

## A VISIT TO CHAMPIONSHIP TRAINING TURF

Architect Tom Ferster takes a look behind the scenes at Bayern Munich's Performance Centre

## MARINE NAVIGATION TOWER ON THE ISLAND OF RÜGEN

Martin Hurtienne talks about the dome that changed his life

## PERFECT CUSTOMISATION

RUF supercars and the Dorotheen Quartier of Stuttgart

## 25 YEARS OF RAICO

Employees reveal their most memorable moments







# MY KEY MOMENT

The editors of the *Objektiv* approached me with the following question: „For the anniversary edition, please complete the following sentence: In 25 years of RAICO I will never forget the moment of truth.“

About twenty years ago – there were ten of us at the time – we transformed ourselves from a metal construction company into a system vendor. At that time we held intensive discussions about whether and how we could best manage this transition. It was also very helpful for this development step that we had coaching from a corporate consultant. In a workshop lasting several days we jointly elaborated our corporate vision, in which we set out the direction in which our company should develop and above all how, and the corporate values to which we attach particular importance. This corporate image has accompanied us down the years and the concept „quality of encounters“ was an important point for us here. What’s special about it is that such a concept refers not only to our relationships with our customers and suppliers – it also governs behaviour within the company. For that reason we decided at a very early stage that many of our employees would take part in seminars for personality development.

The personality training was very effective for me personally. In the seminars we got to know our strengths well. My father was an old-school enterpriser. Although at the age of 15 I walked past the drawing boards in my father’s company and thought to myself: „I’d do that differently“, he told me I had to do an apprenticeship in a bank. What’s paradoxical here is that before RAICO my partner Albert Inninger was a technician and I was the businessman. But Albert wanted to go into sales. So we swapped our task areas and were thus able to put our talents and strengths to optimum use. My favourite expression „It’s good the way it is because it’s the way it is“ has proven true here, too. Without this experience, RAICO wouldn’t be the company that we can all be proud of today and I can indulge my passion for design.

We regard ourselves as the facade professionals without a „facade“. The humane and partnership-like co-operation with one another, with our customers and with our suppliers is for me an essential factor in our continuous success. I’m very proud of what we have achieved with our motivated team.

We have set course to remain the system partner for you in the future.

**Rainer Vögele**  
Partner, RAICO Bautechnik GmbH

## PERFORMANCE SPECIFICATIONS



### 6 MARINE NAVIGATION TOWER ON THE ISLAND OF RÜGEN

News from Cape Arkona:  
How a single dome helped to shape an entire company



### 18 PERFECT CUSTOMISATION

RUF supercars and the Dorotheen Quartier of Stuttgart



### 26 25 YEARS OF RAICO

Employee survey: What are the moments that you will never forget?

### 04 INTERACTION

A hut-to-hut cycle tour of Wendelstein in Upper Bavaria

### 22 THE WIDE VIEW

Construction parts from a 3D printer and biokerosene obtained from algae for fuelling aircraft

### 10 OF KAISER BECKENBAUER’S MASTER BUILDER

Guided tour of Bayern Munich’s Performance Centre, with architects and site engineers


### 24 A LOOK OVER THE SHOULDER

A visit to the AllesWirdGut architecture bureaus in Vienna and Munich



# BROTHERS IN SPIRIT



They have worked together for years, regularly exchanging opinions on their shared free-time passion for cycling. Last April, RAICO project promoter Gunther Helmle took it on himself to invite Ulrich Hubl from PBI Fassadentechnik to join him on a lightning tour of his home region. Starting out from the Upper Bavarian Alpine spa town of Bayrischzell, they both cycled the Südfeld route, which includes mountain passes at an altitude of 1100 metres and snow-flecked views of Mount Wendelstein, and came back with plenty of tales to tell. They were careful not to forget the importance of electrolytes for the body. Two true professionals. 

GERMANY

BAYRISCHZELL

AUSTRIA





# A PENFRIEND ON RÜGEN

The CEO of steel erection firm FLZ held his breath as the new steel-and-glass domed roof was delicately lowered into place on the historic marine navigation tower on Cape Arkona. There were strong winds, salty sea-air, a dome swinging around in front of the TV cameras and no prior experience to contend with. Do you recall our first joint project, Mr Hurtienne?

Letter from Martin Hurtienne

Dear Mr Inninger,  
Dear Mr Vögele,

The time has now come, in November 2017, for me to write to you regarding our project-related business. As you celebrate the 25th anniversary of your company's founding, you have asked me whether I recall our first joint project. The project – given that it involved placing the glass dome on the Cape Arkona tower on the island of Rügen – has always been one of our key corporate milestones, and one that helped secure our reputation in the region as a whole. ➔





The adventurous part was that we had no experience in the erection of mullion-and-transom curtain walls, and even less in dome construction. And it wasn't just any old building; the navigation tower marks the northernmost point of the old GDR. It was clear to us that the harsh coastal climate, with its high winds, salt-laden air and exposure to sunlight, meant that we would later have to revise the already high costs somewhat, once the dome was in place. The outcome therefore had to be 100% correct.



We nowadays create steel-and-glass structures. Reference projects in Berlin alone include architect Daniel Libeskind's Academy of the Jewish Museum and David Chipperfield's New Berlin Museum. RAICO's experience of supplying consultation services helped open up this segment of the market to us back to 1995, which was when we really learned how to use the RAICO system. Our designers, purchasing staff, workshop technicians and fitters were all involved. We held meetings with you that went on deep into the night, as your field reps discussed all the details with us. We were impressed by your willingness to send an employee to Rügen for several days to support a firm.

