# AMBITIONS

A dive into Sika's world

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AMBITIONS ISSUE #18

BUILDING TRUST

# RENEWAL

ASTRID SCHNEIDER

Marketing & Product Communications Manager
Sika Services

Imagine if all activity were to cease, and there were no renewal or recovery. We have to maintain. Not only the places where we live, but also ourselves. We can re-energize ourselves by viewing holidays as an opportunity to enhance our well-being. The prospect of a worry-free time gives us something to look forward to and puts our minds at ease. The concept of taking a vacation is a recent invention that has developed over the last two centuries. Historically, the idea of travel for recreation was a luxury that only wealthy people could afford. In early America, taking a break from work for reasons other than weekly observance of the Sabbath was frowned upon. However, the modern concept of vacation was informed by a later religious movement, encouraging spiritual retreat and recreation. The notion of taking a break from work gradually took root among the middle and working classes. There are today far more aspects to the idea of redoing something than ever existed before. When it comes to global urban development, we also have to think about renewing what we have already created in the past. Right now there are 7.2 billion people living on this planet, and every one of us needs their space, comfort and infrastructure. But old buildings can become uninhabitable, bridges impassable (p. 28) or roofs unfit for purpose – and usually a smarter solution can be found. Repairing and protecting locks so that ships can go on passing along the 2,900 km long Danube undeniably has an immense impact in terms of transportation and logistics (p. 21). Re-roofing an event and sports hall after a hailstorm gives citizens back a haven of leisure and fun (p. 24). And to build something new inside something old can be a way of renewing space and function as well as creating fresh possibilities (p. 39). But, of course, nowadays we have more options for achieving sustainability right from the beginning. Cutting a building's heat absorption as well as its cooling energy consumption by building a tailor-made roof is a surefire way to reduce the energy footprint (p. 44).

Yours sincerely,

ASTRID SCHNEIDER

# CONTRIBUTORS

HEIDI PLETINCK

Marketing Manager Sika Belgium

With a focus on Sika® ComfortFloor Sika Belgium has realized some really nice flooring projects like Food Stores. And the title of the article "Eat yourself happy" is also my motto...is that purely by chance?

CARL DE LEON

Vice President Roofing, Sika Canada

Sika Canada is proud to be involved in projects such as the Saddledome, which succeed due to the proven performance and sustainability of TM Roofing products. This gives meaning to our work and to our commitment to be a "Building Trust" partner.

KATY ALLAFRANCO

Marketing Manager, Sika GCC

Having survived the financial crisis in Dubai it's inspiring to see investor confidence return to the region; the growth of the construction market promises exciting times ahead for Sika in the GCC!

MARKUS JAHN

Corporate Product Engineer
Sika Services AG

This technology is still in its infancy, however with a huge potential for new Sika products!

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IMPRINT

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# PILSEN IS FAR MORE THAN A BEER!

Pilsen, some 90 km southwest of the Czech Republic capital Prague, has been named European Capital of Culture 2015. The opening of Pilsen's New Theater (Nové Divadlo) marked the start of the city's theatrical season. This attractive building is the only new theater to have been built in the Czech Republic during the last 30 years. The four ensembles of the J. K. Tyl Theater in Pilsen have been performing in two theater buildings since September 2014 – the Neo-Renaissance Great Theater dating from the year 1902 and the recently opened New Theater.

TEXT: MAREK SVABENIK, ASTRID SCHNEIDER
FOTO: MICHAL HURYCH

On the threshold of its 150th season, the permanent Czech theater landscape in Prague is to witness a truly historic event. 112 years after completion of Pilsen's historic Grand Theater, the city famous for its theatrical tradition has opened a new tabernacle dedicated not only to Thalia, but also to her sisters Melpomene, Terpsichore, Euterpe and Polyhymnia, as the multi-genre dramaturgy of the J. K. Tyl Theater falls under the patronage of all these muses.

The new building, equipped with state-of-the-art theater technology, is a symbol of the 21st century. Besides the main theater hall with its huge stage and elegant auditorium for 461 spectators, the new building also houses the 150-seat Small Stage.

The New Theater was opened officially to the public on September 1, 2014 with a new production of The Bartered Bride. You can have your pick of the current opera repertoire: The Bartered Bride by Smetana, The Tales of Hoffman, The Soldier and the Dancer by Bohuslav Martinů, La Traviata and Tosca. A new production of Verdi's Aida premiered in October. The ballet Cinderella with music by Sergei Prokofiev was on, and from November Khachaturian's ballet Spartacus is being staged. In March, a ballet interpretation of the story of Anna Karenina accompanied by the music of Dmitri Shostakovich will open in the New Theater.

But this extraordinary new building first had to be constructed. It consists of two separate interconnected objects, immediately appealing to the eye with their exterior made with deep red Colorcrete® concrete, supplied by TBG Plzeň Transportbeton, a member of the Českomoravský beton group, which supplied all other transit monolithic construction and flooring materials, including the "bubble facade" of the theater building, which contains the main entrance.

The new building is equipped with state-of-the-art theater technology. Besides the main theater hall with its huge stage for 461 spectators, the new building also houses the 150-seat Small Stage.

# THE BUBBLE FACADE LEADS INTO THE MAIN ENTRANCE

> The building support system consists of a monolithic spatial structure of reinforced concrete walls, slabs and columns.

To achieve the desired color on the concrete required 35 kg per 1 $m^3$ of pigment concrete mix, which was specially formulated for these specific solutions using the products Sika ColorFlo® (liquid pigments), Sika® ViscoCrete and microsilica SikaFume®. For the facade joint were used PU sealant Sika Hyflex-250 Facade in special red color and for the basement Sika®-Waterbars were used.

All in all, the new theatre differs markedly from other buildings owing to its facade of red cast architectural concrete, spanning a total of 3,500 $m^2$. The red facade consists of glass surface-frosted black etched glass (1,600 $m^2$) and a titanium-zinc surface. Based on the architect's specifications, the concrete formulation was adapted to the corresponding color shade.

The multifunctional building is designed to host drama and musicals, as well as operas and ballets. So the European Capital of Culture 2015 can show more than its favorite drinks to its visitors. Though going to the opera and afterwards having a traditional Pils beer in a cosy bar sounds very nice...

BASED ON THE ARCHITECT'S SPECIFICATIONS, THE CONCRETE FORMULATION WAS ADAPTED TO THE CORRESPONDING COLOR SHADE

# WELCOME TO THE GCC

This time we travel to the member states which make up the Gulf Cooperation Council (GCC); the United Arab Emirates, Saudi Arabia, Qatar, Bahrain, Oman and Kuwait. How well has Sika developed in a region which for many signifies political unrest? Let's find out...

TEXT: KATY ALLAFRANCO, ASTRID SCHNEIDER
PHOTOS: AYHAM KALLA, ARIS VARIAS, CHRISTIAN VOELLM, SIKA UAE, SIKA QATAR, SIKA SAUDI ARABIA

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> We begin our travels in the United Arab Emirates (UAE) which were formed as a federation of 7 emirates in the Southeast of the Arabian Peninsula. The capital city is Abu Dhabi, whilst Dubai is the economic center.

Since its establishment in 1971, the UAE has developed rapidly and is now noted for its modern infrastructure, moderate political approach, its international events and status as a trade and transport hub, and for its cosmopolitan nature.

Dubai was also successful in winning the bid to host the prestigious World Expo 2020, which has meant resurgence in investor confidence and construction projects following the economic crash of 2009.

Within the Arab world and the GCC, the UAE represents a new benchmark for a modern Arab country that interacts professionally with the rest of the world while upholding its deep-rooted and moderate Arabic and Islamic values. We met **Ashraf Wahib**, the General Manager for Sika Southern Gulf, to look behind the scenes.

**What comes immediately to mind when you think of Sika UAE?**
Sika UAE is a success story to share about the fast growing GCC area within the Sika world.

Back in 2008, Sika gained control of its own destiny, turning around from humble beginnings in the UAE construction market and then as a distributor, to go on to be one of the main players in the UAE market in 2014, and the best is still to come!

**What are your personal secrets to leading a team?**
Enhanced teamwork across around 27 nationalities, working together while sharing the Sika spirit and leading by example.

