you can read, you can educate yourself in any area of life you are interested in. We live in an age that is overflowing with information, but reading what you are really interested in is the main way to take advantage of it.





State-of-the-art Sika admixtures are added to the concrete to prevent water penetration. The system is completed with carefully selected water stops for construction and movement joints to produce a waterproof structure.

Follow the Library of Birmingham on Facebook at <https://www.facebook.com/libraryofbirmingham>

Watch the BBC report at  
<https://youtu.be/zi-shxBZXmo>  
<http://youtu.be/p1Ed4LL7AR4>

More architectural information:  
<http://www.mecanoo.nl/Projects/project/57/Library-of-Birmingham?t=0>





# WHAT ABOUT IRAN?

Iran, once known as Persia, is the 18th largest country in the world and has more than 70 million inhabitants. The country has a big natural resource of oil, is member of the OPEC and the country is largest exporter of caviar and saffron. And get more surprised of this pearl: Is has among the highest rates of female enrolment in university in the world and the highest literacy rate in the whole region. 50% of the population is under 30, it has the highest Jewish population outside Israel in the region and the language is the Indo-European language Farsi.

TEXT: ASTRID SCHNEIDER

PHOTO: SIKA PARSIAN P. J. S. CO., ANNIKA BAIER, ASTRID SCHNEIDER





# IRAN HAS ALL THIS POTENTIAL TO BE A POWERHOUSE IN THE REGION



ANDRÉ KÖRTEL  
General Manager Sika Iran

> **What is the first thing that comes to mind when you think about working in Iran? What makes Tehran special?**

Iran wasn't actually that weird destination for me. I had lived there for about nine years up to 2007. The very first thing I think of is mastering a diversified and challenging job. Business behavior in the Middle East, especially in Iran, is quite different to the rest of the world. You have to understand the history of the country as well as the way the theoretical system works. Tehran is a metropolis with more than 14 million inhabitants. The city is located right next to the Alborz Mountains and its outskirts are 1,800 m above sea level.

**What are your personal secrets for leading a team?**



Trust and accountability are two essential elements for successful teamwork. Adapting to the local business world and understanding the people's customs are also key to success.

**The United Nations still has sanctions in place against Iran. If these were lifted, would you expect to see international investors ready to jump right in?**

Definitely. Many European and even American conglomerates have already drawn up plans to enter the market since November 2013, when the interim nucle-

ar deal was concluded. With over 80 million people, the Iranian market has tremendous potential. Due to the political situation the country has been more or less isolated in the last 40 years, and this has created substantial demand in every field. Iran is very rich in commodities and able to invest significantly in the country's modernization.

**Iran is the second largest economy in the Middle East and North Africa region after Saudi Arabia, with an estimated**

>





Sika Engineers training customers. This building was originally planned as a parking garage and now will be reused as a shopping center. Because of the different loads, for safety reasons many of the beams and columns were reinforced with SikaWrap. The built-up system is SikaWrap-230C with Sikadur®-330 impregnating resin, and Sikadur-31 for minor repairs and adjustments to the concrete substrate (prior to wrap application).



An old settlement outside Shiraz, the secret “whine” city of Iran.

- > **GDP of USD 406.3 billion in 2014. It also has the second largest population of the region after Egypt, with an estimated 80.8 million people as of July 2014, more than 50% of whom are under 35 years old. By 2007, Iran had a student to workforce ratio of 10.2%, one of the highest such ratios in the world. Where is this huge and highly educated youth heading?**

Iran has all this potential to be a powerhouse in the region. However, it has faced and continues to face a huge “brain drain,” as many young people leave to seek jobs elsewhere. With expenditure on the right programs to harness the incredible talents of its young people, Iran would be an extremely successful regional power.

**But the unemployment rate is still very high. What are the chances of the Arab Spring protests leading to more uncertainty and instability in society and the economy than vice versa?**

First of all, we need to make a distinction between Iran and other Arab countries. The Arab Spring protests of 2010 spread throughout the countries of the Arab League, but not to Iran. As mentioned above, Iran has one of world’s

highest “brain drain” rates. However, beside a few other key points (excellence in science and technology, job creation and personal development), lifting the economic sanctions would still be the best option to bring down the unemployment rate.

**How about the construction market? Where exactly does Iran need Sika?**

Sika is active in various fields, the first being residential and infrastructure construction. The second main pillar is concrete refurbishment, which uses a lot of Sika applications. Nowadays Iran is starting to build segmental bridges, and this offers Sika a wide range of applications for its proprietary products.

**Any new trends in construction you can see?**

New technologies are clearly in demand. Cutting energy costs, using water and other resources efficiently, and reducing waste and pollution are all good reasons for Iranian builders to want to exploit new trends for energy saving and environmentally friendly construction methods and products. Recently the local authorities have been focusing on fire protection coatings as well as new

methods to strengthen buildings against earthquakes.

**Where is Sika Iran headed? What are its targets?**

I took office in very difficult circumstances, but now Sika Parsian is moving forward and we believe that we will see a strengthening in our market position soon. We have made some initial progress. The object here is to increase sales activities and use marketing campaigns, like seminars and training sessions, etc. Our focus is on gaining market leadership in the construction sector as well as in the BTR, FFI and Structural Strengthening businesses.

