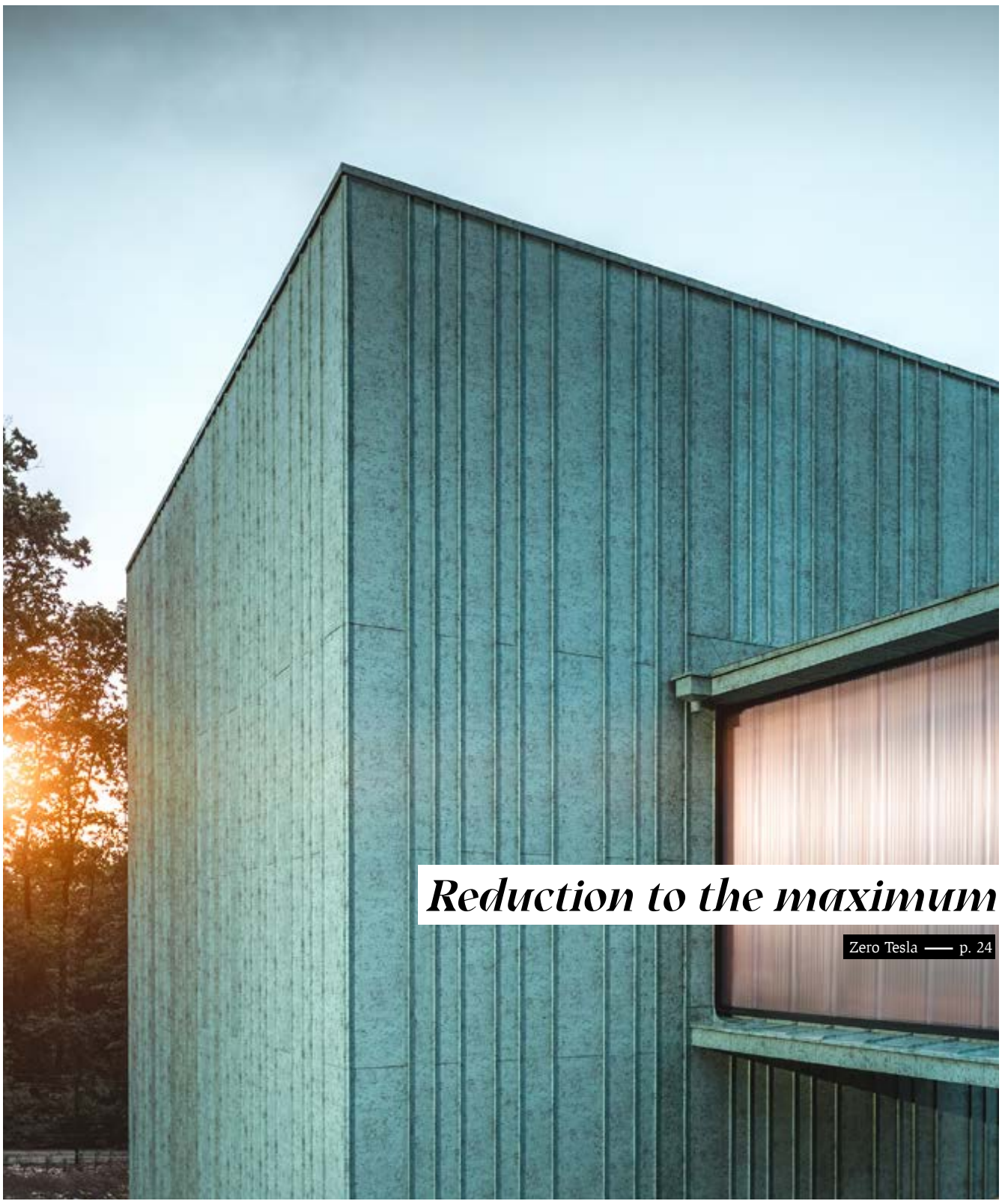
PJ SIX**POINT**ZERO

PREFARENZEN

PREFARENZEN Journal

Highlights:



Reduction to the maximum

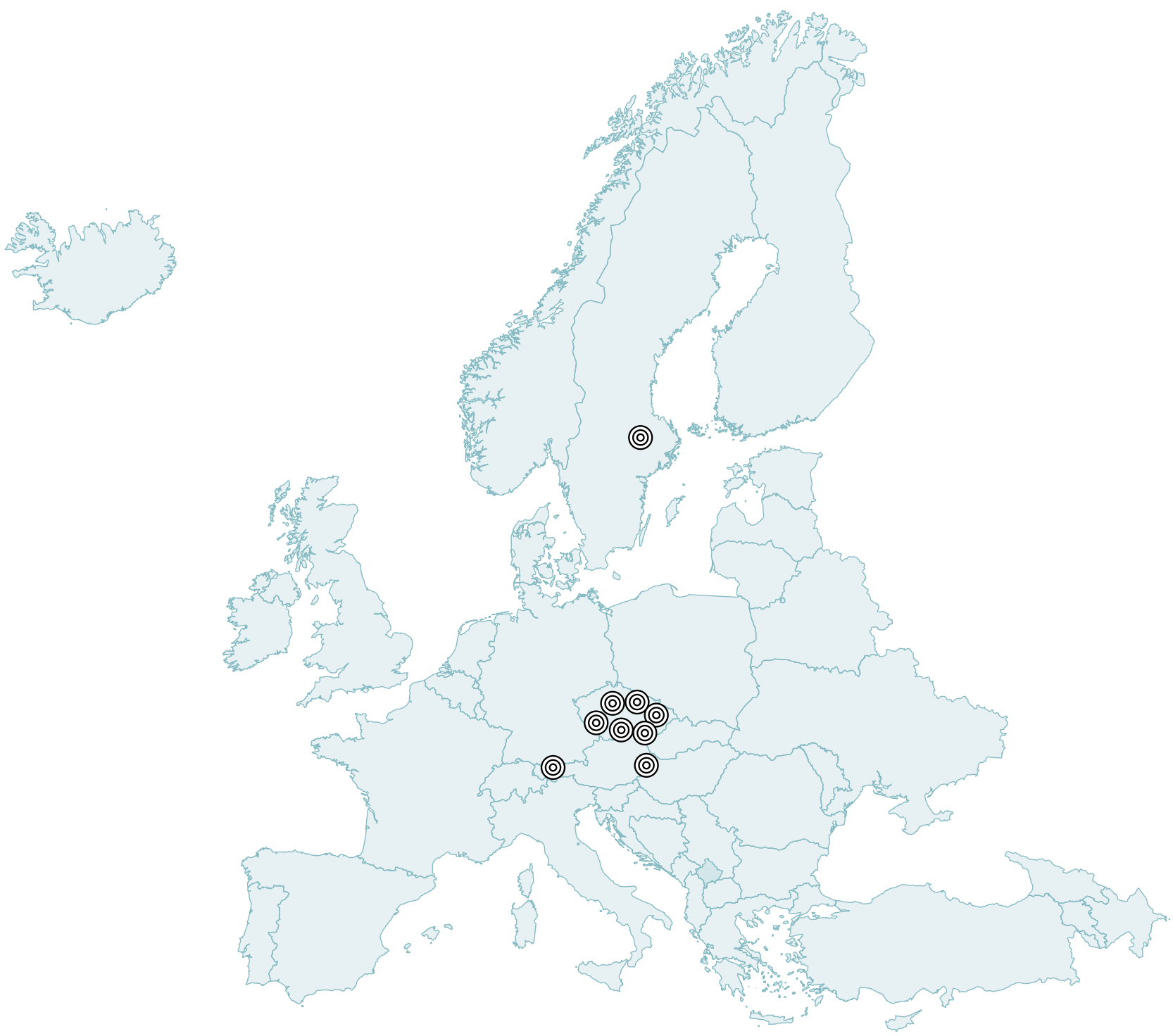
Zero Tesla — p. 24

Edition

№ 6.Ø

English

prefarenzen.com



Roadmap 6.0

For reasons of legibility, no gender-specific terms are used.
Any personal references that are only in the masculine form refer to men and women equally.

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Of creative thoughts and demands

It is simply amazing how times have changed and the focus has shifted over the years. What began with the revolutionary idea of “pressing and folding” nearly eight decades ago has become a respected innovation that is gaining more recognition on an international scale.

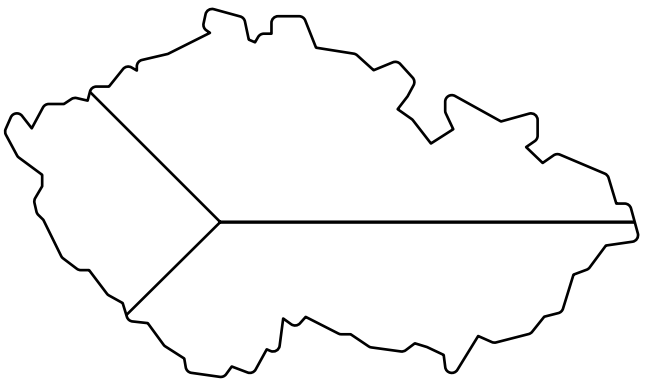
Over the last few decades, the archaic desire for strength has faced a multitude of requirements and demands. A building should not only be robust but also expressive, not only functional but also elegant or conspicuous, depending on what is needed. On top of that, there is the demand for sustainability and recyclability. That the roof itself becomes a power plant is therefore a logical consequence.

It may appear presumptuous to capture the thoughts of architects, planners or creatives. But it seems that with every project, you also reveal a bit about yourself. Everything you know, experience, wish and hope for at that moment flows into your project in one way or another. So it is only logical that you can put your ideas into reality better the more individual and flexible your possibilities are.

You can discover how aluminium proves to be extremely useful in this context in our new PREFARENZEN journal. Take your time for the following pages, you will see that it is worth it!

