

AMBITIONS

A dive into Sika's world



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A journey to
Dar-el-Salaam

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LUXURY GETAWAY IN THE TREE TOPS

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210,000 M² OF NEW ARCHITECTURE FOR CULTURE AND LEISURE TIME IN ATHENS

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TRIESTE AIRPORT FLOORING RENOVATION

For a transit volume is 700,000 people per year

5

COMMUNICATION



ASTRID SCHNEIDER
Marketing & Communications
Manager, Sika Services

The word communication has Latin roots and means “to share”. It is the act of conveying intended meanings from a sender to a receiver using mutually understood signs and semiotic rules. The channel of communication is usually visual, auditory and tactile, electromagnetic, or biochemical. We all know that human communication is unique due to its extensive use of abstract language. The development of civilization has been closely linked to progress in telecommunications. Although this is a simple definition, when we think about how we might communicate, the subject becomes much more complex. This tends to occur whenever there is a communication leak or an absence of communication when there should have been some. Communication is crucial if we want to avoid misunderstandings, overcome challenges and complete jobs optimally.

At Sika, we have to be good communicators at all times. For the construction of a 10,000 m² luxury lodge in New Zealand (p.15) at a remote location, communication was key. The quality of the products and applications is of course paramount, and the build quality has to be as exceptional as the location. But multiple independent tiling contractors worked with numerous staff and at one point over 60 tilers were on site at the same time, necessitating constant and accurate communication from Sika.

Without training, communication and careful collaboration, no project would ever work out, regardless of how good the products were. Building a bridge in Scotland (p.50), apply flooring systems throughout Trieste Airport in Italy (p.15) or building a cultural center plus opera house in Athens (p.39) – all these are further examples illustrating that it is never just about applying high-quality products, but also about on-site communication between everyone involved.

Yours sincerely,

ASTRID SCHNEIDER

CONTRIBUTORS



ALESSANDRO NEGRINI
Product Engineer Flooring & Coating,
Sika Italy

Thanks to our continuous technical support on site and the great technical performance of the Sika ComfortFloor system, we created a trusting relationship with the owner. For me it was truly a great learning experience as well as a nice challenge for Sika Italy.



EVI SALTA
Technical Support Engineer, Sika
Greece

Being part of the support team for the SNFCC project was amazing, because of its magnitude and the specific environmental demand. We are proud, the project won the first LEED Platinum project in Greece!



OLYMPIA FRATEN
Marketing Manager,
Sika Tanzania

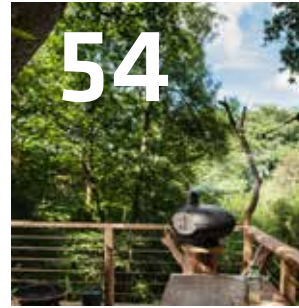
Working in Sika Marketing in a developing country like Tanzania, is a mind-blowing experience. Being part of a company, which provides sustainable solutions, exposes us to a world full of endless opportunities.



RONNIE TURNER
Infrastructure Manager Refurbishment,
Sika UK

Being involved in such an iconic and significant project as the Forth Crossing was a great experience. To be invited to prepare material specifications for some of this iconic structure's most vital components is testament to Sika Refurbishment products and their long term performance, quality and durability.

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IMPRINT

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Layout and Design: Sika Services AG, Corporate Marketing, Marketing Services
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The departure area of Trieste Airport has been completely redesigned: soft colors, resin flooring and plenty of natural light.

AN AIRPORT DRESSES UP

North Italy's Trieste Airport is the ideal gateway to an area that includes four countries, which is not only a great place to spend a pleasant holiday, but also perfect for finding out about how, in the heart of Europe, three different cultures – Latin, Germanic and Slavic – have met, interacted for centuries and, upon merging, have given rise to a unique multicultural heritage.

TEXT: MARIA ELENA CENTIS, ALESSANDRO NEGRINI, ASTRID SCHNEIDER
PHOTO: ALESSANDRO NEGRINI

> The Trieste Airport Terminal renovation project is an essential undertaking to improve the service level for passengers and airport logistics. It represents the desire to renovate the airport with a more functional and modern design. Antonio Marano – Chairman of the FVG S.p.A. Airport management company – tells us about the long history of Trieste Airport: “established as a military airport, it started to have a civil role in the 1960s. Like much of the public infrastructure in Italy, it featured a significant level of obsolescence and so, together with our shareholder, the Region, we considered its complete restyling to be an urgent matter.”

The departures area of Trieste airport, which has been completely redesigned, is now more welcoming and spacious: open-plan architecture, soft colors, resin flooring and plenty of

natural light, along with new ergonomically designed seats, allow passengers to wait comfortably and to relax. The fully refurbished 5,500 m² facility includes four lines for security checks, three elevators between the ground floor and the first floor, and five gates at ground level and four gates on the first floor for passengers to embark from jet bridges.

The renewal of the departures area constitutes the first step of the economic revival plan for the airport facility, which is managed by Aeroporto Friuli Venezia Giulia S.p.A. and which will be connected to the new Interchange Station this year. The project, developed by the Planning Office of Società di Gestione Aeroporto Friuli Venezia Giulia S.p.A., extends along a straight line: a pedestrian footbridge crosses the state road and then connects the

airport to the car parks, the bus terminal and the railway station. As reported to the European Commission, the design includes a new railway station, a bus terminal for 16 lines, and a car park with 1,500 parking spaces – 500 of which are in a multi-story car park – connected by slip roads and internal roads. In this context, the hub will allow better transport connections (bus, car and train), enabling the public transport system and the passenger mobility service in Friuli Venezia Giulia to be improved.

The work is intended to meet the objectives set out in the 2001 White Paper on European transport policy, which encourages the use of environmentally-friendly transportation to develop alternatives to road transport. From a strategic viewpoint, the hub is intended to represent the regional center for intermodality and the interchange hub servicing local mobility. This work will bring benefits to the Friuli Venezia Giulia region and its economic and social system, with positive effects overall on the efficiency of the regional transport system and, specifically, in terms of the increased number of airport passengers.