**What are the best things about living in Iran? What do you personally enjoy the most?**

Well, Iran’s culture is one of the oldest in the Middle East. The environment here is also unique; Iran is one of the few countries where you can experience all four seasons at the same time. It starts from the subtropical climate on the Caspian Sea, goes over amazing mountains with heights up to 5,674 m (Damavand), through spectacular deserts and up to

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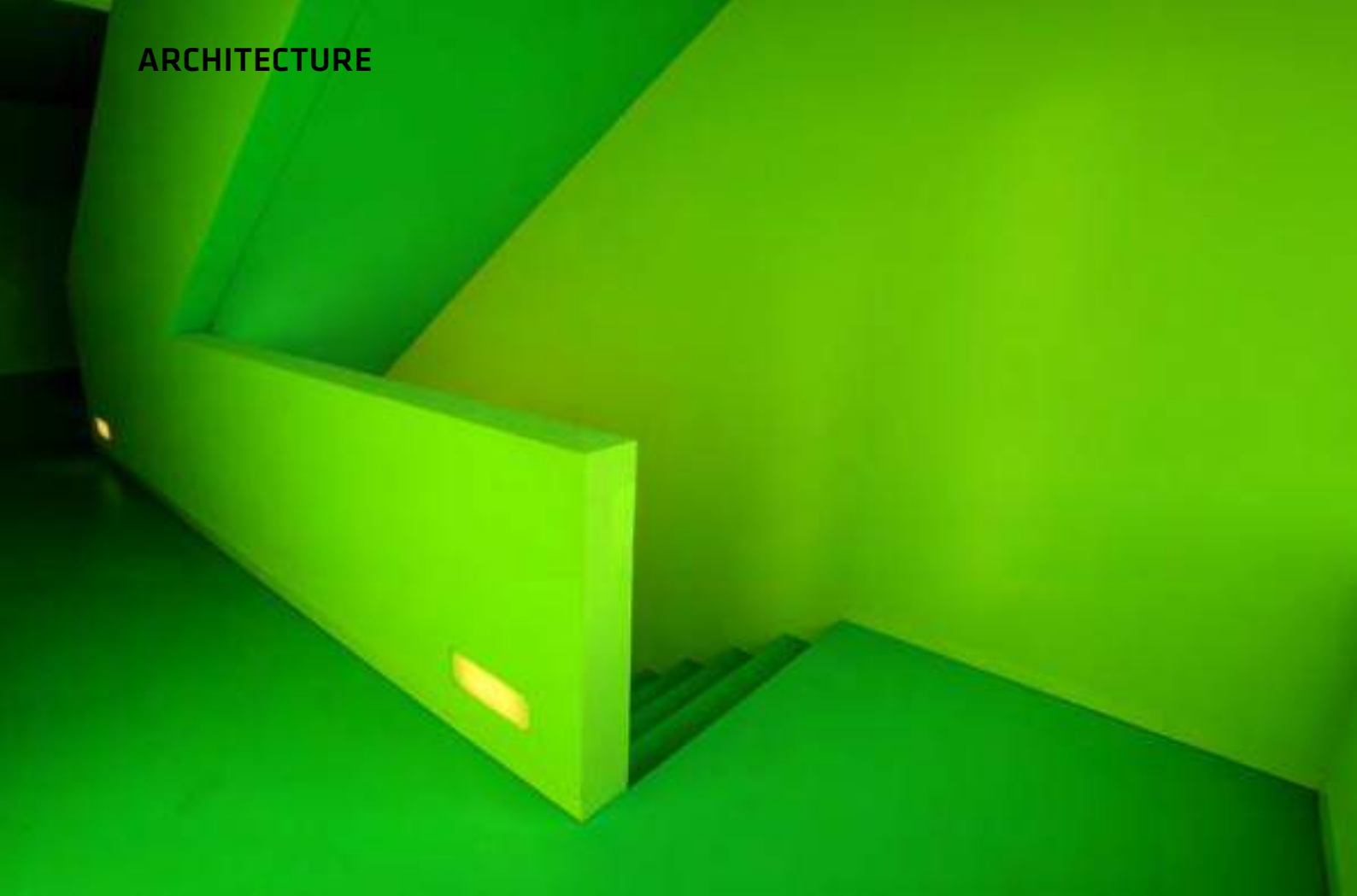


Left: carpets waiting for the usual friday prayer in a mosque. Middle: Typical Iranian food, patio of the oldest Iranian hotel. Below: The team of Sika Iran.

> the Persian Gulf. I enjoy alpine skiing in the mountains behind Tehran as well as diving in the Persian Gulf. Visiting the ancient oriental cities like Shiraz, Esfahan, Kerman and Yazd is also a great experience for us as Europeans.

**What do you wish Iran for the future?**

I wish the nuclear negotiations to reach a positive conclusion soon so that all the restrictions that have been imposed on Iran can be lifted and its unique long-term potential unlocked. <



# COLOR, EMOTION AND ARCHITECTURAL SPACE

A well-crafted color palette can do wonders for a room. The use of color and graphic images can elicit emotions and unique perceptions of space. It has an ability to calm or excite, can make a room appear smaller or more grandiose, or even trigger subconscious reactions. Color is the most vital, impactful and expressive design element in a designer's toolbox. It carries the potential for physiological and psychological effects as varied as the number of colors on the spectrum.

TEXT: SARAH EBERHARDT  
PHOTO: SIKA AG

> Reactions associated with color are spontaneous, can be positive or negative, and yet are often unique to each person. Therefore, color should be considered carefully when designing for healthcare facilities, when taking into account the wide range of professionals, visitors and patients with varying levels of disability who will use the space.

Color provokes psychological sensations

in the mind and physiological effects which cause changes in the body. Color affects a person's feelings about space – where light and cool colors seem to expand a space, dark, warm colors tend to enclose space making it feel smaller. The perception of weight and size are felt similarly – where light, cool colors seem to feel less heavy than dark, bright colors. Colors have a proven effect on body temperature – warm tones (red, orange, yel-

lows) can raise one's temperature whilst cool colors have an opposite effect. Color can affect a person's perception of time – warm-colored spaces tend to make one feel as though they have been there longer than they have and time seems to pass more slowly. Colors can stimulate or excite, induce boredom or calmness, and even improve the rate of recovery of sick patients.