Your PREFARENZEN ambassador

Jürgen Jungmair
Head of International Marketing PREFA



Ahoj PREFA!

Every year, the Czech Republic surprises us with architecture that is characterised by PREFA façades and roofs. Established and young architectural offices have long overcome their initial scepticism towards aluminium, impressing us with excellent ideas which are also appreciated in the PREFARENZEN books.

Text: Anneliese Heinisch
Photos: Croce & Wir

Aleš Slivka,
Managing Director
PREFA Czech Republic

When the subsidiary was founded in Prague in 2004, people had already used simple aluminium sheets as building envelopes in the country. “Back then, the material was often attached right to the raw formwork using only nails. It did not take long until the nails came loose due to the large temperature-induced expansions and caused dissatisfaction among builders and installers,” Managing Director and long-time architectural consultant Aleš Slivka tells us. “Thanks to the great commitment of our first PREFA employees, the installers quickly took a liking to our products and successfully mounted large roof and façade systems to our clients’ satisfaction.”

The company has developed well since then: Due to strategic marketing measures, installers and architects are well acquainted with PREFA Czechia and its 29-strong team. “With our products, we reach customers who calculate building costs in the long run and value sustainability. We also benefit from the increasing added value in our country, for the Czech Republic is one of the most innovative countries in Central Europe. New jobs are being created and international investments, for example in the automotive industry or IT sector, are ensuring prosperity and a high purchasing power. Nevertheless, or perhaps precisely because of this, our country has not yet decided to give up the Czech koruna and trust the monetary policy pursued by the European Central Bank,” Aleš describes the situation in *Česko*, as the country is called in its national language.

So these are the interesting conditions in which buildings with recognition value are being created here. Among them are several exceptional projects, from the periphery of Prague to idyllic forests in barely inhabited corners of the country. Architects particularly like to use the light metal for organic forms, asymmetrical buildings and low-slope roofs. In other words: for sophisticated projects that would be difficult to realise with any other material. Two such outstanding examples even made it onto the title pages of the PREFARENZEN books: the UFO-like sports hall with the multiply curved shingle façade by the young office SPORADICAL and an unusual holiday home designed by NEW HOW architects that appears to disappear among the trees of a spruce forest near the remote village Nové Hamry.

1 —

2 —

3 —

4 —

5 —

1 —
Object: holiday home Krušné hory, Nové Hamry
Product: Prefalz
Colour: P.10 anthracite
Architecture: NEW HOW architects, Prague

2 —
Object: detached house, Lipnice nad Sázavou
Products: FX.12 roof and façade panel
Colour: P.10 anthracite
Architecture: František Čekal, Humpolec

3 —
Object: detached house, Žižkov (Prague)
Products: roof and façade shingle, Prefalz
Colour: P.10 sand brown
Architecture: Atelier Valkoun – Vršek, Prague

4 —
Object: filling station Petronal, Prague
Product: PREFABOND aluminium composite panel
Colours: black grey, pure white
Architecture: Daniel Zerzán, Liberec

5 —
Object: sports hall, Dolní Břežany
Product: façade shingle
Colour: plain aluminium
Architecture: SPORADICAL, Prague

"Good is only mediocre for us"

A family from Brno (CZ) made their dream come true with their new holiday home in the mountains. Two dedicated architects and skilled installers accompanied them without compromise through it all, from planning to completion.

Text: Carl Bender
Photos: Croce & Wir

Family is important to us

In the Middle Ages, people in Staré Město, formerly known as Goldeck, mainly made a living from gold and silver mining. Today, the "Old Town" in the border triangle of Silesia-Bohemia-Moravia is a popular destination for families from all over the Czech Republic who want to spend relaxing holidays in their own house. It is a small paradise for people who want to ride their mountainbikes, go skiing or explore their natural surroundings on hikes. The Brückners are one of these families: After a construction period of seven months, they were finally able to celebrate their first Christmas in their new house in 2022.

"We used to have a house with four apartments on the other side of the valley. Always having to be there for our guests simply got to be too much for us, so we decided that it was time for a change. We wanted a new build. It was a special moment for us when we were offered this property for sale. We were taken by the location and the view."

The owners František and Milana

Building with passion

The family turned to one of their friends, architect Gabriel Kurtis, who took on the design task for the low-energy house together with his partner Adam Horák. It took several fresh beginnings and revisions until they had a final plan. “For us, it was easier to comment on the architects’ proposals than to formulate concrete specifications.” This way, they worked through their wishes step by step until they all agreed. František Brückner is convinced that “it would be a shame to build a mediocre house at this special place. We always pay great attention to high quality and perfect results.”

The decision to build with cross-laminated timber (CLT) was a new experience for the architects. First, they had to record all the details, openings and outlets in a plan in a legally binding way, as later adaptations would have virtually been impossible.
The exact plans were also an advantage when planning the interior, since they made it possible for the team to make decisions and invite tenders quite early on. This turned out to be fortunate considering the generally long delivery times.

The property is situated on a steep slope that originally had a gradient of up to 100 %. Instead of creating a level by digging, which would have been the common approach, the decision was made to build complex foundations, with floor slabs for the bungalow and the parking spaces on top of them. The sewage system, the water cistern and the 35 m deep well were built at the same time.

“We always pay great attention to high quality and perfect results.”

—

Object: House B in Kunčice
Product: Prefalz
Colour: P.10 black
Architecture: Gabriel Kurtis and Adam Horák

Forest House s.r.o. acted as general contractor for this object. The business of the building owner František Brückner is engaged in sustainable building and uses this object as a model passive house for interested parties.

“Valuable houses deserve valuable claddings.”

Master tinsmith Zdeněk Valkoun

Wood and aluminium in harmony

Although there was a delay in the delivery and assembly of the timber structure due to small building differences on site, it was handed over without any defects. “That was the first time I truly became aware of both the scale and the room height of more than six metres,” architect Kurtis raves. “The time we invested in the extensive detailed planning has clearly paid off.”

Now the time had come for master tinsmith Zdeněk Valkoun. With a complete workshop set up in an offshore container, he travels from construction site to construction site, always staying as long as it takes until roofs and façades are completed to his satisfaction. He is known for his experience, precision and perserverance throughout the country and is convinced that valuable houses deserve valuable claddings. According to him, this is also the reason why he exclusively uses PREFA materials.

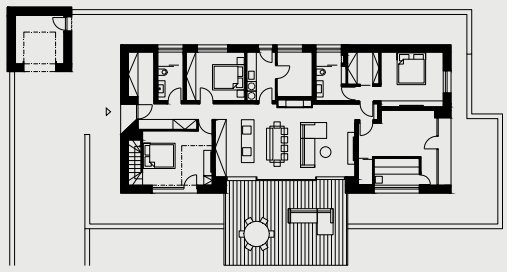
He spent four months at the construction site with two of his co-workers. “We did the substructure and insulation ourselves. Therefore, there were no problems whatsoever with the sheeting of the roof and the façade in double-lock standing seam technology. What did take up a lot of time were the many details like outlets and covers,” he recalls. “For me, this project is the best reference.”

Architects Gabriel Kurtis and Adam Horák with Tony

All dreams come true

Six months later, the family is already all settled in and enjoys every single day they can spend here. “We have time to cook together and enjoy the large fireplace and the spa area with the dreamy panoramic view from the sauna. A guest room with an own bathroom as well as four extra beds in the gable above the youth room make it easy for our friends to comfortably stay with us for several days. We have many options to do sports together and stay fit here, both in summer and winter.”

The only thing that is missing in the house with the shimmering, brown timber façade, the black PREFA roof and the large windows is the cantilevered terrace in front of the living area. It is in progress and will soon be completed with a static sunshade. As the elongated bungalow was integrated into the slope so cleverly, it seems like it has always been here.



Graphic: Gabriel Kurtis and Adam Horák

Functionalist architecture & *National Decorativism* **for the young republic**

With the founding of the republic in 1918, functionalist architecture experienced a heyday during the inter-war years in Czechia and found great resonance all over the world. It represents the young state's new self-confidence. Another expression of its national identity is Rondocubism, a phenomenon that, by contrast, remained limited to the country.

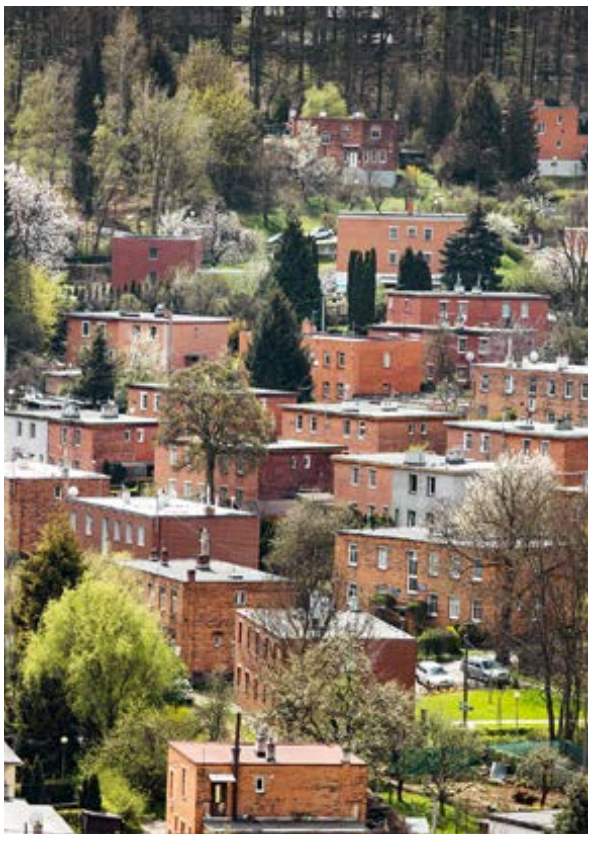
Text: Ingrid Schindler | Photos: Croce & Wir

Everyone knows the Eiffel Tower or the Empire State Building, the tallest secular buildings of their time. But the skyscraper of Zlín? You have probably never heard of it. In the year 1938, it was the second tallest non-religious building in Europe, and with its height of 75 metres, it is still worth a visit today – even if its times as a skyscraper are long gone and it is just a high-rise in a city in southeast Moravia whose size is somewhere between Klagenfurt and Villach.

