

# AMBITIONS

A dive into Sika's world



## WORLD VIEWS MEXICO

A journey to a  
city of 25 millions

10

## A WORLD- RECORD BREAKING BRIDGE

34

## SEALING THE JOINTS OF SIR EDMUND HILLARY'S HUT

16

## SMART BUILDING CONSTRUCTION

Watching the Polar Lights from your bed and wake  
up midst wild and amazing nature

4

# RECORD WINNERS



ASTRID SCHNEIDER  
Marketing & Communications  
Manager, Sika Services

Being the first in a discipline has always been special. The shortest common outdoor running distance is one of the most popular and prestigious events in the sport of athletics. And the Jamaican Usain Bolt shattered all previous records in 2009 with his 9.58 seconds. The event remains memorable to this day. At the same time, we remember everything that stands out as being the highest, the biggest, the strongest, the smallest (the sight of a hummingbird drinking nectar from a flower is one that will never be forgotten), or the first-ever. We have a brain that is sensitive to superlatives and we live in a superlative world. We also build and create superlative things. One example is the Hong Kong-Zhuhai-Macao Bridge (HZMB) (p.34), which has broken many world records in engineering. As the world's longest bridge-tunnel, the HZMB has the longest total span, the longest steel structure, and the longest underwater immersed tunnel. It has broken many world records and been rated by The Guardian as one of the "seven wonders of the modern world." The HZMB is a huge project with multifarious processes and high-level requirements that involves many challenges and follows rigorous standards in every respect. But there are more records to present.

The GF Victoria Hotel (p.26) in Fuerteventura has the most inclined green roofs currently to be found in Europe. This space covers approximately 1,800 m<sup>2</sup> and comprises three roofs with variable slopes, the average inclination being 40C° (even reaching 48C° in some deck cloths), landscaped terraces with an inclination lower than 10C° of slope and reinforced pits for plantations of increased size.

We also present a very sustainable energy-saving example of record-breaking architecture in the form of the smart Lucia (p.4), which has intelligent solar control glass that minimizes, or even eliminates, the need for an air conditioning system, reducing running costs for the building and saving energy.

Yours sincerely,

ASTRID SCHNEIDER

# CONTRIBUTORS



ARI ARO

Flooring Specialist,  
Sika Finland

Working in Sika has given me a privilege to work with innovative flooring systems and Sika ComfortFloor® is definitely one of those. People want to experience nature in new ways and the project Smart Lucia presents the opportunity to be in the middle of the nature and feel comfortable.



LUIS CARLOS  
GUTIÉRREZ

Marketing & Communications  
Manager, Sika Spain

Landscaped roofs of the Hotel GF in Fuerteventura are currently the most inclined in Europe and it has been an engineering challenge to address the constructive complications that it presented.



RUBEN RAMIREZ  
MONTES

Target Market Manager  
Refurbishment

Working for Sika in Mexico with a Large Portfolio of Solutions for Infrastructure Projects, Rehabilitation / Reinforcement and Commercial Building and Finishes.



VOLKAN GÜNGÖR

Sales Representative Concrete,  
Sika Turkey

Due to their fast and safe excavation systems, TBMs are a must in today's tunnelling business. Our foams can significantly modify the characteristics of the ground in order to make the work and progress of the TBM easier and faster.

# AMBITIONS #32 2019



- 4     **SUSTAINABILITY**  
Accommodation for our future
- 10    **WORLD VIEWS**  
What's Mexico about?
- 16    **JOINT SEALING**  
Hillary's Hut vrs the frozen continent

- 20    **TUNNELING**  
TBM tunneling around the world
- 26    **ROOFING**  
Inclined green roof with a view
- 34    **SMART**  
The world-record-breaking bridge

## IMPRINT

**Editors' address:** Sika Services AG, Corporate Marketing, Tüffenwies 16, CH-8048 Zurich, Switzerland, e-mail: [ambitions.magazine@ch.sika.com](mailto:ambitions.magazine@ch.sika.com)

**Layout and Design:** Sika Services AG, Corporate Marketing, Marketing Services  
Visit us on the Internet: [www.sika.com](http://www.sika.com)

All trademarks used or mentioned herein are protected by law. All photo copyrights are owned by Sika except when mentioned. Reproduction is permitted with the written consent of the publisher.

# SUSTAINABILITY



Smart Lucia is well acclimatized and it is possible to live inside during all seasons.

# ACCOMMODATION FOR OUR FUTURE

It is not only how amazing it looks. This little piece of housing brings together Finnish glass work, unique design, and the esthetics of the Nordic wilderness. Just imagine the feeling of spending your nights in this bed watching the Polar Lights and falling asleep with the wild beauty of nature all around you. Enjoying a hot cup of coffee in the morning and simply soaking up the mysticism of nature.

TEXT: ASTRID SCHNEIDER  
PHOTO: JUSSI RÖNKKÖ

- > Smart Lucia is a new generation of intelligent and fully equipped glass space solution that combines modern glasswork with natural esthetics. The accommodation is like a living painting, with the surrounding landscape painted on the surface of the glass, and it creates an experience that surpasses description: You become part of nature. Thanks to the modular design, it can be easily modified to suit a wide range of applications and its special architecture offers unlimited possibilities and completely new experiences.

The accommodation is not intended merely as a special apartment for your next nature trip. Thanks to the modular design, the space can also be easily transformed into a company representation space or an individual's innovative leisure home. Intelligent solutions are no longer just dreams of the future – they are an opportunity to pioneer. Intelligent adventure travel opens up new and real opportunities. Northern mythology – endless forests and spacious lakes – combined with modern adventure tourism creates a unique, competitive concept.

Smart Lucia was born in the sauna, a place that has been the source of new life for hundreds of years. Smart Lucia is the brainchild of entrepreneur Kari-Matti Ruhanen, who first envisioned Smart Lucia as falling asleep in a heavily glazed cottage in the sky. He wanted to enjoy looking at the sky and landscape before falling asleep and immediately on

>



Thanks to the modular design, the space can also be easily transformed into a company representation space or an individual's innovative leisure home.

Enjoying looking at the sky and landscape before falling asleep is one of the best experiences Smart Lucia has to offer.



> awakening. Smart Lucia was then designed by architect Teemu Pirinen.

The goal was to develop a new generation of intelligent, mobile, and instant housing. The module space solution has been designed with architects, taking into account the diverse uses as well as a specific design esthetic. The accommodation solution is well acclimatized and it is possible to live inside during all seasons.

The room solution features basic, everyday items. The testing of Smart Lucia's "intelligent solar control glass" with demo version is necessary. Intelligent solar control glass can minimise, or even eliminating the need for an air conditioning system, reducing running costs of the building and saving energy. In hot climates, solar control glass can be used to minimise solar heat gain and help control glare.