>

## IT IS IMPORTANT TO NOTE HOWEVER, EMOTIONAL RESPONSES TO COLOR STRONGLY DEPEND ON THEIR SATURATION AND BRIGHTNESS

> It is important to note however, emotional responses to color strongly depend on their saturation and brightness. For example, less saturated, bright colors like sage green are relaxing to look at. On the other hand, colors that are highly saturated yet dark like rich sapphire blue, can feel rather energizing. Each hue carries its own unique associations and emotional triggers.

**Red** – With the most power and energy of all colors, red advances in a space. In interiors, it can be used as an accent color, but may be too strong when used as the dominant color in a room. Darkened and muted, maroon exudes allure, while bright, intense red accents can stimulate and excite. It is suggested that looking at the color red can increase pulse, heart rate and blood pressure, which may not

make it a suitable color for a healthcare facility where opposite sensations are the goal of a space.

**Orange** – When lightened and muted, orange can have a cool, refreshing effect. Bright hues should be considered carefully as they have such stimulating properties.

**Yellow** – Taking on the tones of other colors, yellow is reflective and adds flattering highlights. It is ideal in an entrance hall or room with little natural light, since it gives an illusion of direct sunlight. When grayed or muted, yellow has a refreshing effect, although bright high-value shades are the most impactful and should be considered carefully.

**Green** – When grayed, warmed or cooled,

green makes a good background. When lightened, green feels restful, and when brightened, it can feel energizing and invigorating. The colors of nature, leaves and trees can be wonderful hues to use in a healthcare facility, where views outside to nature may not always be accessible.

**Blue** – As a key interior decorating color, all tints of blue can be used with success in a space, especially to create a soothing atmosphere ideal in healing, relaxing spaces. It is suggested that looking at blue can aid in sleep and provide calmness. Many people are attracted to blue as it relates to the expansiveness of sky and water.

Associations: sky, sea, expansiveness, tranquility, loyalty, formality

**Violet** – Often used as small accents, violet or purple can be very dramatic. On large surfaces it can be disturbing. The color tends to stimulate the creative part of the brain, and therefore would not be well-suited for areas of healthcare facilities where patients need to rest their mind.

**White** – White may give the appearance of more space in a room, which is useful for small spaces which a designer would like to open up. In patient corridors however, the absence of color (all white environment) can actually create a visual hazard for people with reduced visual acuity; colors can give visual cues of spatial references in order to prevent falls.

**Grey** – A great color to pair with other more vibrant tones to neutralize their effect, grey can be combined with almost any hue.





# CASE STUDIES



Upper picture. In this **sports center** in the Netherlands, a bright shade of yellow creates an open, inviting lobby and dining area. The use of color is successful in energizing users to engage in sports activities, even when the view outside in winter may be dreary.

To the right. In this **library** in Denmark, a bright, glossy red-orange accent band playfully creates a path which draws people into the space. This Sika Comfortfloor solution uniquely weaves a ribbon from flooring into shelving and spatial dividers, which attracts and excites users to feel energized as they meander about the library looking for a book or subject matter.

>





- > In this **Fine Arts Museum** in Belgium, muted sage green walls and warm grey Sika Comfortfloor is used to good effect in creating a natural, yet neutral backdrop. The tones of green and grey subtly enhance the subject matter of the artwork without disrupting the focus. It gives the eye a relaxing hue to look at whilst passing between paintings, which greatly reduces eye fatigue that high contrast colors may cause.





In this **high school** in the Netherlands, a Sika Comfortfloor creatively combines an energizing palette of colors. Medium-value blue, refreshing green and an accent of orange are laid out to create an imaginative multi-purpose space, perfectly suited for growing young minds.

Though still a lot of scientific research is artists, interior designers and architects have long understood how color can dramatically affect moods, feelings, and emotions. It is a powerful communication tool and can be used to signal action, influence mood, and cause physiological reactions. <



# FLOATING RESTAURANT

The majority of people on our planet prefer to stay on firm ground as the element that they are most familiar with, and most of the houses worldwide are built on solid land as well. But there are exceptions. Think of the floating markets in South East Asia, and indeed entire floating villages on Myanmar's Inle Lake. Or if we turn to Europe, we can see canal houseboats in the cities of Amsterdam, London or Berlin. So mankind seems to feel at home on water as well. In South Africa, you can find a very special floating structure.





> La Vue is a new 85-foot luxury floating restaurant on Wilson's Wharf in Durban Harbor. It is the only 5-star floating restaurant and events venue in South Africa. Prior to its launch in early November 2014, a number of Sika's bonding, sealing and protection products were used to ensure the longevity of this opulent catamaran. Open 6 days a week, La Vue offers a variety of recreational entertainment options. Guests who set sail on this magnificent 200-seater passenger vessel can enjoy their very own city experience.

The catamaran features two amazing decks, two full bars and a dance floor. Passengers can begin their journey topside and stroll the outdoor deck under the stars, taking in all the sights of the Durban skyline while sipping on a cocktail. Below, the cosmopolitan dining deck offers the finest cuisine. The cozy climate-controlled decks are the ideal venue for romantic dinners, sightseeing, cocktails, corporate events or once-in-a-lifetime wedding receptions.

A variety of performers provide an entertaining finish to the meals. This quintessential experience is available

year-round. Lunch, dinner and specialty theme cruises are available. Each cruise features a fascinating view of Durban's metropolitan skyline and the landmarks that make Durban a popular tourist destination. Custom charters are available for those who would like to create their own special experience. The memories will linger long after the cruise is over.

To guarantee La Vue's successful construction, Sika's bonding, sealing and protection products were the obvious first choice. Sika South Africa climbed onboard to ensure that everything ran smoothly with Sika's applications.