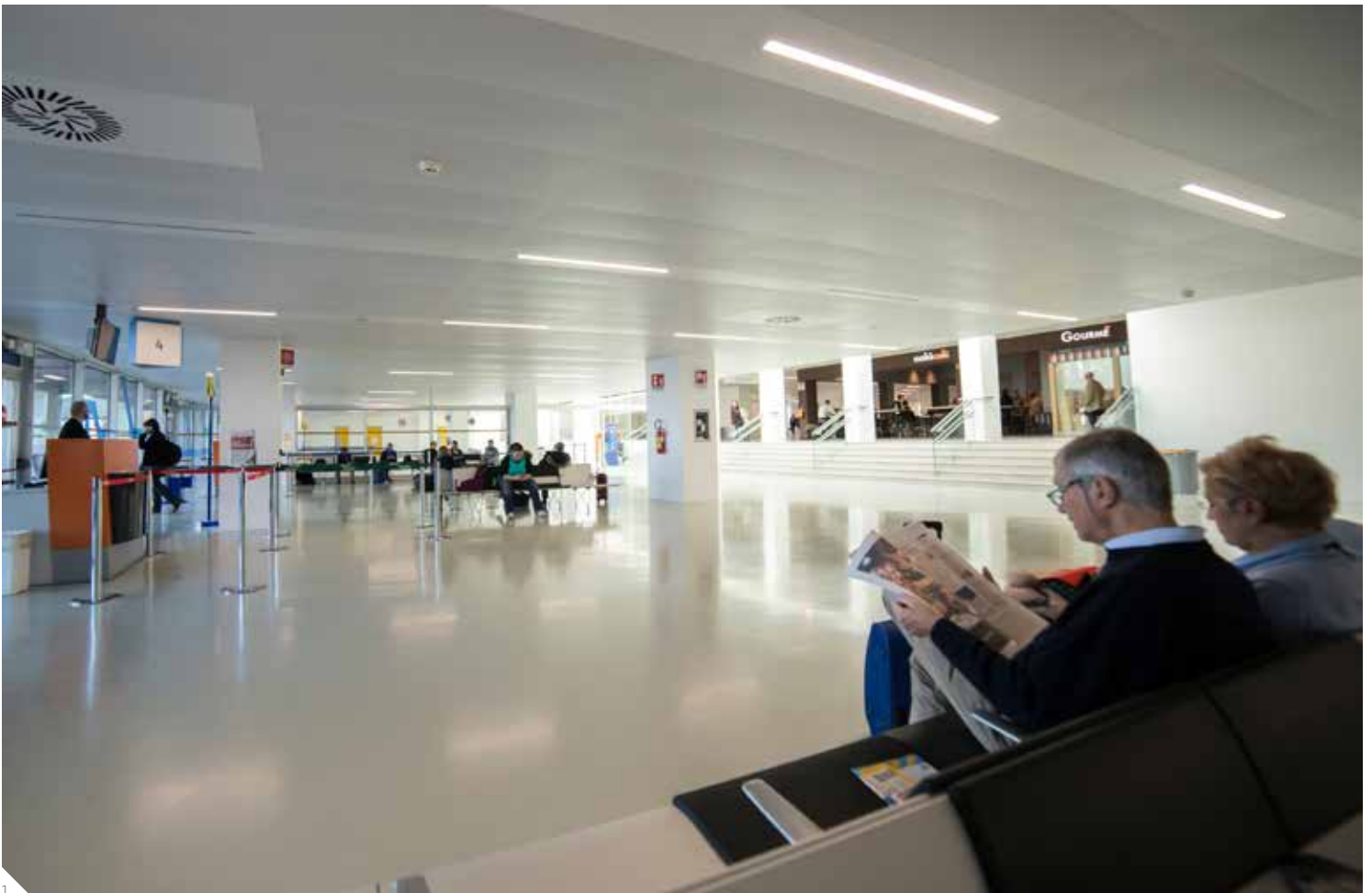
Trieste airport was in need of both major restyling and some refurbishment work. The customer's request was first and foremost to replace most of the existing flooring, which was made up of old tiles,

>



The floor has to withstand a transit volume of approx. 700,000 people per year.





1

2



With this special design the toilets are quickly to find.



lution would not have met the desired characteristics, since the system was not elastic and had limited resistance to surface scratches. In addition, other maintenance work such as the structural strengthening of reinforced concrete pillars, beams and all joints was to be carried out.

As there is a transit volume of approx. 700,000 people per year (2,500 people per day), Sika proposed a system consisting of colored and elastic polyurethane resins: Sika ComfortFloor® PS-23. Before the resin flooring was installed, the entire old tile flooring had to be removed. Using a grinding and shot blasting machine, the entire adhesive residue remaining on the substrate was entirely eliminated. Once all the dust had been removed, the flooring was primed

- > **1** Before the flooring was installed, the entire old tile flooring had to be removed. Using a grinding and shot blasting machine, the residues were entirely eliminated.
- 2** In addition to providing superior style, the Sika ComfortFloor® would be modern in appearance and easy to clean, owing to the absence of any joints.
- 3** Sikafloor Multidur® ES-14 epoxy system was chosen for toilet facilities because this specific area is more susceptible to chemical attack.

with a continuous resinous flooring. In addition to providing superior style, this would be modern in appearance, easy to clean owing to the absence of any joints, mechanically strong, elastic and give off low VOC emissions during installation. Initially the customer considered a solution involving coating the existing tiles with epoxy paint, but this type of so-

>

New ergonomically designed seats are one of the new features passengers can look forward to.



Sika ComfortFloor® is mechanically strong, elastic and give off low VOC emissions during installation.



The new car park with has 1,500 parking spaces of which 500 are in a multi-story car park.



Sikafloor Multidur® ES-14 epoxy system was chosen for toilet facilities because this specific area is more susceptible to chemical attack. All the old floor tiles were removed and, using the grinding and shot blasting machine, all adhesive residue was removed. Afterwards, the primer Sikafloor®-264 was finally applied. The same cycle used for the flooring was repeated on the walls of the toilet facilities, but during the mixing phase of each product the Sika® Stelmittel T thickener was added to prevent the material from dripping.

And there is more to it than meets the eye: Life Cycle Assessment (LCA) is a standardized method that assesses the impact of a product or system on the environment. The LCA procedure is standardized at an international level by the ISO 14040 and 14044 standards. According to LCA, Sika ComfortFloor® is a long-lasting, high-performance flooring system with low energy consumption levels compared to traditional epoxy systems, affording high resistance, fewer maintenance requirements (less >

> with Sikafloor®-156 surface leveling mortar and epoxy binder. On hardened primer, two-part polyurethane resin, Sikafloor®-330, was applied. Since this product is self-leveling and easy to apply, it is perfect for covering large surfaces in a short space of time.

The following day the flooring was pro-

tected with a finishing layer comprising a water-based, colored, matt polyurethane resin. Thanks to the low VOC emission levels of all of the above-mentioned products, the airport has been able to continue its normal activity without having to close or divert passengers to other gates due to the solvent emissions that might normally be expected.





Thanks to the low VOC emission levels of the products, the airport has been able to continue its normal activity without having to close the respective gates.



cleaning) and a considerable reduction in operating costs during its useful life. Furthermore, the frequency of the refurbishment of the Sika ComfortFloor® system is lower than that of the competitor's epoxy solution, as is the frequency of cleaning, which helps reduce the economic costs during the useful life of the building.

Make sure to test the flooring when you come here, but after that leave the airport and, in just 150 km, come face-to-face with the most diverse natural beauty: from the Alps with their mountains and lakes to hills covered in vineyards and to the coast with its lagoons, long sandy beaches and dramatic cliffs. <

- > **SIGNBOARD**
OWNER:
Aeroporto Friuli Venezia Giulia S.p.A.
Via Aquileia, 46
34077 Ronchi dei Legionari (TS),
www.aeroporto.fvg.it
CONTRACTOR:
RESI S.r.l. Viale dell'Industria, 17
36057 Arcugnano (VI)
www.resisl-vi.net

Sitting in this lounge, having a glass of wine and looking to the ocean – what can be more relaxing?



AN EXCEPTIONAL HOLIDAY DESTINATION

In a secluded northeast corner of New Zealand's North Island, on one of the most beautiful sections of Northland's coast, lies Helena Bay Lodge. It is 40 km north of Whangarei or a 45-minute flight by helicopter from Auckland. This luxury lodge features three kilometres of pristine coastline, four private beaches and many intimate coves. It is a truly magnificent luxury destination which cost \$65 million to complete. It has just five suites, accommodating no more than ten guests at any one time.

TEXT: DUNCAN ROBERTSON, ASTRID SCHNEIDER

PHOTO: HELENA BAY

> The guest experience is world class. Helena Bay even brought the celebrated Michelin-starred Ristorante Don Alfonso 1890 of Southern Italy to New Zealand. Under the direction of Don Alfonso, and while observing his philosophy of respecting the local food culture, the Helena Bay Lodge kitchen incorporates the age-old traditions of Sorrento and the Amalfi Coast in offering guests 'Estate to Plate' cuisine with menus changing daily.