Our trip with Czech Tourism under the motto "100 years of Czechia – 100 years of modern architecture" led us to this industrial and university town. Not because it happens to be the birthplace of Ivana Trump, born as Zelníčková, but because visionary shoe manufacturers transformed it into THE model city of functionalism over the first three decades of the past century. Or, in the words of Le Corbusier, "into one of the hottest places on Earth". Nowhere else was functionalism implemented more consistently in architecture.

The director's lift

Hundreds of brick houses in building-block style, arranged in rank and file in the lush greenery of the city as far as you can see. Small cubes, larger cubes, elongated cuboids and large boxes arranged in neat, tidy groups. This is what the thoroughly structured workers' city looks like from the roof terrace of its landmark, Building No. 21, built in 1938 on behalf of Jan Antonín Bat'a. The lift with the red tubular steel furniture that takes us up from the entrance hall is certainly something. We have never seen anything like it: a spacious, square office furnished with a desk, shelves and showcases and equipped with the latest telephone, air conditioning and pneumatic post system of its time. A huge map of the world stretches out over the wall, the light-flooded window front is framed by curtains on its sides. Only the illuminated numbers of the floors and lift buttons remind us that we are not only in a director's office, but also in a lift. "Jan Antonín Bat'a wanted to be on every floor as quickly as possible," our tourism guide Andrea Baumannova tells us. "Speed and communication were the most important principles when planning No. 21."



The synthesis of work and recreation

Hollywood could not have done a better job at inventing the meteoric rise of the Bat'a family. In 1894, 18-year-old Tomáš Bat'a and his siblings founded a shoe factory in Zlín. The production of cheap canvas shoes, a consistent low-price strategy and the Austrian Emperor's large order for military boots during World War I gave the company a tremendous boost and let the production facilities grow bigger and bigger. Inspired by several trips to the United States, Bat'a introduced the idea of creating an American company town and implementing the automated series production at his factory after studying it at Ford in Detroit. He was convinced that a thriving business meant a thriving city.
To make Zlín attractive for the rapidly growing workforce and new employees, Bat'a hired the country's most renowned urban planners: Jan Kotěra, František L. Gahura, Vladimir Karfik. The assignment: to design an ideal functional garden city, with straight streets and plenty of green and comfort following the American-English model. The aim: to promote the workers' well-being and increase their productivity and efficiency as a result.

The fact that Tomáš Bat'a had been the mayor of Zlín since 1923 made things easier. He commissioned the construction of the largest cinema in Europe at the time, schools and boarding schools, kindergartens, social houses, sports facilities, a community hall (what is now the Hotel Moskva), the House of Art, a hospital, department stores and small, cheap houses for workers as well as larger ones for the cadre in an assembly line fashion. Each of them had a garden and a convenient room layout. Just like with the factory halls, 6.15 m high, long and deep cubes form the skeleton.
The goal was reached: The business expanded and became the largest shoe manufacturer in the world. In 1931, a total of 20,000 workers manufactured 35 million pairs of shoes in Zlín alone. "The Bat'as were popular and paid well, often more than twice the usual amount," Andrea Baumannova reports. "Never before had there been such opportunities for a better education and faster promotion with exemplary social security and urban infrastructure."

From shoe to film

The business became the largest employer in the country, expanding its business areas to include rubber and tyre production, mechanical engineering and aircraft construction (including airports) as well as heavy and automotive industry. Bat'a also entered the film industry; feature films, children's programmes and company advertising were produced at the in-house studios. The airport Bat'ov sealed his fate: On his way to Basel to attend the inauguration of the Bata park in Möhlin in 1932, he had a fatal accident with his Junker F13 during take-off.
Jan Antonín Bat'a continued his half-brother's work and created further functionalist workers' cities all over the world. In 1938, he inaugurated the new corporate headquarters, the skyscraper of Zlín, as well as the 53 km Bat'a Canal that made it easier to transport ignite to the company's own power plant. But he did not get the chance to use the unique director's office in the lift, for he was arrested when Hitler invaded the country and later fled to Brazil.
The communists nationalised the group and drove it into bankruptcy. The Bat'as' capitalist success story did not fit into their concept, so they were declared ruthless exploiters and Zlín was renamed Gottwaldov. The city eventually got its name back in 1990. Today, the former rubber factory, known as Barum Continental (tyres), is the largest employer in the Czech Republic again and the Bat'a head offices are located in Lausanne, Singapore, Mexico City and Toronto. Zlín is still manufacturing shoes, tyres, machines, airplanes as well as airplane components and attracts start-ups and congresses.

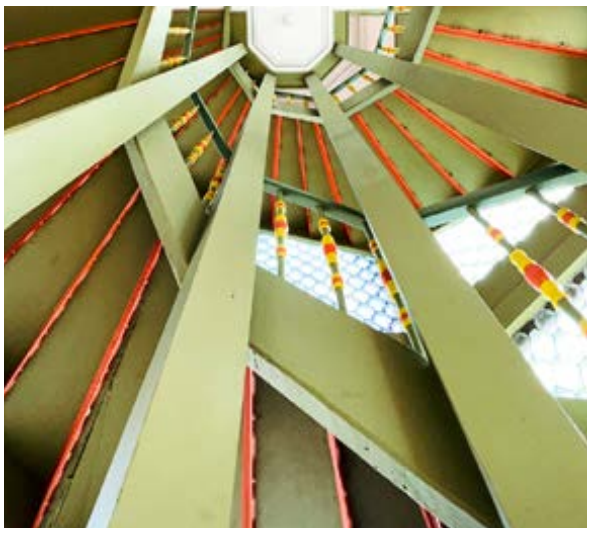
The canal has become a popular travel destination for tourists, guests from the spa town Láznê Luhačovice 28 km away, cyclists as well as hobby captains, for you can rent small remote-controlled boats here, Andrea Baumannova tells us while we cruise along the Bat'a Canal, enjoying coffee, slivovitz and pancakes on our way.

Spa retreat in a colourful fairytale

Láznê Luhačovice paints a different picture. Everywhere you look, there are pretty music and bath pavilions, renovated Art Nouveau villas and sanatoriums from between 1900 and 1930. The people here appear to be just as dolled up as the place itself, as they are strolling through the vast spa park with its fountain, promenades, topiary trees and colonnades and past the many boutiques and cafés. A lot of young people, families with young children, women with baby carriages, laughing, taking selfies, licking ice cream, and, of course, seniors enjoying the spa retreat. They fill their cups with healing water – the spa has sixteen acidulous wells and one sulphur spring – and enjoy cakes and wafers. Baumannova tells us that "each place has their own". Others come here to go jogging, swimming, skating, cycling and enjoy wellness.

With a spa tradition spanning more than 300 years, Láznê Luhačovice is home to one of the largest Czech spas and is only a one and a half hour train ride away from Vienna. Writers, artists and composers like Milan Kundera, Dvořák or Smetana came here to relax. But the record holder is Leoš Janáček, who spent twenty-three full spa seasons in Luhačovice, where he composed some of his operas and had them performed at the spa theatre. The Janáček festival reminds visitors of this.

Photo: Aleš Slivka



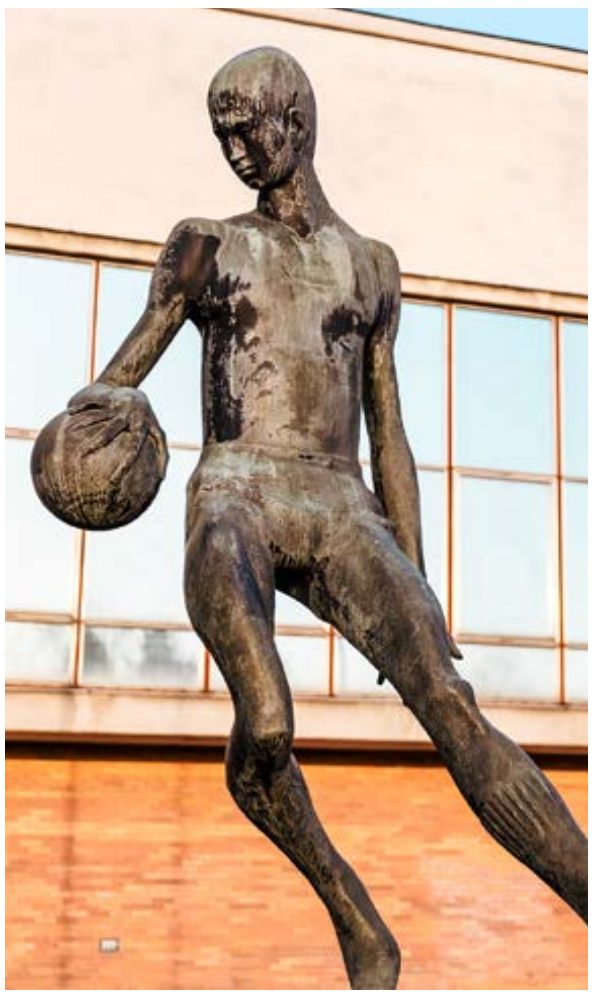
A joyful journey to the afterlife

Our next destination in Pardubice is also playful and lively. Painted in the Bohemian national colours red and white, the gabled house is a prime example of Rondocubist architecture, also known as National Decorativism. Given its function, its cheerful appearance is somewhat surprising.
Pavel Janák realised the Pardubice crematorium in 1923 in a richly ornamented mix of styles, which, as our architecture guide Matej Bekera explains, served to express the connection between people and nature, meaning their return to nature through cremation. Janák draws from Bohemian peasant huts and Pan-Slavic folk art just as much as he cites style elements from Art Nouveau, Cubism and Italian Antiquity in his design language. There is a portico with an arcade, rosettes, spheres, arches, triangles and other forms. “Not only the building itself was revolutionary, but also the cremations as such, for they were forbidden during the Austro-Hungarian Empire,” Matej Bekera explains.

