

# what's next, ubm?

## Timber Peak

ubm is developing the Rhineland's tallest timber hybrid building at Zollhafen Mainz



Using timber as a replacement for steel and concrete is the greatest lever available for minimizing the carbon footprint of a building during its construction.

PATRIC THATE, CFO

THOMAS G. WINKLER, CEO

MARTINA MALY-GÄRTNER, COO

**L**ocation, location, location: These have always been the three most important criteria when it comes to real estate. And with its prime (waterside) location in Mainz, there is no doubt that Timber Peak consequently delivers in style.

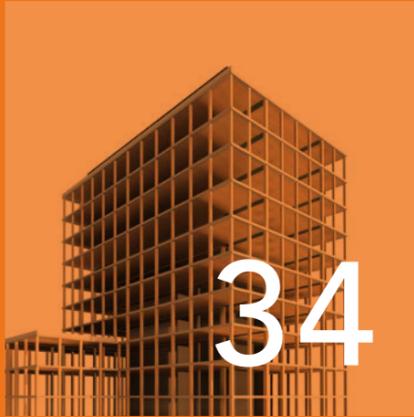
But in our modern world, real estate needs to offer more. UBM Development has defined its corporate strategy in the words *green. smart. and more.*, which represent a commitment to creating real estate that is sustainable, intelligent and aesthetically sophisticated. And Timber Peak is a successful, impressive example. In fact, the name says it all – Timber Peak is a true highlight in several respects, and offers outstanding architecture with a clear visual language and aesthetic aspiration.

However, Timber Peak is also the first timber hybrid high-rise building in Mainz. The extensive use of natural timber will make the biggest difference for its “users”, i.e. the people who work in Timber Peak. After all, it has been proven that being surrounded by wood makes us feel more at ease. Wood has a beneficial effect on our health, motivation and performance. And so this is at least as important for tenants as the project’s compliance with the EU Taxonomy and positive ESG reporting. Of course, the latter are guarantees that the value of a real estate investment will still be recoverable in ten years’ time.

However, Timber Peak is also helping UBM Development to become Europe’s leading developer of timber construction projects. Using timber as a replacement for steel and concrete is the greatest lever available to a property developer for minimizing the carbon footprint of a building during its construction. And this, in turn, is something that concerns us all. As a Timber Peak user, tenant or investor, you are helping this development. To find out more about the project’s advantages, take a closer look at the following pages.

**REDEVELOPING THE DECKS AT THE ZOLLHAFEN:  
THE FORMER CONTAINER PORT HAS BECOME  
ONE OF THE MOST ATTRACTIVE AREAS TO LIVE  
AND WORK THROUGHOUT MAINZ.**





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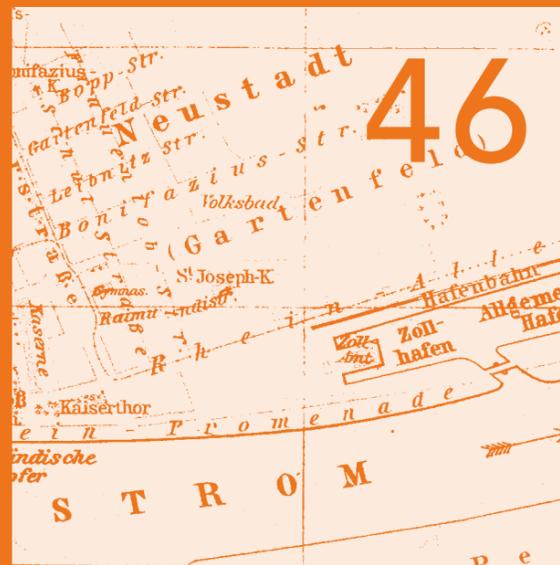
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# At the harbour tip

The former customs port Zollhafen Mainz has a long and rich history. Under its most recent transformation, an industrial site has become a highly attractive residential and business district on the waterfront. Now, with UBM Development's timber hybrid high-rise *Timber Peak* as the area's tallest building, the quarter will receive a distinctive green landmark. The new construction at the Hafenspitze, the tip of the harbour basin, is a showcase project for climate-friendly real estate of the future.

EYE-CATCHER:  
THE AWARD-WINNING ARCHITECTURE  
OF TIMBER PEAK CREATES AN  
AESTHETIC CENTREPIECE AT THE  
HEAD OF THE HARBOUR BASIN.





OUTSTANDING:  
THE TIMBER HYBRID HIGH-RISE  
TIMBER PEAK ADDS A  
SUSTAINABLE LANDMARK TO THE  
NEW WATERSIDE URBAN QUARTER.