**I can clearly remember the most exciting moment.** We had bolted the dome's steel structure together in our workshop and fitted the seals and glazing elements. Then we transferred it to an extra-wide low loader for its journey, complete with road diversions and police escort, to its destination on the Cape. When it arrived, a mobile crane lifted it onto the tower. The press and TV cameras watched as the dome swayed its way to the top. All I could do was hold my breath.

We had already measured out and inserted the plugs to leave things ready for the direct attachment of the shell structure with its welded-on sole plates and holes. It was a perfect fit! We then had to wait several days before fitting the glass, as the weather was just too rough. We completed the glazing by night, under floodlights. What an adventure!

**The navigation tower project helped to generate orders for us in the region.** Our centre on the island of Rügen now employs a 60-strong workforce, and we continue to use the RAICO system regularly and to an even greater extent. It is an ingenious construction in my eyes; a design without any weak-points. A steel-and-glass curtain wall or roof is not a production-line item. We supply mainly special solutions. The RAICO system is what makes it possible to use the same structural elements again and again to meet new requirements and geometric specifications.

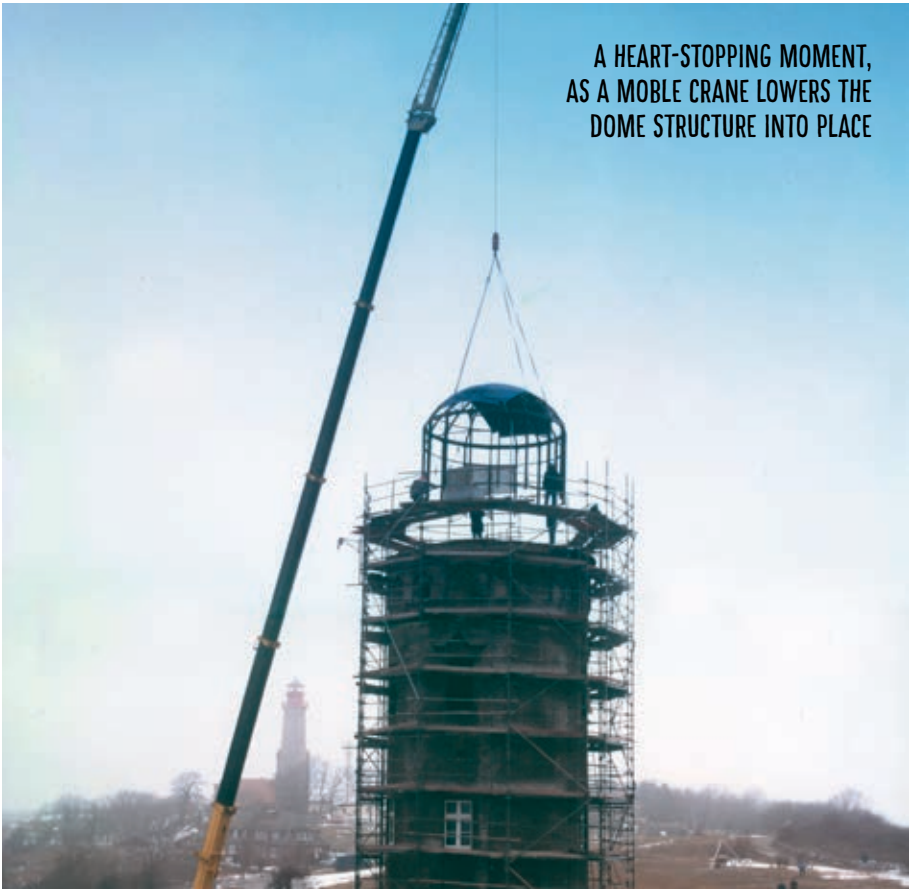
The key element for me is the sealing system, with its drainage and ventilation and the flexible design that allows the seals to be bonded and pressed to each other in several ways, before being combined

with the various components on the screw channel. One thing that struck me from the first moment was our shared passion for all technical things. This continues to be so, and I thank you accordingly. I also appreciate your approach involving the joint development of both standardised and special solutions.

I congratulate you on your anniversary, and wish you and your employees great present and future success with your innovative endeavours.

All the best from the island of Rügen,

**Martin Hurtienne**, CEO  
FLZ Stahl- und Metallbau Lauterbach GmbH



PROJECT	Dome of the marine navigation tower on Cape Arkona
LOCATION	Rügen, Germany
DURATION	1995
CLIENT	Putgarten local authority, Altenkirchen
GENERAL PLANNING	AIW, architects and engineering workshop, Berlin
CURTAIN WALL CONSTRUCTOR	FLZ Stahl- und Metallbau Lauterbach GmbH, <a href="http://www.flz-lauterbach.de">www.flz-lauterbach.de</a>
RAICO SYSTEM	RAICOTHERM S 50, predecessor of the THERM <sup>+</sup> S-I curtain wall



# KAISER BECKENBAUER'S MASTER BUILDERS

„Old Boys“ encounter with the champion record-holder: Architect Tom Ferster, site manager Christoph Eisenhut and RAICO founder Albert Inninger take a tour of the FC Bayern München ground and recall their joint construction projects at the Säbener Strasse. They explain what all the fuss with the “church window” and “Kahn gob” was about, and what Kaiser Beckenbauer thought of it all. Starting point: the famous entrance side of the building.

Text: Lars Thieleke, photos: Andrea Jall

**Tom Ferster:** It still looks good, doesn't it? This is where it all began. How long has it been now?

**Christoph Eisenhut:** It was in 1989 when we put up the curved glass curtain walling and rebuilt the administration building.

