

# ambitions

## ▶▶▶▶ direct

### Smart

## Alice in Wonderland

Children go to school in order to learn the basic things that are required to succeed and earn a living in life. We all have memories of our time at school, both good and bad, but irrespective of how happy our schooldays were, we have to admit they were a very special time in our lives. If parts of our school building had looked like oversized books taken from Alice in Wonderland, we might have been a bit more interested in entering the establishment in which we were supposed to learn for our future benefit. The Lucie Aubrac School in La Seyne sur Mer, France fulfills this young child's dream. During the renovation process, the challenge was to retain the main building, which characterizes the school group and its values. It was embellished and updated by the addition of rounded shapes in bright

colors. An educational activities center was built next to the building, and this now includes computer rooms and a video library. Finally, the exterior space also underwent some development, with the construction of an outdoor amphitheater and the creation of a garden and landscaped areas for sport. One of the challenges for Sika France was to seal the rounded objects, because the architect wanted to maintain their aesthetic impact and create smooth structures with no visible variations in thickness. These rounded shapes in bright colors symbolize staggered rows of overlapping books. The sealing had to cover the flat tops and sides of the objects.

The uniform appearance requested by the architect precluded the use of bituminous membranes and interlining liquids. Surfaces had to be repaired with SikaTop® 121. The vapor barrier was created using two layers of sand and the versatile epoxy resin Sikafloor® 161. It was then sealed using Sikafloor® 400 N liquid polyurethane resin sealant which, as well as ensuring an effective waterproofing, also maintained the aesthetics of the shapes by using the same colors, yellow, blue and red. That is how Alice in Wonderland was created.



## Imaginations

Takeshi Hosaka is the epitome of contemporary Japanese architecture. The austerity of his blank and minimalist designs, with their dominant white tones, is tempered by a certain playfulness. Yet, through their balanced forms and smooth simplicity, his buildings exert a distinctive charm and create an almost cozy ambience. After winning the Japanese Architecture Association's "Rookie of the Year" award, he has accepted invitations from across the globe to present not only his projects, but also his drafts and sketches.

At the beginning of April 2013, he was a guest at The House of Art at České Budějovice in the Czech Republic, where his works were on display, and also gave architecture lectures at the Technical University of Liberec in the same country. It was there that we met this very passionate architect.

### **What construction and material technologies do you use to realize your architectural concepts?**

The choice of the best materials to bring my designs to life always demands very careful consideration. All relevant factors are considered – the building location, climate, conditions – everything is thought through to the end. After that, I create a physical mock-up to check for problems and examine those areas with scope for improvement.

I think it is this intensive deliberation, from inception to completion, about materials and techniques that enables me to identify the best solutions for realizing my designs.

### **What are the main trends in architecture and urban planning, as you see it?**

The "Modern City" idea established in the mid-twentieth century is still going strong, even now in 2013, and I believe it will continue to influence architecture and urban design. Modern cities are springing up all over the world. They have uniform styles of architecture, transport networks, living formats and energy systems. Many of the cities growing up across the globe are very similar.



Takeshi Hosaka

### **How important do you think green construction, e.g. green roofs, high-reflection coatings or solar roofs, will become in the future?**

In most cases, the precise role of green construction is not very clear given the wide regional variations in landscapes and environments. In other words, there are a multitude of ways in which these technologies can be exploited. I think that pinpointing the appropriate response in each situation is our primary task.

### **Do your buildings address the region or setting in which they are located? What part does Sika play here?**

My Hoto Fudo building was consciously designed to blend with the landscape.

No matter how far you drive, the roadside landscape in the regional towns and cities of Japan are all the same. Large parking lots and the same types of retail buildings line the road.

Even the tourist town of Kawaguchiko, at the foot of Mount Fuji, has the same roadscape.