The property offers a wide range of activities including kayaking, fishing, farm tours and cycling. Its 325 hectares combine a mix of forestry and open paddocks, and with kilometers of tracks there is plenty to explore. Guest facilities at the Lodge itself are generous and include a gym, sauna, massage room, a 25 m heated swimming pool, library, lounge areas, both informal and formal dining areas and an outdoor fire pit. Guests will also enjoy exploring the individual rooms of the Main House, which is decorated with eclectic artwork and treasures collected by the owners during their travels around the globe.

For the construction of this 10,000 m² property, Sika New Zealand was originally invited to provide specifications for simply a 10 m deck. From there however, our involvement grew to the point where Sika eventually became involved in multiple areas across the whole property. The construction works covered waterproofing through the provision

of tiling systems including grouts and sealants for the swimming pool, decks, foyer, steps and stairs, kitchens, gallery, bathrooms, gym and spa as well as in the steam room (which is equipped with fibre optic lighting). The main products were the SikaCeram range, Sikalastic and Sikasil.

>



Aerial view of the lodge and its swimming pool in the middle.

On this secluded northeast corner of New Zealand's North Island, one of the most beautiful sections of Northland's coast, lies Helena Bay Lodge.



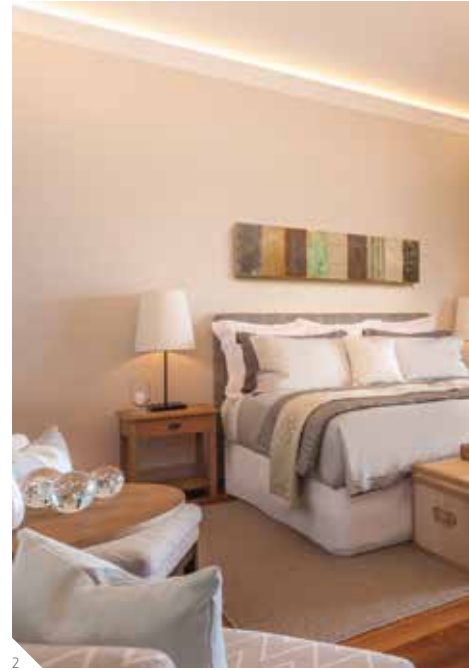


1 In December 2016, Luxury Travel Intelligence selected Helena Bay Lodge as the world's best new luxury hotel for 2016.

2 Helena Bay was a truly comprehensive and challenging construction project in a remote location.

3 Sika construction works covered waterproofing through the provision of tiling systems for bathrooms amongst others.

4 Though modern materials were used, the design reflects early New Zealand colonial architecture.



FRAGMENTS OF ANCIENT CORAL, CRUSTACEAN AND MOLLUSK SHELLS HAVE BEEN CAPTURED WITHIN THE STONE



> This was a large, comprehensive and challenging project in a remote location. Quality was paramount, and the build quality had to be as exceptional as the location. Multiple independent tiling contractors worked with numerous staff. At one point over 60 tilers were on site, necessitating constant and accurate communication from Sika.

Moreover, quality control was imperative. The 25 m swimming pool, for example, sits above a vast basement area comprising two levels that house a number of critical facilities including the main kitchen, offices, power supply room and laundry.

Sika supplied a methodology statement containing control checks for each of the project areas we were involved with. The

Lead Contractor went over every control check prior to moving on to the next stage. Each control check was signed off under Sika's direction. In addition there were numerous "outside the brief" situations where unforeseen challenges required fast on-site technical support from Sika.

Construction of the Lodge began in 2010 and was completed in 2016. The



3



4

inspiration for the architecture came from a desire to achieve timeless legitimacy in the region. The design reflects early New Zealand colonial architecture. Modern materials were used, but the appearance is of a building that could have been built a century ago. The base of the building is clad in Northland sedimentary schist, sourced from a nearby quarry that formed part of the ocean floor 30 million years ago. Fragments of ancient coral,

crustacean and mollusk shells have been captured within the stone.

In December 2016, Luxury Travel Intelligence selected Helena Bay Lodge as the world's best new luxury hotel for 2016. In the following year, Helena Bay Lodge featured on the Travel & Leisure "It List" and on Conde Nast Traveler's "Hot List". The destination has thus become a top holiday destination within a short

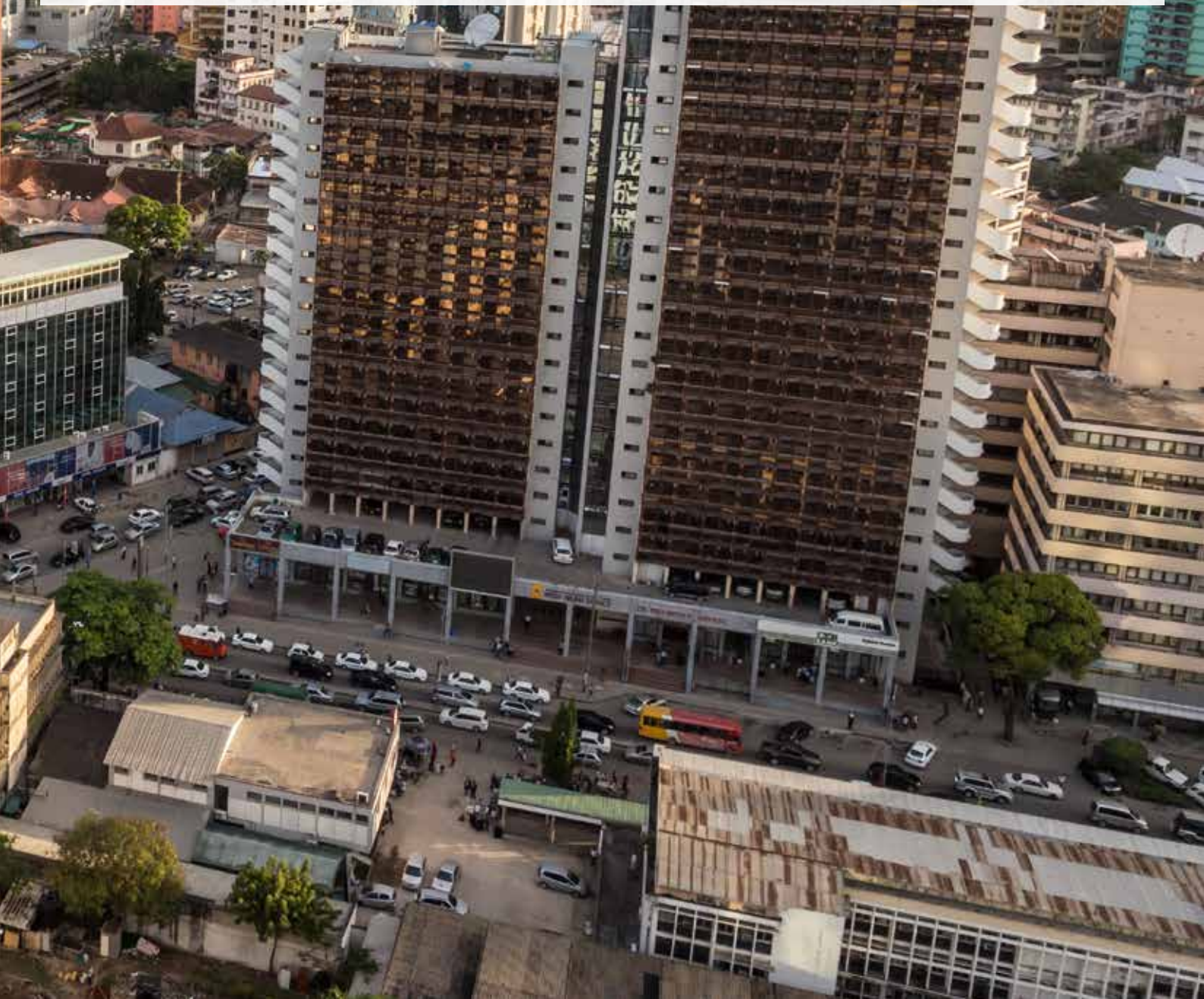
time. And no wonder: who wouldn't want to enjoy solitude in a paradise like this, or honeymoon in such a wonderful place? To get to know more about the Lodge, visit www.Helenabay.com. For more details about Sika New Zealand, go to <https://nzl.sika.com/> <