> ***“The crematorium is an expression of the Czech people’s own culture and their political triumph.”***

“With the proclamation of the republic, millions of Czechs left the Catholic Church or changed their denomination. Cremation was regarded as something practical, original and modern. The new crematorium was an expression of the Czech people’s own culture and political triumph.” But unlike Functionalism, Rondocubism did not gain international momentum.

In contrast to Zlín, functionalism is a style among many here. The most striking buildings right by the park are the functionalist community hall and the magnificent public inhalatorium, where people also meet to sing, for “singing helps to pass the time while inhaling and intensifies the inhalation of ethereal vapours,” Baumannova explains.
The heart of the health resort is the rose and ochre coloured spa house Jurkovičův dům. The main work of the Slovakian architect Dušan Jurkovič that shaped the town with its both playful and cheerful folkloristic National Art Nouveau style is also called “colourful fairytale”: It is colourfully decorated with naive folk art motifs inside and out. Here, you can take a cure like you did 100 years ago, when people let themselves sink into golden bathtubs for a carbonic acid bath. The gold has flaked off, but the procedure, the bathtubs and the spa cabins are the same. If you feel like reliving the olden days, you can stay at the Dům B. Smetany alias Hotel “Popper”. The Art Nouveau building is known throughout the country, as it served as the setting for a popular Czech television series set in the 1920s.



The ideal city for the young state

Josef Gočár was a student of the leading Czech urban planner Jan Kotěra, who had already made his mark on Zlín. In the East Bohemian city of Hradec Králové, Kotěra's master plan and the functionalist buildings of Kotěra, Gočár and others changed the image of the city to such an extent that it was elevated to the status of the "Salon of the Republic". What made this possible was a fatal planning error. In the 18th century, Joseph II built a star-shaped fortification around the Baroque old town as a bulwark against the Prussians, which greatly limited the city and turned out to be a trap during the German War: Austria was defeated by the Prussians during the Battle of Königgrätz (German for Hradec Králové) in 1866. The fortress walls were eventually demolished in 1893, freeing large areas of land in a central location.

Mayor František Ulrich realised that this offered the unique opportunity to create a new city image. With Kotěra's and Gočár's help, he pursued his plan to turn the new Hradec Králové into a modern, green, spacious and functional city – new buildings were not allowed to exceed three storeys, public buildings were designed to be multifunctional, traffic was shifted to ring roads and visual axes were uncovered. "The architecture served to express the new Czech self-confidence. The young republic wanted to prove that it could create something independent," urban historian Jan Jakl tells us while accompanying us on a 3.5 km long tour of the "Salon of the Republic". The city plan of what is considered to be one of the most liveable cities in the Czech Republic still works today.

The building styles overlap here, from Art Nouveau to Rondocubism and puristic Functionalism. The first modernist buildings date back to the end of the Austro-Hungarian Empire, one example being the representative, multi-functional East Bohemian Museum designed by Kotěra (1912) on the banks of the Elbe. Like so many others, this domed structure is also characterised by a façade with pressed, partly glazed red bricks. The concave middle section opens up like a giant book flanked by two seated female figures.

Not too far away, we come across similar, significant works of modernism, such as the J. K. Tyl grammar school by Gočár (1927) or the Sokolovna building by Milan Babuška (1930) that houses gymnasiums, a cinema and a concert hall. Sokolovna refers to the popular Czech folk sports movement that played a considerable role in building the country's national identity. Baths, sports halls and spa houses emerged all over the country in the style of Functionalism and Rondocubism.

No other artform shaped the young republic as effectively as Functionalist architecture. The buildings from the heyday of modernism during the First Republic were met with a strong echo both at home and abroad.

Walking on air

Dolní Morava, in the border area between Bohemia and Moravia. If you are feeling especially brave, you should dare to take a walk on an impressive structure. The Sky Bridge 721 spans between the Slamník and Chlum ridges in the Snieznik Mountains and is currently the longest pedestrian suspension bridge in the world: vast panoramic view of the forest included. We reached its entrance with the chairlift in only ten minutes and could not help but be amazed that one can find PREFA aluminium even here: on the entrance portal, the mountain station and the *Chata Slaměnka*, a hut with a restaurant. The first few steps on the 721 metre long bridge are the most exciting. But you soon begin to trust the imposing construction with its six supporting cables and enjoy such a unique adventure. With the bridge and other attractions, like a year-round toboggan run and the so-called "Trail in the Clouds", the tourism development region Dolní Morava shows how you can experience nature at lofty heights.

Sky Bridge 721

www.dolnimorava.cz/sky-bridge-721

Benjamin Franklin *or* Prokop Diviš!

If you have ever wondered about who had the idea when and where to spare buildings, people and animals from lightning strikes with technical means, you probably thought of famous electrical engineers like Edison, Bosch or Siemens. Far from it!

To commemorate the pioneer, a replica of the construction was installed on the roof of a theatre in the Czech town Žamberk that can still be visited today.

Prokop Diviš, a priest in southern Moravia, caused quite a sensation with his experiments with electricity both within his parish and internationally for several decades. Beginning in 1753, he used his "meteorological machine" to correspond with renowned institutions and scientists and was even invited to demonstrate his experiments at the Imperial Court in Vienna. The construction followed his idea of diverting the electrical charge in the air responsible for the formation of thunderstorms into the ground to prevent major storm damage in agriculture. At the time, he was completely unaware of the fact that this method could also be used to protect buildings from lightning strikes and fire.

If you ask Wikipedia who invented the lightning rod, you inevitably come across Benjamin Franklin, who started out as a simple printer before becoming an important inventor and finally entering the realm of high politics. Franklin wanted to prove that lightning is not divine punishment, as most people believed at the time, but electricity made visible. To do so, he flew a kite with a metal tip during a severe thunderstorm in the summer of 1753. When it was hit by lightning, sparks flew from the key attached to the end of the wet string. Based on this realisation, he came up with the idea that led to the method of diverting the energy past buildings into the ground via lightning conductors that is still valid today.

One pencil for 50 kilometres

If you travel through České Budějovice, you will likely come across the historic buildings of KOH-I-NOOR HARDTMUTH, the oldest pencil factory in the world. At a time when drawing pencils made of solid graphite were quite common and very expensive, the princely court builder and architect Joseph Hardtmuth was looking for other alternatives. He finally succeeded in binding inexpensive graphite dust with clay to form thin leads which he then burned at high temperatures.

With the first factory built in 1790, he laid the foundation stone of the company that his descendants would turn into one of the world's largest companies in the industry. In addition to graphite clay leads, several other innovations, such as the principle of producing pencils with machines or their classification into hardnesses between 8B and 10H, were adopted by other manufacturers as a worldwide standard. By the way, depending on the lead's hardness, the writing length of a pencil is between 20 and 55 km. A ball pen refill, by contrast, can only manage an average of 5 km.

In 1913, the company already employed around 1,500 people worldwide who produced 460,000 pencils per day. KOH-I-NOOR HARDTMUTH was represented in seventy countries and even had its own shops in London, Paris, New York, Budapest, Dresden, Milan and Vienna. In comparison, 350 employees produce half a million of the classic 1500 pencil, set in cedar wood and lacquered in yellow, in twenty-one different hardnesses every day today. The technology has been further developed in many respects, of course. For example, the lines for surface treatment, embossing and lacquering are almost completely automated today. In addition, the company produces countless other writing instruments as well as a large range of artists' supplies.

The Versatil mechanical pencil has been manufactured since 1890 and is known as one of KOH-I-NOOR HARDTMUTH's flagship products. Available in many forms and sizes, it is particularly popular among architects, artists, designers and craftsmen due to its robustness and exchangeable leads.

© KOH-I-NOOR

DEGREES OF HARDNESS SIMPLY EXPLAINED:

8B - 4B	Extra soft	Artistic sketches, designs
3B - B	Soft	Freehand sketches, scribbles
HB / F	Medium	Writing, drawing
H - 2H	Hard	Mathematical drawings
3H - 5H	Very hard	Technically detailed plans
6H - 10H	Extremely hard	Lithography, cartography

Small. Red. *Unique!*

The floating sea rescue house in Sweden

Object: sea rescue house in Sweden
Product: rhomboid roof and façade tile 29 × 29
Colour: P.10 oxide red
Architecture: White Arkitekter


SJÖRÄDDNINGS SÄLLSKAPET
SAR
SJÖRÄDDNING

Text: Claudia Gerhäusser
Photos: Croce & Wir

Small. Red. *Unique!*

A donated house, two brothers, a crew and plenty of commitment are at the centre of the unusual story of the RS Hjälmaren rescue station. After not having an own station house for fifteen years, a new chapter began for the sea rescuers on Sweden's fourth largest lake in 2019. An old barge was transformed into a congenial station house with a red PREFA façade, with combined efforts and the help of many supporters. First and foremost Rikard Widlund, his brother Oskar and his colleague Frederik Hedvall from the Swedish architectural office White Arkitekter, who helped this unique project find a happy ending despite its tragic beginning.

© Frederik Hedvall

— *Donated architecture*

On our way to Hampetorp, we stopped to visit the man who played a major role in the realisation of the floating house for the volunteer rescuers at Lake Hjälmaren. After his training as an architect, Frederik Hedvall worked in the US for several years before relocating to Västerås for his new job at the White Arkitekter office located there. Around 700 employees are currently working on projects of all sizes at the ten offices in Sweden and further locations in London, Oslo, Stuttgart, Canada and Kenia.