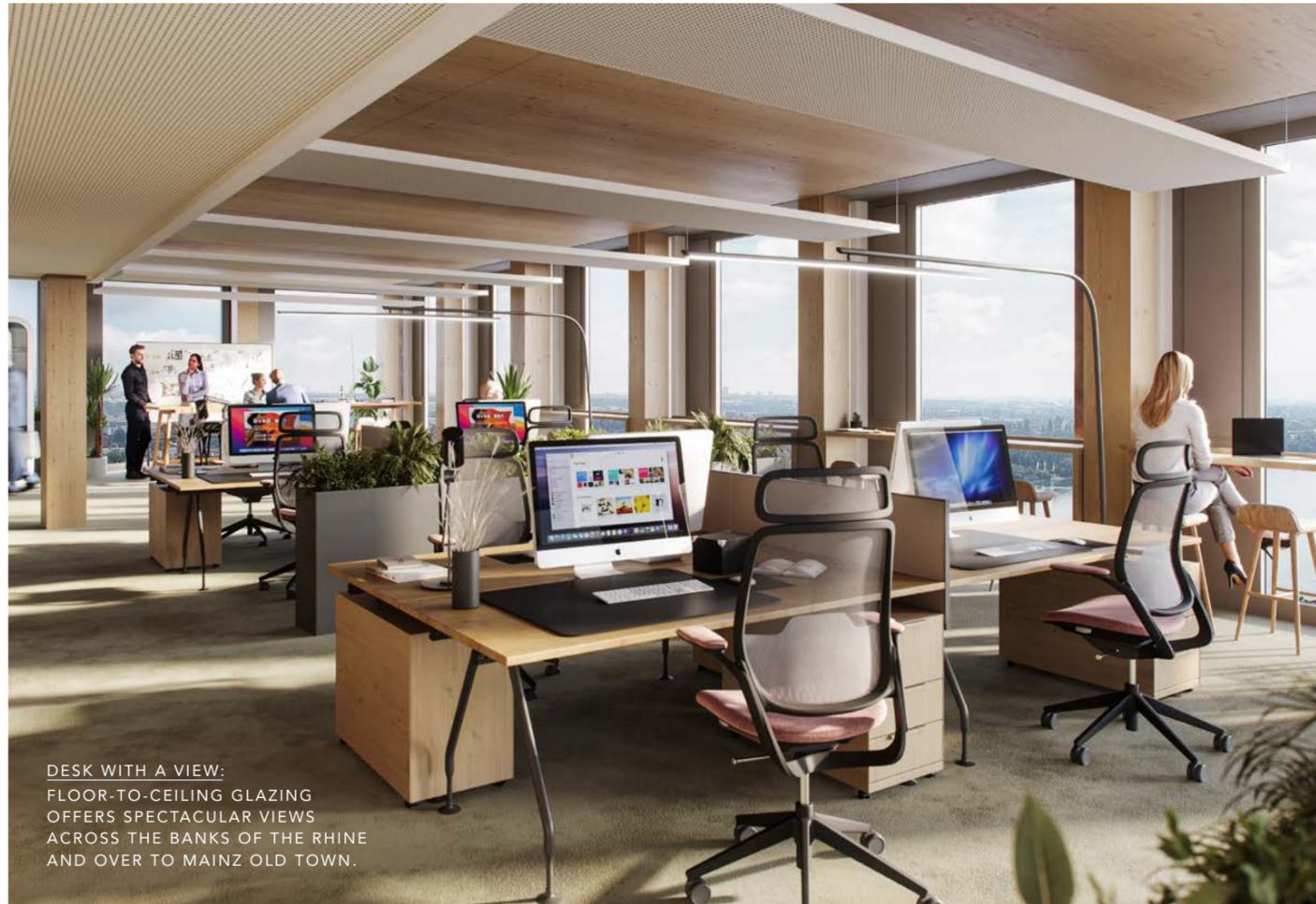


INDUSTRIAL FLAIR:  
THE DISUSED F. + J. MINTHE  
LOADING CRANE IS PART OF THE  
HISTORICAL INVENTORY OF  
THE NEW ZOLLHAFEN QUARTER.

**T**he long arm of the green harbour crane rises steeply into the bright blue sky. Every gaze upwards is accompanied by a cheery question, as someone has spray-painted “Why do you look so happy?” in black letters on the crane arm. It’s an easy question to answer for the people sitting down below along the harbour basin, enjoying their after-work drinks with a view of the sunset. The old loading crane, built in 1964, has become a symbol of the structural change that has taken place here over the last 15 years. The days when it served to unload cargo from ships are long gone. Today, along with other relics from days gone by, it constitutes part of the historical inventory of the new Zollhafen Mainz quarter.

#### A site steeped in history

At Rhine kilometre 500, where the city’s former customs and inland port – called the Zollhafen Mainz – was opened in 1887, time has moved on. This once ranked among the busiest inland ports in Germany, but now the huge container bridges that towered as industrial landmarks are in operation further downstream, at the Ingelheimer Aue site. The art gallery Kunsthalle Mainz has moved into the machine and boiler house, which was the old power station of the former customs port, and the towering stacks of containers in the heart of the city have given way to a development plan that will bring 1,400 urgently needed apartments and some 4,000 jobs to the people of Mainz.



DESK WITH A VIEW:  
FLOOR-TO-CEILING GLAZING  
OFFERS SPECTACULAR VIEWS  
ACROSS THE BANKS OF THE RHINE  
AND OVER TO MAINZ OLD TOWN.

### On the way to becoming a resilient city

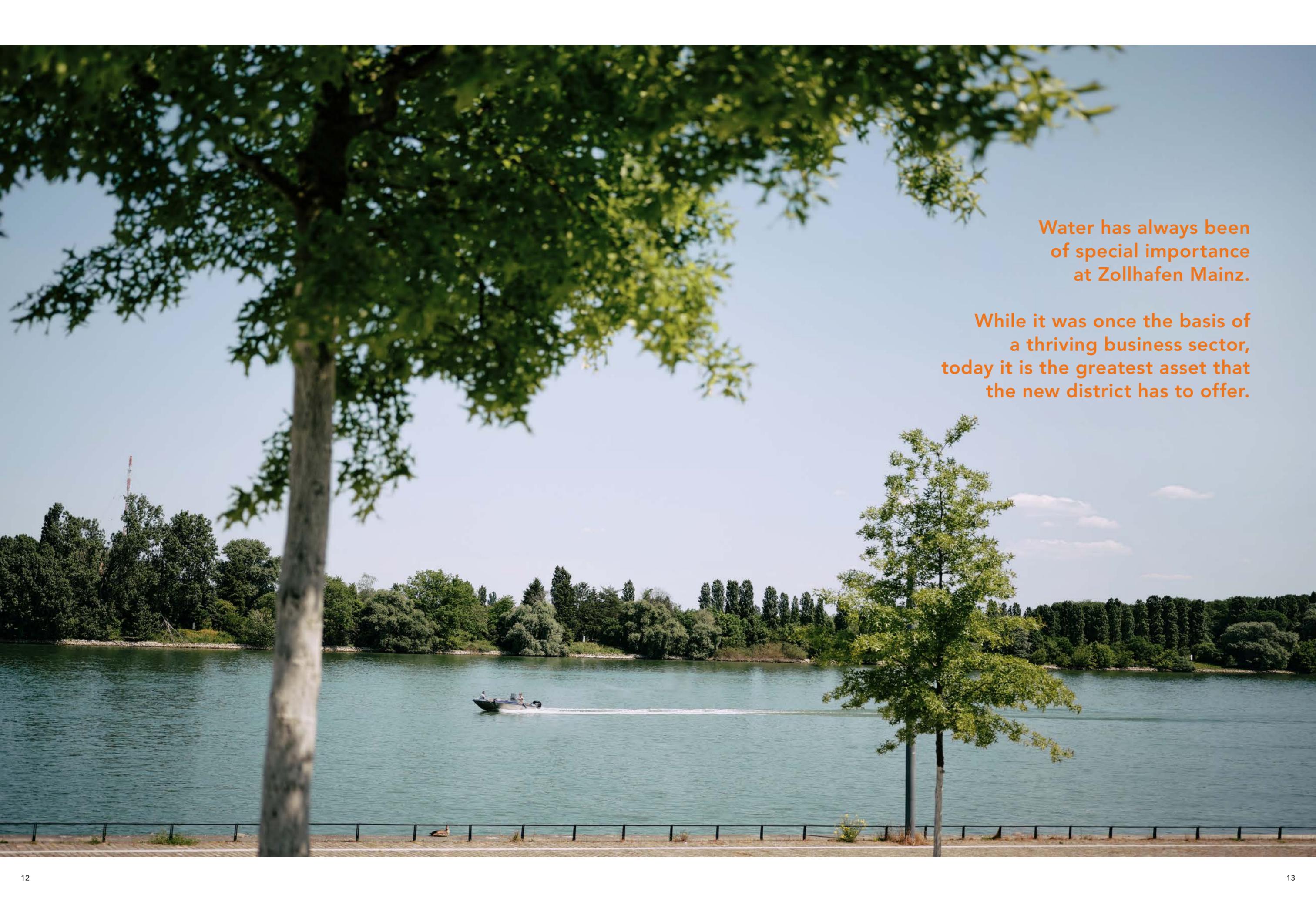
Urban densification is the concept behind this development. As a tool of sustainable urban planning, this process is intended to counter urban sprawl and render our cities more liveable, more efficient and, with the help of climate change adaptation, also more resilient. In concrete terms, this means that the former customs port will become a bicycle-friendly urban district on an area of 30 hectares with efficient public transport connections. Some 4.5 hectares of roofs will be greened over the course of the development, and concrete will be removed from 1.2 hectares of paved areas.