**Albert Inninger:** That's right. I still remember setting up my own Bayern-Munich fan club a couple of years before. We wanted it to be a proper fan club, not just a bunch of rowdy noise-makers. Uli Hoeness (now the club's chairman) liked what he saw. That's how I got to know him and how I found out, during a Christmas party, about the planned rebuilding work and invitation to tender. I really wanted to get the project. Actually working for FC Bayern was just the best thing that could happen, so I was on cloud nine when I finally won the tender and got the contract.

**Tom Ferster:** Things were quite relaxed at our end. Each architect was asked to supply a draft design of how they thought the entrance side of the building should look. So I took along a sketch and showed it to Franz Beckenbauer, Fritz Scherer, Kurt Hegerich and vice-chairman Hans Schiefele. Fritz Scherer took





a look at my curved design and said: “It looks like one of the beer tents at the Oktoberfest.” It came to be known as the “church window” for short. Most of the other architects had drawn rectangular boxes, as I recall. I wanted to do something different, to get a conversation going.

**Albert Inninger:** So was it for that reason that your design was curved, and not boxy?

**Tom Ferster:** It was all because of the excitement of football, which I wanted to translate into the outline of the building. And I wanted to use it as a frame for the FCB emblem. It occurred to me, when sitting at the drafting table, that the Bayern-Munich emblem is actually rather beautiful, one of the most beautiful of any football club in fact. Thus began several years of cooperation with FC Bayern. I controlled the artistic side of many projects, while Christoph dealt with site management. And you, Albert, supplied the things we needed.

**Albert Inninger:** I’ll never forget what happened the day the glass structure arrived on site. The fitter lifted it up, and said: “Something’s not quite right here”. Then it suddenly dawned on me: The rows of diamonds in the middle of the emblem didn’t run from bottom left to top right, but the other way round!

**Christoph Eisenhut:** I didn’t know that.

**Albert Inninger:** I thought “Thank God I found that out before the tabloids got their hands on it.” The misbegotten emblem is still there in my basement. I might set it up in my conservatory one of these days.

**Tom Ferster:** It should have official protection. Well I remember when we demolished the changing room where Franz Beckenbauer used to shower after training in his playing days. Now that should have been made a protected building.

**Christoph Eisenhut:** And your castle loopholes too.

**Tom Ferster:** You mean those really small windows?

**Christoph Eisenhut:** They’re the ones. I’ve always asked myself that: Why did you go for those loophole things, rather than proper windows?

**Tom Ferster:** I wanted the admin building and the training centre to form a single unit based on a shared look. And the part for the professionals, where the players get changed and take their communal baths, needed to have its own enclosed character. Hence the loophole-like windows, to prevent the paparazzi from getting a look in.

**Christoph Eisenhut:** We travelled as far afield as Eindhoven and even England in those days, to get an impression of other training grounds. But they were all attached to their

“You need to make the tops of the cupboards slant, so the players won’t leave their dirty underpants on top.”

respective stadiums, not separate premises like at FC Bayern.

**Tom Ferster:** I also remember drawing up the designs for the carpenter who made the first cupboards for the changing room. I spoke to the facility manager about it, and he said: “You need to make the tops of the cupboards slant, so the players won’t leave their dirty underpants on top.” And that’s what I did. The caretaker also insisted on a master key for the lockers, and asked me not to fit just combination locks, but ones that could be overridden with a key. He foresaw players coming up to him, after every second training session, with “I can’t get my locker open. I’ve forgotten the combination.”

**Albert Inninger:** That’s not serious!

**Tom Ferster:** Tell me about it. We even considered which way the players would take when coming in after training. Up to this day, they tend to leave a trail of dirty washing on their way to the chutes; one for strip, one for boots. And when player Lothar



ARCHITECT TOM FERSTER (IN THE MIDDLE) EXPLAINS HIS “LOOPHOLE” WINDOWS TO RAICO-FOUNDER ALBERT INNINGER (LEFT) AND SITE MANAGER CHRISTOPH EISENHUT (RIGHT)



WELL THOUGHT-OUT APPROACHES: THE PLAYERS THROW THEIR DIRTY WASHING INTO THIS CHUTE IN FRONT OF THE CHANGING ROOM



Matthäus came up to his locker, there would be a freshly laundered bathrobe waiting for him. But I think things are different nowadays.

**Christoph Eisenhut:** What do you mean by “nowadays”? Well our building job made a lot of difference. The original plan was to incorporate a kind of common room into the professionals’ area, with restaurant facilities, to welcome Real Madrid during the European championship games. And there was also to be a small shop, occupying about 20 m<sup>2</sup>, with a stock of scarves and woolly hats. But even before the dining area was finished, the retail space had become so big that the restaurant had to be torn out again. And when you consider that nowadays everything takes place in a service centre occupying around 500 m<sup>2</sup> ...

**Tom Ferster:** True. The rebuilding work seemed to go on forever. There were always new ideas to consider in those days whenever a new manager, such as Jürgen Klinsmann, came along. Haven’t you got one of the team strips from his playing days in your collection, Albert?

**Albert Inninger:** I’ve got two or three from each season of the last 30 years, but none belonging to Jürgen Klinsmann. I always managed to get a strip off Franck Ribery in the last few years. He’s my absolute favourite player.

**Christoph Eisenhut:** Were you there the day they laid the foundation stone of our project, and at the topping-off ceremonies for the entrance side and the admin building? Players Manni Schwabl and Radmilo Mihajlovic were both there. And so was Jupp Heynckes, of course. He was the manager at the time.

**Tom Ferster:** I always found Jupp Heynckes to be a really friendly and modest man.

**Christoph Eisenhut:** Absolutely. And I will never forget Klaus Augenthaler; an absolute one-off. People of his calibre are unfortunately increasingly rare nowadays.

“We had to elbow our way through the queues in front of advanced ticket sales.”