**After Saudi Arabia, the economy of the United Arab Emirates is the second largest in the Arab world. Although the UAE is becoming less dependent on natural resources as a source of revenue, petroleum and natural gas exports still play an important role in the economy, especially in Abu Dhabi. What is your personal forecast for the region?**
Although the UAE oil sector currently accounts for around 50% of GDP, I can see that the country's leaders have a clear vision for diversifying and developing the economy into a wider range of industries, tourism and infrastructure projects with a progressing plan in action. The UAE continues to offer economic stability and to attract foreign investment and partnerships.

**The Arab spring and its consequences in the northern neighboring countries as well as the prosperity of the oil states confront the United Arab Emirates with ambivalent economic and political surroundings. Where do you see opportunities and challenges for the upcoming years?**
Amid social unrest in the surrounding countries, the UAE has been perceived as a safe destination for investment and tourism. However, with the political instability in the Middle East, combined with a large affluent population that comprises 80% expatriates in the UAE, the country is impacted by those uncertainties which have a negative impact on the ambitious growth plans.

**How about the construction market? Where does the UAE need Sika?**
The construction market is set to recover from the financial crisis that hit the UAE

**1.** Musanada Villas, Al Ain, United Arab Emirates.
Price competitive joint sealant meets requirements of ASTM C 920 class 25 with good application and curing properties at temperatures up to 45°C. The contractor also required technical training and regular site support. With Sikaflex® Construction+, Sika managed to meet the contractors' high requirements regarding price and technical performance. Thanks to Sika's well trained staff, on-site training for applicators could be offered which was one of the USP's making the difference.

**2.** Sika used Sarnafil waterproofing systems at the New York University Abu Dhabi.

General Managers of Sika Southern Gulf and Saudi Arabia: Ashraf Wahib and Juraj Smatrala.

back in 2009, with the government announcing it is reactivating a number of major development projects and stepping up spending on social infrastructures.

After the construction boom from 2000 to 2009, some of the key investors and opinion leaders in the construction industry have had to contend with low-quality products, resulting in numerous failures affecting their investments.

The industry has recognized the need for a professional company with a proven track record and quality products that can support such massive investments. Sika, looking back on over 100 years of experience, a dependable Swiss company with a strong history of success, can offer great added value with our BUILDING TRUST slogan that matches those market needs.

**Are there any extraordinary Sika projects you would like to tell us about?**
Given the success that Sika has achieved with many mega projects across the 7 emirates and the continuous growth seen in recent years, the need for a state-of-the-art facility to support this demanding market in the UAE is met by the regional office, which is establishing Sika's footprint and driving those ambitious growth plans.

**Where is Sika UAE heading? What are the targets?**
Sika has established a strong footprint in the waterproofing and industry markets across the UAE. Last year, we rolled out growth initiatives for the target markets of concrete and refurbishment growth, supported by a local supply chain as previously mentioned.

Sika must aim to rank second in the UAE market in the coming 2 years, and achieve the coveted number 1 position in 5 years. Sika UAE has been producing liquid admixtures since 2009, and its new powder plant should be completed before the end of the year, enabling the company to respond to the growth in the regional construction industry.

**What are the best things about living in Dubai? And what could you do without?**
The cosmopolitan nature of Dubai with more than 200 different nationalities living and working together is a great experience for families living in the UAE, providing quite a unique experience for me personally as well as my entire team.

**What do you personally wish your country for the future?**
I wish for the UAE to continue enjoying growth and prosperity in this dynamic challenging world, while maintaining a fine balance between its roots as an Arabic and Islamic nation and sustaining its growth as an international business hub connecting the world. >

> We continue our GCC journey to Muscat, Oman, where we meet Country Manager **Amin Halaseh**. With an area of 309,500 km², Oman is the second largest country in the Gulf after Saudi Arabia. As with other Gulf nations, oil is the mainstay of the economy, providing a GDP of approximately USD 70 billion, but compared to its neighbors Oman is a modest oil producer. Tourism, agriculture and fishing are additional important sources of income. The country also enjoys political stability, even after the unrest in 2011, which the Sultan dealt with wisely.

**Mr. Halaseh, Oman, with its ethnically diverse population, holds a strategically important position at the mouth of the Persian Gulf. Oman has modest oil and gas reserves (ranking 25th globally). What makes the country's economy strong?**
The political stability and good relationship that Oman enjoys with all its neighboring countries, including Iran, reflect the solidity and steady growth of the economy and GDP.

Oman is attractive for foreign investment; with the country's progress and development plan still at an early stage compared with other GCC countries, foreign investors see that there is still a great deal of opportunity for investing in and profiting from the growing economy

Government policy is encouraging investment in the industrial, oil & gas and housing segments.

**How about the construction market? Where does Oman need Sika most?**
The construction market in Oman is progressively growing. Cement consumption is estimated at about 8.5 million tons a year (close to current UAE consumption), with the market divided into two main segments:

- The government sector, including infrastructure, oil & gas, and municipal projects
- The private sector, which continues to grow in the residential and services industries. However, the country's vast geographical expanse means that a large proportion of this private sector is located in distant underdeveloped regions
- The Omani market needs Sika as a reputable international solution provider in the construction chemical sector. Sika's international experience, its product portfolio and the quality of its systems and solutions are appreciated by the market, as are the reliable services that local competitors cannot provide to the same level of efficiency.

**Are there any extraordinary Sika projects you would like to tell us about?**
We recently supplied products across all target markets for the Muscat Airport Development Project.

With our recent success in delivering Sika concrete admixtures to Bechtel for Oman and the contract to supply Lafarge in Oman, we have established a good base for creating our own supply chain footprint there.

**In 2010 the United Nations Development Programme ranked Oman as the most improved nation in the world in terms of development during the preceding 40 years. Oman also received a peace award. Where does this enormous positive strength come from?**

There are several contributory factors, including:

- Political stability and a good relationship with all influential countries in the region and worldwide
- The government's new policy of following the massive regional development witnessed in GCC countries over the last 7 to 8 years
- The strategy of developing the country starting with infrastructure and services, followed by industrial and housing growth, to create more opportunities for the Omani people and ensure stability at the grassroots level
- The policy of "Omanization": Oman follows a strict policy of increasing "Omanization" among all government and private sectors in order to reduce unemployment among Omani's new graduates and to reduce the outflow of capital from the country. >

**O**man is compared to its neighbors with provideing a GDP of USD 70 billion a modest oil producer.

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# OMAN FOLLOWS A STRICT POLICY OF INCREASING "OMANIZATION" AMONG ALL GOVERNMENT AND PRIVATE SECTORS

> As temperatures climb to 50 degrees in August, we move from one air-conditioned place to another; the next stop on our journey is Saudi Arabia. Saudi Arabia is often referred to as "the Land of the Two Holy Mosques" in reference to Mecca and Medina, the two holiest places in Islam, is the largest Arab state in Western Asia by land area and the second-largest in the Arab world after Algeria. The Kingdom of Saudi Arabia was founded by King Abdulaziz Al-Saud in 1932. The population of Saudi Arabia is estimated to be 28 million, including 6 million expats. Saudi Arabia has the world's second largest oil reserves. We meet **Juraj Smatrala** in Jeddah, on the coastline some 80 km west of Mecca.

**What are your personal secrets to leading a team?**
There are no big secrets at all. To lead a multicultural team consisting of more than 20 different nationalities, each with their own cultural and behavioral norms, requires a huge portion of diplomacy with the emphasis on efficiency and speed in taking decisions. And on top of this, appreciating, recognizing and challenging the team every day, encouraging members to stand up and themselves lead.

**The economy of Saudi Arabia is the largest in the Arab world. What is your personal forecast for the region?**
The economic outlook for Saudi Arabia remains favorable. Growth above 4 percent is expected in the coming years, led by government spending and robust private sector activity. The government is undertaking an ambitious economic reform and investment program to further develop and diversify the economy and create jobs, with significant progress being made. The program is focused on further developing infrastructure, improving the business environment, increasing the quality of education and skills, and employing more Saudi nationals in the private sector. Just recently, the Saudi economy was given the thumbs up by the IMF, so it seems we have some good times ahead of us.