The MI 3 and MI 4 construction sites at the tip of the harbour basin will showcase how a real estate developer can make a city more climate-friendly. It is here that the city's first timber hybrid high-rise, Timber Peak, is being built.

This property, developed by UBM Development, will become a widely visible landmark in several respects. For instance, its height of almost 45 metres means that the building will have by far the longest reflection on the surface of the water. Furthermore, this innovative office tower is designed to reduce emissions throughout its entire life cycle, setting an example for others to follow.



A SOLITAIRE ON THE HARBOUR BASIN:  
THE 12 STOREYS WITH A HEIGHT OF ALMOST  
45 METRES RISE ABOVE THE SURROUNDING BUILDINGS.



Water has always been  
of special importance  
at Zollhafen Mainz.

While it was once the basis of  
a thriving business sector,  
today it is the greatest asset that  
the new district has to offer.

### Decarbonization through timber construction

By utilizing wood as a building material, the only high-rise building in the former customs port serves as a carbon sink. Its hybrid structure contains 1,050 cubic metres of timber. This is equivalent to roughly 1,000 tonnes of CO<sub>2</sub> sequestered in the form of carbon in the wood. According to climate experts, the longer the service life of wood products, the greater their impact as a carbon sink.



END OF THE DAY:  
FRESH AIR AND SWEEPING VIEWS  
OF MAINZ CAN BE ENJOYED IN THE  
GREENERY ON THE ROOFTOP TERRACE.

FOCUS ON WORK:  
TIMBER PEAK OFFERS A  
FLEXIBLE SPATIAL CONCEPT  
WITH A TOTAL OF 8,500 SQUARE  
METRES OF RENTAL SPACE.