Smart Lucia wanted a new, durable, easy to clean, elastic, and high quality flooring for the customer. The floor should be able to withstand wear and tear. In addition, the floor surface must be of a high quality to match the rest of Smart Lucia. Surface elasticity is one of the benefits offered by the product, as is convenience. The floor surface must also be able to withstand the use and transfer of furniture. The surface color scheme must be in line with the customer's wishes and

>



# WITH THE CREATION OF SMART LUCIA HOUSING, A KEY PRINCIPLE IS TO PROMOTE EMPLOYMENT IN FINLAND AND ENSURE FINNISH QUALITY

> surface tinting is an important feature. Sika ComfortFloor® was the ideal solution for easy care and a comfortable floor covering. The floor was primed with Sikafloor®-156, followed by an elastic and resilient Sikafloor®-330 coating applied to the floor surface. After the coating had dried, an application of UV-resistant and yellowing matte finish Sikafloor®-304 W followed.

Due to the structural adhesives, the rigidity of the glass stiffens and supports the frame, so the insulating glass is connected using Sikasil® IG-25 HM Plus. Insulating glass are glued to the frame with high strength structural adhesive Sikasil®-20 SG and weather sealer silicone sealant Sikasil® WS-605 S.

Architect Teemu Pirinen's design philosophy is to create ecologically sustain-

able and healthy buildings that are also unique and characteristic. He is known for his modern, airy, and geometric style and won the 2018 German Design Award. He has also been honored in the following competitions:

- Booking.com Guest Review Awards 2017, 9.9 out of 10 points: Jávri Lodge
- 2A Europe Architecture Award 2018, nominee: House Y
- 2018 Wood Award, nominee: House Y
- World Architecture News, Top ten projects of 2017, 3<sup>rd</sup> place: House Y



The project is sustainable throughout. The intelligent automatic operation system controls the room climate. All materials used in the Lucia product family are from Finland. All related work also takes place in the country. With the creation of Smart Lucia housing, a key principle is to promote employment in Finland and ensure Finnish quality. <

Want to try it out and have an overnight stay in [Smart Lucia](#)?

Find out more about [Sika Finland](#).

Watch the [easy installation](#) of Smart Lucia.

More information about Smart Lucia please go to: [www.smartlucia.fi/en](http://www.smartlucia.fi/en)

**Manufacturer:** Savon Lasituote Oy

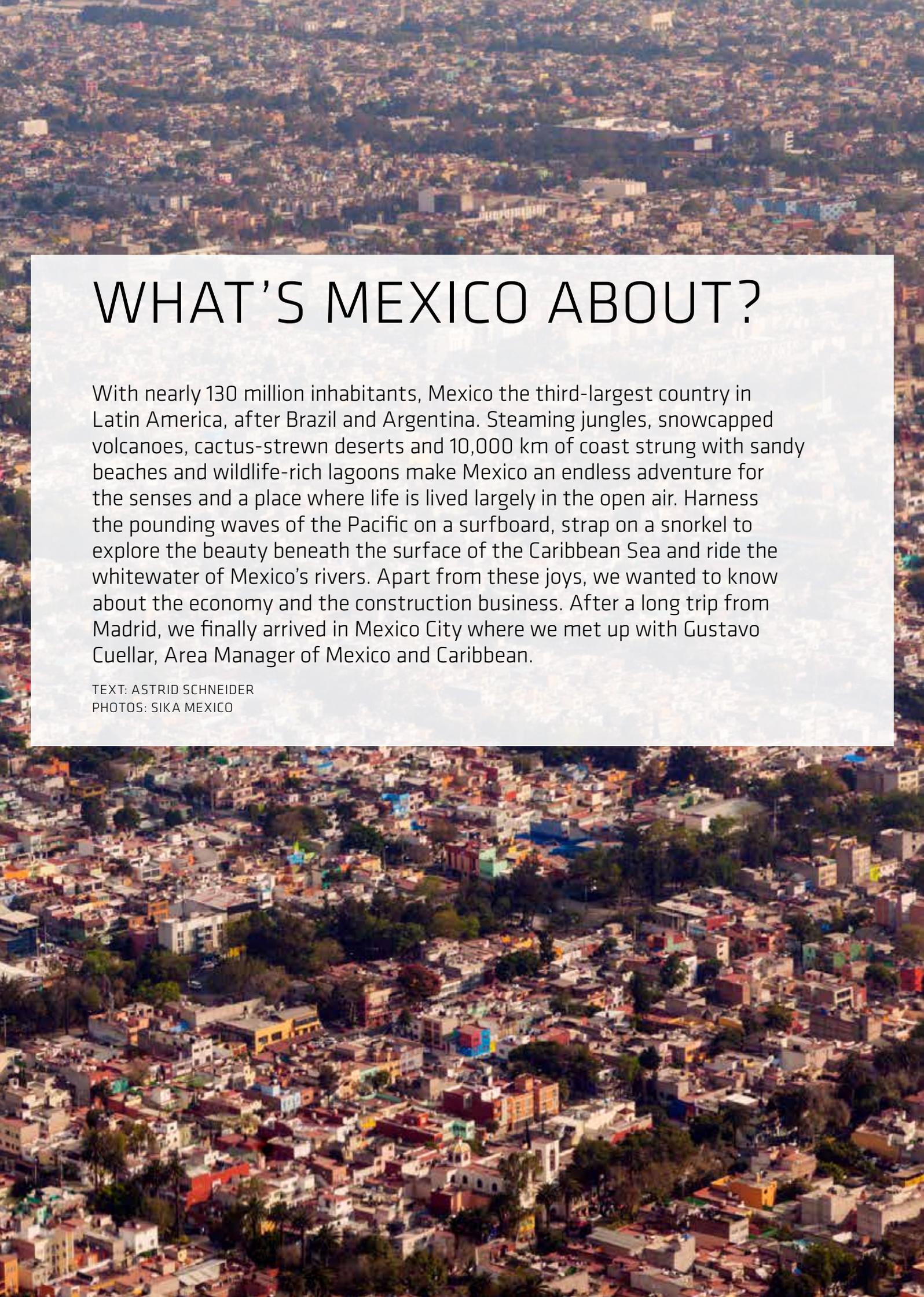
**Architect:** Teemu Pirinen

**Floor coverings, glass adhesives, and sealing products:** Sika Finland Ab

The elastic floor had to withstand wear and tear. The surface color scheme also had to be in line with the customer's wishes.







# WHAT'S MEXICO ABOUT?

With nearly 130 million inhabitants, Mexico the third-largest country in Latin America, after Brazil and Argentina. Steaming jungles, snowcapped volcanoes, cactus-strewn deserts and 10,000 km of coast strung with sandy beaches and wildlife-rich lagoons make Mexico an endless adventure for the senses and a place where life is lived largely in the open air. Harness the pounding waves of the Pacific on a surfboard, strap on a snorkel to explore the beauty beneath the surface of the Caribbean Sea and ride the whitewater of Mexico's rivers. Apart from these joys, we wanted to know about the economy and the construction business. After a long trip from Madrid, we finally arrived in Mexico City where we met up with Gustavo Cuellar, Area Manager of Mexico and Caribbean.