Each panel of the external deck and the interior dining deck on La Vue was bonded onto the fiberglass structure using Sikaflex-552 AT, a high-performance elastic, gap-filling, one-component, hybrid assembly adhesive. The tabletops, wooden railings and most of the wood features on board were also bonded.

Given the time constraints imposed on this project, Sikaflex-552 AT (fast-curing on exposure to atmospheric humidity to form a durable elastomer) was specified. Based on Sika's silane-terminated

polymer technology, the product is both solvent-free and isocyanate-free. It is capable of withstanding high dynamic stresses and is resistant to ageing and weathering, making it the ideal product for this vessel.

Two Sika primers were applied prior to bonding. For the neatening and sealing of joints, seams and panels on board, Sikaflex-521 UV (black and white) was applied both externally and internally. This multi-purpose, non-sag, elastic sealant is based on a polyurethane hybrid compound that is non-corrosive and low-odor. It is VOC- and solvent-free, may be sanded or overpainted and, like Sikaflex-552 AT, is fast-curing and ageing and weathering resistant.

To match the color of the wood, Sikaflex-11 FC (brown) was used to seal around the staircase panels and the table bases. This ready-to-use, moisture-curing, elastic joint sealant and multi-purpose adhesive based on polyurethane provides bubble-free curing, good mechanical resistance and is ageing and weather resistant. Sikaflex-11 FC is non-corrosive, solvent-free and odorless with very low emission.



Comfortable lounges invite guests to enjoy food and drinks and relax.

On completion of the renovation work, an additional hull was added to the 200-seater La Vue to ensure a load-bearing capacity of 120 tons. Due to Durban's sub-tropical climate, this ultimate floating masterpiece will be available year-round for parties, specialty theme cruises and custom charters. Why not join the party!




Open 6 days a week, guests who set sail on this magnificent 200-seater passenger vessel can enjoy their very own city experience.

# ROOFING







# HIMALAYAN TEMPLE REBORN

Spectacularly jagged, arid mountains enfold this magical former Buddhist kingdom. Picture-perfect Tibetan Buddhist walls are topped with countless mantra-inscribed pebbles. Colorful fluttering prayer flags spread their spiritual messages metaphorically with the mountain breeze. Prayer wheels spun clockwise release more merit-making mantras. Temple interiors are colorfully awash with murals and statues of numerous bodhisattvas.

TEXT: WOLFGANG ACKERL, ASTRID SCHNEIDER  
PHOTO: GÜNTER GUNI



> Ladakh's remarkably well-balanced traditional society has much to teach the West in terms of ecological awareness. While most Ladakhis are cash-poor, their traditional mud-brick homesteads are large, comfortable and self-sufficient in fuel and dairy products and organic vegetables. Such self-sufficiency is an incredible achievement given the short growing season and very limited arable land in this upland desert, where precious water supplies must be laboriously channeled from glacier-melt mountain streams.

The enveloping walls of dramatic mountains may make for unforgettable landscapes, but they also mean that road access requires crossing tortuous high passes, which are totally closed off from around October to May. Ladakh is the highest plateau of the state of Kashmir, with much of it over 3,000 m. Located more than 1,000 km north of the Indian capital New Delhi, it extends from the Himalayan to the Kunlun Ranges and includes the upper Indus River valley. Previously a district in the state of Jammu and Kashmir, since 1993 the region has been administered by the Ladakh Autonomous Hill Development Council, whose political mandate includes economic development, healthcare and land use.

A Buddhist monastery is meant to be the main center for worship, isolated meditation and religious teaching. Situated about 100 km west of Leh, the 700-year-old Wanla temple is presently maintained by a monk from the Lamayuru monastery. In 1998, Vienna University and Graz University of Technology were commissioned to create documentation defining the condition of the buildings, their

importance in terms of art history, and urgent renovation measures. The purpose of the project was to contribute to safeguarding the outstanding but endangered cultural heritage of the Himalayas.

The three-storey Wanla temple stands out for its murals and clay sculptures still in their original condition. Initial >



One particular problem during refurbishment was that the thickest - and thus heaviest - layer of the roof was resting on a relatively delicate ceiling structure, as evidenced by visible water damage inside.

Ladakh is the highest plateau of the state of Kashmir, with much of it over 3,000 m. Located more than 1,000 km north of the Indian capital New Delhi, it extends from the Himalayan to the Kunlun Ranges and includes the upper Indus River valley.



The enveloping walls of dramatic mountains may make for unforgettable landscapes, but they also mean that road access requires crossing tortuous high passes, which are totally closed off from around October to May.





The existing roof of up to 1 m thickness was to be removed. The new roof structure is based on a double split aluminum lightweight structure.

> findings showed that the area above the main niche in particular was more than 1 m thick from the top edge of the roof to the bottom edge of the ceiling. This suggested a tremendous roof load on the walls and the inner timber structure. Severe cracks in the walls and beams were a clear indication that this was the case.

The temple roofs had to be renovated. One particular problem was that the thickest – and thus heaviest – layer of the roof was resting on a relatively delicate ceiling structure, as evidenced by visible water damage inside. The main goal of this part of the renovation was to find a solution that would conceal all structural

investigations after completion. The existing roof of up to 1 m thickness was to be removed. The new roof structure is based on a double split aluminum lightweight structure. The original inner ceiling is suspended from spring-born bars. The key to the solution was to use light-  
>

The enveloping walls of dramatic mountains may make for unforgettable landscapes, but they also mean that road access requires crossing tortuous high passes, which are totally closed off from around October to May.





A Buddhist monastery is meant to be the main center for worship, isolated meditation and religious teaching.