WHAT ABOUT TANZANIA?

For the ones who have never been to humid hot Dar-el-Salaam, might be difficult to understand the special charme of this country. Tanzania with its 55,5 millions habitants is home to two renowned tourism destinations – Africa’s highest mountain, Kilimanjaro, and wildlife-rich national parks such as the Serengeti. But there is more. Bordering the Indian Ocean, between Kenya and Mozambique, the country has a lot of more beauty to offer. Domestic stability has not translated into economic prosperity for all Tanzanians, however. We meet the Country Manager of Sika Tanzania, Alfonso Paradinas in the city center to get some more details.

TEXT: ASTRID SCHNEIDER
PHOTO: SIKA TANZANIA





Alfonso Paradinas,
Country Manager Sika Tanzania Construction Chemicals Ltd.



> **As one of the youngest GMs at Sika only a few months ago you left Europe to manage Sika Tanzania. How are you doing and what surprises have you experienced so far in Dar-es-Salaam?**

It has only been six months since I arrived in Tanzania and despite an adventurous beginning, I am now quite settled and happy in Dar es Salaam.

Having lived in Zurich for over two years, landing in Dar was indeed very challenging; from serious flooding or just random unexpected traffic jams, to unreliable power and water supply, daily life in Tanzania is quite a rollercoaster. However, now that I am somewhat used to these puzzling "surprises", Dar es Salaam is a friendly and wonderful city and Tanzania is without a doubt a beautiful country worth exploring.

The biggest personal win in managing a team?

Although it is not my first line management experience, managing a team in Africa is very different from doing so in Europe. The motivation and the eagerness to learn from our Tanzanian employees makes my role much more rewarding.

As a line manager, one of your most important tasks is to motivate your team and to make their job exciting and equally challenging. In a startup company like Sika Tanzania, these tasks become much easier to achieve; being such a small organisation, everyone needs to fulfill many different roles, which makes it impossible to fall into a routine.

What is the first thing that comes to mind when you think about working at Sika Tanzania?

Team work. I am blessed to have such a united group. There is a great work ethic and spirit, which makes my job much easier.

Working for Sika in Tanzania gives you the opportunity to manage and know the whole company with the incredible added value of having 17,000 employees across the world that are always willing to help you.

Tanzania has been politically and economically stable over the last years. What is your personal outlook?

Compared to other African countries, Tanzania has traditionally been quite a stable republic upon independence in 1961. However, the country is currently facing some important challenges since the election of the new president just over a year ago; His ambition and de-



From concrete admixtures to roofing and flooring products, Sika Tanzania is providing top quality products and systems to Dar es Salaam airport new terminal. Being locally based, Sika Tanzania has helped reducing the cost and construction timing to this iconic project. Sika's innovative solutions are contributing to improve Tanzania's infrastructures as this new airport terminal will dramatically improve international communications with all neighbouring countries.

termination to tackle corruption has brought market uncertainty and liquidity issues. Many infrastructure projects are currently on hold due to lack of funding and sadly due to this current instability some international investors are leaving the country.

Despite this challenging business environment, Sika Tanzania is steadily growing and we expect to finish the year with positive sales results.

And the construction market? Where exactly does Tanzania profit from Sika?

Despite the current lack of liquidity and the market uncertainty, Tanzania is benefiting from large funding coming from international financial institutions like the World Bank or IMF, who have recently

confirmed investments into some big infrastructure projects. At the same time, Chinese, Turkish and Moroccan construction companies, backed by their governments, are involved in the Dar port extension, a new railway line crossing the country and the new stadium in Dodoma. Thus, we are patiently waiting for these projects to kick off as we are very well positioned to become one of the preferred suppliers.

Also Sika Tanzania has the only admixture plant in the country, which makes our products and our local supply chain extremely attractive for these construction companies. At the same time, Sika's worldwide reputation of quality, problem solving and local presence translates in a unique offer for the Tanzanian market.

What infrastructure vision do you have for the country in terms of making people's life easier in the future?

Whilst less than 20% of Tanzanian citizens have access to electricity and just over 25% have access to water and sanitation, over 65% of citizens have access to internet! These statistics show the lack of civil infrastructure and power generation availability in the country, in contrast to the progress made in wireless technology.

Therefore, Tanzania urgently requires huge investment in new power plants, renewable energy, water supply and sanitation infrastructure to improve the life standards of its citizens.

>



The highest point in Africa is the Tanzanian mountain Kilimanjaro, 5,895 m.

> **What are the immediate goals for Sika Tanzania?**

Sales, sales, sales! Now that Sika Tanzania has now been present for over a year and quite some investment has been made in the country, we are now fully focused on increasing sales. Since we have recently started our local admixtures plant, our immediate goal is with ready mix concrete plants and cement manufacturing customers.

We need to leverage our unique value proposition; being the only supplier producing local concrete and cement admixtures gives us a big competitive advantage in terms of flexible supply chain, local customer service and products tailored to our customers.

Safaris, great beaches, big capital, political stability, peace between Muslims

and Christians – Does this come close to what Tanzania is about?

Tanzania has indeed great safaris, stunning beaches and incredible sunsets. The diversity of what Tanzania has to offer is unique; you can hike up Kilimanjaro, the highest mountain in Africa or sail and dive in the Indian Ocean or even explore the amazing landscapes around Lake Tanganika or Lake Victoria or for the more adventurous go to the world famous national safari parks.

However, I always think that a country can be better defined by its people; Tanzanians are extremely welcoming, always willing to help and with a permanent smile on their face. So far I have only met very kind and relaxed people who enjoy the present without worrying too much about the future.

What is it that you personally enjoy the most about life in Tanzania?

Living in Africa has always been one of my big dreams and although our arrival in Dar es Salaam was quite challenging, especially during the heavy rainfall season, my wife and I are now beginning to settle in and to enjoy life.

Life in Tanzania has a different rhythm to the one in Europe. I am truly enjoying spending more time at home with my wife, reading a book and watching the sunset whilst walking on the beach.

Since it is my first African adventure and Tanzania is strategically located and surrounded by eight other beautiful countries, I am already looking forward to exploring the African continent whilst living here.

>

BEING THE ONLY SUPPLIER PRODUCING LOCAL CONCRETE AND CEMENT ADMIXTURES GIVES US A BIG ADVANTAGE IN TERMS OF FLEXIBLE SUPPLY CHAIN AND CUSTOMER SERVICE



- 1 Tanzania is a land of superlatives, from haunting landscape to one of the greatest wildlife spectacles on the planet.
- 2 The team of Sika Tanzania.