TEXT: ASTRID SCHNEIDER  
PHOTOS: SIKI MEXICO



**Left to right:** Gustavo Cuéllar, Benjamin Reynoso, Manager of Roofing and Waterproofing, Vanesa Alfeiran, HR Manager Mexico Caribbean Area and Francisco Retondo, new General Manager Sika Mexico.



**Gustavo Cuéllar,**  
Area Manager Sika México and Caribbean.

> **What do you personally see as the key to managing a team?**

To get the team to believe in their own values, aligned with the objectives of the organization, and enjoy working with their sights set on achieving these shared objectives.

**What comes to mind first when you think about working in Mexico?**

Great opportunities, fears and challenges come to my mind, together with the satisfactions of getting to know a new culture and an exceptional country.

**Looking at the Mexican economy, analysts say that the two earthquakes in September 2017 affected the oil industry and the market for services but that as of 2018 should see an upturn in the construction business. Is this the reality?**

In 2019 a new government has taken office in Mexico. It has announced major changes which clearly bring both opportunities and challenges. Sika Mexico is poised to continue its growth by offering excellent solutions for the construction industry and its market.

**What impact does the construction business have on Mexicans' living standards?**

Obviously, construction improves the quality of life in every society, but I'd like to answer more precisely how Sika products improve this quality of life, and I can tell you that they do so in many different ways. They achieve stronger structures ready for projects such as the Mexico - Toluca railway; gaskets which seal glass façades in the modern skyscrapers and office buildings in this country's mega-cities. They protect floors and seal roofs in industrial mega-projects in Mexico, such as the Nestlé factory at Ocotlán, in Jalisco State; the BMW plant in San Luis; and the Audi factory in Puebla. Naturally, Sika also offers highly reliable solutions for the residential market, with leading-edge technology such as roof sealants with reflective properties, to reduce temperatures in the residential blocks which are home, sweet home to many millions of Mexicans! In the transport industry, too, we have an impact on the supply of adhesives for the manufacture of buses, which are improving the quality of transport in many Mexican conurbations.

**What's it like nowadays to manage Sika's business in a mega-city such as Mexico City, with a population of nearly 25 million?**

At Sika Mexico, we have devoted much effort to this issue and there's a lot I could say about it. A huge city has something of everything when it comes to mega-projects. Apart from the ones I mentioned in answer to your previous question, I would point to wastewater treatment, in view of the city's size, and its urban transport and connections with the world. But there's another very important theme I'd like to highlight, and it has been a big challenge, but also a major success for the team at Sika Mexico. I mean the development of a distribution strategy which increases the penetration of our products and their delivery to small and medium construction sites in Mexico City, through our distributors who are our strategic allies. In particular, we're successfully rolling out a strategy which we have called Sika Center. With the other strategies I have mentioned, this has enabled us to outperform average national growth rates in the sales we are making in Mexico City.

>

Project: **The Toluca–Mexico City  
Commuter Rail**

The project is a 57.7 km commuter rail line, which will connect the cities of Toluca and Mexico City. It was estimated to open around 2021. Sika Mexico is providing various products to this project.





1



2



> **And what about the construction market in general? What exactly does Mexico need from Sika?**

Mexico is a big country. It needs to boost its infrastructure and invest in energy and industry, as well as being a country of 125 million inhabitants and the world's 14<sup>th</sup>-largest economy. Sika has the optimum solutions for construction and industry. Many of these are produced in Mexico, deploying leading-edge technology.

**What are the next goals for Sika Mexico?**

To continue profitable sales growth, consolidating a happy team who have the opportunity to grow, personally and professionally.

**Frida Kahlo has set a record for the most expensive Latin-American art work ever bought at auction. This also makes Frida Kahlo one of the top-selling women artists anywhere. Has she become a model for Mexican women to follow, to break the conventional patterns of Latin society?**

Having lived in Mexico for five years, I believe Mexican men and women are great professionals with a high level of commitment. I think Latin American women

demonstrate daily that they are the bedrock of society, not only for the family, but for the contribution so many of them make in economic circles, in sports, science and the arts.

**What do you personally enjoy most about life in Mexico? The Pacific seen from a surf board, or exploring the beauty that lies beneath the waves of the Caribbean Sea?**

Mexico has the most beautiful beaches I've seen in my life, on both its Pacific and its Caribbean coasts. Nevertheless, I spend my free time mountain-biking in a nature reserve on the outskirts of Mexico City called 'el desierto de los leones' [the lions' desert] with fantastic forest trails, 2,800 to 3,400 meters above sea level.

**What are your wishes for your country's future?**

Both for my country of birth and for my adoptive country, Mexico, I would like to see accelerated economic growth that generates wealth throughout society and reduces levels of violence, by improving education at all levels. <

**1 Project: Viaducto Alterno, Puerto Progreso, Yucatán**

Adhesion bridge and corrosion inhibitor that increases the durability of concrete structures.

One of the most ambitious projects in terms of durability and preservation so far in Mexico. Sika collaborated with the anticorrosive protection of steel, hydrophobic impregnations and additives that improve concrete performance.

Sika Technology:  
SikaTop Armatec EmpoCem-110  
Sikagard-705 L  
SikaViscoCrete

**2 Project: Vía Vallejo, Mexico**

The prefabricated SBS from SIKALKOAT are composed of distilled asphalts and modified with styrene. These durable membranes have a degree of elasticity that exceeds 2.000%, presenting great flexibility to temperatures below -20°C while its resistance to heat exceeds 130°C.