> weight prefab trusses capable of bearing a heavy load. Thanks to their folding mechanism, we could use them in an A and V configuration. In addition to being lightweight, the fact they can be plugged together was very important in terms of transport and assembly. The second truss (A shape) acts as a purlin for the rafters of the new roof. With the trusses in position, the load-bearing timber beams were installed and the layer decked with 3 cm thick boards.

A geotextile was placed on the finished decking so as to prevent potential problems with secondary condensation. The

joints of the polymeric ceiling membrane were glued together. A new two-layer loam roof structure was installed on top of this. Two supports were successfully used to stop the ceiling from breaking. Relieving the load on the cassette ceiling and stabilizing the trusses by screwing them in place allowed the supports to be removed. Sika Austria provided Sarnafil®TG 66-18 for the refurbishment procedure and adhesive tapes for waterproofing the roof. Furthermore, Sika furnished project member Dr. Wolfgang Heusgen with roofing and waterproofing know-how for his scientific research.

The entire valley of Ladakh is dotted with monasteries of all kinds, belonging to various orders or schools of Buddhism. Almost all these monasteries are situated at scenic locales, enhancing their magnificence further. Though they boast a rich collection of Buddhist relics such as thankas, murals, sculptures or scriptures, typically the monasteries in Ladakh have been located at isolated areas, away from the hustle and bustle of routine life, lending them an air of peace and tranquility. If you are looking for peace of mind and calm book your flight to Delhi and jump into a domestic connection to Leh.

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# AN OASIS OF WELL-BEING

To maintain our health, besides work, we have to move enough, relax and eat right. In our time-starved world, it is often difficult to lead a healthy life. Time-optimized concepts are essential to achieve the correct combination of movement and relaxation. Regular training in the gym will give you a healthy and balanced life.

TEXT: SIMON AMBAUEN, ASTRID SCHNEIDER  
PHOTO: SIKA SWITZERLAND

> Although research interest in physical activity and health dates back to the 1950s, the breakthrough in the scientific evidence on health benefits of physical activity largely took place during the 1980s and 1990s. There is an overwhelming amount of scientific evidence on the positive effects of sport and physical activity as part of a healthy lifestyle. The positive, direct effects of engaging in regular physical activity are particularly apparent in the prevention of a number of chronic diseases.

A 2,000 m<sup>2</sup> gym with spa area was recently installed on the fifth floor of the sports building of Lucerne's stadium complex. Including Finnish, bio and infusion saunas, an ice room and a steam bath, the different areas of the park offer a true oasis of well-being for all visitors. Sanitary facilities with showers and toilets are also available.

The construction project requirements were challenging given the need for highly thermoresistant systems with

sauna temperatures of up to 80°C. The structures also had to be resistant to water and steam. The sealing volume was substantial, with a large number of penetrations and connections to be sealed. Furthermore, the many different parties involved (i.e. builders and other craftsmen, the sealing company, the sauna producer, the tilers) resulted in numerous organizational interfaces. That's why the construction procedure had to be well organized.





Sika Switzerland's early involvement as consultants during the planning phase allowed for the development of a tailored concept. In order to assure the high quality of execution and interfacing, the contractor's control responsibilities were sourced out. For the concrete ceiling, the liquid plastic Sikalastic® was used as a primary sealant and fallback solution. The concrete joints were sealed with the Sikadur-Combilex® SG System. After screeding and levelling works, Sikalastic® was applied as a secondary sealing layer. In the sauna, the tiles were bonded with the polyester-based sealant SikaBond®, whereas for all other areas, SikaCeram® was used. Rigid joints were filled with either epoxy resin based SikaCeram® EpoxyGrout or with classic rigid SikaCeram®.



Most sports involve working cohesively in a team environment. Even single discipline sports such as swimming have a team-building component before or after events. With that team component can come more cooperation skills, more focus and more commitment, all of which can lead to healthier relationships with other people and a healthier outlook on life.

go, reward yourself, indulge, relax and enjoy the luxury of pampering yourself. Are you one of those people who need to take time out every once in a while, to slow down and move at a quieter pace? Here you'll find a place that offers you nothing but peace and tranquility. This wellness area possesses its own unique characteristics, with hygiene guaranteed and in terrific surroundings. <

After all this sport in this spa you can let

# A SAFE NUCLEAR WASTE DEPOSITORY

Though many countries started to use renewable energy sources, still there are currently 437 operable civil nuclear power nuclear reactors around the world. Nuclear wastes are a significant part of the nuclear power picture, and need to be managed and disposed of properly.

TEXT: MARKUS JAHN, ASTRID SCHNEIDER, JEANNINE LEUPPI  
PHOTO: MECSEKÉRC LTD., BÉLA SZÚDY







> Though in more than 50 decades of civil nuclear power experience the wastes have not caused serious health problems, nor posed any real risks to people, the fear of the civilians has to be taken very seriously. Any state will plan very precisely, where they could place the final disposal for its nuclear waste. People don't forget accidents like Fukushima or Chernobyl. The final disposal of this spent fuel is a hot topic, and is often an

argument against the use of nuclear reactors.

Though many states use alternatives for power generations, they are not without challenges, either financially or technically. The main objective in managing and disposing of radioactive waste is to protect people and the environment. This means isolating or diluting the waste so that the rate or concentration of any ra-

dionuclides returned to the biosphere is harmless. To achieve this, practically all wastes are contained and managed – some clearly need deep and permanent burial.

The facility at Bataapati (LILW) is one of the first radioactive waste repositories in the world. After 15 years of work and an investment of HUF68 billion (\$310 million), the first disposal chamber at Bataapati in southern Hungary has now been completed by the country's Public Limited Company for Radioactive Waste Management (Puram). The inauguration ceremony took place in two stages: first with the cutting of a ribbon at the western incline to the repository and then the cutting of a ribbon at the entrance to the storage chamber, some 250 m below the ground.