There are three main tea-growing areas in Tanzania namely southern Highland Zone, the North East Zone and the Northwest Zone.

What are your aspirations for the country looking forward?

There is still so much to do and to accomplish here in Tanzania, most notably new motorways, airports, power plants and stadiums. This country has so many natural resources such as gold, diamonds, iron, coal and even natural gas, which is wonderful and should be a huge help going forward.

Despite the numerous political challenges that Tanzania is currently facing, I am very optimistic about the future of this country. There are many opportunities lying ahead and we very much hope that Sika will play an important role in Tanzania's ongoing construction development.



Fish market at the capital Dar-el-Salaam.

ONE OF THE LARGEST SPORTS COMPLEXES IN EUROPE

Sport is an important energy source and is a favorite activity for many people around the world. It provides us with enjoyment and also freshens up our mind. However, playing sports is actually more than mere running, jumping, or kicking a ball on the field. Indulging in sports helps our body to function smoothly and more efficiently. Sports involve the activity of each and every muscle in the body. This strengthens and promotes good health.

TEXT: MINKE BOS, ASTRID SCHNEIDER
PHOTO: DIRK JAN POOT (STUDIO POOT)



With a surface area in excess of 30,000 m², Sportcampus Zuiderpark is one of the largest sports complexes in Europe.







Upper photo: The multi-purpose sports hall with the system Pulastic Elite Performance 65 XLS. The colour applied is (308) Pigeon Blue.

Lower photo: The English FaulknerBrowns Architects signed for the design of the main load-bearing structure and is responsible for the geotechnical design amongst others. Dutch ABT assisted them from the design phase and was responsible for the structural design coordination and execution up to and including the realization.



This is also a multi-purpose sports hall combined with a climbing wall.



The Elite Sports Hall (topsports hall) with the flooring system Pulastic Elite Performance 65 XLS. The colour which was applied is (100) Oxyd Red.

> The municipality of The Hague in the Netherlands, The Hague University of Applied Sciences and ROC Mondriaan are moving the whole city of The Hague to Sportcampus Zuiderpark to explore sports of all kinds.

The old football stadium of the Dutch Association football club ADO Den Haag (at the Zuiderpark) has now become a site for sports, exercise and learning. Sportcampus Zuiderpark consists of an elite sports hall, beach-sports hall, gymnastics hall and multi-purpose sports halls for sport-related courses, sport clubs, competitions and events. The Zuiderpark is renowned for its sports and recreation facilities and has been an important location for many of The Hague's residents for over 80 years. Sportcampus Zuiderpark has expanded the park's sport, exercise and learning possibilities. Residents from the surrounding residential estates are also involved in the teaching programs and activities are organized by students as part of their studies.

The building features an elite sports hall with space for 3,500 spectators. The complex also features three gymnasi-

ums, a dance hall, twelve auditoriums, a beach-sports hall, a gymnastics hall and another two halls for amateur sports. Eight football pitches, a multi-functional artificial pitch and a beach court are currently being created outdoors. With a surface area in excess of 30,000 m², Sportcampus Zuiderpark is one of the largest sports complexes in Europe.

The elite sports hall, multi-purpose sports hall and four other sports halls feature 6,962 m² of Pulastic sports floors. A decision was made to opt for the Pulastic Elite Performance 65 XLS. This system is specifically aimed at very high training intensities and elite competitive performance. A stunning dark red floor (oxide red) has been selected for the elite sports hall, while a pigeon blue floor has been selected for the other sports halls. The campus is an impressive sports complex that combines elite sports facilities with knowledge in the field of sports performance.

Sportcampus Zuiderpark is to become the heart of sport for the city. Athletes come together here to train, play sports and win. With all these different sports

halls, there are many possibilities for everyone, from indoor sports like gymnastics, badminton and basketball to indoor beach football and beach volleyball. This mix creates an inspiring and vibrant social meeting place – a place where you progress, whether at recreational or top sport level. <

Project participants

Client: Ballast Nedam B&O West

Contractor: Ballast Nedam B&O West

Architect: Faulknerbrowns Architects

In a time lapse: watch how the sports park was built

<https://youtu.be/P1v7Hwo003M>

Get more information about Pulastic <http://www.pulastic.com/en/Home.html>

EXCITING FORM AND OPEN SPACE

Gothenburg is the second-largest city in Sweden and the fifth-largest in the Nordic countries. On the west coast of Sweden, the city has a population of approximately 580,000 in the urban area and about 1 million inhabitants in the metropolitan area. The Biskopsgården neighborhood belongs to the “million programme”, and is in Gothenburg.

TEXT: MARIA RAPPOCCIO,
ASTRID SCHNEIDER
PHOTO: LINDMAN PHOTOGRAPHY

> The million programme is the common name for an ambitious public housing programme implemented in Sweden between 1965 and 1974 by the governing Swedish Social Democratic Party to make sure everyone could have a home at a reasonable price. The aim was to construct a million new dwellings during the programme’s ten-year period. At the time, the Million Programme was the most ambitious building programme in the world to build one million new homes in a nation with a population of eight million.

In 2016 the new public school Landamäreskolan has been built for 450 students from pre-school class to grade 3. Göteborg City Local Government has had high ambitions and given great freedom to the architect in the design. The long-term aspect has been important for both contractors and architects. This means sustainability in two ways, an environmentally friendly and also a building that can withstand the stresses that a school is exposed to daily. The principal and educators have had an innovative educational orientation that has been expressed in the internal structure of the building and open plan solution. Despite the high ambitions regarding shape and material, the school building has been built within the given budget.

In planning the school, thoughts about using the school’s public premises outside school hours have also been incorporated. Mediatek, restaurant and sports hall are meant to serve as a meeting place for the residents’ activities – The school “in the middle of the village” as a meeting place and cultural center. In the sports hall there are viewing benches and the venue can also be used for film

shows, performances and lectures of various kinds.

The architects Wahlström & Steijner were inspired by a sloping plot and surrounding pine forest in the form of the new Landamäreskola. The result: a unique school building completed until the autumn term 2016. The very beauti-

>



The plot is surrounded by several pine forests, which are reflected in the shape with facades of untreated or heat-treated Thermowood of pine.

For this school building the architects chose solid wood floors for their durability over time.





Wood itself creates a calm, harmonious and aesthetically pleasing environment.



SINGBOARD

New production of school F-3 in Länsmansgården, Gothenburg

Builders: City of Gothenburg, Local Government

Project Manager: Charlotte Odbratt, City of Gothenburg, Local Government

Architect: Wahlström & Steijner Arkitekter AB

Responsible architect: Jürgen Wahlström Architect SAR / MSA

Contractor: Tuve Bygg AB

Floor Contractor: Celanders

Construction time: November 2014 – May 2016

Buildings: 5,000 m²

- > full and distinctive building was created for the site and purpose: an S-shaped wooden body that, from one to the other, holds all school's parts from the gym, dining room and school shelter to administrative areas, libraries and classrooms. The shape also contributes to the topography of the site.

The client had requested an organic form and open plan solution. The architect Jürgen Wahlstrom states, that they tried different forms and stuck to half the ellipses that hang together and give a flow through the building. So the plot is slightly sloping, and the house winds down the sled with 3 m fall from one end to the other. The architects chose to do it in three levels with two blades of 1.5 m between the plan.