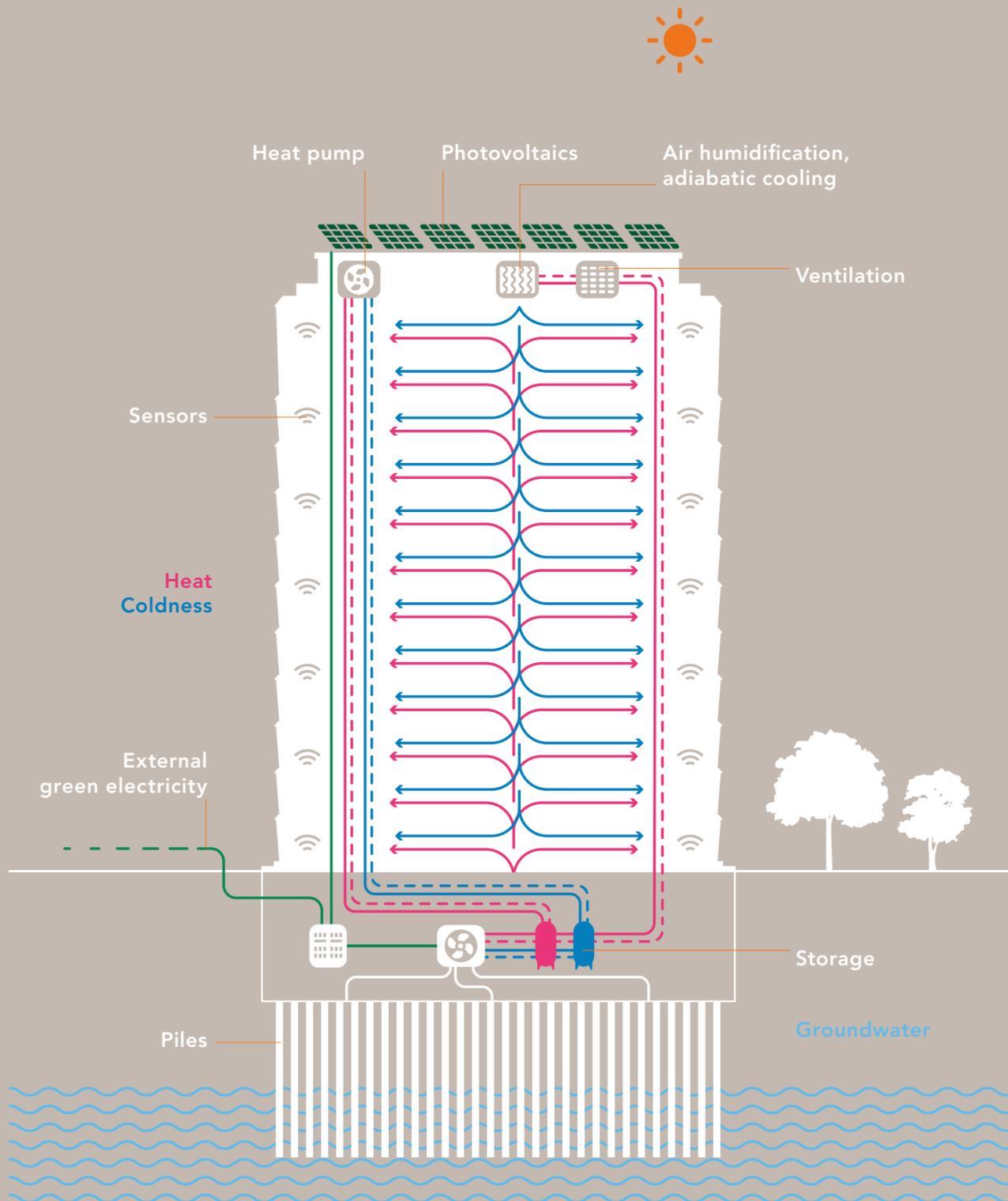


Whereas CO<sub>2</sub> is released relatively quickly if wood is burned as pellets, when wood is used in buildings like Timber Peak, the carbon remains locked up for several decades in a cascading utilization. The first priority is to use the wood for the construction of new buildings, and later for the production of furniture and wood materials. “We need to start pressing ahead with the decarbonization of the construction sector,” says Thomas G. Winkler, CEO of UBM Development AG. “With Timber Peak, we are demonstrating that it is now already possible to reduce a large proportion of the emissions generated during the construction and operation of buildings.”

### Pilot project in Vienna

What began a few years ago with a pilot project in Baranygasse in Vienna’s 22nd district is now a viable corporate strategy. With a volume of over 300,000 square metres slated for hybrid timber construction in the near future, the developer is placing itself at the forefront of this rapidly growing market segment in Europe. In addition to environmentally friendly construction methods, the aim is, as always, to achieve carbon-neutral building operation, as embodied in the low-energy concept of Timber Peak.

Climate-neutral and cost-efficient operation  
HIGH-TECH MEETS LOW-TECH



*Timber Peak* makes use of its own integrative low-energy concept that combines a number of renewable energy sources. The aim is to achieve climate-neutral operation with the greatest possible degree of self-sufficiency and cost stability.

Energy concept – a description:

**GEOTHERMAL ENERGY**

The heat in the Earth's crust is harnessed using geothermal systems. Timber Peak accesses this renewable energy source by activating more than 120 piles that are necessary for structural reasons. It therefore generates approx. 240 MWh heating energy and approx. 80 MWh cooling energy per year.



**PHOTOVOLTAICS**

Formerly exclusive to space travel, nowadays sunlight is converted into electrical energy on almost every new building as standard. The photovoltaic panels fitted on the roof of Timber Peak provide green electricity for the building's basic requirements.



**ADIABATIC COOLING**

The principle of adiabatic cooling was used as far back as ancient times, when wet towels were hung outside open windows. This low-tech cooling operates with the coldness resulting from evaporation, and in the current climate and energy crisis the method has been rediscovered. Timber Peak also uses passive night-time cooling in the summer.



**HEAT PUMP**

Heat pumps extract heat from outside and transfer it indoors as heating energy. Cooling uses the opposite process: heat from the interior is transferred to the outside. In Timber Peak, environment-friendly temperature controlling is managed via two heat pumps that create an agreeable indoor climate.



**INTELLIGENT BUILDING TECHNOLOGY**

According to recent studies, the climate change transition will not happen without intelligent buildings. Up to 30% energy can be saved if building technology systems are adapted to actual office use. Timber Peak uses smart sensors to keep track of everyday comfort and energy efficiency at the workplace in real time.



**Cooling without heating up the climate**

More than 120 drilled piles, which are required for the structural design of the timber high-rise in Mainz, were thermally activated and combined with a heat pump to heat and cool the twelve storeys of office space above. Geothermal energy was already used back in Roman times and now, with today's engineering technology, it has the potential to supply entire cities with renewable heat and put an end to the era of oil and gas.

Since global warming is pushing up temperatures primarily in cities, the resource-efficient cooling of buildings will be of particular importance in future. For instance, the real estate developer is relying on "free cooling" strategies, such as passive night cooling and adiabatic cooling through water evaporation. Unlike conventional air conditioning, these low-tech strategies do not contribute to global warming. A photovoltaic array on the roof supplies the building with solar power and the advanced intelligent building technology regulates the energy demand in real time to reduce CO<sub>2</sub> emissions even further.



**SUSTAINABLE AND CLEVER:** THE LOW-ENERGY CONCEPT ALLOWS SELF-SUFFICIENCY AND COST STABILITY.

### Award-winning architecture on the waterfront

The timber hybrid high-rise with a total floor area of 9,500 square metres brings comprehensive sustainable construction solutions to this major city on the Rhine. One glance at the award-winning design by Sacker Architekten is all it takes to realize that this high-rise with its grid-like appearance will ensure that the new tip of the former customs port basin is an eye-catcher. The brass-coloured metal facade with its pagoda-like projecting cornices enters into an intriguing dialogue with the surrounding buildings and creates an aesthetic centrepiece at the head of the harbour basin.

IN CONTEXT:  
THE BRASS-COLOURED METAL FACADE  
ENTERS INTO AN INTRIGUING DIALOGUE  
WITH THE SURROUNDING BUILDINGS.



**TRANSFORMATION:**  
THE OLD WINE STORE WAS RENOVATED  
AND REPURPOSED DURING DEVELOPMENT  
OF THE QUARTER.



**NEW WORK:**  
WHEREAS PREVIOUSLY OFFICES WERE  
MERELY FUNCTIONAL, THEY ARE  
INCREASINGLY DEVELOPING INTO A  
SHOWROOM FOR CORPORATE CULTURE.

**Enjoying life in Mainz**

Water has always been of special importance at Zollhafen Mainz. While it was once the basis of a thriving business sector, today it is the greatest asset that the new district has to offer.

The eight-hectare harbour basin with its historic quay walls made of basalt lava forms the scenic centre of the new quarter. Instead of cargo ships, stand-up paddlers and sailboats now ply the waters here, with the vessels mooring in the new marina adding a Mediterranean flair to the attractive state capital.

The transformation of the former customs and inland port will greatly enhance the lives of all residents of Mainz. Since 2008 – after being used as a port for just over 120 years – this section of the Rhine embankment has been gradually reclaimed by them. An inaccessible industrial site has been turned into a vibrant quarter of the city, with its highest landmark pointing to a sustainable future.



**SPACE FOR RECREATION:**  
THE BANK OF THE RHINE ON THE  
SOUTHERN MOLE HAS ALREADY BEEN  
REDESIGNED. SPACIOUS PARK  
LANDSCAPES ARE PLANNED FOR  
THE NORTHERN MOLE, WHERE  
TIMBER PEAK IS SITUATED.