From past experiences in those difficult fields, Sika was selected to provide the comprehensive support and sprayed concrete solutions for this project, including full compliance with the latest EFNARC standards and regulations. This required detailed site inspection services and the fresh concrete checks and monitoring,





together with full site support for the sprayed concrete machinery and equipment, plus all of the necessary training of the nozzle men and other key operators throughout the works.

Underground disposal vaults at Bataapati will eventually hold all the low-level and short-lived intermediate-level radioactive wastes (LILW) resulting from the operation and decommissioning of the Paks nuclear power plant. The small volume of long-lived ILW and high-level wastes will be managed separately.

The Bataapati facility and its licenses will eventually allow the disposal of some 40,000 m<sup>3</sup> of radioactive waste. The surface facilities of the repository were opened in October 2008. The first disposal chamber can accommodate 4,600 drums of waste contained in 510 reinforced concrete containers. The disposal chambers are located in pairs contained in 3 underground caverns excavated 200 - 250 m deep within the granite bedrock and these are each 90 - 110 m in diameter.

The first disposal chamber is designed

to take about 40,000 m<sup>3</sup> of radioactive waste that is crushed and compressed into 4600 steel drums, which are to be contained in 510 reinforced concrete containers before placing these into the chamber. The chambers will then be sealed and backfilled with a mixture of clay and concrete with 50 - 60% crushed granite.

During the repository's inauguration, the first concrete container - holding nine drums of waste - was moved from a temporary storage facility at the surface and placed in the initial chamber of the repository.

The disposal caverns, accessed via a pair of inclined tunnels, will be back-filled with a combination of clay and concrete with 50 - 60% crushed granite, which is intended to retain any radioactive isotopes that may escape from waste packages over the long term. The facility is designed to make it possible to retrieve all the waste packages until it is finally closed.

Shotcrete was used to stabilize the excavation like in common tunneling or mi-

ning. Sika supplied a powerful package of shotcrete products like Sika® ViscoCrete® SC®305, superplasticiser for sprayed concrete or SikaFume®, silica fume additive amongst other products.

The high performance products allowed an excellent application of the sprayed concrete. This means long workability time of the basic mix, fast application due to high strength development and enhanced compressive strength and durability of the hardened shotcrete.

In practice, the spent fuel is never unshielded. It is kept underwater as water is an excellent shield for a few years until the radiation decays to levels that can be shielded by concrete in large storage casks. Options include deep geologic storage and recycling. The sun would consume it nicely if we could get into space, but since rockets are so unreliable, we can't afford to risk atmospheric dispersal on lift-off. Experts say that permanent disposal locations must be created soon worldwide, or we risk being overburdened with radioactive waste that no one wants.

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## SUSTAINABILITY IN ACTION AT SIKA

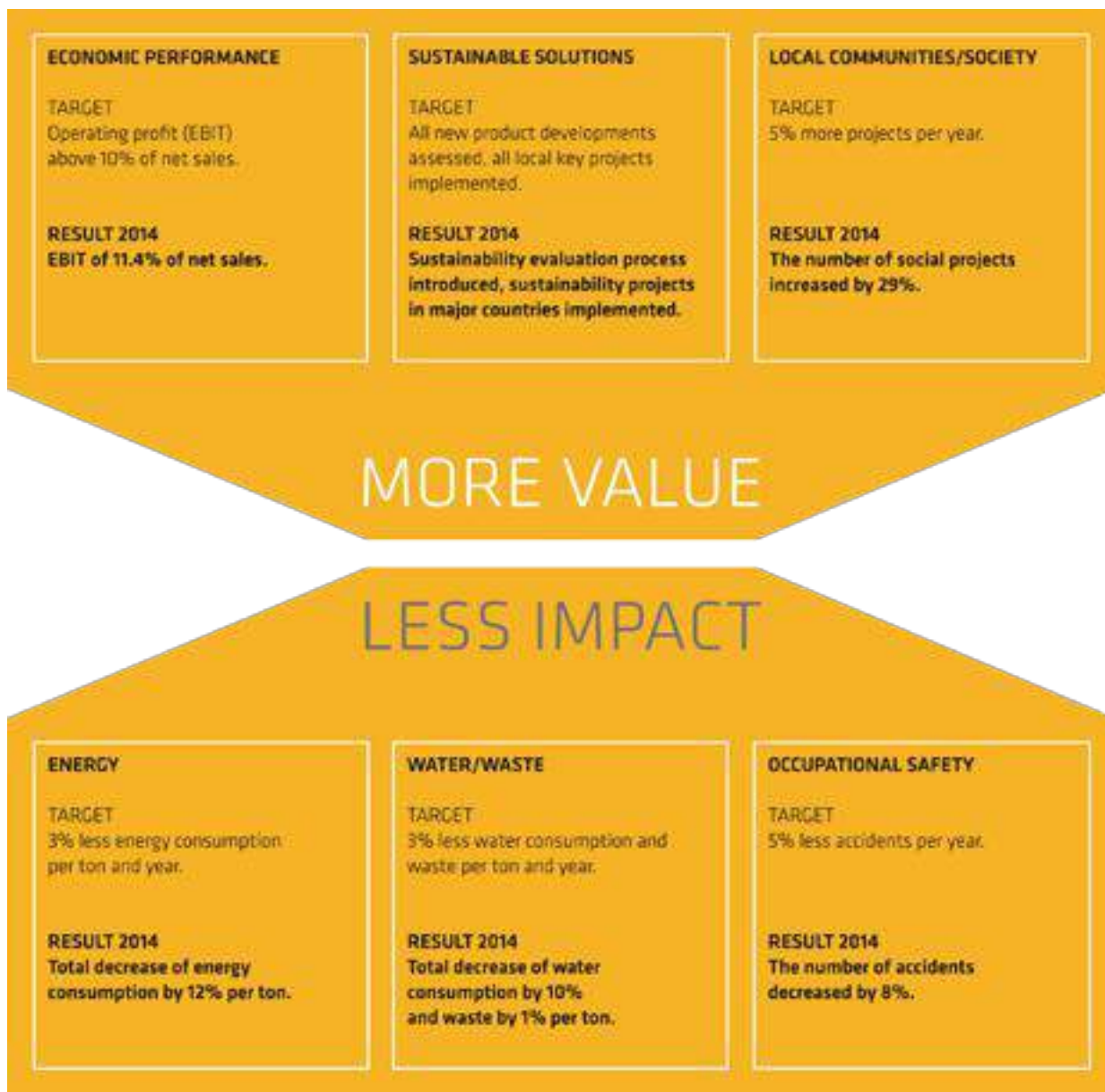
Through its Mexican subsidiary Sika sponsors Kuxtal, the Mexican team participating at the "Solar Decathlon Latin America & Caribbean 2015" competition. Solar Decathlon is an international competition, created by the US Energy Department. Universities throughout the world design and build housing prototypes that use solar energy as their only power source.