Around the plot lies several dung pine forests, and they are reflected in the shape with facades of untreated or heat-treated Thermowood of pine and green sedum cakes. Even inside, wood is lingering, the walls are made of birch wood and the floors are made of industrial parquet in ash, beautiful materials that are durable. Most of the walls have birch plywood and the flooring industrial chain.

Instead of a traditional classroom solution with a closed classroom for a teacher and 25 students, the public school receives 10 flexible teaching rooms that can be used differently for both larger and smaller groups.

"It's going to be more like two big floors where we create different rooms in the room. And at the schoolyard there are two amphitheater-like outdoor classrooms for teaching and performances," says Jürgen Wahlström. The architects also got the task of doing the interior, and working out solutions in dialogue with the educators who will work at school. New Landamäreskolan opened the autumn term 2016.

As an environmentally friendly alternative to PVC flooring, the architects chose

solid wood floors as they are durable over time. In a school with at least 450 people walking frequently on the building's floors it is essential that it is possible to sand a wooden floor if it becomes worn. In addition the material itself cre-

ates a calm, harmonious and aesthetically pleasing environment. It reduces the noise so the building guarantees a quiet atmosphere in which to learn. Industry parquet responds to all these require-

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Bonding wood floors reduces noise so that the building can provide a quiet atmosphere in which to learn.

> WOOD IS LINGERING EVERYWHERE
INSIDE: FLOORS, WALLS, CEILINGS, STAIRS,
FURNITURE, DECORATION



ments and it is economically competitive compared with other types of solid wood floors.

Lamelle wood floors have to be firmly bonded to the floor in order to stand the stress it is exposed to in a public area like a school. Parkett Elastic Plus from Sikas brand Casco Floor Expert was specified and the use was also instructed by the wood floor manufacturer Kasthall. Parkett Elastic Plus is a high quality, reliable and elastic silane modified polymer adhesive with listing in the Swedish environmental assessment Byggarubedömningen, which was crucial for this project. 4.2 t (2500 l) were used in this project with an average coverage of 1 l per square meter. <

The construction of the floor is conventional starting with a concrete slab, primer, screed, parket elastic plus adhesive, wood and hardwax oil for varnishing.

For more information pls. visit:
<http://www.casco.eu/se/casco-floor-expert/?pc=581&p=4468>

CONSTRUCTION AND ENGINEERING WONDERS

Stavros Niarchos was a multi-billionaire Greek shipping tycoon and art collector. Starting out in 1952, he had the world's biggest supertankers built for his fleet. Propelled by both the Suez Crisis and an increasing demand for oil, he became a giant in global petroleum shipping. He died in Zurich in 1996, and a large part of his fortune is administered by his foundation. The Stavros Niarchos Foundation (SNF) is one of the world's leading private, international philanthropic organizations, supporting arts and culture, education, health and sports as well as social welfare.

TEXT: ASTRID SCHNEIDER

PHOTO CREDITS: SNFCC, YIORGIS YEROLYMBOS, NIKOS KARANIKOLAS, LEONIDAS KALPAXIDES

> The Foundation's largest single gift is the Stavros Niarchos Foundation Cultural Center (SNFCC) in Athens. The project's total cost was €630 million. The SNFCC was designed by the renowned architectural firm Renzo Piano Building Workshop, and includes new facilities for the National Library of Greece and the Greek National Opera, as well as the Stavros Niarchos Park, covering a total area of 210,000 m². On February 2017, following the handover, the SNF announced its commitment to continue supporting the Center for the next five years, through grants totaling up to \$53 million (€50 million). The grants support the implementation of public programming and help cover part of the Center's operating costs.

In 2006, the SNF announced its plans to fund the development of the SNFCC, a project that includes the construction and complete outfitting of new facilities for the National Library of Greece and the Greek National Opera, as well as the creation of the 210,000 m² Stavros Niarchos Park. In February 2008, after a closed international architectural competition,

the Stavros Niarchos Foundation's Board of Directors unanimously announced its decision to choose the renowned [Renzo Piano Building Workshop](#) as the architectural design office.

The project site is located 4.5 km south of the center of Athens on the edge of Faliro Bay, and the Center is designed as a multifunctional arts, education and >



The Stavros Niarchos Park covers a total area of 210,000 m².

The center's site is located 4.5 km south of the center of Athens on the edge of Falirio Bay.







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© SNFCC/Nikos Karamiolas



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> entertainment complex. The Cultural Center is the first private-public partnership of its type in Greece, and one of the most important cultural and educational projects ever undertaken in the country.

The new building for the National Library of Greece will modernize an institution founded in 1832, allowing it to strengthen its research role while at the same time expanding its focus from that of an exclusive research facility to an all-inclusive public resource. In its new and enlarged role, the Library will support pa-

trons of all ages and educational levels, from academic researchers to children and young adults destined to become the next generation of users. Covering almost 24,000 m², the state-of-the-art building combines tradition with technological innovation, and conservation with information and communication. The flexibility of its design ensures that the National Library can respond effectively to ever-changing needs and the challenges of the digital age.

Linked to the Library and the Opera by an



© SNECC/George Verolymbos



- 1 The National Library.
- 2 The new 28,000 m² auditorium of the new opera covers 1,400-seats.
- 3 The Stavros Niarchos Park is a vital green space, a breath of life for Athens and an important addition to the city with the least amount of green space per capita in Europe.
- 4 The Opera house, overlooking the sea.

ecological concept, physical topography and functionality, the Stavros Niarchos Park is a vital green space, a breath of life for Athens and an important addition to the city with the least amount of green space per capita in Europe. A respite from urban concrete, the Park provides opportunities for learning, recreation, rest, and new experiences.

In its new home, the [Greek National Opera](#) will become an exciting destination for music lovers and architectural cognoscenti alike. The building will be a multi-use venue capable of hosting a variety of performances and events. The new 28,000 m², 1,400-seat main auditorium is an architectural jewel, designed to enhance the opera experience for patrons and artists alike. Its world-

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© SNECCT / Jorgis Verolymbos

- 1 The architect has envisioned the roof as a cloud hovering over the building, remaining at the same time independent of it and separate.
- 2 The patio at the inauguration.
- 3 The SNFCC shall be an Event Center for everyone.
- 4 Stairs leading to the roof of the Opera.

> class acoustics, mechanical capabilities, flexible staging, and innate beauty will position it for immediate entry onto the world opera circuit, ready to play host to the most technically demanding operas, international multimedia art productions, and formidable solo vocalists.

The project set high requirements from the beginning of its construction and called for the maximum possible coordination between the designer, main contractor, subcontractors and suppliers of materials and systems. Sika Greece helped in every phase of the project, by carefully studying and proposing the appropriate materials and systems based on the specifications, as well as via its practical presence and the technical support it provided on site.

Sika Greece provided materials and systems for this grand project literally from





© SNECC/Leonidas Kalpakides



foundation to roof, which not only met the project's requirements in terms of technical specifications but also in terms of sustainability and environmental impact.

The most spectacular features of the Stavros Niarchos Park are not all earth-bound. Soaring 14 m above the summit there is a 100 x 100 m photovoltaic canopy which covers the Opera. An engineer-

ing and construction wonder, supported by 40 sinewy metal pillars, the canopy makes a fascinating addition to the city skyline. It is the most important element of the project, both architecturally and statically. The architect has envisioned it as a cloud hovering over the building, remaining at the same time independent of it and separate.