# JOINT SEALING



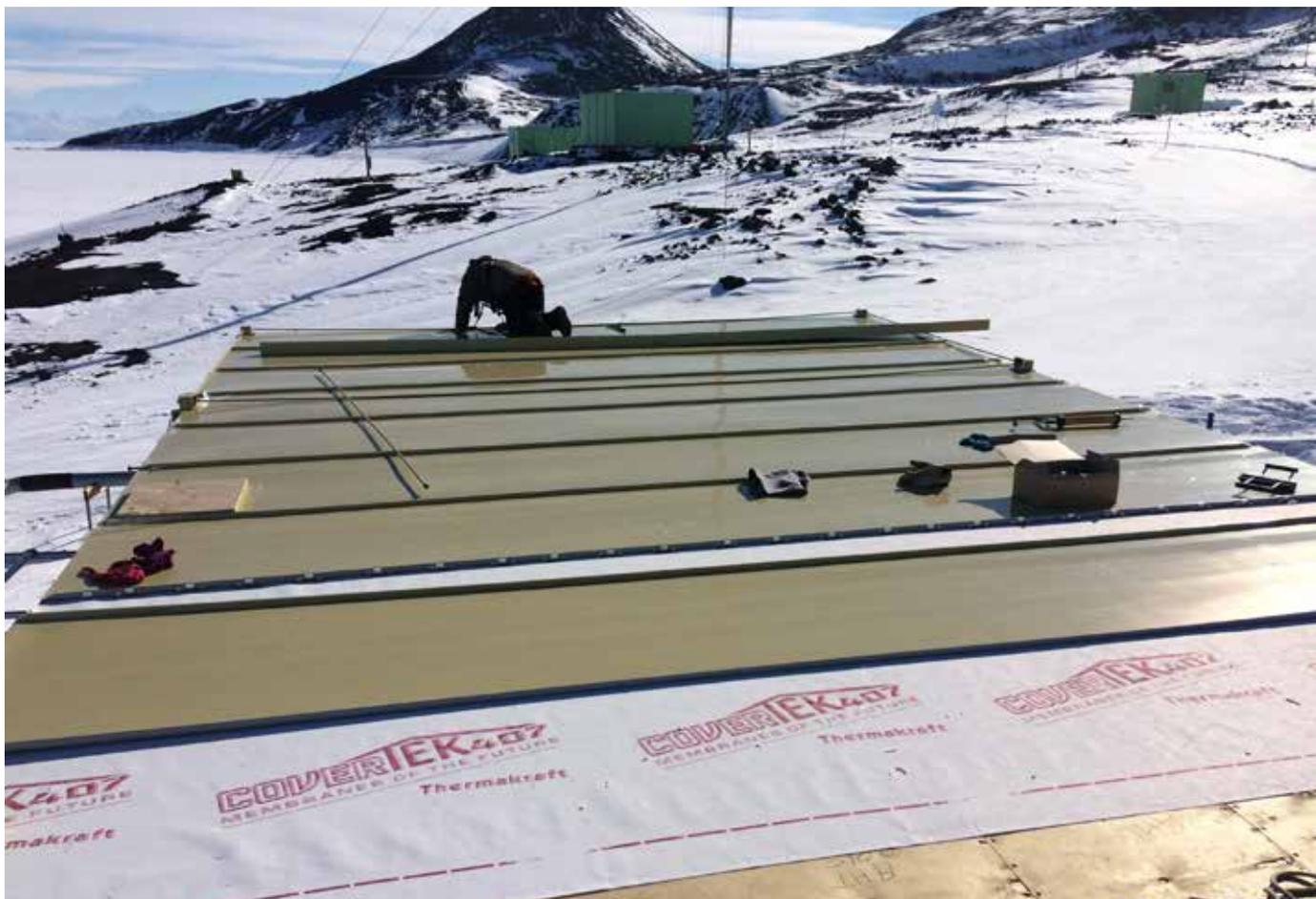


# HILLARY'S HUT VRS THE FROZEN CONTINENT

Most of us might not stand on its majestic peak of 8,840 m in a lifetime, but we all know well its height and forms while we are still fascinated by its mystery land. Still, as in April 2016, more than 4,000 people have attempted to climb Mount Everest. Climbing Everest is no small feat, and despite all modern equipment reaching the top remains a tremendous accomplishment. But for some people, climbing the mountain once just isn't enough. In fact, a climber by the name of Kami Rita Sherpa has been to the summit on 22 separate occasions, giving him the record for most successful attempts on the mountain. But the first successful summit of Mt Everest was recorded by the New Zealander Edmund Hillary and Nepalese climber Tenzing Norgay on May 29, 1953.

TEXT: DUNCAN ROBERTSON  
PHOTOS: SIKA NEW ZEALAND

## THE STRUCTURE SIR ED AND HIS TEAM BUILT WAS THE FIRST EVER AT SCOTT BASE AND IS KNOWN TODAY AS HILLARY'S HUT

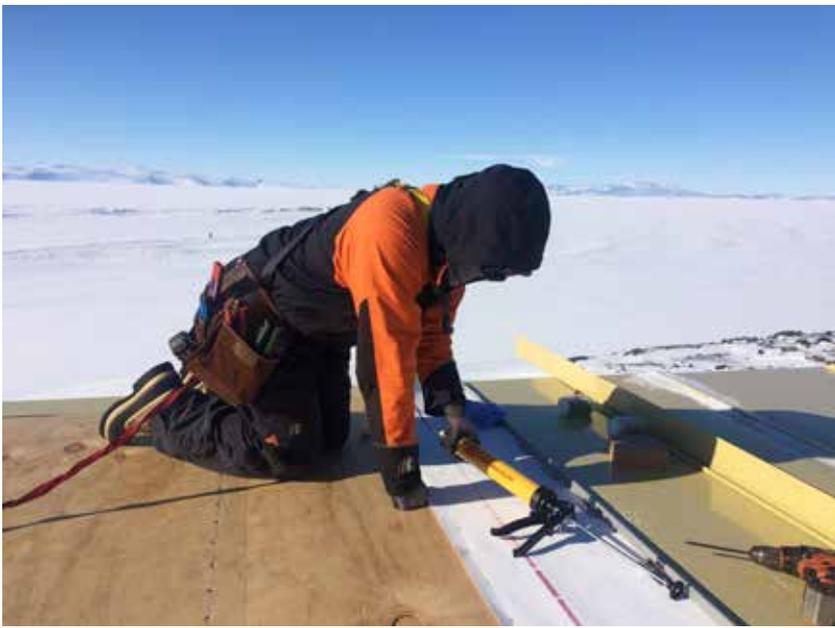


A challenging environment such as the sub-zero Antarctic will always be a tough call for any sealant but the high performance of SikaHyflex®-250 made the roof leak free for many years to come.

> “Sir Ed” as Kiwi’s affectionately call was a natural leader and well used to extreme sub zero conditions. In 1957 he was chosen to lead a team who would be responsible for placing food and fuel depots across the ice in support of the Commonwealth Trans-Antarctic Expedition led by English explorer Dr. Vivian Fuchs. The first task for Sir Ed and his team was to build a structure at Scott Base, New Zealand’s territo-

ry on the frozen continent. Scott Base sits at the southern end of Ross Island, 3,500 km south of the city of Dunedin and 1,350 km from the South Pole. The structure Sir Ed and his team built was the first ever at Scott Base and is known today as Hillary’s Hut. Never one to stand on ceremony, and against instructions, Sir Ed continued past the last supply dump and made what became known as ‘the dash to the pole’. On 4 January 1958

he and two companions became the first to reach the South Pole overland since Sir Robert Falcon Scott in 1912. Dr. Vivian Fuchs expedition arrived 16 days later. Sixty years of Antarctic winters on, the only one of the original Scott Base buildings still standing was Hillary’s Hut. It was in a sad state when in November 2016 the Antarctic Heritage Trust began a total restoration of this historic piece of Antarctic history.



Once the flat roof panels were installed, the pre-painted panels were then sealed with SikaHyflex®-250 and layered with wooden battens to replicate the Hut's original appearance.