OVERVIEW

# UBM at Zollhafen Mainz



HAVN

Timber Peak

Waterkant

Timber View

Kaufmannshof

Flösserhof

Molenkopf Nord

*Timber Peak is one of a number of real estate projects by UBM Development at Zollhafen Mainz. Besides their unique location on the waterfront, these planned construction projects feature high standards of sustainability, smart solutions and aesthetics. They are best practice examples for the company strategy green. smart. and more.*

# UBM at Zollhafen Mainz



## Timber Peak

STATUS:  
**Under construction**  
GROSS FLOOR AREA:  
**9,500 m<sup>2</sup>**  
ASSET CLASS:  
**Office**



## HAVN

STATUS:  
**Planning stage**  
GROSS FLOOR AREA:  
**6,050 m<sup>2</sup>**  
ASSET CLASS:  
**Residential, office**



## Timber View

STATUS:  
**Planning stage**  
GROSS FLOOR AREA:  
**17,950 m<sup>2</sup>**  
ASSET CLASS:  
**Residential**



## Molenkopf Nord

STATUS:  
**Planning stage**  
GROSS FLOOR AREA:  
**12,000 m<sup>2</sup>**  
ASSET CLASS:  
**Residential**



## Flösserhof

STATUS:  
**Under construction**  
GROSS FLOOR AREA:  
**8,200 m<sup>2</sup>**  
ASSET CLASS:  
**Residential**  
PARTNER:  
**CA Immo**



## Kaufmannshof

STATUS:  
**Completed**  
GROSS FLOOR AREA:  
**8,600 m<sup>2</sup>**  
**of which 3,277 m<sup>2</sup> (office)**  
ASSET CLASS:  
**Residential, office**  
PARTNER:  
**CA Immo**



## Waterkant

STATUS:  
**Completed**  
GROSS FLOOR AREA:  
**9,500 m<sup>2</sup> (hotel)**  
**10,083 m<sup>2</sup> (residential)**  
ASSET CLASS:  
**Hotel, residential**

Olaf Heinrich



### 4 QUESTIONS FOR:

### Olaf Heinrich & Christoph Jakoby

Managing directors of Zollhafen Mainz GmbH

#### HOW IMPORTANT IS THE PROJECT TIMBER PEAK FOR ZOLLHAFEN MAINZ?

**Olaf Heinrich:** The project Timber Peak – with its modern, grid-like facade – forms an important anchor point as an urban construction in the northern section of the quarter. Timber hybrid design is unique among high-rise buildings in Mainz to date, and so the project sends an important message that conveys the innovative strength of its developer UBM Germany. This is bound to have an influence on other projects in the quarter as well.

#### WHAT DECARBONIZATION MEASURES WERE ADOPTED DURING DEVELOPMENT OF THE ZOLLHAFEN?

**Olaf Heinrich:** The entire quarter is supplied with climate-friendly district heating from the nearby power plant. As part of the traffic planning, a new tram route with short connections to the central railway station was built in the immediate vicinity of Timber Peak. There are also six public bike rental sites in the quarter, which enables carbon-free mobility.

#### WHAT FEATURES ARE ESPECIALLY TYPICAL OF THE ZOLLHAFEN AS AN OFFICE LOCATION?

**Christoph Jakoby:** The Zollhafen quarter is based on a central theme: “Living and working on the waterfront”. The water-side location and the amenities in the immediate vicinity offer a perfect environment for prestigious company headquarters, start-ups and major office tenants looking for a contemporary balance between work, leisure and residential life. As regards flood defences, all buildings in the Zollhafen are protected by an architectonic system as part of the building and its technology systems. The safety margin even factors in flooding that is only likely to happen every 200 years.

#### WHAT IS THE POTENTIAL OF TIMBER HYBRID CONSTRUCTION FOR URBAN DEVELOPMENT, IN YOUR OPINION?

**Christoph Jakoby:** It responds to many issues that are on everyone’s lips right now – like lowering primary energy needs, the carbon balance, and also the recycling of construction materials. As an innovative building method, it combines the benefits of timber, concrete and steel. And because it lowers construction costs and shortens the duration of building as well, there is a good chance that timber hybrid design will adopt a pioneering role in ecologically sustainable urban development of the future.