I wanted to address the problems Japan has with its landscape and suggest a new type of scenery. Mount Fuji is visible to the south of Hoto Fudo, so by fashioning an image of clouds floating down from the mountain, I tried to make the architecture and backdrop read as a single entity.

This building is designed with a free-form-surfaced reinforced-concrete shell, and its shape is very complex. This combined with various other factors, such as the elasticity needed for changes in shape, durability and waterproofing performance, prompted me to select Sika's urethane waterproofing membranes as the best solution for the building's surface finish.

### Is there a guiding principle in your work and if so, what?

In my opinion, architecture needs to engage actively with the environment with which it coexists. I believe it is possible to design buildings that will breed a new richness and emotional satisfaction for the human race.

The dichotomy between internal and external architecture is another guiding theme. Architects are usually perceived as creators of interiors, but by discovering novel relationships between inside and outside, I believe we can develop a new mode of architectural design.

### What is your dream as a designer?

I dream of establishing an architectural foundation that will last for over 1000 years.

### What is your favorite material?

Precast and Ductal concrete.

### What do you see as your biggest challenge?

In seeking new relationships between interiors and exteriors, and with environments and landscapes, I am driven by the ambition of creating architectural structures that will stand the test of time and convince future generations that the designers of the present age were indeed able to craft wonderful cities and buildings.

### What are your ties with Sika?

I am fascinated by the idea of creating spectacular structures using precast concrete. I look forward to being discovered by a client with the same passion. The path from the initial ideas for an architectural composition to the finished product is lined with numerous obstacles. Yet, with Sika's support, I hope to fashion a stunning precast-concrete structure that will stand as a testament to our present generation.

### What is on display at České Budějovice, Czech Republic, in April/May 2013?

There are countless "floating" sketches, based on the concept of "Ku u so u" (imagination). I always sketch when creating architectural designs and most of these sketches end up as unsuccessful attempts. Yet, I discover wonderful things in the remaining ones.

The display area can also be seen as the area inside my mind. Wander through the sketches that are the product of my imagination, sit in the moon chair, and fully experience the world of "Ku u so u", as if in a cradle. The exhibition is also about transferring what was born in the imaginary world to the tangible world of architecture. I would like everyone to experience this small world between reality and architectural design.

For more information: <http://www.hosakatakeshi.com>





### Beauty for Industry

My visit to one of the Sika reference projects, the Lilly Pharma factory in Suzhou, China, was an unforgettable experience. After putting on white overalls, a hat and a pair of shoe covers, I was given a tour of the factory by an engineer from Lilly Pharma's engineering department. Crossing the threshold, I was stunned by the vivid yellow color of the floor where Sikafloor® was applied as flooring solution. It was totally different compared to the world outside – lively and bright. There were workers in hygienic uniforms walking past us, tidy and quiet: a typical pharma industry atmosphere. I noticed that the floor in front of the door was decorated with a red pattern, so I pressed the button on my camera for a nice shot.

My trip to China also included a visit to Sika's another reference project, the Nestlé Totole Bouillon factory. The food processing area of this factory was designed to have a green floor. Mr. Pang who was in charge of the floor design specification told me the story of the company. Totole was founded in 1989 by a Chinese entrepreneur. Before being acquired by Nestle in 1999, it had already grown to be the market leader in the Chinese food industry. Production conditions had previously been poor; basically the production areas had only concrete floors with little protection. Nowadays, to ensure the high quality of the production process and products, and to provide a friendly and healthy environment for the workers, the performance, durability and ease of cleaning of the floors and the factory's indoor air quality have to meet certain high standards. This is where Sikafloor®

flooring solutions come into play. Even though they are more expensive than any other solutions in the Chinese market, they have become the ideal choice for this company.

This is how a modern, high-standard factory interior looks and feels nowadays, not only in western countries, but also in emerging markets such as India and China. However, behind these stylish colors, each floor area of each factory has its own stringent technical requirements dictated by various functions and legislation. For example, electronics industries and life science industries need to fulfill the latest "suitable cleanroom material" certification, because floors in the production environment in such industries have to have low particle emissions, low volatile organic compound emissions, chemical and biological resistance and meet certain conductivity standards.