Sika NZ became a Sponsor of the Trust and supplied Sika PEF Backing rod and MultiSeal Tape for interior restoration work. Then in November 2017, Mike Burgess from New Zealand sheet metal experts Architectural Metalformers approached Sika to see if we had a high performance sealant he could use in a clever plan to finally stop the Hut's roof leaking. We did. When Mike arrived at Scott Base at the start of the Antarctic summer he was armed with not only his excellent sheet metal skills but also amongst his roofing kit, cartridges of SikaHyflex®-250 Facade. Mike's plan was to use traditional standing seam roofing, enclosed edges

and SikaHyflex®-250 to create completely new flat roof panels. Once installed, the pre-painted panels were then sealed with more SikaHyflex®-250 and layered with wooden battens to replicate the Hut's original appearance.

The first big test came in early 2018 just a few days after completion when a "warm storm" swept across Scott Base. All the other roofs at the Base leaked. Hillary's Hut stayed dry. A challenging environment such as the sub-zero Antarctic will always be a tough call for any sealant but the high performance of SikaHyflex®-250 and the care and ap-

proach Mike Burgess took with the re-roofing, should Hillary's Hut stay leak free for many years to come.

On the 21<sup>st</sup> of January this year, Sika NZ received the news back from Scott Base that "the roof was inspected over the Summer Season and there are no visible concerns." One Antarctic winter down, just 59 more to go.

To see a time-lapse of the Hillary's Hut repair, and learn more about the great work the Antarctic Heritage Trust is doing with their Inspiring Explorers program, visit [Sika New Zealand](http://Sika New Zealand). <

# TUNNELING





# TBM TUNNELING AROUND THE WORLD

It's not only the increasing population in the megacities, but also mid-size cities require continuous development and improvement of the infrastructure like higher demand for the transport of people, more sewage water or spanning distances faster.

AUTHOR: ALEJANDRO VELEZ  
PHOTO: RICARDO GOMEZ, I-STOCK

# A GREAT ADVANTAGES FOR PEOPLE'S MODERN INFRASTRUCTURE: TUNNELS DON'T DISTURB SURFACE LIFE OR GROUND ACTIVITIES



> An increasing volume of sewage from houses and growing industries, the demand for faster ways to transport people from home to work using trains and subways, shortening distances between cities trying to make the highway or railway an alternative to flying during our vacations, or even evacuating rain water from crowded cities during rainy seasons.

These are just a few examples where the tunnel industry comes into play. Nowadays longer, bigger and deeper tun-

nels need to be excavated, always trying to shorten construction times and reducing costs to make them more interesting for investor companies and project owners. It is clear that massive infrastructure projects will need to be developed all around the world in the near future.

The examples are exactly the types of project where TBMs (short for Tunnel Boring Machine) are used. TBMs are very advanced equipment used to excavate

through rock, soft ground or mixed soils. For the last two types, the use of foaming agents such as Sika® Foam TBM injected into the front of the tunnel face can significantly modify the characteristics of the ground excavated in order to make the work and progress of the TBM easier and faster.

These big machines, starting from a few centimeters in diameter up to over 17 meters, have a cutting wheel in the front to cut, mix and remove the ground,

Tunnels in cities improve traffic conditions on a long-term basis. On the surface it is possible to construct parks or living areas.



a shield in the middle where the main components are located, and a very long back-up structure containing all the necessary electrical, hydraulic and logistics installations that enable almost continuous excavation while installing the concrete elements to build the structure of the tunnel itself. In short, TBMs are big factories below ground that are in constant motion.

While developing ultra-modern infrastructures in an incredible short space

of time and preparing to host the football World Cup in 2022, Qatar created a huge subway system for the city of Doha. During peak performance, 20 out of 21 German EPB TBMs of around 7 m in diameter were excavating at the same time.

A brand-new airport in Istanbul needs to have a subway connection to the city. Several local companies were selected to excavate long tunnels using different EPB TBMs with a diameter of around 6.5 m. >

**1** Underground trains are still creating a great framework for mobility as well as new and exciting urban spaces on the surface.

**2** TBMs  
The use of foaming agents such as Sika®Foam TBM injected into the front of the tunnel face can significantly modify the characteristics of the ground excavated in order to make the work and progress of the TBM easier and faster.

> Excavation in the difficult and very sticky clay did not stop these machines breaking existing world records, while always injecting the proper foaming agent to condition the ground.

Huge, very powerful TBMs with diameters of around 12 m excavated new tunnels for the subway and railway system only a few meters below the cities of Riyadh in Saudi Arabia and Buenos Aires in Argentina without affecting the traf-

fic or without causing damage to the existing infrastructure, making such large projects almost “invisible” during day-to-day life.