One day, his colleague Oskar Widlund, a civil engineer from Örebro at the other end of the lake, told him about an experience his brother Rikard had. After recovering an accident victim from the water, the victim's relatives decided to donate the small, now ownerless houseboat to Rikard, the leader of the sea rescue team. The benefactors' wish was that the houseboat should be used as a floating station house by the local volunteer rescuers. To the construction experts, it was clear that they were going to support this project with their expertise and take over the planning, design and construction management with their teams. During a needs assessment with Rikard Widlund and his volunteers, it quickly became clear that the existing structure would have to be replaced with a completely new one.

Frederik Hedvall took on the responsibility for the technical planning and the design. His excellent mood boards and visualisations inspired interested companies like the team behind PREFA Sweden, who agreed to support the project with building materials and work services. The weatherproof building envelope made of the distinctive aluminium rhomboid tiles in red can also be understood as a reference to wooden houses in Sweden. The project was submitted to the XL-Hjälpen competition, which financially supports local charitable activities. The jury was convinced by the clear design, and the DIY chain XL-BYGG paid for the remaining materials.

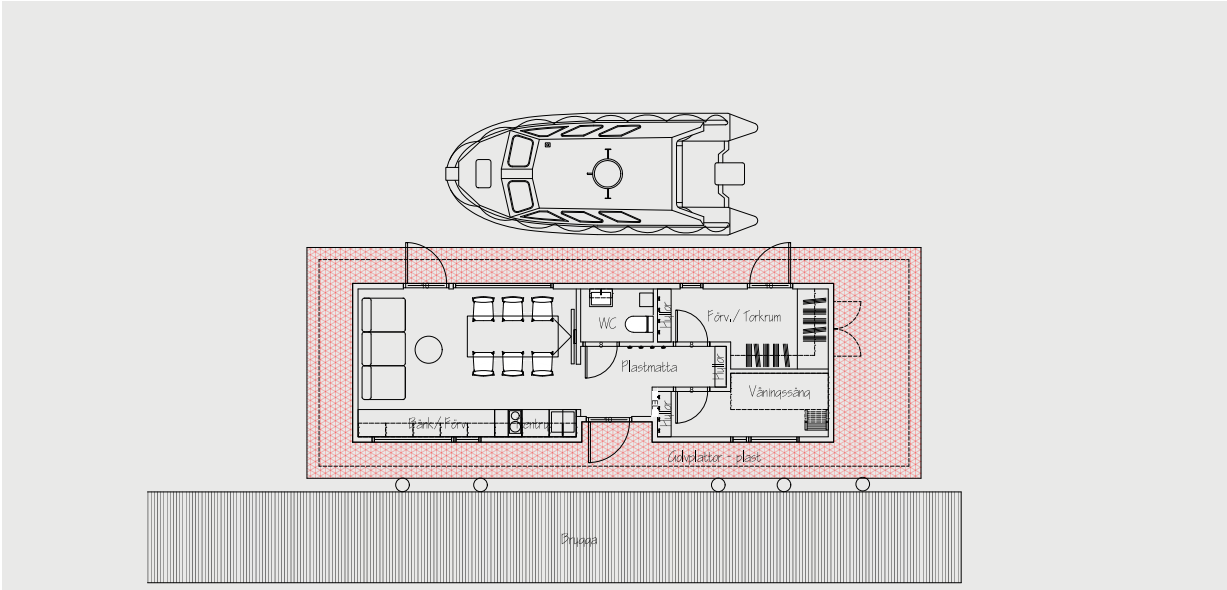
In terms of size, the Räddningsstation Hjälmaren is a rather small project for the architect of the architectural office that operates all over the world. But it ranks high on the popularity and significance scale for the entire office. "There were quite a few differences compared to the projects we usually have," Hedvall says. The substructure as well as the façades, for example, had to be assembled and aligned without a spirit level because the construction site was in the water the entire time.

As the lake is covered with ice for about half of the year here, in the middle of Sweden, building materials have to withstand extreme weather conditions. In the case of the floating "house", wind and waves take a toll on the façades and construction far more than they would on land. Compared to a real house, there were hardly

Frederik Hedvall

Jonas Hansson

Rikard Widlund



Graphic: White Arkitekter

any structural requirements. “We were free to design as we pleased,” Hedvall says. This attitude was rewarded with a nomination at PLÅT22, the Swedish award for outstanding architecture with sheet metal.

White Arkitekter also got suitable installers to join the team, first and foremost tinsmith Jonas Hansson, without whom it would not have been possible to realise the project. Hansson quickly turned the assignment into a team event and installed the PREFA rhomboid façade tiles with his co-workers during a workshop that took several days. “It was like a training camp for us, with a food truck and good atmosphere,” he says of the volunteer work he did. In the end, Frederik Hedvall, the team of White Arkitekter and everyone involved were able to significantly improve the situation for the sea rescuers at Lake Hjälmaren and set a sympathetic sign for their voluntary and life-saving mission.

— One for all — all for one

From Västerås, our journey took us via Örebro to the south shore and the small town Hampetorp, which is located on an idyllic country road. In the direction of the lake, a path leads us to the camping site and the marina, which is a second home for many boat owners in the summer months. From here, people go on their sailing trips and boat excursions on the 477 km² lake. It does not take long to find the small, red “house” on the floating platform. It glares between the reeds and sail masts like a signal.

We are welcomed by Joel and Rikard while they are cleaning the façade. Rikard is the station manager and also the longest-serving member of the sea rescue team at Hjälmaren. “We figured that we needed a clean façade for special photos,” jokes Joel, who has only been part of the crew for a year and devotes much of his free time to sea rescue. “My family and I live close by. I’m an event technician, so I’m often at home during the day.”

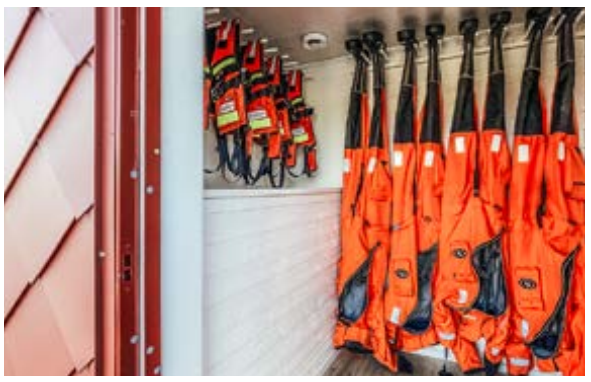
“For me, this is a dream come true,” enthuses Rikard, a farmer and professional fisherman on the offshore island of Vinön. “In the past, we mostly organised the missions from boat garages or simple accommodations. It was a lucky coincidence that things turned out the way they

did,” he adds as he accompanies us into the house. “Not only do we have a training room here for training and mission meetings and an easily accessible storage for our bulky, waterproof and 6 kg heavy survival suits and life jackets, but it is also a place where we can warm up, spend the night on call and have a warming cup of coffee in between missions. By the way, the house is going to be moved to another pier today because of an event. We are expecting our colleagues Daniel, Filip, Tomas, Anders and Patrik to support us in this manoeuvre.”

— *Everyday work*

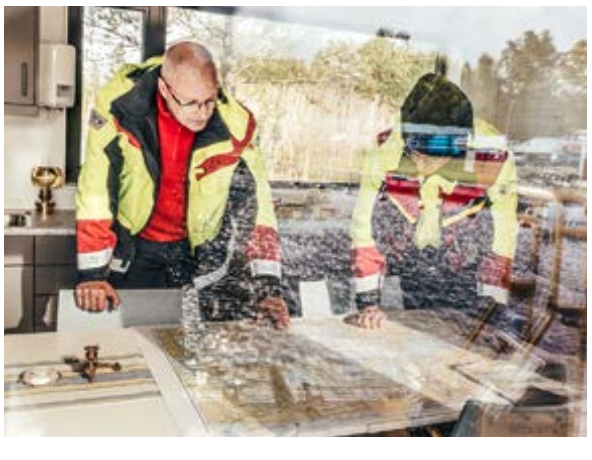
The operational area covers the entire lake, which is popular among boat owners due to its size and is known for fish such as zander, pike and perch. Similar to break-down services on motorways, the team helps wherever help is needed. In an emergency, the sea rescuers have to be quick without any hectic rush. No more than 15 minutes may pass after the stand-by number is called before at least one boat leaves the rescue station for the place of action. In many cases, engine damage or missing anchors cause an alarm. When there is a strong wind or the weather changes, these seemingly small mistakes can turn into a life-threatening disaster.

But the team is also called out when boats capsize, people are floating in the water or there is a medical emergency on board a ship. In winter, the lake is mostly frozen and not navigable, so they use a manoeuvrable hovercraft to rescue people or frozen boats that got stuck in the ice.



© Bengt Bronner

No more than 15 minutes may pass after the stand-by number is called before at least one boat leaves the rescue station for the place of action.



— *If you want to save lives …*

What is important in the rescue operations is the safety of each individual and the absolute reliability of the 25-strong team. It takes continuous training and routine composure to be physically, mentally and technically ready for action any time. You need to have patience and endurance to get through the times when nothing happens and be alert in the few moments when from one second to the next, every move you make is a matter of life and death. To prevent accidents, the team passes on their experience to water sports enthusiasts in organised training courses.

— *Without state aid*

The operation of the Swedish Sea Rescue Society, in short SSRS, is only made possible by membership fees, donations, gifts and voluntary work. The seventy sites on coastal and inland waters throughout Sweden are staffed with a total of 2,400 volunteers and are equipped with 260 modern lifeboats to help those in distress in the water.

— *Next summer*

There are more changes on the horizon after the success with the “house”. Next summer, the crew will receive a second speedboat, and the original boat garage on Vinön needs a complete refurbishment. The team would like to move there after the planned expansion of the ferry harbour in Hampetorp to have even better site conditions. It looks like people will work together again to make the best of the situation.

Aluminium now!