## THE GLOBAL CHALLENGES OF THE FUTURE

The world and society in general are facing challenges which businesses also need to actively address. Climate change, population growth, energy costs, raw materials and water shortages are some of the global megatrends and challenges that are set to change society in the years and decades ahead. At the same time, these challenges will be powerful drivers for novel technologies and solutions. Markets will demand solutions for new approaches to building and construction, infrastructure and mobility.

TEXT: MARK SCHNEIDER, CATALINA ESTEVEZ  
PHOTO: SIKA AG



## SIKA'S SUSTAINABILITY STRATEGY: "MORE VALUE – LESS IMPACT"

As a globally operating technology-based company, Sika is committed to sustainable development, assuming responsibility for providing sustainable solutions in order to improve material, water and energy efficiency in construction and transportation. Sika strives to create value for all its stakeholders with its products, technologies, systems and solutions along the whole of value chain and throughout the entire life cycle of its portfolio. The value created by far

outweighs the impacts associated with production, distribution and use.

The Sika sustainability strategy, whose avowed aim is "More Value – Less Impact", focuses on six target indicators with the largest potential effect. They cover the economic, environmental and social dimensions of Sika's business.

## CURRENT ACHIEVEMENTS

In 2014, Sika began worldwide implementation of the sustainability strategy developed the year before. The G4 Guidelines of the Global Reporting Initiative (GRI G4) have provided the general framework for sustainability reporting since 2013.

Sika measured its performance against the new sustainability targets for the first time in 2014 and has got off to a successful start, with the company exceeding most of its targets for 2014. >



**CORPORATE EPQS VOLUNTEERING DAY, NEERACHERRIED, SWITZERLAND**

Neeracherried is one of the last remaining major swamp reserve areas in Switzerland. It provides a habitat for several native species of plant and animal. These species are endangered by climate change, non-native invasive plants, and limited access to nutrients. As part of an environmental campaign, 15 Sika employees helped to weed out non-indigenous plants.

## MORE VALUE FOR ALL STAKEHOLDERS

> **ECONOMIC PERFORMANCE**

Sika not only added value for its shareholders with an excellent operating profit (EBIT) of 11.4% of net sales, it also enhanced utility to other key stakeholders such as customers and local communities.

**SUSTAINABLE SOLUTIONS**

A new sustainability evaluation process was introduced to assess all sustainability aspects of new product developments over their entire life cycle. From 2015 on, it will become a mandatory component of the innovation process at local level.

Major Sika organizations worldwide developed local product sustainability roadmaps that are both tailored to local demand and in line with the company's global direction. All local key projects have been implemented this year and further projects will follow next year. One successful example is Sika Spain, which has integrated sustainability factors into the specification selling process for the cool-roof approach.

**LOCAL COMMUNITY ENGAGEMENT**

Sika further stepped up its social responsibility efforts in 2014 to support a total of 67 projects, which translates into a year-on-year increase of 29%. The company sponsored social, ecological, scientific, sports and cultural projects on all continents. They cover a wide range of needs, from a vocational training center in Indonesia to helping to expand a childcare organization.

One example of Sika's commitment to local communities in 2015 is the first ever volunteering day carried out by the Corporate EPQS (Engineering, Procurement, Quality and Sustainability) department in Switzerland. The Philias Foundation has helped to identify four projects in the social and ecological area which were actively supported by the 37-strong team.

"Corporate volunteering brings together a diverse range of people from many walks of life. It can be a rich source of inspiration and an excellent way to develop interpersonal skills." Mario Gross, Head Global Procurement, Quality & Sustainability.



**SIKA CORPORATION, USA:  
NEW COOLING WATER SYSTEM  
AT THE LYNDHURST PLANT**

The Lyndhurst plant in the US lowered its cooling water demand drastically by replacing the single-pass cooling water system by a new closed-loop system.



**ENERGY AND CO<sub>2</sub> SAVINGS:  
FRUIT PACKAGING HOUSE  
IN CASTELLÓN, SPAIN**

Spanish fruit grower and distributor Frutinter opted for a highly durable, long-lasting roofing system for its new fruit-processing building in Castellón. In warm climates such as Spain, high-reflective membranes can bring energy savings by reducing cooling and heating loads. The customer chose to install a high solar reflective white membrane over a beige one.

As part of the overall sustainability drive, special tools were created that allow subsidiaries to quantify the sustainability performance of selected Sika solutions on a project basis. These tools can be used to communicate the relevant data to customers in a clear and simple manner.