**Tom Ferster:** Things are completely different today. Even for advanced ticket sales, as it’s all done online nowadays.

**Christoph Eisenhut:** Advanced ticket sales was in the old building at 51, Säbener Strasse in those days, on the first floor.

If a European Cup match was coming up, the queue would stretch all the way down the staircase and into the street. Whenever we needed to get into the upper storey of the admin building, we had to elbow our way through the queues, and we got some really dirty looks, because people thought we were trying to push in.

**Albert Inninger:** You did rebuilding work while they were selling tickets?

**Christoph Eisenhut:** We almost needed a battering ram to get up the staircase! But we weren’t allowed to carry out noisy work during the normal office hours of FC Bayern. We could only really let rip between six and nine in the morning and four and ten at night. And just as we were getting proud of the progress we were making under the circumstances, Franz Beckenbauer came back from New York and said: “So how long do you still need to get is extra floor done? They manage a complete skyscraper in New York in the time that you’re taking.” Kaiser B was always friendly and ready with a joke, and great to have around.

**Albert Inninger:** This is just unreal! But those were special circumstances.

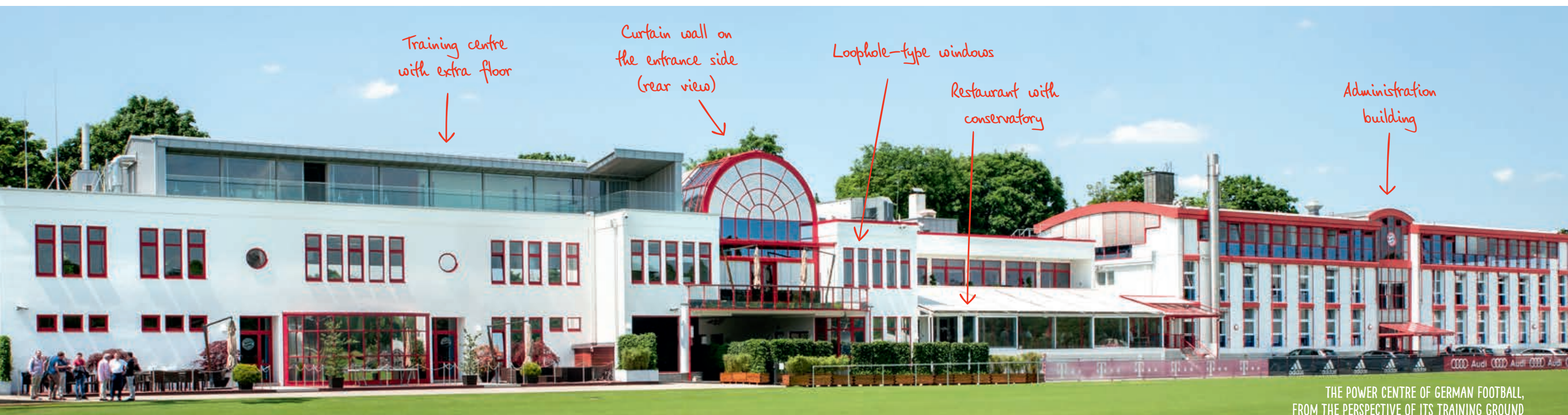
**Tom Ferster:** You worked quite closely with Albert during these building projects, didn’t you, Christoph?

**Christoph Eisenhut:** Albert had my back. Whenever problems arose, he made sure they weren’t passed on to me. Just take logistics. Getting that glass panel shifted into place without a crane was all down to him. There are others you need to be constantly on top of, if you want to get anything done. You could always rely absolutely on Albert. And he was always available for me, even when he couldn’t be reached personally or wasn’t on duty. He always gave me good advice. A good man to have on hand on the site.

**Tom Ferster:** We already knew each other, but we didn’t get to know Albert until we started the first project for FC Bayern.

“Drain a training ground with an underground car park beneath?”

**Christoph Eisenhut:** Exactly. He was already a world champion when it came to curtain walling, while we were still relatively new to the game. We had some intense discussions, and I was really pleased to be working with a highly competent and reliable partner who was also closely connected to FC Bayern. We talked about football all the time.



THE POWER CENTRE OF GERMAN FOOTBALL,  
FROM THE PERSPECTIVE OF ITS TRAINING GROUND



**Tom Ferster:** It's best to go to the Olympic Stadium together. We had VIP invitations, and Albert had his season ticket. We managed to enjoy a beer together at almost every game.

**Christoph Eisenhut:** He didn't want to disappoint his FC Bayern, and we naturally wanted to have people like him inside.

**Albert Inninger:** It really was a personal mission for all of us. But you two did a lot more. In fact, I wasn't really needed for some of the rebuilding work.

**Tom Ferster:** Do you know the "Kahn Gob"?


**Albert Inninger:** Pray tell me what a "Kahn Gob" is.

**Christoph Eisenhut:** We were supposed to build a 300-space underground garage beneath the training grounds. How do you go about draining a ground, without the grass rotting or growing fungus, if there is an underground car park below it? You can't really put a big drain down the middle of the pitch!

16 **Tom Ferster:** To let even pouring rain flow away, we used a sloping concrete roof, designed in the form of a funnel leading to a large two-metre-diameter storm drain buried under the ground. The drain takes the water through the underground garage and into the surrounding earth.

**Christoph Eisenhut:** My lads started moaning, as each section had to be put in at a different height, measured to the exact centimetre. We also eliminated some of the spaces in the underground car park and filled them with gravel, so that water from the pitch could drain straight down into the soil.