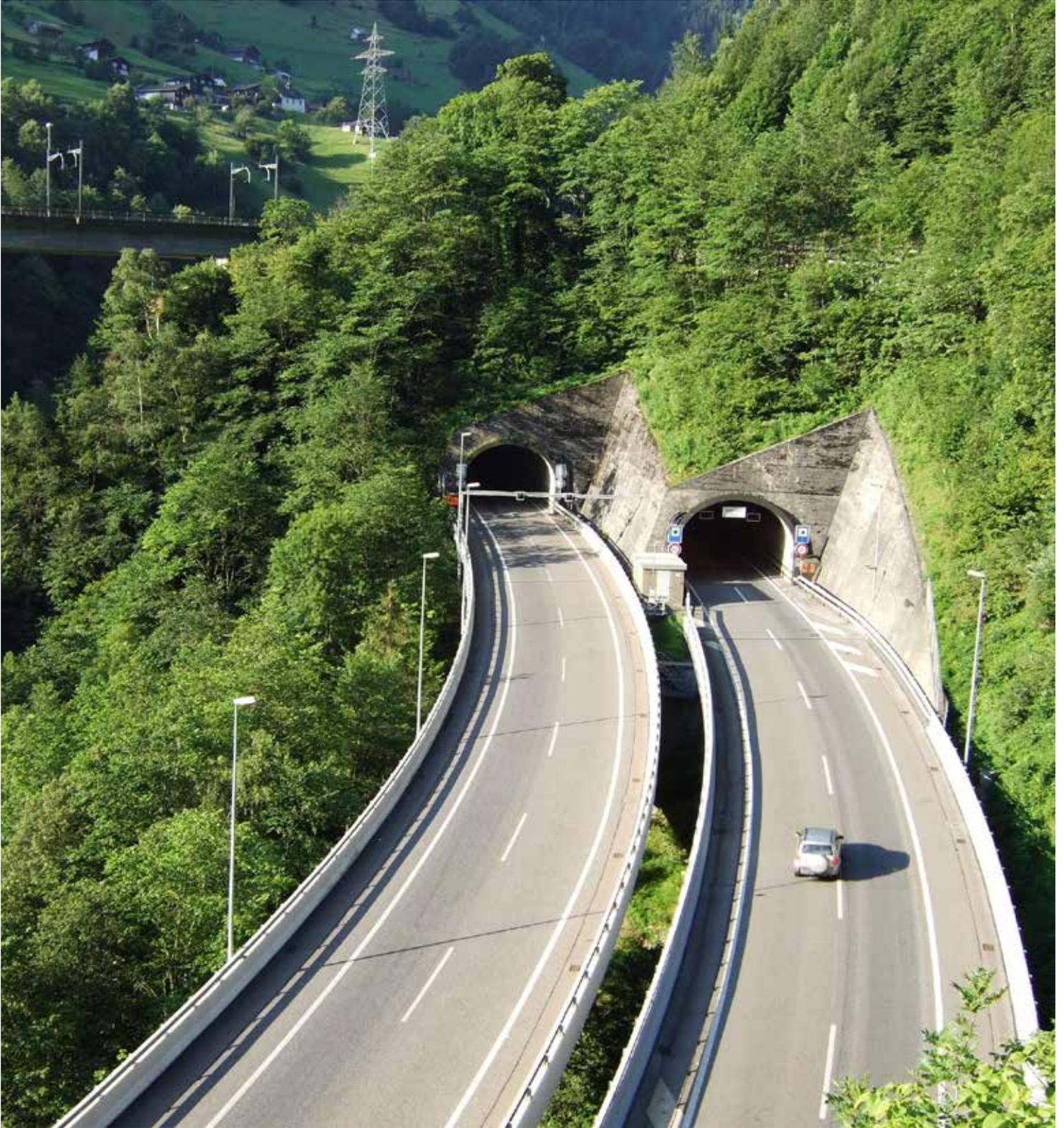


Car tunnels reduce noise pollution

For the smaller diameters the city of Buenos Aires took advantage of micro-tunneling technologies (the TBM in a project had a diameter of 1.9 m) and decided to build a new sewage system to improve the quality of life of around 30,000 people near the international airport. With a length of over 4 km, this tunnel will be used to transport sewage water collected from the houses and bring it to a brand-new treatment plant.

In some sections of the tunnels mentioned above, and in many more projects, the local Sika companies have been able to provide foaming agents from the Sika® Foam TBM range for conditioning the ground with excellent technical support, and fast and economical solutions which meet the expectations of a very aggressive, competitive, and still-growing market. >

For more information on TBM technologies and products, please visit our website [www.sika.com](http://www.sika.com)



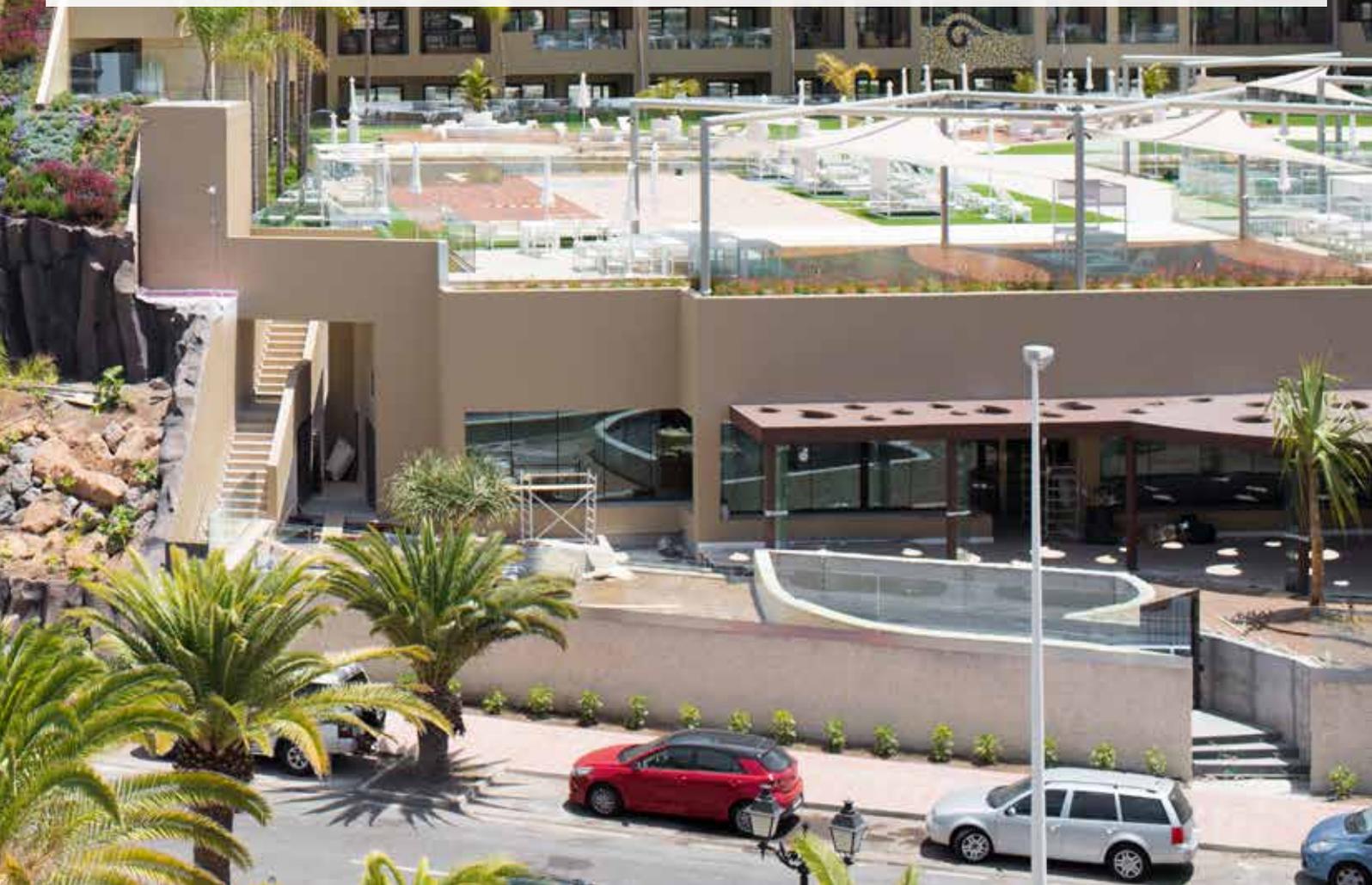
# ROOFING



# INCLINED GREEN ROOF WITH A VIEW

Tenerife is the largest of Spain's Canary Islands, off the coast of West Africa. 43% of the entire population of the Canary Islands live on this island. It is dominated by Mount Teide (3,718 m), a dormant volcano that is Spain's tallest peak. Despite the fact that the Canary Islands are geographically part of the African continent, they are recognized as belonging to Spain and are therefore European. Tenerife may be best known for its festivals, music, dancing, and colorful costumes. The island has many resort areas and beaches, with sands ranging from yellow to black. It is a striking island visited by millions every year.

TEXT: LUIS CARLOS GUTIÉRREZ  
PHOTO: SIKA SPAIN



The landscaped roofs are the most inclined of Europe, and it has been nothing short of an engineering challenge to address the constructive complications that this presented.