**How about the construction market? Where does the region need Sika most?**
The Kingdom of Saudi Arabia is the biggest building and construction market in the Middle East, valued at billions of dollars thanks to sustained and annually increasing government spending as well as huge private sector investments. Rapid population growth contributes to driving the Saudi government to create more vital facilities such as housing, hospitals and medical centers, schools and universities. So basically we can say that Sika would be needed everywhere. On the other hand, we have to take into consideration our own limitations, especially from the point of view of production and the supply chain. To be competitive in such a dynamic market, we need to have local production across all our target markets; right now Sika Saudi Arabia is only producing admixtures and powders locally. Epoxy products come from Bahrain, the rest of the products (membranes, sealants, WB, PU, etc.) are supplied from outside the GCC. In the Saudi market, Sika currently stands mainly for powders, epoxies and admixtures.

**Are there any extraordinary Sika projects you would like to tell us about?**
To mention just a few:

The USD 22.5 billion Riyadh metro project for the construction of a six-line 176.7 km automated metro network in the capital city. It will be the backbone of the city's public transport system. Work on the Riyadh metro project has just begun. The Sika specification team joined the project in 2012 and has now started delivering the first supplies.

KAPSARC: Designed by word renowned Zaha Hadid Architects, the King Abdullah Petroleum Studies and Research Center is currently under construction in Riyad, Saudi Arabia. Sika Saudi Arabia supplied vapor control membrane system for the façade and Sika®Terrazzo system for the flooring. The building will be LEED Platinum certified upon its completion.

KAPSARC – the USD 543 million King Abdullah Petroleum Studies and Research Center designed by Zaha Hadid Architects. This project takes a holistic approach, unifying architecture and engineering, landscape and building artistic expression, as well as environmental responsive design. It is intended not only to be a leading research facility, but also a LEED Platinum certified building upon its completion. Sika supplied the vapor control membrane system for the facades and the Sika® Terrazzo system for the flooring.

**Where is Sika Saudi Arabia heading? What are the targets?**

Sika Saudi Arabia has been present in the Saudi market for a relatively short time compared with our counterparts. Our factory opened only recently in 2011, the sales team is young and we still need to hire new salesmen. Not long ago we strengthened our positions in Riyadh and the Eastern Province, we are investing in new showrooms and warehouses to increase our market reach and to ensure the availability of Sika products. Through all these activities we are continually convincing the market and our customers of our technical competence and the reliability of our supply chain, building awareness of the Sika brand and our reputation to translate into solid market share gains.

Our target is to continue growing our construction business in a sustainably profitable way and to become a strong player and preferred solution provider in the Saudi market, on the back of a reliable supply chain, technical know-how and competency. It is a very challenging goal but I am  and I am convinced that with the right team such as Sika Saudi Arabia is today, this mission is possible and doable.

**What are the best things about living in KSA? And what could you do without?**

Saudi Arabia is considered a collectivistic society. Loyalty in a collectivist culture is paramount, and overrides most other societal rules and regulations. Society fosters strong relationships where everyone takes responsibility for fellow members of their group. So the best things about living in Saudi Arabia are fellowship, hospitality, a pro-family society and, for me personally, the chance for a little bit of traveling and tourism. Saudi Arabia offers spectacular scenery when you venture out into the deserts, or the beaches along the coast of the Persian Gulf and the Red Sea.

And what could I do without? Well, there are some cultural aspects which seem quite unusual at first, such as women being required to wear an abaya [a robe-like dress] in public and not being allowed to drive, but as expats we are obliged to respect and observe local traditions and social codes.

**What do you personally wish your country for the future?**

Rapid formulation and implementation of social schemes and economic projects to transform the Kingdom into a major socio-economic hub in the Middle East.

>

# THE ECONOMY LARGELY DEPENDS ON OIL, WHICH ACCOUNTS FOR 70% OF ITS REVENUE

> Finally we travel to Qatar to meet **Gaby El Chaar**, GM for the Northern Gulf, consisting of Qatar, Bahrain and Kuwait. Gaby introduces us to his region:

**Bahrain, Qatar, Kuwait and Sika... what associations come to mind?**
**Qatar:**

- Qatar will be hosting the 2022 FIFA Cup
- An economy driven by natural gas with 13% of the world's reserves
- Construction focus on infrastructure & nonresidential
- Medium-term (2016) construction CAGR of 5.6%, and long-term expected to pick up by 6.5% to 2021

**Kuwait:**

- Has the 5th largest oil reserves
- Construction focus on infrastructure (roads, causeways, airport ...)
- Medium-term (2016) construction CAGR of 5.8%, with longer-term growth projected to decrease to 3.7% CAGR from 2016 to 2021.
- Residential construction will enjoy the strongest growth rate

**Bahrain:**

- Continuously facing civil unrest, discouraging foreign investment
- Government plans to build 15,000 housing units by 2015

**We were told Bahrain has the first post-oil economy in the Persian Gulf because the Bahraini economy does not rely on oil. Since the late 20th century, Bahrain has invested heavily in the banking and tourism sectors. What about construction?**
The economy largely depends on oil, which accounts for 70% of its revenue; however, government strategy is aimed toward more infrastructure developments in parallel with the housing construction program for the three new cities of East Hidd, East Sitra and Northern Town, with 23,000 units before 2017.

Gaby El Chaar, General Manager of Sika Gulf.

**Kuwait is frequently ranked as having the freest press in the Arab world. Is it also the most liberal country in the region?**
While Kuwait enjoys a high degree of press freedom and is a relatively liberal country from a GCC perspective, it is always difficult to say which country is the most liberal.

**There are 278,000 Qatari citizens and 1.5 million expatriates in Qatar. The country is even the world's richest country per capita and has the highest human development in the Arab world. Do you feel that everyone gets a piece of the cake?**
Unemployment in Qatar is less than 1%. The government is supporting the education of its younger generations locally and abroad and encouraging people to engage in the country's development program by playing active roles through employment opportunities, which in my view is a way of sharing the wealth and involving Qataris in various business opportunities.

**Are there any extraordinary Sika projects you would like to tell us about?**
Lusail City extends across an area of 38 km$^2$. The Lusail Development Company is the client for the CP4 Project, which consists of highways and highway underpass structures, and a multispan twin box overbridge and culvert structure. Sika Qatar successfully secured the challenging waterproofing works using the Sika PVC Membrane waterproofing system with injection backup after gaining the confidence of the client, consultant and main contractor. >

Laughter after the Sika Cricket tournament held in the UAE.

# UNEMPLOYMENT IN QATAR IS LESS THAN 1%

> More than 200,000 residents will live in Lusail's scenic surroundings, with some 170,000 people expected to work in the city's different districts, and 80,000 projected to visit its entertainment and recreation facilities.

**Where is Sika Northern Gulf heading? What are the targets?**
Sika Northern Gulf has acquired momentum over the last two years and 2014 is forecast to achieve more than 40% growth, driven by business development across the seven target markets with the primary focus on concrete, waterproofing, flooring & refurbishment. Northern Gulf is heading toward securing a number one position in each of its three marketplaces (Qatar, Kuwait & Bahrain) and all efforts are geared to sustainable business development to achieve this target.

**What are your favorite places in the region to visit?**
Kuwait remains my favorite. I lived there previously for seven years, and it was in Kuwait that I acquired my first GCC experience. From a business perspective, Kuwait offers Sika Northern Gulf excellent market potential and a new geographic dimension for growth. But I have to concede that Dubai is a beautiful place to visit too. <

# BIGGER LOCK CHAMBERS THAN ON THE PANAMA CANAL

The highest point of the drainage basin of the Danube is the summit of Piz Bernina on the Swiss-Italian border, at 4,049 m. Located in Central and Eastern Europe, the Danube is the European Union's longest and after the Volga the continent's second longest river.

TEXT: ZUZANA ZDANSKA, ASTRID SCHNEIDER
PHOTO: SIKA SLOWAKIA, FOTOLIA

> Classified as an international waterway, it originates in the town of Donaueschingen in Germany's Black Forest region. The Danube then flows southeast for 2,872 km, passing through four capital cities before emptying into the Black Sea via the Danube Delta in Romania and Ukraine.

Once a long-standing frontier of the Roman Empire, the river passes through or touches the borders of ten countries: Romania (29.0% of basin area), Hungary (11.6%), Serbia (10.2%), Austria, Germany, Bulgaria, Slovakia, Croatia, Ukraine, and Moldova.

The Gabčíkovo Waterworks were originally designed and built on the Danube near the Slovakian capital Bratislava and close to the borders with Austria and Hungary. The main purpose of the huge waterworks project was to protect the region against flooding from the Danube. The reservoir and massive locks are bigger than those on the Panama Canal and also provide year-round navigation to the Black Sea. The hydroelectric power station at the dam provides approximately 8% of the whole country's annual electricity consumption.