**Tom Ferster:** That's why we installed the "Kahn Gob". The underground car park needed an emergency exit. The staircase would normally come straight up to a door opening onto the grass. But we naturally couldn't do this on a football pitch that was being played on. The German Football Association also had specifications about how far the staircase should be from the door and the touchline of the pitch. But emergency exits also have to conform to a maximum length. This is why we incorporated a trap-door into the pitch, to allow the gate to open straight out onto the grass.

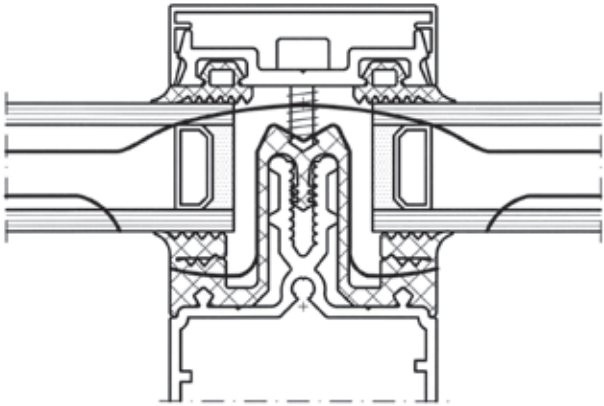
**Christoph Eisenhut:** The trapdoor is no longer there. I would really have loved to see the face of someone who came up through it to stand face-to-face with Oliver Kahn. Who knows, maybe he would have turn the other way round immediately ... 



AS STRIKING AS A STAINED-GLASS WINDOW: THE ENTRANCE TO THE HOLY OF HOLIES ON THE SÄBENER STRASSE



THE "KAHN GOB": THE EMERGENCY EXIT FROM THE UNDERGROUND CAR PARK IS RIGHT BY THE GOAL



## THE SOUTHERN STAR: RAICOTHERM A 50 CURTAIN-WALL SYSTEM

The steel roof with its famous aluminium curtain wall still stands proudly above the entrance to the centre of all things Bayern Munich. The curtain wall system is an A50 model of the first THERM generation, although it shares all the same basic construction principles of the present-day RAICO THERM<sup>+</sup> System. It has been optimised over the years since its launch in 2004, with improved performance in areas such as heat insulation and noise protection. But then RAICO Systems have always tended to go well beyond the legal requirements of both then and now.

PROJECT	Administration building of FC Bayern München
LOCATION	Säbener Strasse, Munich, Germany
CLIENT	FC Bayern München e.V.
GENERAL PLANNING	Tom Ferster architects, Wolfratshausen, Germany
SITE MANAGEMENT	Christoph Eisenhut engineers, Berg-Leoni, Germany
RAICO SYSTEM	RAICOTHERM A 50, predecessor of the THERM <sup>+</sup> aluminium curtain wall



# AS UNMISTAKABLE AS IT IS UNIQUE

Customisation within the mass market is no longer just a trend, but a basic requirement. We all know about personalised mobile-phone tariffs and training shoes. Now it is the turn of enterprises that produce things like customised top-end sports cars or movable glass roofs to show just how far such individualisation can really go. So where is this happening?

Text: Lars Thieleke

PERFECTLY CUSTOMISED: IN THE DOROTHEEN QUARTIER IN STUTTGART WITH MOVABLE ROCK-CRYSTAL GLAZING TO ENHANCE THE ROOF AND RUF'S "GERMANY EDITION" CTR3 SUPERCAR DOWNSTAIRS



Pfaffenhausen, a town in the Unterallgäu district of Bavaria with 2,525 inhabitants and a population density of 190 people per square mile (119/km²), offers perfect conditions for trying out theories. The town provides a home both to RAICO, a top supplier of curtain-wall systems for buildings, and RUF, a world-renowned manufacturer of sports cars. What connects these two parallel universes is an unwavering enthusiasm for special solutions. "We do not use any automated processes. Every component is produced by hand", says Marcel Ruf, before adding: "Customers can turn up at the workshop whenever they want while their car is being built, to see how every nut and bolt, virtually each one individually chosen, goes in."

The company uses "body in white" platforms supplied by Porsche to produce new supercars with its own chassis numbers, characterised by innovative technology and an almost unlimited level of





individual detail. Just thirty cars, made exclusively to individual order, leave the factory every year, with three accounted for by RUF's flagship model, the 777-horsepower CTR3 Clubsport with 980 Nm of torque. A customer in Florida recently ordered one of these models, which RUF has branded "Germany Edition" for marketing in its home country. The customer wanted the outer skin in carbon, but in such a way that it would only be recognisable at second glance. So the RUF team sprayed it black all over, in order to darken the carbon fibre even more. What's more: "The customer wanted a red stripe running from front to back on the driver's side, with a matching gold-coloured one on the passenger side. This different treatment for each side meant that we also had to take into account the colour of the stitching on the seats, the brake callipers and springs, and even the "RUF" logos on the wheels", recounts Marcel Ruf. The customer wanted to make it plain that his car was Germany. "Engineered in Germany" is indeed a worldwide seal of quality.

The "Germany Edition" CTR3 also comes with a customised hi-fi system with loudspeakers in the roof lining. RUF even fits a hydraulic lifting system, which raises the vehicle by two inches (5 cm) for the purposes of manoeuvring in an underground car

CUSTOMISED DOWN TO THE  
SMALLEST DETAIL: GOLD TRIM ON  
THE LEFT, RED ON THE RIGHT



"Individualisation is our most  
important key selling point."


MARCEL RUF, WWW.RUF-AUTOMOBILE.DE

park, for example, and lowers it again automatically once its speed hits 40 mph (60 km/h). It is supplied as standard on all RUF vehicles. The production time of this CTR3 was approximately four months. And the cost? €700,000 net. Marcel Ruf: "Individualisation is our most important key selling point. If the customer calls us after three years to ask for a service, we fly out the self-same mechanic who built the car in the first place." Even the after-sales service is customised.