With its continuous innovation, Sika is now the number one technology and market leader in the global flooring business. Every year Sika supplies many Sikafloor® flooring portfolios to a wide variety of industry sectors for their projects, supported by Sika's expert sales and technical service team. Unlimited design possibilities and under-foot comfort backed up by high performance and sustainability throughout the life cycle are the promises Sika offers to fast-developing manufacturing industries all over the world.





In the front Jose Luis Vazquez (Latinamerica Regional Manager, Sika Mexico), behind him Jan Jenisch (CEO Sika) and in the back Antonio Zapata (President of Government of Corregidora Queretaro)

## Improving children's lives

In February 2013 in the presence of Sika Mexico employees, Jan Jenisch, CEO of Sika, inaugurated the football pitch of the "Pan de Vida Orphanage", where the "Buffalos" American football team will be playing matches against other schools and local teams. The new football facilities include tiered seating, changing rooms, bathrooms and a cafeteria.

The "Pan de Vida" organization looks after abused and abandoned children and ensures they can live and learn in a safe environment. With the full support of Sika's Romuald Burkard Foundation, Sika Mexico provides funds for their projects. These include various initiatives such as extending the school, building a "boys' house", constructing a football pitch introducing a special scholarship program, and a dental care program.

The Romuald Burkard Foundation was established in 2005 on the initiative of the Sika AG Board of Directors in memory of Romuald Burkard who represented the third generation of Sika's founding family Winkler. During his life he devoted much of his time to supporting various social causes, adopting the philosophy that "success necessarily promotes responsibility".



This is not the first time that the Foundation has supported the holistic development of the boys and girls at "Pan de Vida". Sika Mexico in 2006 assisted in the total refurbishment of the auditorium facilities, plus recreational areas and an expansion of the school's transport infrastructure. The road leading to the children's accommodation was also paved, improving access to the school and also the lives of 80 children.





## On the other side of the globe

Dr.-Ing. Jun Qu, Principal Scientist &  
Research Coordination Officer (Greater China), Sika Technology AG

### You are originally from China – how's life in Switzerland?

I joined Sika in Zurich, Switzerland after completing my Ph.D. in Germany. Besides fast-moving vehicles, a very clean environment, advanced technology and very high living standards, I very much like the multi-cultural, well organized city of Zurich and its friendly, helpful and warm-hearted inhabitants and work colleagues. All this helped me and my family to settle in quickly and integrate in spite of big differences like language, tradition and social conventions.

### What fascinates you and what has been your main motivation?

The well organized management here enables me to work efficiently. I can work not only with colleagues from different countries but also with colleagues from Sika China in my mother tongue Chinese. During my daily work, I can also make full use of my Chinese background and devote myself to the rapid development of the Sika Group in China – a huge booming market.

### What is your job exactly and what does your day-to-day work involve?

In my day-to-day work, I carry out application-oriented bonding technology projects in cooperation with universities, institutes and potential customers by applying Sika's products and also conduct special impact peel and fatigue tests to evaluate the impact resistance and service life of our adhesives. In previous years, I have also successfully worked on several research projects relating to adhesives and concrete admixtures with Sika China colleagues.

### How would you change the world if you could?

In the world we are living in, there are still lots of problems and conflicts to be solved, such as war, hunger, poverty, air pollution and so on. From my point of view, we could solve these problems, change the world and make our world a better place through successful cooperation, better communication and our own personal dedication.

## Water Parks



### Vacation time

Sometimes it seems easier to have a family 'staycation' at home with the children over the summer. Staying at home can be much cheaper, and so it would seem reasonable to draw up a leisure plan full of local attractions to visit.