The waterworks consist of the 16 km Hrušov reservoir, which is designed to hold accumulating river water and control the flow through channels into the hydro-electric power station's turbine generators, before discharging back into the river further downstream. The huge 32 m high lock system was built to overcome the major differences in water levels (up to 22 m) and control the release of potential flood water. Ships enter the lock chambers that then drain from the base. Every 15 minutes around 200,000 m3 of water are displaced.

Each lock chamber is 275 m long and 34 m wide – larger than those on the Panama Canal. After more than 20 years' service, there was significant visible damage to the reinforced concrete structure. During this time there had been no major maintenance or repair works carried out. In 2013, the project engineer decided it was necessary to carry out major refurbishment, firstly focusing on the left lock chamber, including the overflow edges, inlet and outlet channels.

The entire lock chamber had to be drained and thoroughly cleaned employing high water pressure jetting. The surfaces of

> the reinforced concrete structure were repaired using a special type of mortar – Sika® Abraroc® SR. The product is ideal for the repair and protection of load-bearing, reinforced concrete hydraulic structures against hydraulic abrasion and aggressive water, such as found in water and waste water treatment plants, dams, locks and harbors, plus many other civil engineering structures that are subjected to heavy abrasion and loads, including the floors in storage and loading bays, silos and other industrial facilities.

The exposed areas of the repaired lock walls were coated with Sikagard® to further protect the surface and provide a uniform color. The structural movement/expansion joints in the concrete lock structure were repaired and sealed with the Sikadur® Combiflex® system to accommodate high movement and additionally to facilitate installation of the product. The system consists of 200 mm Combiflex strips, 2 mm thick, bedded and bonded onto the prepared concrete on both sides of the joints using the Sikadur®. The free central 'movement' zone of the strip is not covered with adhesive or bonded to the surface and can accommodate high movement in any direction.

Cracks in the concrete soffit of the water inlet and outlet channels had formed for different reasons over time. The project engineer decided that they needed to be effectively sealed to restore the structural integrity and prevent further water ingress to the structure. The system selected for filling and sealing the cracks was Sika® Injection®.

The water constantly overflows the edges, which are subjected to severe exposure, stress and loading. The surface was given additional protection with heavy steel plates fixed to its repaired concrete areas using Sika MonoTop®. The small void between the steel plates and repaired concrete surface was sealed with an injection pump using SikaGrout®.

The waterworks are now equipped in future to easily overcome differences in water levels of up to 22 m. Anyone who has witnessed this live from a tourist boat on the water will never forget the impressive sight! <

The Donauschlinge in Schlögen was named a WORLD HERITAGE by UNESCO lately.

# THE WATER CONSTANTLY OVERFLOWS THE EDGES

# A ROOF TO SHIELD AGAINST WINTER AND HAIL

A building full of emotions and remembering in Alberta, Canada: For three decades the Scotiabank Saddledome has been Calgary's primary indoor arena and gathering place for premier events, and the fun just keeps on coming. The hall is Calgary's leader for entertainment excitement. Seating over 19,000 and staging more than 150 events per year, it has something for everyone.

TEXT AND PROJECT: CARL DE LEON, JOHN MILLS, JAYNE RAEBURN, MATTHEW CHATTERS, JORDAN MURRAY, AMANDA MACDONALD, MARLENE MORIN AND CHRISTOPHE CULIS
PHOTO: SIKA, NEW HEIGHTS AERIAL PHOTOGRAPHY

# DURING THIS ONE YEAR PROJECT, A TOTAL AREA OF 16,369.5 M² WAS RE-ROOFED

> It has also played host to big ticket concerts, world-class tournaments, ice shows, circuses, conventions, and more. The 1988 Winter Games were held there, Queen Elizabeth II and Prince Philip included it on a royal visit in 2005, and the Dalai Lama gave a speech at the Saddledome in 2009.

Located on the Stampede Grounds, on the east end of downtown Calgary, the Saddledome was built in 1983 to replace the Stampede Corral as the home of National Hockey League team the Calgary Flames, and to host ice hockey and figure skating at the 1988 Winter Games.

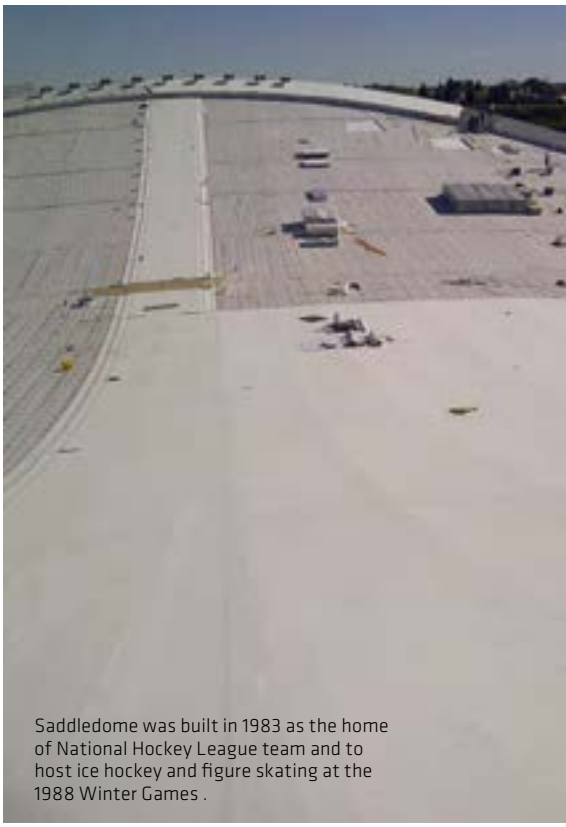
30 years of proven performance are im-

> pressive, but every good thing comes to an end. The need to upgrade the roof with the latest generation of Sika® products and the hailstorm of August 2012 in Calgary prompted the owner to re-roof the famous hall, home of the Calgary Flames hockey team. During this one year project, completed in July 2014, a total area of 16,369.5 $m^2$ was re-roofed with contractor Parker Johnston Industries (Alberta) Ltd.

Already covered with Sarnafil® products, the new roof showcases the most recent generation of roofing systems developed by Sika®, including specific features such as an 80 mil G410 Feltback membrane and an added gypsum cover board. Those components in combination provide the structure with better protection against wear, the vagaries of the weather, and the famous annual fireworks festival.

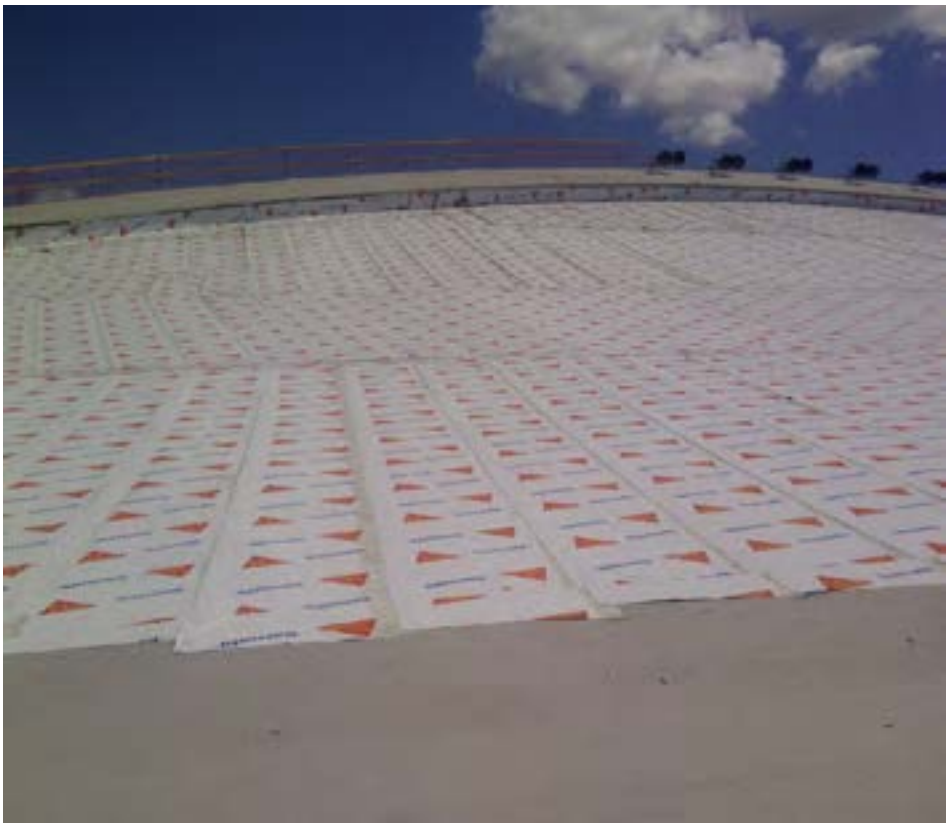
Understandably, the roof's compound curve design, as well as its ring beam edge and massive size, not only make the roof the most recognizable in Canada but also posed a unique challenge for Parker Johnston. Facing inclement weather conditions and technical challenges, the roofing crews had to combine efficiency, speed of execution and innovative techniques to complete such a long and complex project. Ultimately, the challenges were overcome thanks to the well-thought-out systematic method of removing the existing roof, followed by immediate waterproofing of the roof to keep it watertight, and installation of the insulation, rigid cover board and membrane.