**Stuttgart city centre has had an additional landmark since May 2017 in the shape of the new "Dorotheen Quartier".** The crowning glory of the building complex is its roof structure. Günter Klughammer, technical object specialist at RAICO: "Made of rock crystal, it consists of numerous white-glazed elements made to be adjustable to a wide range of angles, with profile strips to give the whole thing a smoothly flowing look.



An ever-growing set of individual and special solutions was required, given Stuttgart's valley location, to ensure that the rock-crystal effect was visible from afar. "We developed a completely new and unique opening mechanism, for example", says Klughammer, before adding by way of explanation: "Ventilation panels normally lie about four inches, or ten centimetres, above the surface of the roof. But we developed a system that lies flush with the glass surface." Radar monitoring detects anyone reaching in while the motor is opening or shutting one of the flaps concerned.

**The greatest challenge faced by Günter Klughammer's team was the extremely large amount of movement clearance required for the steel-and-glass structure.** Given the flexibility of the concrete ceilings to which the steel brackets were attached, they had to count on there being downward movement of between 5 mm and 12 mm, depending on the traffic loads at the individual fixing points concerned. "This altered the shape of the entire steel structure. In order to prevent the glass from breaking, we used extra-wide seals around the edges. This allows the glazing to perform as intended, even as the structure shifts, thanks to the flexibility of the seals." says Mr Klughammer. What this flexible roof design shares with the "Germany Edition" CTR3 is a clever approach to finding a special solution. 

ARCHITECT JÜRGEN BAHL KNOWS ABOUT THE PARALLELS  
BETWEEN A RAICO CURTAIN WALL FACADE AND HIS RUF RT12



## WHAT SUPERCARS HAVE IN COMMON WITH BUILDING FACADES

Architect Jürgen Bahl straddles both worlds. His company, Hagen (Germany)-based Bahl Architekten BDA, which specialises in administrative buildings, cites the "Five Boats" project in the North German town of Duisburg as a showcase endeavour. Mr Bahl drives a 650-horsepower RUF RT12. When he goes shopping. When he is working on a site. Always. People often ask about his RT12 when he turns up in it on site. He particularly likes to recall his shortest conversation of all time: "RUF?" "Yeah." "Cool!."

When asked how he managed to convince his wife of the need to buy such a costly piece of kit, he confesses: "When we got married, we made a

deal. Each of us could have three lifetime indulgences which the other would never be able to understand. So I used up one of mine on the RT12." Mr Bahl has likewise customised his car. He went for anthracite-coloured leather rather than the originally planned cherry red, and had cruise control installed. He is particularly delighted with the carbon interior trim. "Because I've always loved the way that carbon fibre shimmers and changes appearance under different light conditions. I even think that carbon will one day replace the other materials used on building facades." He sees a further parallel with architec-

ture in the way that the windscreen and rear window blend into the body: "The transitions between metal and glass make it look like it all came from a single mould. When I see sectional glazing made by RAICO, I immediately think of the glass-to-body transitions of RUF. RAICO's slimline frontage supports give a building an almost ethereal appearance. Now that's what I call 'state-of-the-art'."

[www.bahl.de](http://www.bahl.de)



## ANY SHAPE YOU LIKE, STRAIGHT FROM THE PRINTER

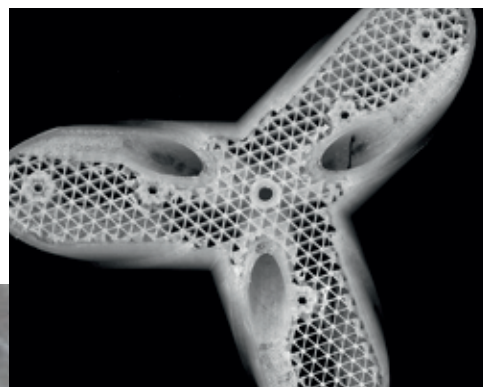
Will Laufs is sure: the future lies in the printer. As a pioneer of the construction industry, he supports architects and artists worldwide in their planning and design efforts. One of the main aspects of this is the link between technical innovation, aesthetic appearance and cultural relevance. Laufs' main focus is on the commercial development of freely designed shapes for the world of construction.

**The rapid development of programmable 3D-printing will speed up the transfer of ideas to the construction industry** – is the firm belief of the team at Laufs Engineering Design, with offices in New York and Berlin. Put specifically, this means that the high-strength of fibre-reinforced materials will soon make it possible to create objects of any shape which outperform - when under load - grid-based systems with their 90° angles, in terms of material consumption and utilisation. While the reproducibility of large series of identical shapes plays a major role in cost-cutting in traditional manufacturing, manufacturing with 3D printing promises to open up a whole new set of possibilities. "Shape will no longer have an influence on the cost of manufactur-

ing. It doesn't matter to a 3D printer what shape it is producing", explains Will Laufs.

While others still indulge in their visions, the team at Laufs Engineering und Design is busy putting them into practice. "We are currently using SPINS (Structurally Performing Irregular Node System) to create an open, free-form structure as a prototype for an outdoor terrace in New York. The form that we create approximates to the statically optimum load behaviour of such natural biometric shapes as the stem of a sunflower.

To misquote the wisdom of Pippi Longstocking, the future could be summed up as: "We print out our world, diddle diddle dee, just how we like it..."