>



1 Opera & café canopy during construction, using the ferrocement method.

2 Aerial view of the Visitors Center.

3 The green roof of the SNFCC is the largest in Greece.

> Therefore, the canopy had to be light but compact, providing a perfectly smooth and continuous surface. The basic material selected for the canopy was ferrocement. Ferrocement is a thin, composite material that can be easily molded for lightweight constructions. It consists of a high-flow cement mortar and laminate layers of fine metallic meshes. Having previously been used in shipbuilding, this is the first time worldwide that it has been used for a building project of this scale, and in particular for a supporting structure. The canopy's maximum thickness in the center is 4.5 m, tapering to 30 cm on the perimeter including the rain water drainage channel. The whole construction is based on a system of metal poles that rest on the Opera building's concrete supporting structure. The composition of the mortar itself played a huge role throughout the entire construction phase.

The Visitor Center was a temporary light construction and the public had





the opportunity to visit the site and be informed about the technical details of the construction of the project, as well as its mission and vision. The floor of the Visitor Center was covered with Sikafloor®-MultiFlex PB-21 UV, the high performance, polyurethane, uniformly colored, broadcasted, UV resistant coating. The Center's roof was waterproofed using the synthetic, reinforced, PVC membrane Sikaplan® G-15.

For the construction of the project, 149,000 m³ of ten concretes of different classes and technical characteristics were required. The requirements of all mixes had to be met, but of course the architectural (fair-faced) concrete had to meet the additionally high aesthetics of the final surface. The surface of the fair-faced concrete had to be smooth, without any pores and voids and of a uniform color.

>



- 1 The car park of the Center.
- 2 The creation of an environmentally friendly and sustainable infrastructure for buildings and the Park was an important goal.
- 3 Ferrocement canopy waterproofing.

> Fair-faced concrete was also used for the Library and Opera buildings. In order to evaluate the various concrete mixes, as well as the influencing factors such as concreting, curing and demolding, full scale mock-ups were constructed.

In a project of this magnitude, the waterproofing of underground and water-retaining structures is of utmost importance. The underground waterproofing system had to be impermeable, without any visible expansion joints. The Sika Watertight Concrete System was used for the underground elements. Sarnafil® TG was used for waterproofing the roofs of the car park, National Library, Opera, Light House and Buffer Zone. This multi-layer, anti-root, synthetic roof waterproofing sheet is based on premium-quality flexible polyolefins (FPO), containing stabilizers, with an inlay of non-woven fiberglass conforming to EN 13956.





The Cultural Center has the largest planted roof in Greece in terms of area and also in terms of volume of substrates. The green roof is the roof of the 10,000 m² car park. The flooring systems for the 40,000 m² parking area made use of polyurethane Sikafloor® MultiFlex PB-21 UV (22,000 m²) and epoxy (18,000 m²) flooring, which is a highly aesthetic, anti-slip, crack-bridging flooring system.

Environmental sustainability was one of the core values of the Stavros Niarchos Foundation for Culture. The creation of an environmentally friendly and sustainable infrastructure for buildings and the Park was an important goal of the design and construction. The project has won LEED Platinum Certification as a Green Building, the highest existing distinction for environmental and sustainable buildings. Reasons for the highest rating include annual energy savings of 7.4GWh, smart water management initiatives covering the irrigation needs of the Park with non-drinking water, the creation of 1,450 trees and 280,000 bushes in the Park as well as the “Green” roofs, which occupy 17,000 m² of the Park’s surface area.

The Foundation also supports a series of infrastructure and education projects

to enhance the health sector in Greece, including the procurement of 143 state-of-the-art ambulances and education programs for young doctors. In addition there are several initiatives to counter the Greek crisis, which cover social housing and mobile medical units as well as food aid and support for visually impaired people. This represents substantial support for the country and its people, who still are trying to recover from the devastating crisis they faced in the aftermath of the 2007 – 2008 financial crisis. <

For more information about the Stavros Niarchos Cultural Center, see:

<https://www.snfcc.org>

More about the Stavros Niarchos Foundation <https://www.snf.org/>

Listen to the sound clouds discussing different topics:

<https://soundcloud.com/snfcast>

Gain an insights into the Greece National Opera: <http://www.nationalopera.gr/>

Explore the masterpieces of the architects Renzo Piano Building Workshop

For more details about the construction materials go to Sika Greece.

A FASTER CROSSING TO EDINBURGH

The Queensferry Crossing, which spans the Firth of Forth in eastern Scotland, became the longest three-tower, cable-stayed bridge in the world upon its completion in May 2017. The 27,3 km, €889 million structure (total project value €1,52 billion) will make for an awe-inspiring sight for the thousands of motorists who are anticipated to cross its deck on a daily basis or those who simply like to stand and gaze at breath-taking constructional feats. Queen Elizabeth II officially opened the bridge on 4 September 2017.

TEXT: FABRICK, ASTRID SCHNEIDER
PHOTO: GRAEME DUNCAN PHOTOGRAPHY







- > Queensferry Crossing's three towers will stand up to 210 m above high tide. In addition to the main towers – and ensuring that this mammoth monument can fulfil its duty as a speedy travel link between Lothian and Fife – are a total of 10 concrete piers. Some emerging from the water, others from land, these piers support the crossing's north and south approach viaducts. Acting as a middle material between the crossing's deck and the piers, and absorbing the gargantuan pressure of both, are PTFE bearing pads.

Absolutely critical to the crossing's design, these components' creation required a substance designed to be even tougher than concrete. The consultant engineers for the Forth Crossing Bridge Constructors (FCBC) consortium, which is responsible for Queensferry Crossing's construction for client Transport Scotland along with its connecting roads, specified Sika® Armorex L2 HighFlow grout between the PTFE bearing pads and the top of the piers.

A one-component cementitious grout, it is a strong material with a proven track record for precision, high-performance grouting beneath all types of structural steelwork. Before installation and with



Upper photo:

The sustainability of Sika® Armorex L2 High Flow grout makes it an attractive proposition for specifiers on large-scale building projects.

the crossing's stability literally resting on the grout-based, bridge bearing pads beneath it, structural engineers carried out a testing program on each batch of Sika® Armorex L2 High Flow.

Analyzing huge volumes of cementitious grout to identify potential failures proved extremely time-consuming, and presented the biggest challenge to en-

gineers when it came to installing the bridge-bearing pads and supporting grout. It was a vital element of the installation process, however, as safety on a project of this size and profile was of the highest priority. As well as its high-strength and durability, the sustainability of Sika® Armorex L2 High Flow makes it an attractive proposition for specifiers on large-scale building projects. It is free



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of toxins such as chloride, thus eliminating a potential threat to wildlife in areas of rural or waterside construction.

The resulting structure will dwarf the existing Forth Road Bridge in height. But while we acknowledge the magnificence of the crossing and the technological excellence that will eventually bring this unique and much-needed transport cou-

rier to life, let us not forget the building materials that hold it together, helping cement its place in Scotland's infrastructural history.

- 1 Batch test to ensure performance: holes filled after cores being taken.
- 2 The components' creation required a substance designed to be even tougher than concrete.



ROOFING





LUXURY GET-AWAY IN THE TREE TOPS

The Woodman's Treehouse in Dorset is a private and unique retreat set high up in the branches of a veteran oak. A combination of sustainable craftsmanship and luxurious interiors, the two-level treehouse offers uninterrupted vistas through the tree canopy across the magical Dorset woodland. The project has created a huge amount of media attention in Britain.