The new stadium is now ready for the upcoming hockey season, safe from winter and hail for decades to come! <



Saddledome was built in 1983 as the home of National Hockey League team and to host ice hockey and figure skating at the 1988 Winter Games .

The massive hail storm in 2012 was one of the main reasons why the famous hall had to be reroofed.



# EUROPE'S LARGEST COMPOSITE REINFORCEMENT BRIDGE STRENGTHENING PROJECT

When the M3 Hawley Lane Bridge started to show signs of excessive deflection under heavy traffic, engineers at Enterprise Mouchel devised a repair solution that included the installation of a new central bridge pier to support two existing outer piers.

TEXT: KERRY PARKER WRAY
PHOTO: STEVE TOWNSEND

Pull-off test to test cohesive strength of concrete substrate after surface preparation

Measuring the ambient temperature and relative humidity.

# THE PROJECT MARKS ONE OF EUROPE'S LARGEST APPLICATIONS OF COMPOSITE REINFORCEMENT SYSTEMS

> To counteract changes to the deck's dynamics and reinforce the bridge between the three structural piers, Sika® CarboDur® rods and Sika® CarboDur® plates were used – marking one of Europe's largest applications of composite reinforcement systems.

Sika worked closely with the consulting engineers to advise material selection and properties required for a performance based specification – in line with Highways Agency best practice. To achieve the required performance, carbon fibre plates and rods were specified as part of a complex repair and concrete protection solution. The use of carbon fibre offered

Installation of Sika® CarboDur® carbon fibre plates.

an accelerated application process and enhanced performance properties when compared to traditional steel reinforcement. The £5 million project will see a total of 1,000 m of Sika® CarboDur® Rods and 5,000 m of Sika® CarboDur® Plates installed.

Using the company's extensive experience of structural strengthening – including in 2011 the UK's largest application of ultra-high modulus composite reinforcement at Embankment Tube Station – Sika will be closely involved at Hawley Bridge from initial specification to project completion. The company's full range of structural strengthening systems are suitable for increased loading, change of use, column wrapping, as well as applications in the nuclear industry for protection against seismic activity. >

Installation of Sika® CarboDur® carbon fibre plates

Application of Sikadur®-30 adhesive to carbon fibre plates.

On track to be delivered within a two month period, the project will be successfully finished to the highest standard thanks to a well organized, detailed application process and with minimal effect on the road's users – above and below the M3 Hawley Lane Bridge. <

Student of the Univeryity TU Graz with 3D trials.

# WHAT'S ON THE MINDS OF OUR YOUNG EMPLOYEES?

My name is Rafael Casquero Díaz. I am a 26-year- old Spanish chemical engineer from Madrid, and since June I have been doing a product management internship for sprayed concrete admixtures at Sika Services AG (Zurich). The internship will last for 6 months, and it was suggested that I write an article for Sika's Ambitions magazine.

TEXT: RAFAEL CASQUERO DÍAZ, MARKUS JAHN
PHOTO: UNIVERSITY TU GRAZ, AUSTRIA

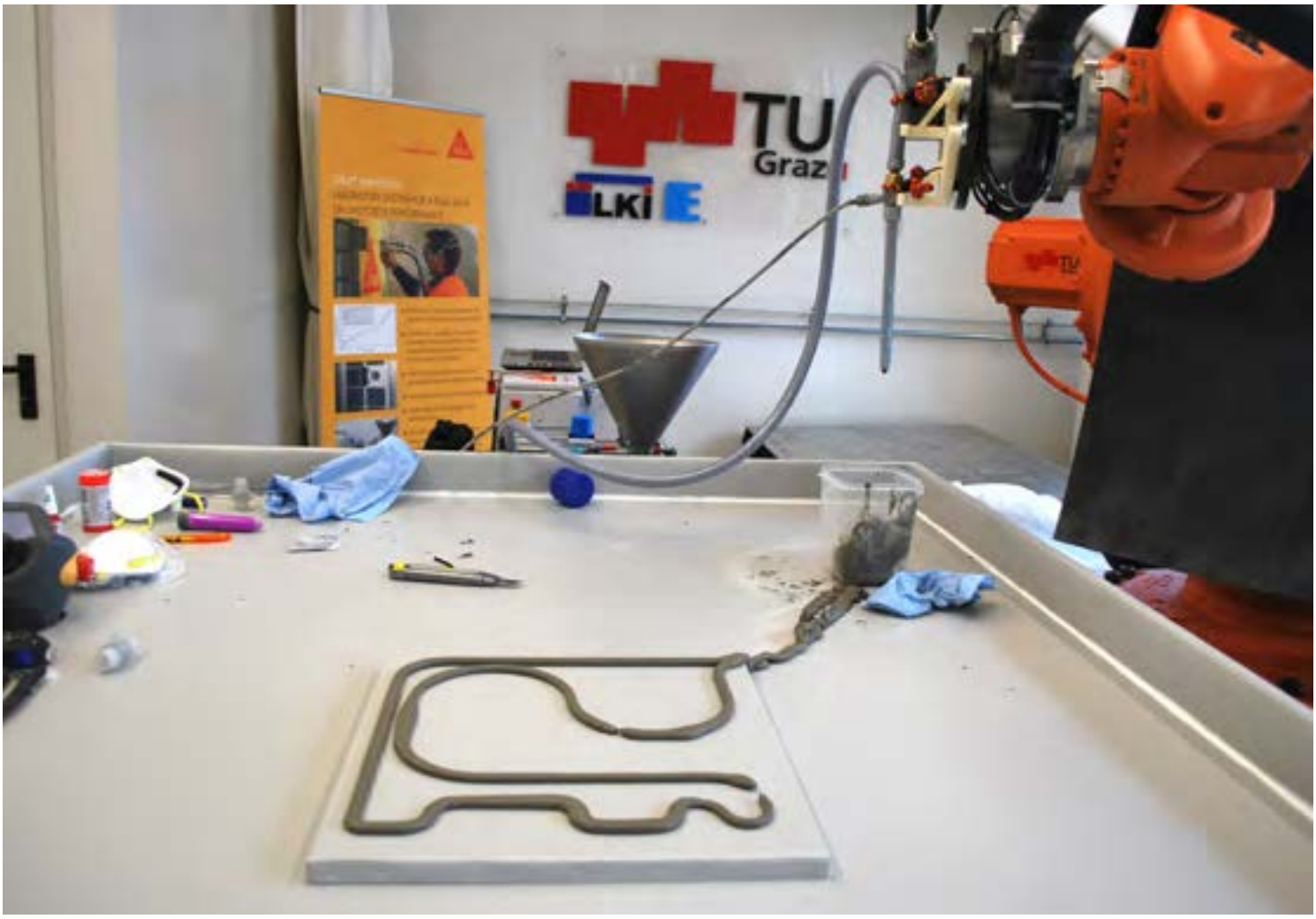
> I chose to write about 3D printing processes, which from my point of view is one of the most interesting topics I have covered during the internship. And what is more, it marks one of today's most revolutionary construction concepts. Given Sika's well-established position in the construction chemical products market, this modern construction technology is very interesting in terms of the potential business development.

**3D PRINTING FOR CONSTRUCTION**

At the end of the last decade in 2009, 3D printing took off as an exciting way to construct special architectural geometries or to produce efficient residential buildings. Since then, the US, the Netherlands and China have led research and development activities focused on this new technology. The increasing rate of growth of the global population and with it the need to build affordable housing faster and more sustainably gave rise to the idea of using a suitable and effective technology such as 3D printing to build houses.