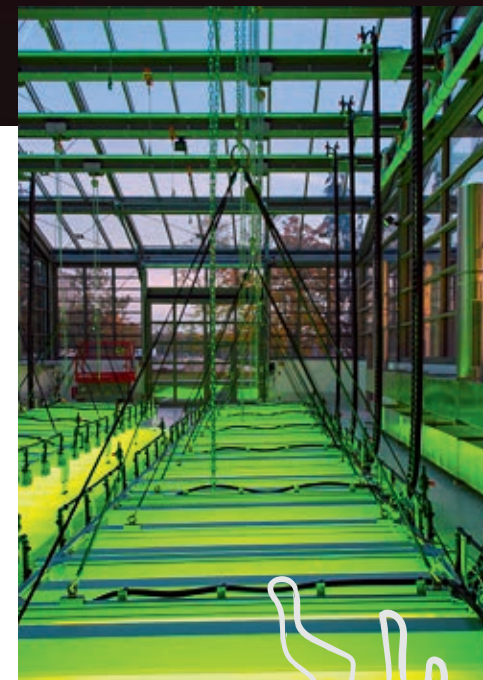


AN OPEN, FREE-FORM STRUCTURE AS A PROTOTYPE FOR AN OUTDOOR TERRACE IN NEW YORK



## THE FUEL OF THE FUTURE

**Neon green lights: What looks like radioactive material from a distance surprises you when you examine it more closely and see what it really is: exotic algae. So what are algae from Papua New Guinea doing on a University campus in the German town of Ottobrunn?**



PLANTING POWER: THE POWER SOURCES OF THE FUTURE ARE ALREADY GROWING IN THE LAB


Scientists believe that we could use algae as a fuel for aircraft. A crazy idea? A team from the Technical University of Munich is currently conducting joint research with the Airbus Group and the Ludwig Bölkow Campus in Ottobrunn, using a unique "super greenhouse", to find out how much power can really be unlocked from these little muscle men from the sea.

**Just five thousand of the 150,000 species of algae known to exist in the world have been characterised, and only ten of them are exploited commercially.** This is all set to change. The algae pilot project uses a 1500 m² facility designed to simulate various climatic and light conditions simultaneously and in the same place. This involves the use of a RAICO curtain wall made of special glass designed to let through just the right amounts of UV radiation in particular, with targeted additional LED lighting to complete the array. Algae from all over the world – including Papua New Guinea or Almeria in southern Spain, for example – are in their element here, and can be extensively cultivated and intensively examined.

The findings are groundbreaking: the first bio-kerosene is set to be put into use as early as 2025. The question as to whether these power-packing sushi ingredients will actually get anywhere, or become a dietary supplement for national football teams, has not yet been examined.



# FORM FOLLOWS REQUIREMENTS

The mood is justifiably optimistic at AllesWirdGut, an architecture firm with offices in Vienna and Munich. Their philosophy: High-quality architecture is always a joint effort – not just of the project team, but thanks above all to the continuous inclusion of the client in the planning process. “Form follows function” is also part of the architects’ thinking, with “form follows requirements” to sum up an attitude that focuses on people. Planning and construction are on a human scale. If society changes, the world of work-life relationships must change with it. This forms part of just such a dynamic development process at AllesWirdGut, with a constant curiosity for innovation and equally constant interaction within a team united by its skills and qualifications. 





# JUST A MOMENT, PLEASE!

With our 25th anniversary as a company coming up, we asked our colleagues: What moments do you particularly recall from your time at RAICO? Who would have thought that some of the most curious responses involving Robert Lewandowski, Konny Reimann and Helmut Schmidt should somehow be linked?

"...when I was still a trainee, I was once sent to do a servicing job at the home of former German Chancellor Helmut Schmidt, who greeted us with a handshake."

Tobias Foldenauer, Quality Assurance

"...I once drank a duck cappuccino from a test tube at one of our Christmas parties."

Regina Mayer, Management Assistant

"... when I acted as ringmaster of the Circus Raiconelli at the 2010 Summer Festival, with employees standing in for artistes, clowns and lion tamers."

Dr. Stefan Lackner, President

"...when I was in charge of bringing a flock of sheep from a neighbouring field onto the company car park, resulting in a dozen or so dents in my car."

Sandra Ness, Internal Service

"...it was just before the start of the Bau 2015 trade fair, and I tried to use the fingerprint scanner to operate the door, resulting in a short circuit that plunged our entire exhibition stand into darkness."

Bernd Seemüller, Technical Department

"...when my appearance resulted in me being introduced to everyone as

Robert Lewandowski at my first sales meeting."

Alexandre de Montigny, RAICO France

"...when our TEAM RAICO took part in the Three-Country-Marathon on the banks of Lake Constance, and managed to finish despite everything that went wrong!"

Stephan Platzer, Internal Sales Department

"...the day German TV personality Konny Reimann visited our exhibition stand"

Reinhard Eckerstorfer,  
RAICO Austria

"...when my apprentice became my boss!"

Renate Schwärzler,  
Financial Accounting

"...when management invited us all to a suckling-pig-roast to celebrate our first monthly turnover of €400,000."

Beate Schmid, Technical Department

"...the day I used the boss's car to go and pick up a coffee machine, which was too big to fit in the boot."

Isabell Wengler, Object Service Department and singer in the group RAI-Brass-CO

"...a midsummer studio session of RAI-Brass-CO, when we recorded carols for the RAICO Christmas CD."

Michael Kaufmann, Technical Department





# MIKE'S MAGIC MOMENT

Out of all the personal moments that our employees have accumulated over 25 years of RAICO, we would like to relate a very special story here: the story of Mike Weiss – the team leader of our Development Workshop.