## LESS IMPACT ON THE ENVIRONMENT

### ENERGY

Sika lowered energy consumption per ton and year by an impressive 12%, beating the target of 3% by a very wide margin. At Sika Turkey, for example, the energy required to drive compressors in production was cut by 8% thanks to measures to reduce compressed air losses and compressor working hours.

### WATER/WASTE

Sika lowered water consumption per ton and year by an impressive 10%, exceeding the target of 3% by a substantial amount. Sika Corporation Lyndhurst US has contributed significantly to this outstanding result. While previously water was drawn from wells on site and discharged into the New Jersey Meadowlands, nowadays the Lyndhurst plant no longer uses ground water for cooling.

Efforts in the area of waste reduction resulted in a modest 1% improvement, which fell short of target. Material efficiency will be a priority in 2015/2016. Sika's Shanghai plant, for instance, has achieved significant material and cost savings by granulating the polyester scrim and felt backing used in

roofing membranes, and feeding the materials back into the production process.

### OCCUPATIONAL SAFETY IS KEY

It is of paramount importance that Sika employees leave their workplaces healthy. The number of occupational accidents leading to lost work time of more than one day fell by 8% year-on-year. Depending on the situation and cultural context, local companies also called in external partners to raise awareness for the topic and to stage safety days. For instance, Sika Thailand invited a Buddhist monk to address the issue of safety and religion.

Sika will constantly continue to improve safety in 2015/2016, with all plants regularly running safety days and investing in technical safety measures.

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**CORPORATE VOLUNTEERING DAY EPQS, CARITAS STORE IN WINTERTHUR, SWITZERLAND**

Caritas Switzerland helps people in need worldwide in over 40 countries. Together with the network of regional Caritas organizations, it provides volunteering and cares about asylum seekers and refugees. In Switzerland's 24 Caritas markets provide food and everyday products at greatly discounted prices. The range includes basic food, fresh products, toilet articles and all major products of daily use. A portion of the goods comes from overproduction, incorrect deliveries, faulty series and liquidations of more than 400 suppliers. The commitment of 7 Sika employees consisted in cleaning of all store shelves, refrigerated display cases and the van.



**ATE EPQS VOLUNTEERING DAY, FOREST IN ZURICH, SWITZERLAND**

This is about a playgroup in the natural forest near Zurich. Six Sika employees and some parents have built together a forest sofa for which only wooden beams were used. The sofa is used by the children during their excursions into the forest for shelter and recreation. It provides protection and security for the children. It is the starting point and our retreat. At the center the group prepares tea and lunch. "The forest sofa is our home in the forest", says Viviane Lauer, the Head of Forest playgroup.



**LESS IMPACT ON THE ENVIRONMENT**

> **CONTINUOUS IMPROVEMENT AS A COMPETITIVE ADVANTAGE**

Sika will continue to integrate sustainability into all its business processes in order to maintain its competitive advantage. Sika will keep promoting sustainability through its efficiency and safety programs to advance economic, social and environmental progress.

**FURTHER INFORMATION:**

"More value – Less impact": <http://www.sika.com/en/group/sustainability/more-value--less-impact.html>

GRI G4 reporting: <http://www.sika.com/gri>

Sustainability projects: <http://www.sika.com/en/group/sustainability/more-value--less-impact/projects.html>

"Sika takes a long-term perspective on the development of the business and acts with responsibility towards customers, employees and other stakeholders. We are proud of our sustainability achievements and the fact that we have delivered more value to our stakeholders with less impact on the environment."

Jan Jenisch, CEO

# SIKA SUPPORTS CARITAS PERU AND THE COMMUNITY

Caritas was founded in Peru on October 4, 1955, under the name Caritas Peru. In 1959, Monsignor Juan Landázuri Ricketts, Archbishop of Lima and Primate of Peru, took up office at Caritas Peru. Caritas Peru's activities are part of the socio-pastoral work of the Catholic Church and the organization reports directly to the Peruvian Episcopal Conference.

TEXT: ALICIA CONDADO, ASTRID SCHNEIDER  
PHOTO: RICARDO CÁRDENAS, GINO PERALTA, ALICIA CONDADO

- > Today, Caritas Peru has a network of 48 Caritas dioceses who seek to translate the Christian mission in building a more trusted, united, fair and fraternal country. The promotion of integral social development is an important part of their work. This includes improving nutrition and health in families, paying special attention to mothers and infants under three years of age, offering protection and social inclusion programs on behalf of the disabled, the elderly, and vulnerable groups affected by poverty, and promoting high-quality education via literacy, rural education and technical training programs, among others. But organizing and coordinating all this work requires a robust office building.

In July, Sika collaborated with Caritas Peru, offering solutions to improve the construction of its new office and meeting center at the headquarters of Caritas Callao. As a result of this collaboration, the building's roof will be waterproofed. Besides the contribution to the headquarters, Sika held a training session in which it taught the community about the latest construction technologies. Sika Peru's specialists explained how to use products correctly and outlined the benefits they bring to different construction stages. Participants thus learned how to get the best results when sealing and



A sika specialist during the training about refurbishment and the correct usage of the products.

bonding, waterproofing, tiling and using concrete additives and repair mortars, enabling everyone to work on their own buildings and carry out repair work.

The "Joint Sealing and Concrete Additives" training session was conducted in the auditorium of CETPRO San Jose Artesano, and it was directed at students of construction-related careers, construction workers and people listed in

the program of Caritas Callao. There were 45 participants who were all very interested in Sika's solutions for prevention and repair of their homes or businesses. Improving a broken, damaged, or outdated residential structure can often be cheaper and more sustainable. The residents can keep the structure of the room or building while cracks and leaks are repaired or walls are better isolated against heat or cold.

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