3D printing was already being used to create medium-sized sculptures of small everyday objects. The technology consists of a computer-automated creation process, in which the original shape and size are designed by a software program, and a printing device then generates the required object in 3D. A number of universities around the world are investigating industrial-scale procedures to create layers of extruded concrete using a large building machine in order to build houses.

This year the architecture faculty of TU Graz started a very interesting project



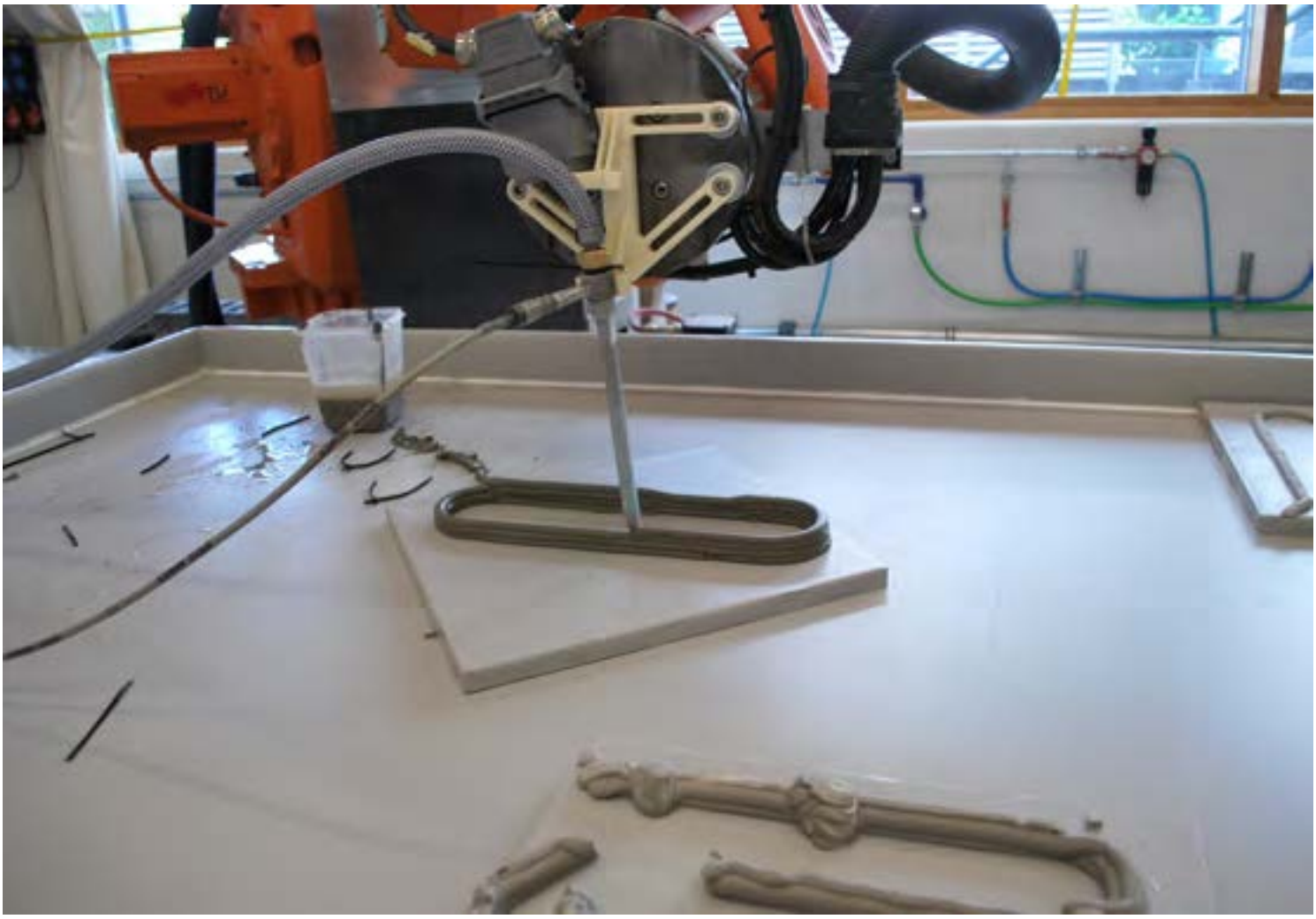
Spanish student Rafael Casquero Díaz.

# A MINISHOT PUMPING SYSTEM AS A CONTINUOUS EXTRUSION BUILDING DEVICE WITHOUT PULSATION

> focused on combining a wireless-controlled robotic arm with the low-output MiniShot concrete extrusion system invented by Sika. Originally, the MiniShot system was designed for testing admixtures for sprayed concrete using ultrasonic pulsating cells with the aim of saving time and reducing costs compared to high-scale testing procedures. However, TU Graz was interested in the MiniShot pumping system as a continuous extrusion building device without pulsation, avoiding the use of a compressed air unit. Sika assisted TU Graz with installing the MiniShot pumping system, performing the first laboratory trials, carrying out a troubleshooting test to detect the most common pumping-related issues, and adding a special nozzle for the Sigunit® accelerator (chemical product for decreasing the setting time of the mortar to develop higher early-compressive strength), (see Figure 1).

The mix design was a critical part of the technical support, conforming the extruded material pumped through a small hose. The mix design consisted of cement, (Sika® ViscoCrete®) superplasticizer, thixotropic filler (SikaThixo-14) and 0-1 mm of sand and water. It could be described as a mortar mixture due to the small size of the aggregates. An architecture student was given a project assignment to create highly precise 3D printing sculptures and geometric figures by applying extruded concrete in a laboratory (see Figure 2).

The first laboratory trials were affected by a control safety issue, which meant that Sika engineers had to work from 10 am to 10 pm to complete the technical support procedures.



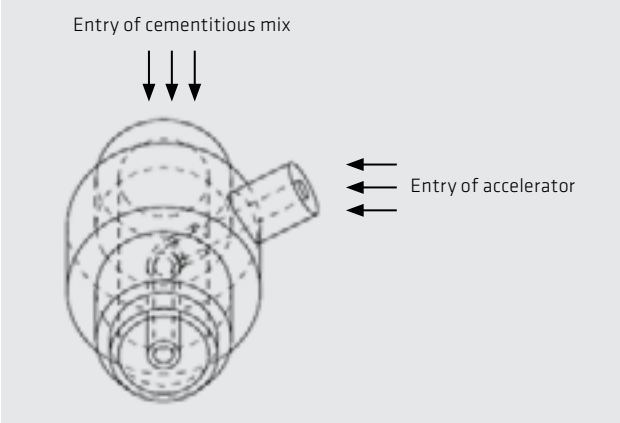



**Figure 1**: Special nozzle designed by Sika to support TU Graz

**Figure 2:** Combination of a robotic arm with the MiniShot system; 3D Sika logo

In my opinion, the combination of robotic system, software program and MiniShot pumping system was a brilliant idea if we consider the highly precise work developed by the extrusion nozzle when creating the Sika logo shown in Figure 2.

The project met the requirements of 3D construction printing as the build-up of the figures was formed with several fast setting layers of cementitious material. The partnership of trust between Sika and TU Graz was based not only on developing business but also on enjoying several activities to mark the end of the architecture degree course. For instance, the architecture professors invited us to take part in a final presentation of one of the subjects in which different groups of students provided specific insight into the same project.

What I find interesting about the first new TU Graz project is the way innovative building trends and creativity come together to form a basis for building the next generation of civil structures. The following stage in the partnership between Sika and TU Graz is currently under negotiation and would require a 3-year contract and considerable capital expenditure.

My personal impression is that, as with any of the projects in which Sika is involved, continuous technical support was given to TU Graz, increasing mutual trust and promoting a long-lasting business relationship. As a trainee, I would like to use this article to thank Sika for letting me accompany the Sika product engineers from Sika and discover different countries in central Europe. <

# A BUS IS NOT A SUBMARINE

Established in 1895 and based in Hungary, in the heart of Europe, legendary bus manufacturer Ikarus was a key player in the global bus market between 1950 and 1989. The company's predecessor, the Uhri Imre Blacksmith Workshop and Coach Factory, was established in Budapest in 1895. The factory received its first major order in 1924, when the Hungarian state railway MÁV commissioned a consignment of truck trailers. First developed in the 1950s, Ikarus buses can still be found in service all over the world.