TEXT: ASTRID SCHNEIDER
PHOTO: GUY MALLINSON

THE TREEHOUSE IS A PRIVATE KINGDOM WITH A KING-SIZED BED, A WOOD-FIRED PIZZA OVEN AND OUTSIDE TREE SHOWERS

> The grand pier-like boardwalk of the Woodsman's Treehouse extends into your own private kingdom: a king-sized bed, a double-ended copper bath and the rotating fireplace that can be positioned toward the bed, sofa or kitchen. A particularly notable feature is a window in the floor, looking down to the stream below. The thick insulating walls feature picture windows that offer woodland views, and there is a ceiling window above the bed that looks up at the impressive oak canopy above. No practicalities have been overlooked either: the treehouse has a proper indoor flushing loo and an entrance porch for coats and muddy boots. Outside on the huge rear deck there is a wood-fired pizza oven and barbeque, as well as one of the outdoor tree showers – supplied with endless piping-hot water. It's ideal in the rain or snow. From this level a spiral staircase leads up to the roof/spa deck, where one finds a hot tub and a sauna offering complete privacy. It's a very special experience to be relaxing up amongst the branches, looking through the woods towards the sunset. It proved to be a special moment for

the Axminster-based Roof Assured by Sarnafil installer, Climax Windows, when they were invited to install the single-ply roofing membrane on the flat roof deck of the treehouse. Brian Deem, Managing Director, and his team worked directly with visionary treehouse owner Guy Mallinson and his architect to install 60 m² of lead-grey Sarnafil membrane on the decking surrounding the jacuzzi area. The flexibility of the mechanically fixed membrane was perfect for this project, which involved some complex detailing and upstands around the deck railings.



Once the membrane was installed, it was covered with timber decking to continue the natural woodland feel.

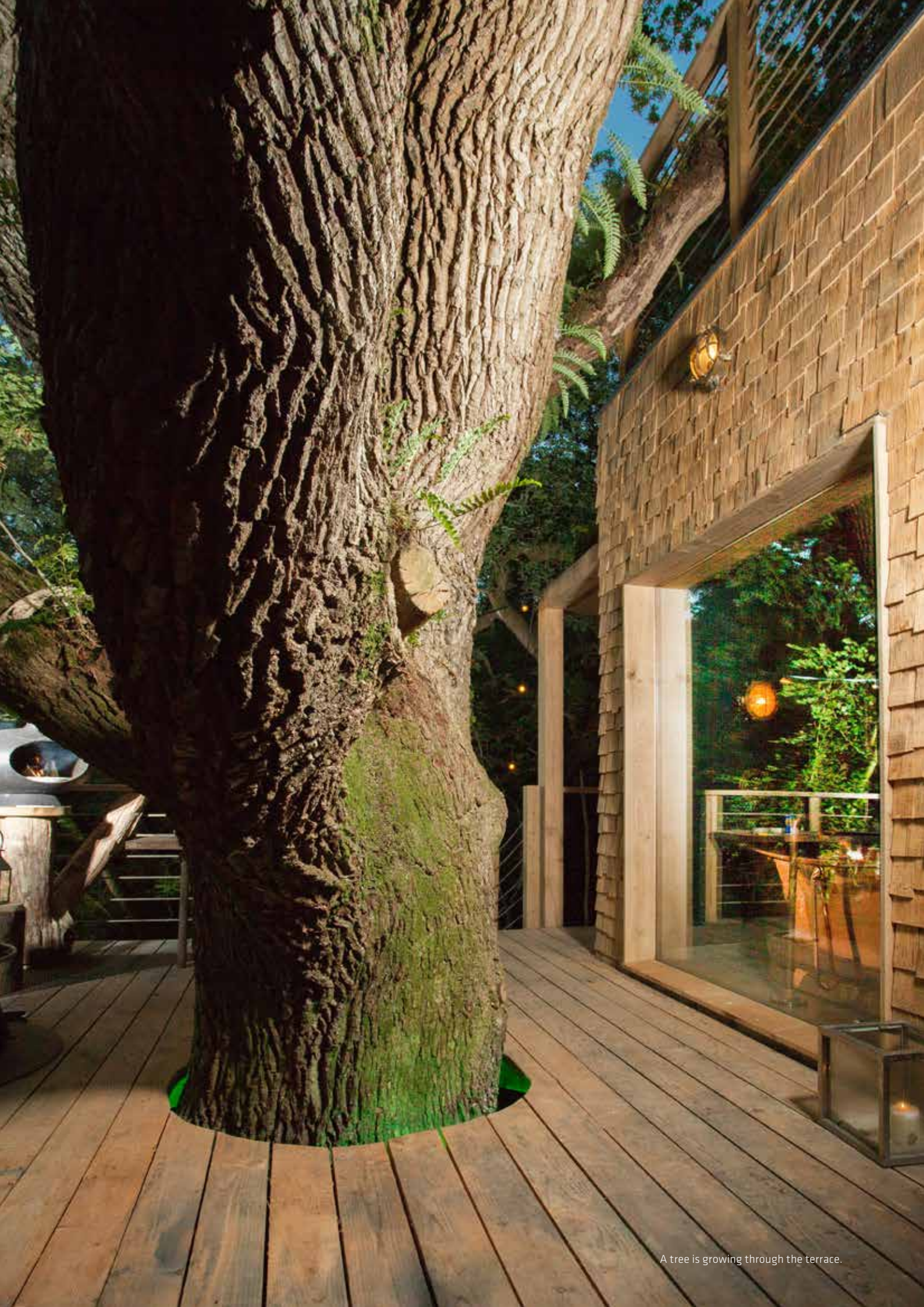
Owner Guy Mallinson was keen to use local contractors for this undertaking and chose Climax Windows for their proximity and also because they are registered in-

stallers of the high-performance Sarnafil membrane. Quality, craftsmanship and aesthetics were an important feature of this design.

Roofing installers are used to working at heights, but in this instance they were literally in the trees working along-

side other installers on what can only be described as a unique project. Climax Windows has been a Roof Assured by Sarnafil registered installer for many years, but this is the first time they have installed the membrane on a treehouse.

>



A tree is growing through the terrace.



The king-sized bed.



> Nick Hinds at Climax Windows said: “This was a fantastic project. There was a real sense of working on something special and implementing owner Guy Mallinson’s vision of a magical, luxurious treehouse. Contractors worked side by side and it

was great to see old methods, crafts and natural materials used. The Sarnafil membrane fulfilled all the performance and environmental credentials needed for this project.

In all roofing installations, correct detailing is critical and there is true craftsmanship in completing complex flat roof detailing and upstands. We’ve 12 years’ experience of installing the Sarnafil membrane, which is an unbeatable product backed by great support from the Sika Sarnafil technical team”.

This membrane is usually associated with large-scale commercial projects such as the Emirates Stadium and London St Pancras station, but it is becoming increasingly popular with self-builders who are looking for an environmentally friendly and high performance flat roofing solution. From stadiums and stations to treehouses, no project is too large or too small for Sarnafil single-ply membrane.

Anyone who’s thinking about visiting this exceptional luxury get-away and enjoying life under an old oak for a while can go ahead and get booking – this adventure is worth trying. <

Read more about The Woodman’s Treehouse and join the virtual tour <http://www.mallinson.co.uk/treehouse.html>
Get more information about Sarnafil: [Sarnafil UK](#)



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1 The outdoor shower is supplied with endless piping-hot water.

2 The house is well hidden behind the trees.

3 Having barbeque or baking pizza – the terrace is a comfortable place for spending dinners.

4 A small suspension bridge leads to the main entrance.