However, after spending a whole week at a nearby lake and eating ice cream with your sons every day in the city, you'll long for change and relaxation, and your children will be clamoring for fun and an exciting playground. But summer holidays could be waiting right round the corner, as you will discover at the La Plajă Aqua Park near the Romanian capital Bucharest.

Your children will love the aquatic adventures as much as you'll love the sun loungers and parasols. You may even plunge into the water yourself – fun is contagious. So make a note to visit this spectacular waterfall in an aquatic labyrinth – it promises fun for young and old alike!

The water park is an amusement park that features water play areas such as water slides, splash pads, water playgrounds, lazy rivers and other recreational bathing, swimming, and barefooting environments. Bucharest has two water parks for the public, and this new one is even better placed and provides an improved service package for its customers.

After the beginning of the construction of the park, the structures were in a bad shape. So Sika Romania finally took over the project and had to solve many problems regarding structural stability, waterproofing and appearance. Large quantities of repair products were therefore needed to ultimately achieve the required quality standards.

The consultant in charge required Sika to provide a complete service, visually attractive materials that were resistant to chemicals, optimum value for money, on-site technical assistance during project execution, and punctual deliveries to meet the tight deadline as the water park had to be complete, including all surface finishing, within 4 months.





## Sika Experience on tour in China and Australia!

Three lucky students each from China and Australia were hand-picked and selected based on their exceptional study ethics and insights into their anticipated career path. Sika Experience China and Australia was a 10 day program, which was mainly about providing local university students and young professionals the opportunity to merge into the heart of Sika to gain first-hand insight to Sika's every day work environment and processes by visiting factory, labs and project sites.

The first part of the program was our visit to Sika China's head office at Suzhou city located in the southeast of Jiangsu Province in Eastern China, later that evening we then travelled to Sika Sarnafil China head office in Shanghai. It was also the first time the Chinese students were united with the Australian students, with great anticipation; they bonded very well throughout the introduction process with a realisation that a new friendship has begun between the two cultures.

Our first hand visit at Sika China's production and warehouse facilities has broadened everyone's understanding of the working condition and environment of the Chinese business culture. It was interesting to witness the presence of a canteen, where all of the company employees gather to have lunch. By participating in such lunch experience with the local Sika employees, the students were able to appreciate the importance of such company service in facilitating a "Family-Friendly" work culture.

The students were also exposure to one of Sika Sarnafil's big project roof project that was completed in 2010 in support to Shanghai Expo, Hongqiao International Airport. It was a fantastic opportunity for the student to see where the products are used. They also have witnessed the suitability of the membrane as a green roof, the very same product used on top of the Sika Sarnafil Green Roof Building.

Discovering Sydney, Sika style. The second part of our program was the visit to Australia's capital to the Sika Australia's head office. An intense 3 day program presented the students a different focus on the Australian business. Fun field activities that provided the students with a different view how Sika Australia operates through R&D, Quality and Production.

Another interesting event on that day was the site visit to one of Sika Australia's major customer in the Concrete business. An eye opening experience for all, especial to the Chinese students who haven't seen site facilities that mixes colour admixtures through the huge concrete mixtures both on the site and on the mobile truck cement mixers.

Site visits continued throughout the program, the second time around, the students witnessed a new waterproofing product being applied onto a roof-top of a local council building. The student were exposed to building site conditions and witnessed first-hand how applicators used Sika products. One of the student's blogged... "I believe such site visit today greatly broadened my understanding of waterproofing measures utilised on roof-tops."

Because of the diversity of the Australian market it was important for the student to experience and witness the distribution business. The students were particularly interested how big the DIY market was in Australia and they were very impressed on one of the major retail outlet they visited on that day. The Bunnings experience provided the students a wide exposure to the retail environment and the diversity of the products available on the market. The students ended up thrilling: "Participating in such Sika program has been a life thrilling experience, and we would like to thank all organisers and management teams for allowing such program to occur."