TEXT: DOROTTYA WETTSTEIN
PHOTO: DOROTTYA WETTSTEIN

> The Ikarus 280 is the world's most-produced articulated bus, a total of 60,993 vehicles having left the assembly line. The ongoing economic crisis has, of course, an adverse impact on the Hungarian economy as well. A number of investments failed to materialize, including new buses for the Budapest Transport Company (BKV).

Pictures posted on various social media sites showing people sitting on a bus holding up umbrellas highlighted the fact that several of the older vehicles had already started to let in rain water. Although the old Ikarus buses with their metal roofs are extremely durable, when they have been in operation for 20 to 25 years, the company has to decide whether to replace them or to repair them and extend their service life. The pictures of clients in Social Media had such a negative impact that the company gave urgent priority to repairing the old vehicles. Gábor Farkas, Director of Industry at Sika Hungary comments on the job specification to repair the busses: "The remit was to do a complete renovation of the vehicle roof subject to the following conditions: The vehicle may not leak, a solution to the leaking roof problem has to be found that will hold until the vehicle is taken out of service (another 3-5 years), the solution has to be relatively easy and quick to implement as well as cold applicable.

The BKV provided a number of companies with a sample vehicle to work on, including Sika Hungary. The usual seam sealing was not feasible because large parts of the roofs were in a very bad condition. We considered applying a weather-resistant coating with good adhesion on painted surfaces. After consulting with the Sika roofing expert, we decided to use SikaRoof® MTC (moisture-triggered chemistry) technology. An added advantage of MTC technology is UV resistance, avoiding the need to paint the roof. It proved to be a more economical solution than those proposed by our competitors, all requiring that the roof be subsequently painted. A further condition of winning the contract was for the sample vehicle to be ready."

Roofing of the sample vehicle was carried out by roofing technician Zoltán Dávid, who explains the technical aspects of this work: "SikaRoof® MTC 8 system was applied to the undamaged parts of the bus roof, while damaged and corroded parts were treated with the SikaRoof® MTC 15 system com-plete with reinforcing. To prime the MTC 8 system, we used Sika® Zinc Phosphate Primer on metal surfaces, and Sika® Bonding Primer on painted surfaces. Sikalastic®-621 TC topcoat was used for waterproofing. When working with the MTC 15 system, we applied Sikalastic®-621 TC in two stages, embedding Sika® Reemat Premium in the first coat, and then re-applying a second top coat. The real challenge was to securely waterproof the steel roof, which revealed different degrees of corrosion. It was important to combine the two systems. Sika® Reemat Premium was used on all bodywork parts that were more exposed to water damage, such as the bends and the drainage groove on either side of the bus.

Gábor Farkas adds: "The complete roof repair took 12 to 14 hours, but this time can be reduced as the work becomes routine. The vehicle was back in service immediately after repair at the end of March. The BKV valuation of the sample buses was scheduled for the end of June. The Sika solution has in the meantime successfully weathered numerous storms. Although the valuation has not yet been carried out, the BKV has already ordered material for further bus roof renovations, because they like this solution. There are 1000 vehicles waiting to be repaired.

Sika can draw on experience in bus roof refurbishment as a reference for other automotive industries or, for example, railway rolling stock roof repairs. The cold-applied technology used is an advantage since it eliminates the need to take down the internal covering of the vehicle and also cuts down working time by 2 to 3 days.

So customers will be able to continue sitting in the retro bus remembering good old times. And those from the next generations, who were born after the Ikarus boom, can have an idea of what it was like. Sitting in the world`s most produced bus, over the last decades – and the best of all: it is still running. <

# DESIGNER SHOPPING WITHOUT DESIGNER PRICE TAG

Who says only women like shopping? Here old stereotypes don't fit anymore... DFO Homebush, 15 km near Sydney, Australia, is now the ultimate destination for designer shopping without the designer price tag. With over 19 international and luxury designer brands there are multiple options to suit any budget or outfit requirement! It also makes DFO Homebush home to more premium brands than any other outlet shopping centre in the country.

TEXT: JENNY PERELLO, ASTRID SCHNEIDER
PHOTO: WARREN LENNON

# A CHALLENGE FOR THIS PROJECT WAS THE APPLICATION OF THE FLOORING WHILE THE CENTRE WAS STILL TRADING

> To celebrate the launch of this Premium Mall, celebrity stylist Jules Sebastian inspires shoppers to discover the latest trends of the new season, with exceptional brands delivering not-to-be-missed savings. Jules has created three digital vignettes that will showcase a curated edit of products motivated by the theme 'Runway to Reality'. The vignettes will show you how you can pull together entire ensembles by prestigious brands for under $1,000. DFO Homebush is now the ultimate destination for designer shopping without the designer price tag.

The direct factory outlet shopping centre has become a popular shopping destination for tourists and locals like with over 80 specialty stores offering a range of products including home wares, clothing, electronics and furniture. The centre is considered a shopping hot-spot with premium and well known fashion brands such as Hugo Boss, Armani Exchange, Burberry, TopShop and Calvin Klein all having stores within the complex.

DFO Homebush is open to the public 7 days, attracting tens of thousands of shoppers each week making the shopping centre a busy area, especially during peak periods such as Christmas. Years of constant foot traffic resulted in the entire centre requiring renovations.
The unique project required a complete re-vamp of approximately 1200 m$^2$ worth of flooring within the centre. Given the flooring would be located directly out the front of premium and high end shop fronts, a durable yet very aesthetically appealing solution that tied in with the decorative theme of the surrounding store fascias was needed.

A key requirement for this project was that the same finish and effect that was applied to the flooring would also need to be applied to a 40m long ramp at a slope of 1:40 leading into the centre. This required special attention during the planning stages of the project. A challenge for this project was the application of the flooring while the centre was still trading as well as having renovations carried out to other areas.

Once mixed, Sikafloor 160 was put down as a self-leveller at 3–4mm in thickness. As the epoxy flowed and the 40-minute curing process began, the shards settled and created the desired metallic cloud patterns with a translucent 3D effect. Given the renovations were taking placed during the busy Christmas period, the application of the flooring solution took place during the evening after the centre was closed.

Despite this scheduling limitation, the contractor Firmstone was able to successfully complete this project within the set time frame and to the exact specification set out by the architect resulting in an extremely happy customer and a one of a kind shopping centre floor. <

# EAT YOURSELF HAPPY

The level of enjoyment we experience in eating our food has very real biochemical consequences that directly affect our metabolism. But can you eat yourself happy? If you turn to food when you're feeling glum, it's worth knowing which foods can really help to lift your spirits and which foods make you feel worse in the long run. To find this out, just visit any delicatessen food store in the world.

TEXT: ASTRID SCHNEIDER
PHOTO: SIKA BELGIUM

The finish is complemented by roller coating with another layer of Sikafloor® to standardize the color.

> Delicatessen originally means "giving pleasure, delightful, pleasing". And this is exactly what places like this one do. As an example we show you here a delicatessen shop, which offers its customers an "all-in-one" space converted into a unique gourmet universe. It had to be built within an existing building. The challenge was to put the dynamics of the 'new' concept of gourmet shopping inside.

In the upcoming example you can see clearly that SikaFloor® systems are perfect for restaurant and food stores. Apart from their durability, they are hygienic and comfortable to walk on.

Here, the job was divided into three parts: the store, the restaurant and the counter area, each requiring different standards according to the applications. The store and the restaurant had to be covered with a wear-resistant, noise-reducing floor which is both easy to maintain and comfortable, while presenting a modern look. The floor in the counter area needed to be strong, functional, easy to clean and non-skid. And with SikaFloor® it is easy to create a consistency between the different uses of spaces.

In the store and restaurant the new Sika ComfortFloor® offered a system solution which meets all these essential properties. After the existing concrete had been sanded and polished, Sikafloor®primer was applied, followed by a layer comprising Sikafloor®, a solvent-free epoxy resin the next day. The highly elastic coating Sikafloor® was applied on top of this. After hardening was completed, a wear-resistant Sikafloor® topcoat was added, obtaining an aqueous, smooth, matt finish. For the counter area the powdered Sikafloor® self-leveling system was used, comprising a layer of a wear-resistant, non-dusting, quartz sand resin. During laying, the size of the scattered particles provides a thin non-slip finish. Cleanability can be improved by choosing coarse or fine grained quartz. The finish is complemented by roller coating with another layer of Sikafloor® to standardize the color.