Text: Lars Thieleke  
Rainer Vögele  
photos: Andrea Jall

## ALBERT INNINGER, PARTNER

In the 25 years of RAICO I will never forget that moment on a sunny October day in 1996 when a young man in a tank top came riding into our yard on a bicycle. He dismounted, came up to me and said: „You're looking for someone for the warehouse. I'll make you an offer: I'll work for you for two weeks without pay. If I'm any good you'll take me on, if not you can give me the boot.“ He addressed me informally with „du“ („thou“) right from the start. I replied to him: „You can start here, but on one condition: you'll be paid from day one.“

**Some people in the company were sceptical at first, but that didn't bother me.** When someone comes looking for a job with that kind of attitude, I don't throw him out. He really wanted it. He dedicated himself right away, and he was punctual and absolutely reliable. Over the course of time we found out what skills he had. Mike had trained as an aircraft mechanic and could do the most delicate work, despite having fingers like sausages. Later on we found out that we had helped him get his life back on track.

## MIKE WEISS, WORKSHOP MANAGER

At that time I was out of work and was desperately looking for a job in the area. So I rode over to RAICO on my bike – perhaps I wasn't exactly dressed suitably for a job interview at that time. I was relatively free from conventional approaches and

thought: well, they're looking for a warehouseman – they won't take too narrow a view. I was young, boisterous, reckless, wild and stubborn, didn't take orders from anyone and had not yet found the right meaning in life.

**I was left to my own devices early on in my life. And I made some pretty bad decisions.** When I started at RAICO there were twelve of us, it was like a family. I liked that a lot. I experienced camaraderie and a sense of responsibility from the very start without feeling boxed in. I was very quickly at one with this family. The fact that somebody had given me responsibility for the first time in my life aroused so much ambition in me – I wanted to prove it to everyone.

My parents didn't have a particularly high opinion of me – I had made a mess of a lot of things. I will never forget the day when, after I had been at RAICO for about a year, they came into yard at the company to bring me something. Our man-

aging partner, Mr Vögele, was stood in the yard. He saw my parents, took them to one side and said: „We are immensely honoured to have your son here in the company. He has become like a son to me.“ Naturally I puffed up my chest no end and said: „Look here – this is my boss!“ I had a few things to make up to my parents and was finally able to say: „Contrary to your prophecy, I have made something of myself.“

**Today I am myself a trainer in the workshop and try to pass things on the way I experienced them back then:** place responsibility in the hands of the employees and let them decide freely – help and advise them, yes, but let them go their own way.

## RAINER VÖGELE, PARTNER

The development workshop in our company was and is my favourite place, with many nice moments. It's a wonderful feeling, after many months of theoretical development, to hold a new product in your hands for the first time.

Practice orientation has been the top priority in our product development since the very beginning. But that's easier said than done. Who is best placed to judge that? You need the right employees for that.

Mike Weiss and his team have put countless designs of mine into practice. I knew exactly what he was sometimes thinking as I stood in front of him: „The boss has got something new again.“ However, he didn't let it show and set about his work with his usual aplomb and dedication.

**I still remember very well some of the situations in the early years,** for example when we tested our first burglar-resistant facade. Since Mike was always a very well built guy, we placed a jemmy in his hand and said to him: „Pretend you're a burglar and see if you can break in.“ After half an hour he gave up, exhausted. In the official tests, however, the story was very different: We realised that brute force is not decisive here, but technique. These were the first findings from what have been countless tests in the meantime and the huge wealth of experience gained from them.

Or the time we were testing the assembly functionality of our first steel facade. After positive completion of the tests in the workshop, Mike asked: „And how will that work in winter at minus 5 degrees? We're testing at plus 25 degrees at the moment.“ He was right – and tested the whole thing again

in sub-zero temperatures in a refrigerated truck in the yard. Of course we had to optimise a few things after that.

This procedure hasn't changed, not even after 25 years. The close co-operation between the development department and the testing workshop makes a major contribution to our innovative product developments. But it all works so well only when the people behind it live and breathe our values. Strong personalities such as Mike Weiss, representative of many other employees, are the prerequisite for the successful development of our company. □





# 5 FROM 25

TO ROUND OFF THIS ANNIVERSARY OBJEKTIV, WE WOULD LIKE TO LOOK BACK ONCE AGAIN ON THESE FIVE SPECIAL REFERENCES THAT HAVE BEEN CREATED IN RAICO'S 25 YEARS OF EXISTENCE:



## Yantai (China) ▲

Client: Beijing Tianhong Gruppe

Architects: Ms. Wang, Shenzhen Yiteng

Planning: Mr. Qiao, Beijing Daqiao Institut

Construction: Shunda-Moser, Beijing

RAICO system: THERM<sup>+</sup> H-I timber curtain wall

2013



## ◀ iceQ (Austria)

Client: Bergbahnen Sölden

Architects: Obermoser

arch-omo zt GmbH

Structural engineering:

Zsz Ingenieure Zt GmbH

Planning and construction:

Gig Fassaden GmbH

RAICO system: THERM<sup>+</sup> A-I

aluminium curtain wall system

## ▼ MedXpert (Germany)

Client: MedXpert

Architects: a plus Architekten

Planning and construction:

Freyler Metallbau GmbH

RAICO systems: THERM<sup>+</sup> A-I

aluminium curtain wall system;

FRAME<sup>+</sup> 75 DI aluminium door

system; FRAME<sup>+</sup> 75 WI aluminium

window system



## Tschuggen Grand Hotel (Switzerland) ▲

Client: AG Grand Hotel Tschuggen

Architects: ARGE Fanzun AG and

Mario Botta, Lugano

RAICO systems: THERM<sup>+</sup> S-I

steel curtain wall system

2011-2012



## ◀ Coventry University (UK)

Main Contractor: Vinci Construction Ltd

Architects: Arup Associates

Fabricator: Mero – Schmidlin (UK) plc

RAICO systems: THERM<sup>+</sup> H-I timber curtain wall

2011-2012



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