Find more information about the [Sika Experience China-Australia](#)

(Left to right) Maryanne Shen (Marketing Communication Manager)  
 April Lv (Marketing Communication Officer), Lin Niu (Chinese student)  
 Mohammedreza Hassani Esgandani (Australian student)  
 Bo Yin (Chinese student), Jenny Duan (Marketing Coordinator)  
 Zhao Ge (Head of Technical Service, Roofing)  
 Abraham Khoury (Australian Student), Jing Yuan (Chinese student)  
 Feng Niu (Application Service Manager)  
 Amin Noushini (Australian student), Jenny Perello (Marketing Manager)







## The Heartbeat of Clean Energy

It is an ice-cold morning in the Fremri-Kárahnjúkar mountains. Shift workers are entering an access tunnel that leads to the underground Kárahnjúkar Hydropower Station. Deep within the main cavern, water from surrounding reservoirs and rivers thunders through six turbines, generating 690 megawatts of power for a new aluminum smelting plant built by Alcoa in the town of Reyðarfjörður. This is the beating heart of Iceland's largest-ever industrial development: a € 1.1 billion hydropower plant which, during its five-year construction period, required 70 km of tunneling and the construction of five dams, and is now one of the largest concrete-faced, rock-filled dams in the world.

The project won praise in Iceland for setting an exceptionally high standard of safety. It also carried off the country's highest environmental award, the Conch, for its policy of generating no waste to landfill and avoiding any wastewater discharge into the neighboring fjord. Diversification and the availability of clean energy from hydro- and geothermal power plants has made Iceland a key aluminum-producing country, with a planned production capacity of 1.5 million tons in 2010. Aluminum is manufactured by an electrolytic process that uses bauxite as the basic raw material.

Electric power represents about 20% to 40% of the cost of producing aluminum. Smelters tend to be situated at harbors (most of the bauxite comes from Australia) and where electric power is inexpensive. For Iceland, the renewable and emission-free energy supply created by the Kárahnjúkar Hydropower project is a ticket to economic diversity and a step toward a unique future as a forerunner in the use of such energy for power-intensive industries.

As workers file past the gray-rock arch leading to the power station, they can still see some of the hoses that were used to pump the shotcrete, a special concrete for lining tunnel walls and stabilizing rock. During excavation and construction, this material offered the civil engineers a solution to some of the project's most serious challenges, including water seepage, frost and the long transport distances. Modified by admixtures, the shotcrete was pumped hundreds of meters into the mountain, where it was sprayed onto the surrounding rock to stop water inflows and secure the walls. The Fremri-Kárahnjúkar mountains are now the site of Iceland's

largest-ever industrial development, a 690-megawatt hydropower plant. The Icelandic climate presented harsh conditions for concreting and Sika's admixtures were put to the ultimate test during the five-year project. Products such as SikaViscoCrete®-SC305 were successfully used to maintain the pumpability of the shotcrete. "Other Sika admixtures, such as accelerators, made the mix stick to the wall, which it wouldn't do otherwise," explains Sika engineer Gustav Bracher.

Not only did engineers and workers have to deal with excessive water seepage, long stretches of rock also needed steel-fiber-reinforced shotcrete, ground injections, and foam and steel ribs support behind the cutter heads of the giant tunnel boring machines. "It was good that we participated actively in the prequalification phases and implemented ductility tests for the steel fiber-reinforced concrete," said Bracher. "A smooth logistics operation was also essential for the client at such a remote site." To meet the demands, Sika flew in raw material from the U.S. and set up production equipment for liquid accelerators at two sites. In the course of the project, the contractor produced more than 200,000 m<sup>3</sup> of shotcrete with 6,000 tons of alkali-free accelerator and 8,000 tons of Sika®Fiber steel fibers. Sika supplied not only all the admixtures for the 170,000 m<sup>3</sup> of concrete, but also the epoxy flooring systems. As Bracher put it, "This underscored the comprehensive nature of Sika's product range on a major project."