Finally this is a place where delicatessen shopping and eating can be fully enjoyed. <

# TAILOR-MADE ROOFS

Fruit packing houses are facilities where fruit is received and processed prior to distribution to market. The fruit is transported via conveyor belts to the grading tables, where it is visually sorted into three grades: top quality, average, and orchard run, and is then carried via belts to the packing tables. During the late 19th century top-grade fruit would be wrapped in printed tissue paper, a technique developed in the town of Orange, California in the 1880s, and placed in the boxes so that the printed names showed between the slats.

TEXT: LUIS CARLOS GUTIERREZ
PHOTO: LUIS MURILLO

> In the 1920s, tissue wrappers were replaced with printed logos, and ultimately paper stickers. Packed fruit is designated by size, based on the average number of pieces it takes to fill a box. In the days of wooden crates, sizes were generally within a broad range from the 100s to the 390s. The sizes for the smaller cardboard boxes introduced in the 1950s, and still in use today, range from the 40s to the 210s, depending upon the variety of fruit being shipped.

Today, packing is often still performed by hand, even though Sunkist developed robotic packing machines in the 1980s. Packed boxes are stored in a "pre-cooler" to prepare them for the trip to market by truck or rail. Fruit was shipped across the

# THE PROJECT ALLOWED SIKA TO DEMONSTRATE ITS COMPETENCE AND EXPERTISE IN SUSTAINABILITY

country in ventilated railroad cars or insulated boxcars before the advent of the refrigerator car.

Spanish Company Frutiner has a long tradition of growing and trading fruits (mostly citrus) since the 1950s. Besides branches in Madrid, Barcelona, Mercabarna, Vila Real and Almazora, the company is constructing a roofing system for its new fruit packaging house in Onda Castellón. Frutiner was looking for a heavy-duty high-quality roofing system to cover a total area of 11,000 $m^2$.

The roofing system should be strong enough to allow the installation of a photovoltaic system for self-consumption. Designers Grupotec needed a reliable end-to-end system and a dependable roofing partner able to provide a durable solution. Sika convinced the customer to choose a high-performance thermoplastic roofing solution to fulfil the customer requirements from a technical, economic and environmental point of view.

The specified Sika roofing system with a beige-colored waterproofing membrane was approved by the customer thanks not only to its high technical performance, but also because it more than fulfilled their price expectations. In warm climates like Spain, white, highly reflective roofing membranes are known to be able to reduce a building's heat absorption as well as its cooling energy consumption and keep energy costs lower.

Sika thus proposed an alternative solution that is cost-effective not only in terms of the initial construction outlay, but also as regards the potential energy and carbon footprint savings that the installation of a high-reflective roofing membrane provides.

In a departure from the black-colored bituminous solutions which are typically applied in Spain, and also to convince the customer of the additional benefits of highly reflective thermoplastic cool roofs, Sika´s Global Product Sustainability Group performed a life cycle assessment (LCA) of three roofing solutions with similar performances. First, a specified Sika system build-up with a beige membrane was tested, then the same system build-up with a black membrane and, third, the very same system build-up but with a highly reflective membrane.

By reducing heating/cooling loads, light-colored reflective membranes can help cut energy consumption. The estimated potential energy and $CO_2$ savings from the building's lower cooling/heating loads thanks to the installation of the white and beige membranes, as compared against the black roof, are calcu-

The results for a roofing system treated with beige Sarnafil TS 77-18 and one with white Sarnafil TS 77-18 SR demonstrate that both thermoplastic membranes bring significant savings.

> lated to determine the energy and carbon break-even point of the roofing system.

For the total project surface area of 11,000 m², the results for a roofing system treated with beige Sarnafil TS 77-18 and one with white Sarnafil TS 77-18 SR demonstrate that both thermoplastic membranes bring significant savings owing to the reduced cooling load compared to a system with a black roofing membrane. The estimated potential savings surpass the energy and carbon impacts from cradle to gate of the roofing system in less than 5 years. It is as estimated that with the white membrane almost 8000 GJ of cooling/heating energy could be additionally saved compared with the beige membrane over a period of 20 years.

The life cycle assessment is a standardized method to assess and compare the inputs, outputs and potential environmental impacts of products and services over their life cycle. LCAs are increasingly recognized as the best way to evaluate the sustainability performance of products and systems. This method allows an evaluation of the systems' potential environmental impacts over the entire life cycle and thus selects a cost-effective solution in terms of both the initial construction costs and the potential energy and carbon footprint savings that come with installing a white membrane.

The LCA can greatly assist our customers in evaluating Sika's products and systems by providing quantitative data on their environmental profile. Products which may otherwise display a similar performance can be distinguished in terms of any greater differences they show with regard to environmental impact – where obviously the lower, the better.
Based on the reduction in overall environmental performance and, therefore, in costs (economic and environmental) in the long run, the results of the evaluation were conclusive enough for the customer to opt to install the high solar reflective white membrane as opposed to the beige one. The project allowed Sika to demonstrate its competence and expertise in sustainability, including all relevant quantitative contributions to a sustainable high performance tailor-made roofing solution to fulfill the customer requirements from a technical, economic and environmental point of view.

Climate-sensitive buildings such as food store centers, where fruits are stored for distribution, require special climatic conditions, including a specific temperature plus certain humidity. The fruits must be prevented from going bad; they are not to become ripe too early as they have to be perfect when they arrive in the supermarkets. So it is crucial to ensure the right building climate. It is helpful if the roof produces moderate building temperatures, as you do not require as much air conditioning or artificial heating. <

LCA'S ARE INCREASINGLY RECOGNIZED AS THE BEST WAY TO EVALUATE THE SUSTAINABILITY PERFORMANCE OF PRODUCTS AND SYSTEMS

# THE CHILDREN'S ARK

TEXT: ASTRID SCHNEIDER
PHOTO: NIKY ALEXIOU

The "Ark of the World" takes care of children that have been experiencing abandonment, racism and social exclusion on a daily basis in one of the most downgraded regions of Athens, the "Platonos" Academy. It was founded in 1998 by Father Antonios Papanikolaou (26 years old at the time) with a vision of creating a place of care, support and hope for a prosperous future for these children, the children of "another" Athens.

> The Ark today takes care of about 200 children – from infants to 18-year-olds – in a multi-religious, multicultural community, which flourishes and achieves great things together. The 150 Greek children, along with children from Romania, Bulgaria, Albania, Ukraine, Russia, Kazakhstan, Ghana, Afghanistan and Iraq, experience the harmony, affection and peace of the Ark, which provides relief from poverty, hunger, illness, misery, exploitation and illiteracy.

There are volunteers that unselfishly attend to the children's basic needs, such as food, clothing, entertainment, nursing, and school integration. Other volunteers take care of their education with free tutorial courses and professional training. Volunteers and donors contribute to the social integration of the children under the continuous care of Father Antonios.

Father Antonios' goal is to avoid institutionalizing the children and to keep them with their mothers. In order to achieve this, homeless mothers with no income receive economic aid on a monthly basis (rent for small residences, water and electricity bills etc.). Moreover, mothers are helped to find a job to be able to stand on their own feet and take responsibility for their children. Despite the serious shortage of resources that the Ark faces, including a lack of money and infrastructure, its efforts are very important and have been recognized with national and international distinctions.

The Ark has received awards from two Presidents of the Greek Republic, Mr Konstantinos Stefanopoulos in November 2003 and Mr Karolos Papoulias in December 2005, as one of the best organizations for the well-being of children in Greece. The European Observatory against Racism and Xenophobia described the Ark as "The brightest example against racism and xenophobia in Greece" for the year 2003. In December 2004 the Ark was honored by UNESCO, and in December 2008, Father Antonios Papanikolaou was recognized by the Athens Academy for his humanity and his exceptional voluntary work.

This September, Sika Greece, in tune with the current needs of its social environment, aided the elementary school children by providing them with items of school stationery. School bags full of notebooks, pens and color pencils, as well as pens, calculators and balls were delivered, meeting the different ages and needs.

The items were presented to both the NGO that takes care of children, as well as to its employees' children, filling the atmosphere with smiles and happy voices. Sika Greece, will continue to make an active contribution to society, once more standing by and supporting its weakest but most promising members: the children. <

BUILDING TRUST