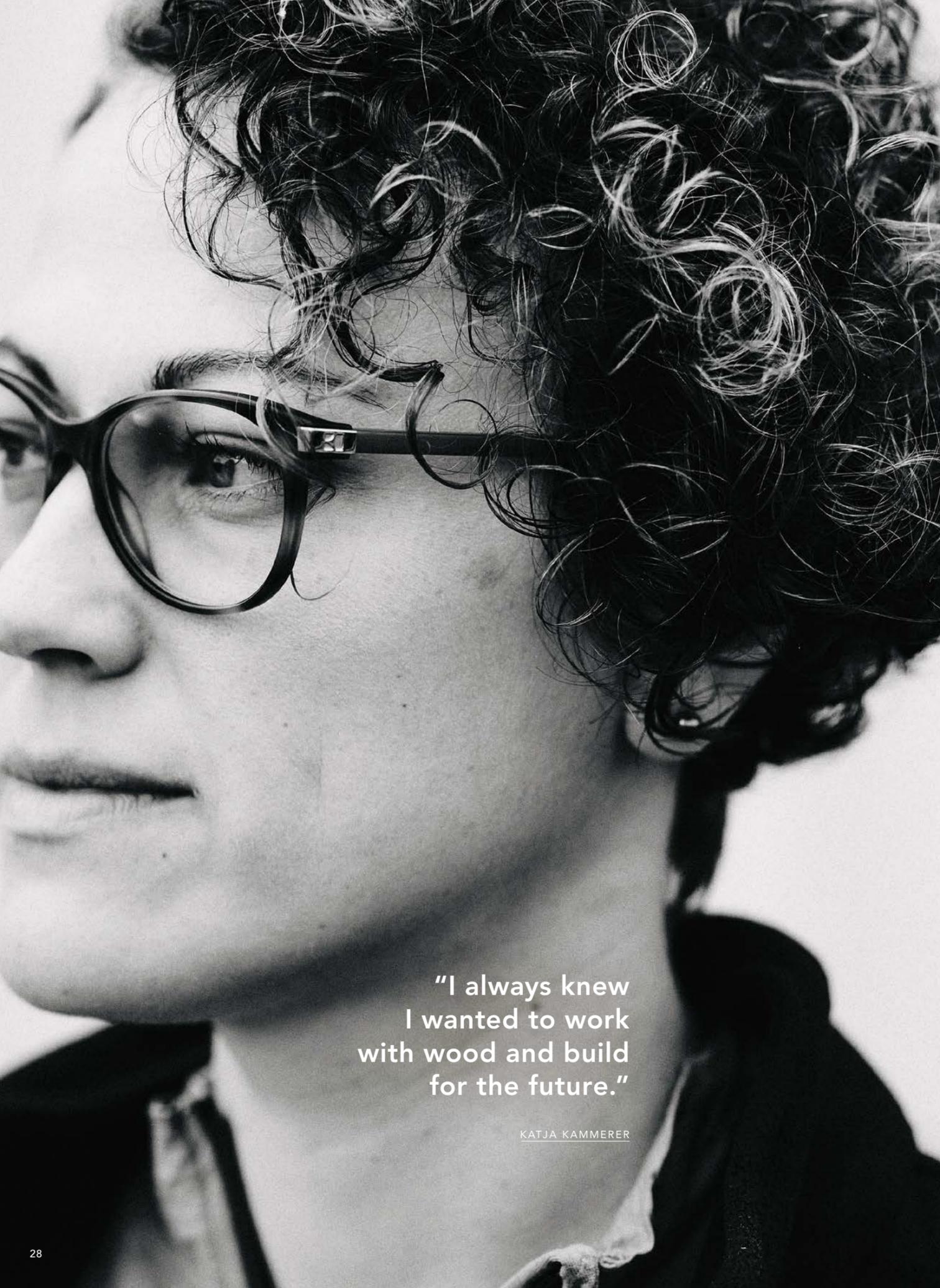
Christoph Jakoby



# The woman behind the timber high-rise

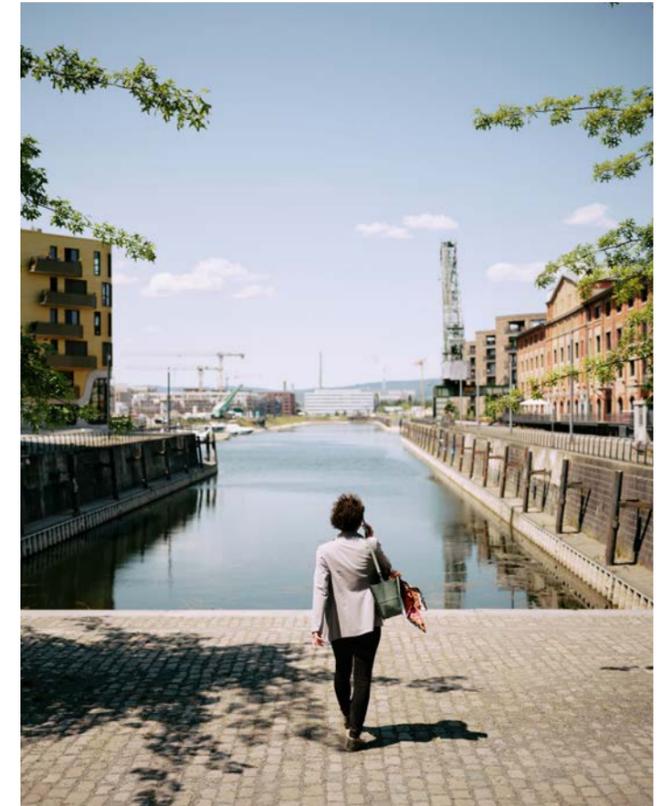


*Katja Kammerer is a carpenter, architect, and one of 300 Timber Heroes at UBM Development. Her wealth of expertise and her passion for wood are perfect for the project that is currently writing construction history in Mainz: the development of Timber Peak, the first timber hybrid high-rise in the city on the Rhine.*



“I always knew  
I wanted to work  
with wood and build  
for the future.”

KATJA KAMMERER



LAND AHOY!  
KATJA KAMMERER, TECHNICAL PROJECT MANAGER  
OF TIMBER PEAK, LOOKS ACROSS THE  
HARBOUR BASIN TO THE “HAFENSPITZE” BUILDING SITE.

**K**atja Kammerer makes it easy for you. It is clear at first glance that you are talking to someone with a creative mind. She wears her dark hair short on the left, with curls coiling down over her right ear. This kind of haircut might look indecisive on others. Not so with 38-year-old Katja, whose training as a carpenter, interior designer and architect gives her the expertise to shape nature while still giving it space. In its own way, the cut is therefore as straight as her journey through life.

“I always knew I wanted to work with wood and build for the future. I’ve always gone in that direction,” she explains. It almost sounds as if she is apologizing for the arrow-straight path that led her to UBM in 2016, where she became technical project manager of the first resource-friendly timber hybrid high-rise at Mainz former customs port in 2022. But all she did was bow to the inevitable, and turn her craft into her career. It was simply meant to be.

Katja Kammerer was born in 1984, a year that the Chinese zodiac associates with the element wood. Children born in this year are supposed to be destined to make the world a little better with their actions and their innovative spirit – even if they constantly have to fend off the doubts of those around them.

## “Project management is mainly about managing people.”

KATJA KAMMERER

Born into a down-to-earth family and raised in a small community in Lower Austria, Katja Kammerer knew nothing of this, of course. But she did have a strong sense of purpose. Rather than playing with dolls at kindergarten, she preferred to build things with wood, “because it smelled so good”. She also felt it when she announced, after attending an open day at Mödling Technical School, that she wanted to train as a carpenter while studying for her school-leaving examinations – in spite of her mother’s worries about her “losing a finger or two”. And she sensed it again when she followed up her bachelor’s degree in Interior Design & 3D Design with another course on sustainable architecture and timber construction.

### Paving the way for a career

This paved the way for a career that would take her to the aptly named Timber Peak. However, she might never have had the opportunity if a colleague from her student days hadn’t phoned to persuade her to move from Hufnagl Architekten to UBM seven years ago. “To begin with, I couldn’t imagine working client-side. But then I saw something happening at UBM and I wanted to be part of it!”

Before long, she was right in its midst. As well as leading the Interior team after her initial position as a project manager, she turned the Vienna head office into a best practice example

for the New Work concept – with a pleasant atmosphere, modern art and a strong corporate identity. The UBM offices in Vienna’s tenth district are not only a great place to work but also an ideal venue for holding company events and celebrating birthdays.