## On the roof of Europe

For millions of people around the world, the Matterhorn stands as an emblem of the Swiss Alps. Since the end of the 19th century, when the local railways were built, it has attracted ever more visitors and climbers. Each summer, numerous mountaineers attempt to scale the famous peak via the northeast ridge, the most popular route to the summit.

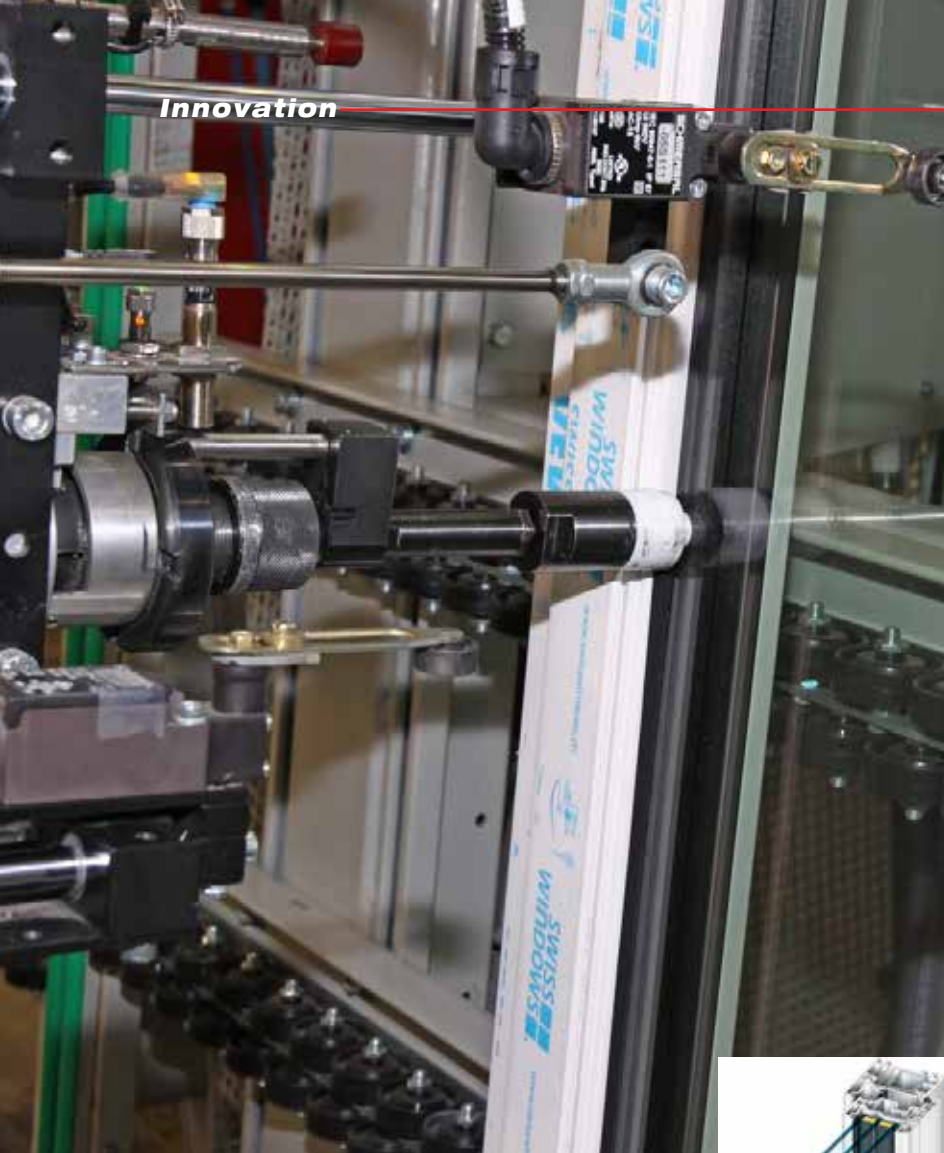
The Matterhorn is an isolated peak situated in the Valais Alps on the border between Switzerland and Italy. Its summit is 4,478 meters (14,690 ft.) high, making it one of the highest mountains in the Alps. It was one of the last great Alpine peaks to be climbed and its first ascent in 1865 marked the end of the golden age of alpinism. Due to its position on the main Alpine watershed and its great height, the Matterhorn is subject to rapid weather changes.