A conversation with Belgium's PREFARENZEN ambassador Tom Vanhandenhove

It certainly is not easy to establish aluminium in a country like Belgium, where the brick style still reverberates in building culture and both architects and planners have only recently discovered the silvery light metal for themselves. Tom Vanhandenhove knows from experience that the building material is becoming more and more popular among them. The Belgian is PREFA's first point of contact for architects in the Benelux countries and appreciates it that he can always draw something new from his exchanges with them: "I particularly look forward to meetings with architects and planners because new synergies often arise when I show them our product and colour range. For me, it is clearly up to us as a team to inspire them to come up with new ideas that enrich their existing ones."

Tom lives in the municipality of Edegem in the southern periphery of Antwerp, the Flemish port city and former trading metropolis that has become a breeding ground for contemporary, expressive architecture. To unwind, he turns to two extremes: the pursuit of adrenaline when skiing, skydiving and riding his motorcycle through unknown places, or the tranquillity of the rural surroundings right on his doorstep. From his house, which is conveniently located right by the motorway, he is on his way to clients in just a few minutes.

Anneliese Heinisch: Tom, you've been working as an object consultant for eight years. Is there anything that still surprises you in your job?
Tom Vanhandenhove: What I find especially intriguing right now is the fact that we already received enquiries about the PREFA solar roof panel several months ago, although it cannot be delivered in the Benelux countries yet. That was unusual and very special for us! And I also find it positive and remarkable that more and more architects are becoming interested in our small-format solutions, particularly the shingle and the small rhomboid tile.

AH: So architects have apparently become more receptive to contemporary building materials they might not be that familiar with yet.
TV: They certainly have, and they're also experimenting quite a bit with combinations of brick and wood or aluminium. Many of my clients approach me with requests for high-quality solutions for seamless transitions between their roof and façade or unusual colour pairs like a dark façade with bronze-framed windows. The solutions we offer naturally play into this development.

It all started for Tom when he was recruited in 2014 to establish PREFA as a brand in the Benelux countries. With his experience in distributing building materials, he was put in charge of Belgium, and then of the Netherlands and Luxembourg three months later. Over the years that followed, he would build up a basic network through his contact with architects and craftsmen that he is successfully expanding with five of his colleagues today. The Fleming manages Flanders as his own sales area, occasionally supporting the other countries in sales, marketing or coordination matters.

"It was extremely enriching for me when Henk Smienk joined the Benelux team. He had previously been self-employed as a craftsman for eighteen years and approached PREFA because he had been working with the material for years. We found the other object consultants through the same recruiter who approached me. Stéphan Dupret joined us in 2020, and Julie Weber, Roel van der Veen and Marcel van Gerven became part of our team two years later," Tom tells us.

AH: Your team seems to be expanding rapidly, and you are currently looking for application technicians for Belgium. What are your plans for the future?
TV: At the moment, we are planning our own national PREFA Academy, where we would like to hold workshops for craftsmen and offer product presentations and events for architects in our own showroom. And, of course, we all strive to reach even more people with the possibilities of our aluminium, so we can add more outstanding projects to our portfolio.

AH: Is there a project that particularly stands out to you?
TV: The team from met zicht op zee architecten, one of the emerging offices we consulted, made it into the PREFARENZEN book 2021 with their Polyvalente Cultureel Centrum in Kapellen alongside eleven other projects. The cultural centre is only about a half an hour away from my home, so I was able to take part in several construction meetings and clarify many details of the round façade together with the construction manager and the installer on site. I was particularly pleased when the young architects approached me shortly afterwards to plan another project with PREFA.

AH: Keyword PREFARENZEN media: How do you regard the online magazine, the book and the journal in the context of your work?
TV: Architects gladly accept our media and use them as a source of inspiration for their projects. It often takes a couple of attempts until they decide to use aluminium and contact us with concrete projects. As soon as they become aware of the advantages and possibilities when installing our products, they come up with new ideas and architectural solutions. Ideally, they are submitted for PREFARENZEN and are presented in one of the publications.

AH: You're obviously very enthusiastic about what you do. Are there any overlaps between your professional and your private life?
TV: Surprisingly, yes. We realised our house with an anthracite-coloured Prefalz roof, and in our garden, the partition wall to the neighbouring building is clad with FX.12 panels. I also have a passion that I can use professionally: As a trained drone pilot, I occasionally take photos of our architecture projects. Processing the material afterwards is just as much fun as the flights themselves, no matter whether I use my drone for my job or on holiday.

AH: And what do you do when you're on holiday?
TV: I like to go on motorcycle tours with my friends. Last year, we rode from Belgium to the Netherlands, from where we took a ferry to our planned route in Norway. Our next tour is going to take us to the Pyrenees this year. My family and I are already looking forward to our stay in the Ardennes in eastern Belgium, where we like to go hiking and recharge our batteries for the rest of the year. The forest landscape there is still untouched and a little hillier than here. Our time there is simply priceless for us. I recently bought a small drone, which I have to take with me, of course. It's always amazing to see things from perspectives you normally wouldn't have.

Text: Anneliese Heinisch
Photo: Croce & Wir

PJ Word Rap

with TOM VANHANDENHOVE

— *Brunch or barhopping?*
Brunch
— *Hydrogen or electricity?*
Hydrogen
— *French fries or moules frites?*
Moules frites
— *Book or e-book?*
Book
— *Holiday in the mountains or on the beach?*
In the mountains
— *Victor Horta or Henry van de Velde?*
Henry van de Velde
— *Cooking or eating out?*
Both!
— *Brussels or Bruges?*
Bruges
— *Paper money or cryptocurrency?*
Paper money
— *Lucky Luke or Tintin?*
Lucky Luke
— *Cruise ship or motorboat?*
Definitely motorboat
— *Criticism or compromise?*
Compromise
— *René Magritte or Peter Paul Rubens?*
René Magritte
— *Jupiler or Stella Artois?*
Stella Artois

Object: zero magnetic field laboratory
Product: Prefalz
Colour: P.10 patina green
Architecture: Gábor U. Nagy
Object-related individual solution

Zero TESLA

A so-called zero magnetic field laboratory is being constructed on the site of the Széchenyi István Geophysical Observatory in Fertőboz (HU) south of Lake Neusiedl. During a visit to the construction site, the scientists István Lemperger and Csaba Molnár told us what this means, who will benefit from it and why the choice was made to use a building envelope made of PREFA aluminium.

The observatory

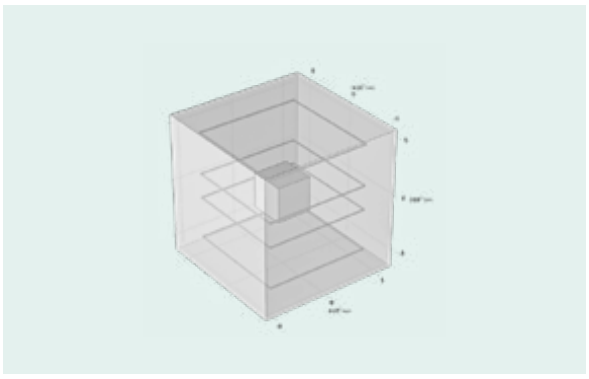
Founded by the Institute of Geodesy and Geophysics of the Hungarian Academy of Sciences, the observatory has been collecting observational data from earth current and geomagnetic measurements since 1957. In the decades that followed, the research programme was supplemented, among others, by the recording of atmospheric electricity or ionospheric soundings.
The observatory is a member of the INTERMAGNET network, which is composed of the most reliable and the world's most accurate observatories specialised in providing geomagnetic data. The site is located on thick, conductive sediment that protects electromagnetic observations from nearby human activity. "In addition, we have an electromagnetically noise-free environment here, which is secured in the long term by the protection of the Fertő-Hanság National Park and the requirements of Natura 2000," says Csaba Molnár.

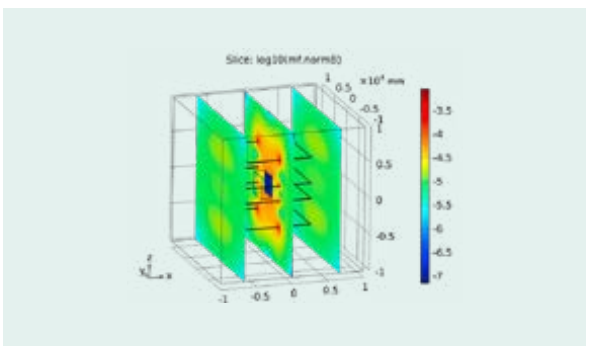
Big goals

The Institute of Earth Physics and Space Science as well as the Wigner Research Centre for Physics came up with the idea to build a unique laboratory infrastructure here with project leader Viktor Weszetergom, where the static and variable components of the Earth's magnetic field are dynamically compensated and shielded.
For the time being, a highly sensitive magnetometer (SERF) will be built in the laboratory and calibrated for space missions. At a later stage, it will also be possible to conduct biophysical studies, e.g. of magnetotactic bacteria or magnetic receptors of organisms such as migratory birds or dolphins, which orient themselves to the Earth's magnetic field. The chamber is also suitable for the experimental observation of alloys during cooling in a magnetic-field-free environment and for material science experiments that cannot be carried out under the natural terrestrial conditions in our magnetic field.

Text: Carl Bender
Photos: Croce & Wir
Graphics: Gábor U. Nagy
Portrait architect: Katalin Brassai

Tesla
is the unit of measurement for
magnetic flux density.





Working like in space

Until now, comparable laboratory conditions have only existed in smaller cells worldwide. In Fertőboz, however, a walk-in experimental chamber measuring 3 × 3 × 2.5 m is being realised in which the time-varying geomagnetic field of about 48,000 nT is reduced by seven orders of magnitude or to less than 0.1 nT by a dual system.
The active system consists of compensation coils arranged in Merritt geometry, which are driven with currents adapted to the values of the geomagnetic field measured in the observatory's observation station every second by means of a programmable power supply.