**1** Working vertically: The space covers three roofs with variable slopes, the average inclination being 40C° to 48C°.

**2** You can now find aromatic plants such as curry, lavender, thyme and rosemary alongside local Canarian plants.

**3** In total, work covered an area of approximately 1,800 m<sup>2</sup>.



> The economy of Tenerife, predominantly based on agriculture and trade until the 1970s, is now focused on the service industry, mainly tourism, which has boosted construction and services linked to tourism activity.

The territory provides a home for more than 800,000 inhabitants, and boasts

two of the three cities of the Canary Islands with more than 100,000 inhabitants and showing an annual population growth of more than 13%. The coast and surrounding areas are the most densely inhabited zones.

Population growth in Tenerife has depended more on external flows of in-

comes than on natural growth, although the latter is still higher than the national average. These flows are, to a large extent, due to the circulation of people born in European Union states and other Autonomous Communities of Spain, and – in particular – immigration from Latin America.



With more than 6 million tourists, Tenerife is the most visited of the Canary Islands. Touristic infrastructure has another jewel in the municipality of Adeje, with the recently opened GF Victoria hotel, a five-star, luxury suite hotel. The concept of disconnecting from everyday life and going into rest and relaxation mode are part and parcel of this exclusive

holiday experience. So it is not only the service and the surroundings which have to be pleasing and special for guests, but also the building details themselves.

Machado Waterproofing carried out the waterproofing and assembly of the garden roofs. The landscaped roofs are the most inclined of Europe, and it has been

nothing short of an engineering challenge to address the constructive complications that this presented. In total, work covered an area of approximately 1800 m<sup>2</sup>. This space covers three roofs with variable slopes, the average inclination being 40C° (even reaching 48C° in some deck cloths), landscaped terraces >

The option chosen was vegetation requiring low water use.



- > with an inclination lower than 10C° of slope and reinforced pits for plantations of increased size.

As regards the waterproofing, Sarnafil systems was chosen for its resistance to roots and its long useful life (20 years' warranty from Sika). The cover was completed with different landscaping systems, chosen according to the slope and vegetation requirements.

The challenge in the beginning was to contain the entire system: waterproofing, absorption blankets, substrate, irrigation systems, plantation, etc., while supporting the tensions produced by the inclination and weight of all the elements.

Another challenge was to calculate the placement of retaining barriers to support the tensions of the garden roof. The retention barriers are composed of anti-pusher brackets, made of stainless steel, which support 300 kg / ud, in combination with stainless steel profiles. The location is especially exposed and the plants had to be chosen to tolerate full sun well. Another element that needed to be taken into account was saving water in order to optimize water expenditure for irrigation. The option chosen was vegetation requiring low water use. You can now find aromatic plants such as curry, lavender, thyme and rosemary alongside local Canarian plants.

The GF Victoria hotel, a five-star, luxury suite hotel, has become a green beauty.



## ANOTHER ELEMENT THAT NEEDED TO BE TAKEN INTO ACCOUNT WAS SAVING WATER IN ORDER TO OPTIMIZE WATER EXPENDITURE FOR IRRIGATION

Special plants were chosen for the perimeters and passable corridors, since it is a plant with low-growth prostrate stems, fast growing and high capacity rooting, and offering substantial resistance to tread.

We have been told that the plants are doing very well. Guests of the hotel can now enjoy the view of this beautiful, iconic green wall while enjoying the breeze from the Atlantic Ocean. And Tenerife has much more to offer besides. Just come yourself and find out. <





# THE WORLD-RECORD-BREAKING BRIDGE

The Hong Kong-Zhuhai-Macao Bridge (HZMB) has broken many world records in engineering. These records aside, this new gigantic piece of infrastructure is a major help to the people in the region, where the most important benefit is that the bridge provides the east and west of the Pearl River Estuary with direct road connections. This will be a major boost in the development of industries that rely on fast transport, such as logistics, food, and conventions and exhibitions in the whole west of the Pearl River Delta.

TEXT: ASTRID SCHNEIDER  
PHOTO: SIKA CHINA

> As the world's longest bridge-tunnel, the HZMB has the longest total span, the longest steel structure, and the longest underwater immersed tunnel and has broken many world records. It has been rated by The Guardian as one of the "seven wonders of the modern world". The HZMB is a huge project with multifarious processes and high-level require-

ments that involves many challenges and follows rigorous standards in every respect. Sika China professionals helped to deliver a professional application system to this world-class project.

After 9 years of construction from commencement in 2009 to the opening in 2018, the bridge – the "Mount Everest of

the bridge industry" which has grabbed the world's attention – was declared fully open to traffic last October. From now on, a drive from Hong Kong to Zhuhai and Macao will be shortened from 3 hours to 45 minutes, a huge gain for business exchange for the whole region.

The 55 km bridge crosses Lingdingyang



## SIKA CONTRIBUTED TO THE 9-YEAR CONSTRUCTION OF THE BRIDGE WITH SIKA PRODUCTS AND SOLUTIONS

and joins Hong Kong in the east and Zhuhai and Macao in the west. The main work is 29.6 km in total and consists of a 22.9 km bridge, an island, and a 6.7 km subsea tunnel. The bridge has a service life of 120 years and can withstand a magnitude 8 earthquake, level 16 typhoon, and 300,000 ton impact. As the interconnecting backbone of the Guangdong-Hong Kong-Macao Greater Bay Area, the bridge has greatly shortened travel time and distance.

The first day of service was witnessed by hundreds of millions of TV viewers in the form of a live broadcast. The bridge went viral on Weibo and WeChat “Moments”. Whilst the country was transfixed, employees of Sika were the most proud, because Sika professionals contributed to the 9-year construction of the bridge with Sika products and solutions. The bridge has a very attractive appearance. After working with the CCCC Shanghai Harbour Engineering Design & Research Institute to conduct a 6-month *béton brut* full scale model test, Sika® ViscoCrete® 3310C polycarboxylic acid high-performance water reducer was applied to the construction of the 20,000 m<sup>3</sup> C30 *béton brut* wave wall of the artificial island, resolving such problems as laitance, blackening, and

bleeding, and thereby guaranteeing the appearance quality of the concrete. In addition to the application of the concrete, Sika offered professional concrete application systems to aid the construction of the bridge.

Sika® ViscoCrete®-3310C polycarboxylic acid was used in the construction of the 75,000 m<sup>3</sup> large-volume marine concrete of the C45 hidden section of the artificial island to support other concrete cooling and anti-crack measures, thus preventing any cracking of the concrete. The product was also applied to the 20,000 m<sup>3</sup> C55 cast-in-situ box girder on the artificial island to produce high-thixotropy, low-rheology, and high-performance marine concrete, effectively preventing cold joints forming during concrete pouring and guaranteeing project quality. To produce C30 concrete for the revetment project of the artificial island, Sika® ViscoCrete®-1220 polycarboxylic acid high-performance water reducer was used. Sika concrete admixture solutions were also applied to over 500,000 m<sup>3</sup> of the bridge.