At 3,883 meters above sea level on the Klein Matterhorn, the Matterhorn Glacier Paradise tourist center offers a breathtaking view of 38 four-thousand-meter peaks in Switzerland, France and Italy. Every year, it attracts around half a million visitors from across the globe and serves as the starting point for mountaineers wishing to explore the Zermatt ski area.

The design concept for the tourist center gave top priority to environmental compatibility and energy-efficient construction. The center was built to state-of-the-art ecological standards, the entire heating and ventilation system being solar-powered. This was achieved by cladding the south facade with a building-integrated photovoltaic (BIPV) system, the first of its kind to be installed at this altitude in Europe.

Bonding the 108 specially developed, high-performance, ultra-weather-resistant PV modules called for a superlative adhesive, capable of readily withstanding temperatures of  $-40^{\circ}\text{C}$  to  $+30^{\circ}\text{C}$  and wind speeds of up to 300 km/h. Sikasil® SG-500 meets these rigorous requirements. Even in the stormiest conditions or intense sunlight, the structural adhesive provides long-lasting protection against the harsh environmental conditions and an enduring bond between the materials. This allowed trouble-free installation of a robust, energy-efficient BIPV system with no compromises in terms of esthetic appeal.





## Structural window bonding

The Swisspor Group company Swisswindows is number two in the Swiss market for windows and, alongside plastic frames, also produces windows with wooden and wood/aluminum frames at its own plant. After a development period of less than six months, Swisswindows has unveiled its new Classico window, bonded with Sikasil® WT-485. The response of customers to the product's design, stability and heat-insulating properties has been overwhelming. Sika and a PVC frame manufacturer were involved in the development from the start and have contributed significantly to the product's success.

In developing Classico, the designers set out to optimize heat efficiency, thermal insulation and energy gains. The company was determined to develop a window that will still be up-to-date in ten years — thus setting a very high bar indeed. Energy conservation has long been a major concern in many countries, but the focus is not only on conservation, but also on energy gains, or capturing as much solar energy as possible. To achieve this, the frame fraction must be minimized.

In addition to its technical merits, bonding also enhances the visual appeal of windows. Conventional plastic frames often appear bulky and awkward and, as the wrong choice of replacement can rob a building of its character, architects are often reluctant to specify plastic products. Thermal insulation, sound control and safety requirements, compounded by ceiling-high triple glazing, are also making conventional window panes increasingly heavy. In structural window bonding, it is not the frame that carries the glass but the glass that carries the frame. This makes very slender and stiff designs possible. The freedom to design a proprietary system that capitalizes on all the advantages of bonding, instead of relying on standard sections, has proved an enormous advantage.



### ambitions-direct no. 12

Sika' international newsletter to customers

#### Project lead

Astrid Schneider

#### Editors' Team

Astrid Schneider, Hans Bucher, Jane Rueegg, Jeannine Leuppi, Kathrin Müller, Laura Egli

#### 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)

#### Contributors

Ana Molina Rincón, April Lv, Astrid Schneider, Aurelian Pascale, Charlotte Aguilar, Delphine Chevalier, Elena Neto, Gustav Bracher, Hans Bucher, Jeannine Leuppi, Jenny Perello, Jun Que, Kathrin Müller, Klaus Strixner, Laura Egli, Maryanne Shen, Melina Merkle, Rieko Shibata

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.