The experiment chamber itself consists of two layers of mu-metal and a faraday cage made of aluminium in between, weighs about seven tonnes and was manufactured by the company Vacuumschmelze in Germany in a production process that took several months. Mu-metal, also known as permalloy, is an alloy that mainly consists of nickel and small amounts of iron, copper, cobalt or chromium that provides maximum shielding from static and dynamically changing magnetic fields.

SIMPLY EXPLAINED:

How is the Earth's magnetic field created?
The innermost core of the Earth is solid, while the outer core surrounding the inner core is liquid. It consists of very hot, liquid metal. This fluid is constantly in motion and, in connection with the Earth's rotation, gives rise to material flows and electrical current systems known as dynamos, which build up the main geomagnetic field. In addition, there is a dynamic component created by current systems flowing in the Earth's ionosphere and magnetosphere.

What does the Earth's magnetic field do?
Cosmic radiation reaches our Earth from the Sun, the Milky Way and distant galaxies. This radiation consists of particles that have so much energy that they could destroy life on Earth. The Earth's magnetic field envelops the whole Earth and directs the energetic particles along the magnetic field lines around the Earth. Only at the magnetic poles can the particles reach the Earth more easily. That is why colourful auroras are created there by the discharge.

Orientation of living creatures
Animals such as bees, migratory birds or sea turtles have a magnetic sense with which they perceive magnetic fields in order to orientate themselves by them. We humans use the Earth's magnetic field when we use a compass for navigation.

Architecture and building

It is not easy to find the geophysical observatory in Fertőboz. Behind an inconspicuous gate, a steeply ascending path leads right to the area with the geophysical measuring and observation facilities. Somewhat apart from this, a flat reception and office building and the approx. 10 × 10 × 10 m laboratory building with the patina green PREFA aluminium shell were erected for the zero magnetic field laboratory.

“The criterion that only building materials with low magnetic susceptibility should be used for the laboratory and the bridge-like corridor was a special condition and difficulty for our design work,” reports architect Gábor U. Nagy. “With this in mind, apart from the foundation and external sheet metal cladding, we designed a building that was assembled on site with prefabricated wooden elements that received metal elements selected based on their magnetic properties.” Another important design aspect was that the chamber and the research and measuring instruments it houses are sensitive to the finest vibrations, especially in the low-frequency range. Therefore, the chamber was placed directly on the foundation, independent of the building structure. “The way the coils were fixed to the wall was also part of our architectural task, which would not have been possible without my partner Zoltán Fóth and the experience of the timber construction company Ubrankovics Gerendaés Készházgyártó Kft.”

Architect Gábor U. Nagy

An example – choosing the PREFA façade

The aluminium shingles that were originally planned proved to be too magnetic due to their gold-coloured coating. As an alternative, samples of the patina-green coloured PREFA aluminium were analysed, which stood the test with an iron content of only 0.3 %. The search for suitable stainless steel assembly parts also proved to be difficult. It was not until the third delivery from one of the PREFA warehouses that the physicists’ criteria could be met. Only then was it clear that the aluminium façade could be realised.

István Lemperger

Reduction to the maximum

“There are no models on this scale. We could not rely on any standards or norms. All physical parameters were calculated, simulated, measured and tested in practice until we were convinced by the results. The final confirmation is still pending,” István Lemperger summarises.

"In the long run, I`m an optimist"

Text: Claudia Gerhäusser | Photo: Croce & Wir

The Austrian architect Werner Nussmüller has been in the construction business for quite a while. He has realised projects of all kinds with his Graz-based office – from urban planning to kindergartens – and has been specialising in innovative timber construction since the 1980s. For a good 20 years, he has been doing research on serially prefabricated façades that can be used to redevelop post-war buildings, in particular. When he began to focus on this subject, hardly anyone was interested. In the future, Nussmüller says, people will be interested, "as redevelopment will be at the centre of future-oriented building work".

Full power for redevelopment

Werner Nussmüller knows how to carefully tell his story. "Starting now, we must put all our technical and design energy into redeveloping buildings if we want to come anywhere close to meeting the goals of the Paris Agreement." He sits calmly and focused before a panoramic window with a view of an undeveloped, wooded and intact landscape. The situation explains quite aptly what the architect is committed to: stopping urban sprawl and protecting ecosystems as well as biodiversity although building is taking place. You could also say by re-building.

Since the 1970s, he has been one of the architects in Austria who address the resource and energy intensity of the building industry. For a long time, he realised innovations in timber construction with his office. The experience he gained from this flows into his research projects today, whose goal is to develop serially produced elements for the comprehensive redevelopment of old building stock. Plus-energy houses, his thesis says, do not have to be new buildings. Around the year 2000, Werner Nussmüller launched his first façade studies on redeveloping residential buildings from the post-war period that were not at all or poorly insulated. In an unredeveloped state, their heating requirement is about 150 to 200 kWh/m² per year – requirement class F in the energy performance certificate. The demand of new buildings or passive houses is up to ten times lower. When Nussmüller began to conduct his studies, there was a lack of understanding. "People were not ready for that yet," he says. Yet the property developers' lack of interest did not prevent him from continuing to look into ways how to technically optimise façade redevelopments.

The image of a new coat

"If we are serious about climate protection, we need to increase our redevelopment rate from currently 1.5 % to at least 3.5 % in the upcoming years." That does not even sound like a lot, but it is actually more than a doubling of building redevelopments. Werner Nussmüller always asks himself an important question when he has to convince others of his redevelopment ideas. The reactions to structurally changing existing buildings are not always positive, Nussmüller says. That is why he uses the image of a new coat. "You don't buy yourself a new winter coat that often in your life. So it should be particularly good and of high quality. It needs to insulate, last for a long time, suit your personality and, on top of that, be new. It definitely needs to be better than the one you had before." According to him, this is also the case with redevelopment and new building envelopes.

Calculating correctly

With a group of experts, Nussmüller investigates how new "building coats" can be industrially prefabricated so that a conversion ultimately becomes affordable. Arguing that redevelopment is too expensive is something he simply does not accept, pointing to the fact that "we're still calculating it all incorrectly".

We are calculating in building costs without taking maintenance into account. What is true is that redeveloping a building without using environmentally harmful polystyrene in thermal composite systems costs nearly twice as much. Yet if you consider the costs of repairs and disposal, façade systems without thermal composite products would be more reasonable, or at least at the same price level.

According to Nussmüller, changing prices either initiate or prevent developments in the construction industry. Full thermal insulation, which is still the predominant insulation method, has a price per square metre of around €90, the most reasonable rear-ventilated façade costs around €180 per square metre. Overall, these are very high cost differences. But there is a lot that the prices do not consider, which is why the architect communicates the longevity of façades and their life-cycle costs to his clients. A study[1] he initiated investigated the

cost development of various façade systems over the course of 50 years. Its result: Full thermal insulation is the cheapest option to buy, but the most expensive one in the long run.

What costs more can do more

What is also hardly recognised is the actual potential of redeveloping buildings with curtain-type and serially produced façade elements. In the Styrian city of Kapfenberg, Werner Nussmüller already redeveloped a five-storey municipal building from the 1960s as part of a research project in 2012. The project on Johann-Böhm-Straße is regarded as the first plus-energy redevelopment of a residential building in Austria. In effect, the building received a new coat that functions differently. The added façade elements, so-called active elements, do not only contain an insulation layer. All of the lines of the house's technical infrastructure that needed to be renewed, which is usually a separate item of the redevelopment costs, were accommodated in the new façade layer. No new shafts for building services needed to be installed in the interior. In connection with the conversion of the old staircases into living space, this meant gaining space, as an outdated infrastructure was dismantled. Moreover, thermal bridges could be avoided. "Façades like the one in Kapfenberg are also economical because they contain anchorage points for arcades and balconies," Nussmüller says. In Kapfenberg, the energy demand and the CO_2 emissions of the existing building were reduced by 80 % and the share of renewable energy sources in the total energy demand was significantly increased.

Saying goodbye to undesignability

For Werner Nussmüller, prefabricated curtain façades are a viable alternative to conventional redeveloping measures for other reasons as well. They can be mounted element by element at workshops in advance and no longer need to be processed manually at the construction site, as is the case with plastered façades. This saves both time and costs and allows the workers to comfortably install the façade elements in a warm room. Another advantage, which was also important in the pilot project in Kapfenberg, are the facades' various design possibilities. "The surface materiality of a curtain façade can be selected from a broad range." This is where companies like PREFA play a decisive role. It is possible to find a way out of the increasingly unimaginative monotony of our composite thermal façade systems by using industrially fabricated products. And there are hardly any boundaries here. Architects can finally think into the depth of a façade again and design it in its three-dimensionality. "The unsightliness of contemporary façades will disappear again," enthuses Nussmüller.

Standing up for your own convictions

As an architect, he says, he co-designs his environment. He describes himself as pragmatic but explorative and has always had a thick skin. When faced with a crisis, Nussmüller shows his cheeky side. "Back in the 1970s, we took to the streets a lot," he comments on the climate protests of activist groups today. "For us, it was about quitting nuclear power and forest dieback at the time." The Club of Rome had just published its visions in the report *The Limits to Growth* when Nussmüller founded his own architectural practice. Publicly advocating a careful use of energy and fundamental sustainability has become formative for his professional path. What he finds critical today is establishing application-oriented innovation for effective climate protection on a broad scale in sectors such as the construction industry. Having the power to change something is one of the most important experiences that makes him optimistic in the long run. This is something that he also learned when "sitting" in the streets during the oil crisis, he says, looking out the window at the landscape again.