This is excellent motivation for someone like Katja, who feels the need for everything she does to ultimately have a positive impact on people’s lives. It’s difficult to say how many people have felt the beneficial effect of her work. And there are plenty who have no idea who is responsible for the sense of well-being they perceive whenever they enter a particular building. Such as the guests who stay in the Mercure Katowice Centrum. This hotel was one of the projects that Katja Kammerer, as Head of Interior, was involved in from the initial planning to the final handover.

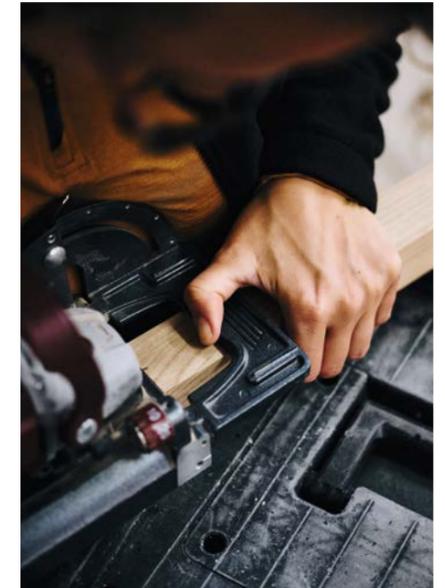
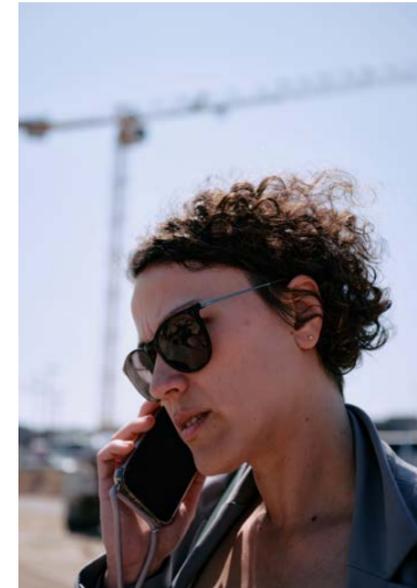
“You could also say that I was responsible for the *more* before our strategy *green. smart. and more.* even existed.” Things could have continued like this. But then Covid-19 put an abrupt end to UBM’s journey as Europe’s largest hotel developer. “It felt as though UBM carried out its reorientation on becoming Europe’s largest timber construction developer while I was watching a pair of crows raising its chicks in the sycamore tree in front of my office window at home during the first lockdown.”



**ONCE LEARNED, NEVER FORGOTTEN:**  
AS A TRAINED CARPENTER, SHE PREFERS TO  
UNWIND AFTER WORKING IN THE OFFICE BY  
SPENDING HER FREE TIME IN THE WORKSHOP.



**KATJA KAMMERER** attended HTL Mödling, where she trained as a carpenter besides taking her school-leaving examinations. She studied at the New Design University in St. Pölten, obtaining a BA in Interior Design and 3D Design in 2007. This was followed by a degree in architecture with a focus on sustainable architecture and timber construction at Vienna University of Technology. In 2016 she joined UBM Development, and since May 2022 she has been technical project manager for Timber Peak.



**HANDS ON:** WHETHER ON THE PHONE TO THE BUILDING AUTHORITIES OR USING A PLATE JOINER, KATJA KAMMERER HAS ALWAYS FOLLOWED HER CALLING.

Since then, two further generations of crows have come into the world without Katja being there to witness it. She is back in the office. Or on the first morning flight to Frankfurt. She is such a regular visitor to the city that, when she lunches at her favourite Greek restaurant, she is greeted with a hearty Austrian “Servus!”. Preparations with her team and the authorities were in full swing even months before the start of construction in autumn 2023.

### Back to the roots

“This is a real back-to-the-roots project for me, where I can make use of everything I learnt about timber construction at technical college and university,” she says. Now almost 40, she is the ideal age for this job – having experience, the physical strength needed on any construction site and, above all, empathy: “After all, project management is mainly about managing people. And you need to know the right way to talk to people.”

Her career has taught her the right way. But even she underestimated the sheer amount of talking involved: “Timber Peak will be the first timber hybrid high-rise building in Mainz, and indeed anywhere in Rhineland-Palatinate. When we submitted our plans, none of the relevant building authorities had ever dealt with this subject before.”

Sometimes Katja felt like a broken record when she had to explain again and again about the flagship project and how it can pave the way for carbon-optimized building construction

and management. Naturally, they were enthusiastic about the state-of-the-art waterside architecture, the planned gold certificate from the German Sustainable Building Council (DGNB) and the revival of the oldest building material in the world. But... what about fire protection? This gave the building authorities a sleepless night or two. Can a timber high-rise really be safe? “I’ve lost count of how many times we’ve had to explain that wooden buildings burn slowly and in a very controlled manner,” says Katja Kammerer. “In the case of an emergency, a timber construction – especially a hybrid one with a concrete core for the escape routes – is sometimes even safer and more plannable for evacuation than a steel construction.” However, sometimes you need more than transparency and personal experience to overcome scepticism – a few words of confirmation from a fire service representative, for instance. “It was the fireman who finally convinced everyone that wood was nothing to be afraid of.”

*Text:*  
**Daniela Schuster**

# The modular principle

The timber hybrid design for *Timber Peak* is based on a modular system using prefabricated components that are assembled according to the modular design principle. In total, around 1,050 solid cubic metres of wood are used in construction. This corresponds to around 1,000 tonnes of CO<sub>2</sub> that are locked up in the structure.

## Building shell

Besides a reinforcing staircase core made of concrete, the design uses 534 glulam timber columns with a total cubature of around 240 cubic metres. These form the building's supporting structure together with around 340 timber-concrete composite slabs.