The project needed Sikadur®-31 SBA bond to splice the prefabricated parts of the concrete piers. The service life spanning decades proves the extremely

stable quality of the product. Sika’s repair and reinforcing system offers targeted solutions to various construction problems. A Sika PVC single-ply roofing system was applied to the Passenger Inspection Areas A and B of Zhuhai Port and traffic center project, covering an area of 141,000 m<sup>2</sup>, offering powerful support for this key national project. Zhuhai Port is an important component to the bridge. It covers an area of 325,000 m<sup>2</sup>, while its roof spreads over 139,000 m<sup>2</sup>. Sika specifically customized pearl white color Sarnafil® S327-15L PVC waterproofing membrane. While matching with the aluminum standing seam system above it also provided safe and reliable waterproofing for the upper-part aluminum alloy metal sheet and fulfilled the architect’s requirements for appearance and functional performance.

Along with the opening of the bridge to traffic, the bridge’s designated shuttle bus, the Scania Higer bus, has attracted national attention. Specially built by Higer Bus Company Limited, the deluxe bus is made with the best solutions for design appearance and bus manufacturing. During the manufacturing, the Sika Industry Department offered Higer its professional products and systemic so- >



Innovative: Artificial islands were constructed as part of the bridge.

- > lutions. All the glass within the buses was joined using SikaTack® Ultrafast HG and sealed with Sikaflex®-211 WR. The sealing of the external bus coating was completed using Sikaflex®-218 NS special grey. Sika also applied Sikaflex®-212FC for the internal sealing, while the sealing of bus skylights and air conditioning was performed with Sikaflex®-221.

The gigantic HZMB will become a landmark project to boost infrastructure connectivity in the Guangdong-Hong Kong-Macao Greater Bay Area. Linking three regions, it has turned the sea into a thoroughfare and dramatically shortened travel time and distance. It is a milestone and breakthrough in Chinese engineering and architecture. Moreover, the bridge will boost the development of the Greater Bay Area and strengthen the overall competitiveness of the Pearl River Delta. It will also create new opportunities for Guangdong, Hong Kong, and Macao to complement each other with their respective advantages and implement win-win cooperation. <



- 1 The 55 km bridge crosses Lingding-yang and joins Hong Kong in the east and Zhuhai and Macao in the west.
- 2 The bridge has a service life of 120 years.
- 3 The first day of service was witnessed by hundreds of millions of TV viewers in the form of a live broadcast.





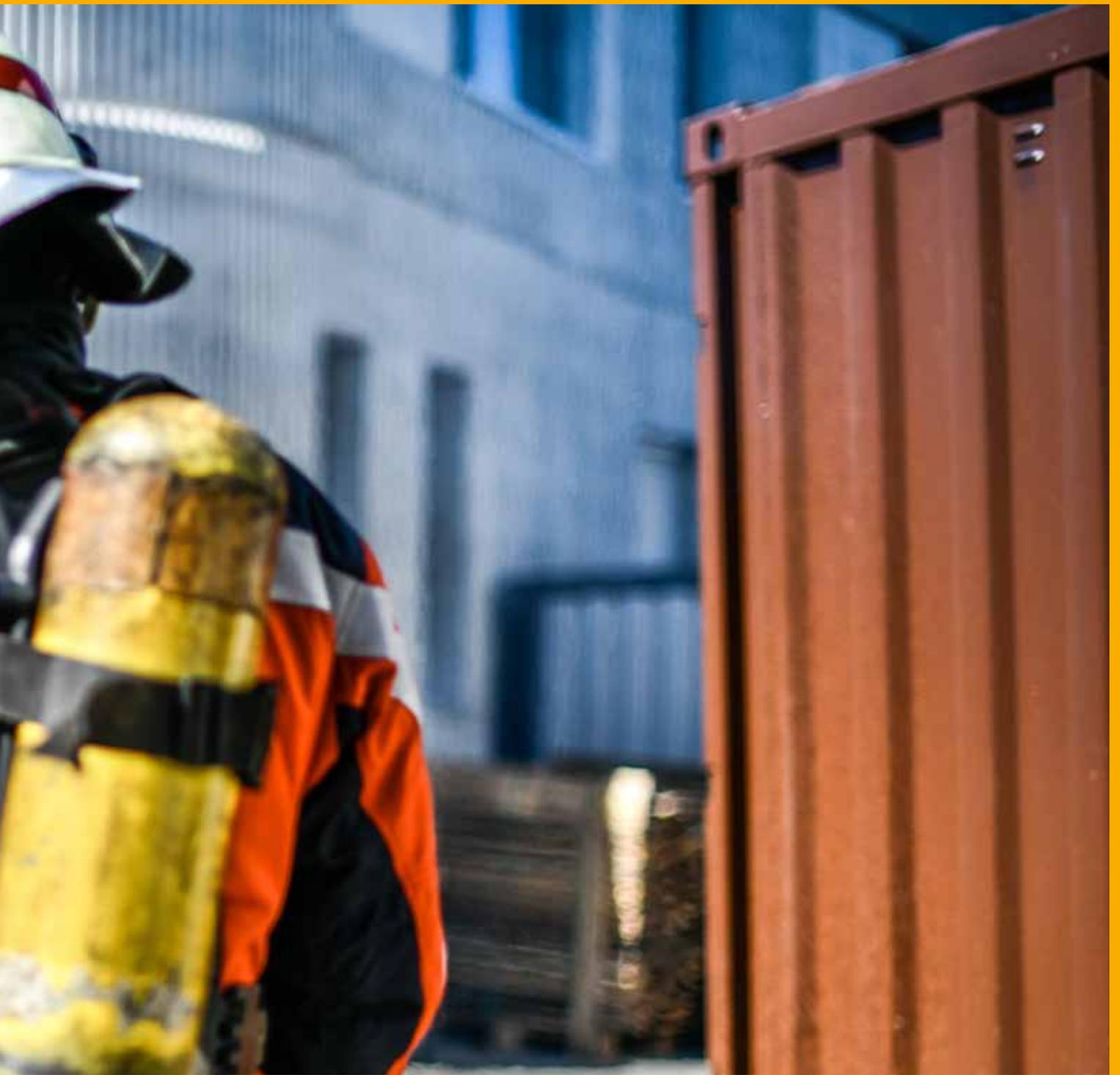
**PROFESSIONAL  
FIRE PROTECTION**

# BE SAFE WITH SIKA PASSIVE FIRE

The new, comprehensive range of fire resistant sealants, fillers and backing materials for linear and penetration seals is available!

Sika's passive fire protection solutions are designed to keep fire in defined compartments for a certain period of time, allowing people to evacuate safely.

All products comply with the most relevant national and international standards (EN, UL-EU, EAD, AS, Certifire).



PROTECTION

**BUILDING TRUST**