Three points for the future

Nussmüller formulates three points that he is convinced will shape the future regarding this topic. One of them is the long-term durability of façades as well as their materials. According to him, the decisive factor here is that you hardly have any maintenance costs to think about. Secondly, designing will become more exciting again. The boredom of full thermal insulation has had its day. And thirdly, façades can already do much more than only insulate. If realised correctly, they can produce energy and reduce CO_2 emissions. So it is not that surprising for him to associate the future with an awakening and an upheaval. An awakening because we are called upon to protect our own livelihoods. And an upheaval because the focus will eventually shift to how we can use existing buildings instead of tearing them down.

[1] Lebenszyklusorientierte Bewertung gebräuchlicher Fassadensysteme im geförderten Wohnbau nach ökonomischen und ökologischen Gesichtspunkten (A life-cycle oriented evaluation of common façade systems in subsidised housing based on economical and ecological aspects), Dr. Peter Maydl, 2022 – source: https://www.handwerkundbau.at/fassade/fassadensysteme-lebenszyklusorientierter-bewertung-50210.

All in black

Text: Carl Bender
Photos: Croce & Wir

With its solar roof panel, PREFA has united a storm-proof roof system with high-quality photovoltaic modules in one product. This innovative product is available in two sizes, in the colour black and can be combined with the R.16 roof tile or the FX.12 roof panel.

Like it was made just for us

"The sophisticated system convinced us right from the start. Technically and visually flawless. You can walk on the roof, the surface looks homogenous and you can hardly identify the integrated modules," says the owner and gifted master builder Daniel Zimmermann from Egg in the Bregenz Forest who planned the house for his family.
"The black R.16 roof tile fits in well with the wood and the area." Sixty-nine of the large solar panels with 100 Wp each were integrated in the PREFA roof on the west side, achieving a nominal output of 7 kWp. The family is still leaving it open whether they are going to add a battery storage system. "The good thing was that we only had one contact person for the roof. The tinsmith took care of the design, planning and assembly of the solar elements, roof tiles, drainage and all the edgings. He was even able to check the plug connections for fault currents using a measuring device and record the result. The only thing left to do for the electrician was to connect the system to the inverter."

"Planning your own house is extremely hard"

Until recently, the family of four lived in a 65 m² flat. After years of building a livelihood and the birth of their two daughters, the couple had the desire to build their own house in the country. But their decision was not an easy one. They thought about whether their wish was justifiable for a long time, considering the resulting resource consumption and soil sealing.
"During the planning stage, you question every line more than once, think about your own future, your children. Intuition becomes less important and you want an explanation for every gut decision. It is often a long way until you reach your goal. But in many cases, you go back to the first, spontaneous sketches. I have to say that we were all very pleased in the end. Everything fits."

© Daniel Zimmermann

Insulating with straw

The decision to insulate the exterior walls, the roof and the cellar ceiling with straw was unusual for the region. Therefore, all the trades involved were included in the planning and sensitised to the topic. Laid out on 36 cm thick straw bales, the timber constructions were executed, as far as possible, with the same grid of 50 cm intervals. The straw from the company "Sonnenklee" was delivered from Lower Austria in the desired lengths, inserted into the elements and finished off with diagonal formwork on the outside. Within two days, the construction was completed and the roof sealed.
The pipes for heating and cooling were fixed to the uprights on the inside. Two phases of clay plaster were put on top that were sprayed on and finely finished by the plasterer. "Pia and I helped with the straw work and with preparing the earth-moist clay. We learned a lot in the process and saved costs," Daniel recalls. "We did almost entirely without windproof paper and vapour retarder. Clay can handle moisture very well and straw has a relatively high mass. From a purely mathematical point of view, this wouldn't be possible according to building physics. We only installed the vapour retarder under the formwork on the roof because the risk was too great for us here."

Everything done right

Today, the family lives with a clear conscience on 150 m² not far from downtown and is happy that they made the decision to purchase this 560 m² small property that appeared to be difficult at first glance.
"When working on the room layout, we made sure that there would be areas that everyone could retreat to," says Daniel's wife Pia, who loves her job as a physiotherapist and contributed many good ideas and hours of work during the construction process. Large windows create a good atmosphere, the recessed terrace protects from the midday sun. The upper floor is dominated by a living area with an integrated balcony. Across from the two large children's rooms in the southern part are the bedroom and a generous bathroom. The spacious eat-in kitchen constitutes the centre of the house and takes on the function of the farmhouse parlour. It is where the cooking, playing, celebrating and family life takes place. The traditional living room and a flexible work room for the entire family were positioned in the second row.

Consistently sustainable

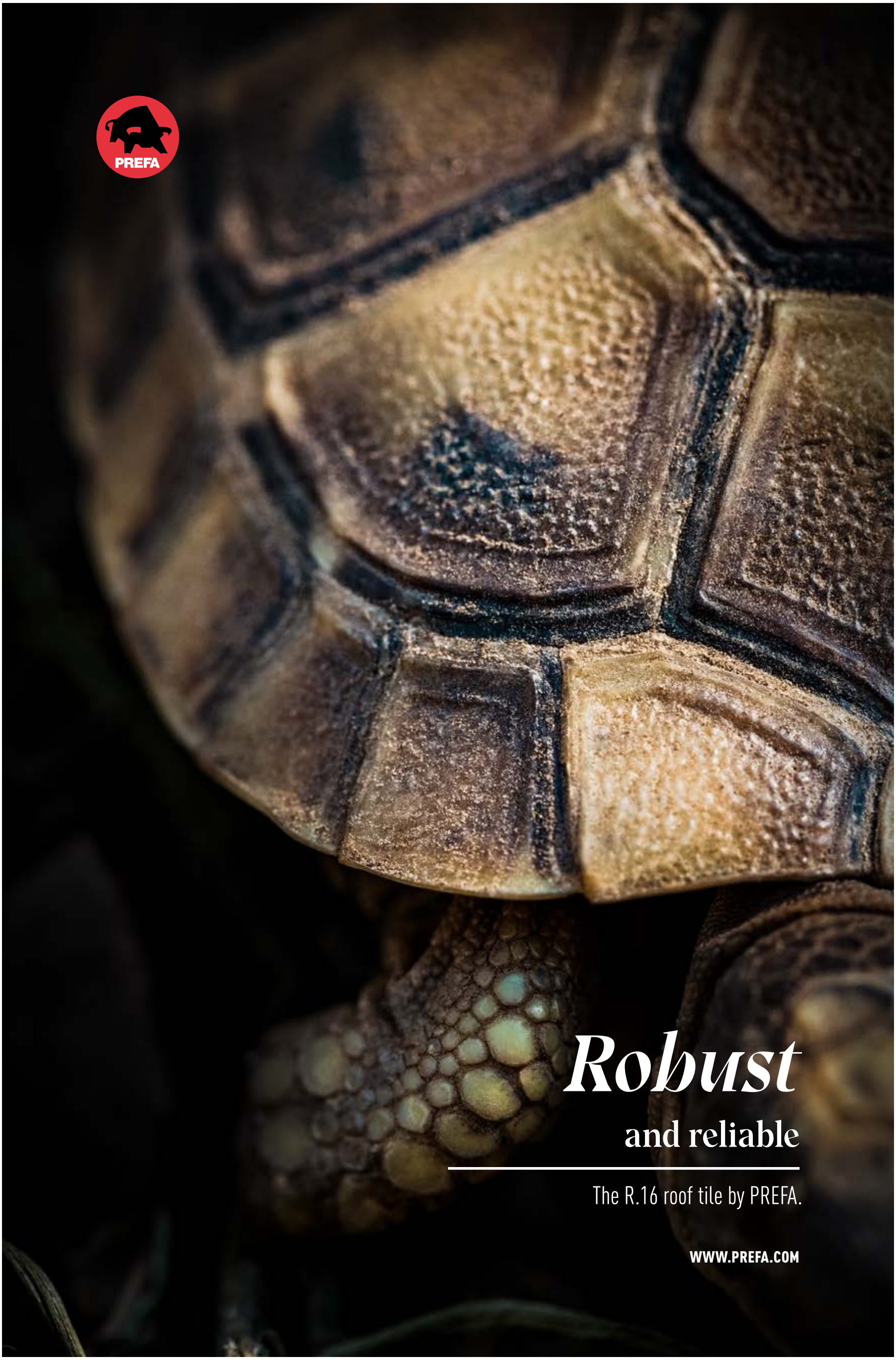
In terms of sustainability, the home was designed and built in such a way that, perhaps in a hundred years, you could dismantle 95 % of it into its individual parts and give the clay, straw and wood back to nature or reuse them, if necessary. Plaster, foam or cement-bound boards were avoided. Even the fire protection in the garage was ensured with a double layer of 20 mm wood planking that was burned on the surface specifically for this purpose. Concrete can only be found in the cellar and certain interior walls that are necessary for bracing. All furniture carcasses and shelves are solid, with fronts consisting of three-layer boards, ash or fir. Wooden windows, made by a carpenter and soaped on the surface. Straw in the walls. Warmth from deep within. A solar power plant on the roof, an electric car in the garage and the ground stove as an artful heart piece in the centre of the home.

Object: detached house in Egg
Product: R.16 roof tile, solar roof panel
Colour: P.10 black
Architecture: Daniel Zimmermann

"We can consider ourselves lucky that craftsmanship has such a high status in Vorarlberg, particularly in the Bregenz Forest, and that this knowledge is passed on to the next generations. This was the only way that we could build in the quality we experience here every day," Pia and Daniel proudly reflect.

A success story

Daniel Zimmerman worked at an architectural office for 16 years, where he was responsible for design, project organisation, construction management and site supervision. As a certified master builder, he founded the architectural office GUTER-PLAN after completing the part-time master's course for timber building culture at the University of Linz. Since 2021, he has been achieving new goals together with his partner and old friend Christian Bilgeri, a master woodworker and builder, as "GUTER-PLAN GmbH". They mainly focus on building with wood, always with the right instinct for yesterday, today and tomorrow. And through it all, they make sure to keep an eye on architecture, planning and costs, developing comprehensible concepts in agreement with their clients.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