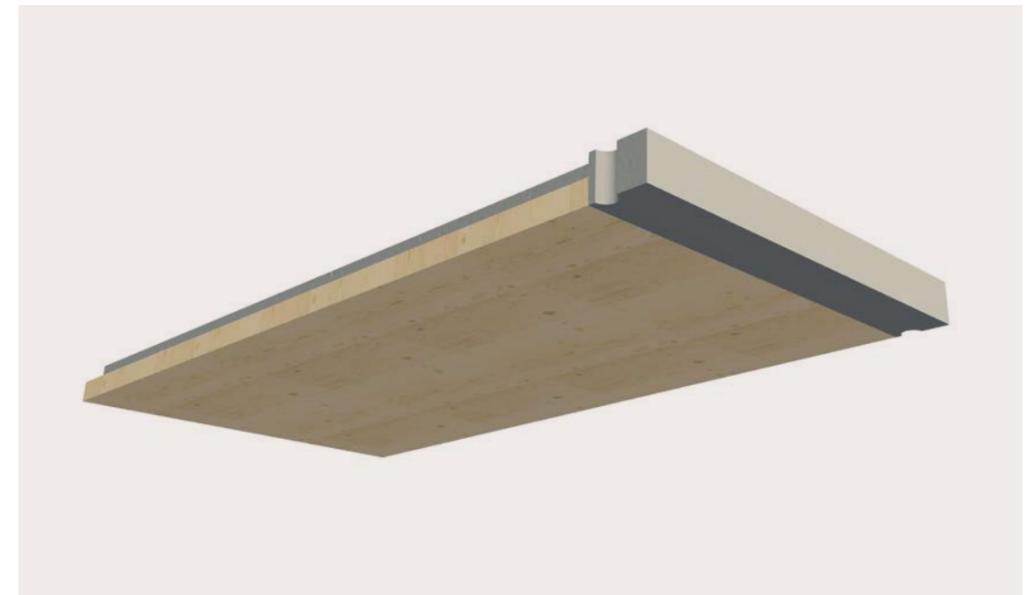
## Basic structure

In timber hybrid construction, the glulam supports are connected to the timber-concrete composite slabs to form a stable unit. This modular storey construction consists of over 50 percent timber.



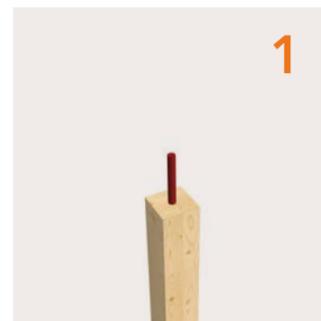
## Timber-concrete composite element

The individual elements are made from a cross-laminated timber board and a concrete slab that has already been friction-fitted, which are delivered to the construction site as prefabricated parts. The slabs are relatively thin, yet they still offer good noise control and fire protection characteristics.

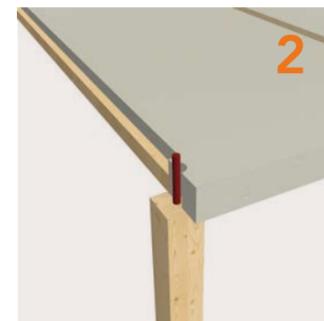


The following illustrations show how the individual prefabricated parts are joined together to form a stable unit.

## Assembly of the office section



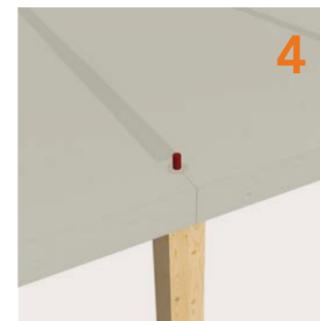
The facade column is put into position, with a steel connector ready fitted



The slab elements are fitted (timber-concrete composite)



The remaining slabs are installed



The elements are friction-fitted and the joints are sealed



The columns for the next storey are fitted



Finished slab construction viewed from below

# “Hybrid is the new way of building with timber”

He ranks among the leading experts on the use of wood as a building material. *Stefan Winter*, who holds the Chair of Timber Construction and Structural Engineering at the Technical University of Munich, is responsible – with his firm *bauart* – for the structural engineering of Timber Peak. In an interview with UBM Development, the professor and trained carpenter explains why hybrid solutions are not a step backwards for timber construction and how long-lasting timber products can help to mitigate climate change.



**U**ntil recently, timber construction had almost completely disappeared from the urban landscape. Now, the development of new timber building materials as high-tech solutions has led to more and more buildings being built of wood, and in structures that are reaching ever-increasing heights. “Reforest the planet, retrimber the city,” says climate researcher Hans Joachim Schellnhuber, the visionary behind the New European Bauhaus initiative. It’s an approach that Stefan Winter also wholeheartedly embraces – whether in his capacity as a professor at the Technical University of Munich, as an author of technical publications or as a structural engineer for multi-storey timber buildings.

**As the founder and managing director of bauart, you are responsible for the structural engineering of Timber Peak. It is the first high-rise office building in Mainz to be built using timber hybrid construction techniques. Does it make sense to use wood as a building material in urban areas?**

*Stefan Winter:* Wood is an obvious choice for urban use, especially for multi-storey hybrid buildings, where we should be substituting as much material as possible with a more environmentally friendly material that can be produced with a low amount of primary energy. Of course, you can’t do that everywhere. With this project, we have an underground car park and structural elements that are in contact with the ground, where it doesn’t make much sense to build with timber. But it’s an outstanding material for every situation where it can be used. And it is wonderful that UBM Development is constructing Timber Peak, the first timber hybrid building in Mainz. That fits with the times.

**The book description for the “Manual of Multi-Storey Timber Construction”, which you co-authored, states: “Hybrid is the new way of building with timber”.**

**What does this mean?**

In hybrid building, that is, building with mixed materials, we actually distinguish between three levels. First, there is the purely material level. We now have building products composed of hardwood and softwood. The next level is the component level.

This includes, for example, hybrid building components like timber-concrete composite slabs, in which a layer of concrete is poured over a layer of solid wood. That significantly minimizes the use of concrete in the ceiling and also creates a non-combustible layer in the timber construction. And at the third level, we refer to hybrid buildings. For instance, we might have a staircase tower and elevator shafts made of concrete, with the floors built around this reinforcing core consisting of a solid timber and skeleton construction.

**In other words, it doesn’t make sense to use only timber in multi-storey buildings?**

We will not be able to build modern buildings entirely out of timber, as we once did with log cabins – and this is precisely what led us to say in this book: Hybrid is the new way of building with timber. We are convinced that there is no point in building entirely with wood. We have to deploy our resources where it makes sense to do so. And it’s simply a very good idea to use them together in a coordinated manner.

**At what point would we call something a genuine timber construction?**

For our purposes, we have defined it as follows: If more than 50 percent of the volume of a building’s shell is made of wood, then we can call it a timber construction. That is the minimum requirement.

**Timber Peak is situated on filled ground at the tip of the harbour basin.**

**Did that present a particular challenge?**

The subsoil was indeed quite challenging. But the foundation piles required by this situation will be used for heating and cooling, which kills two birds with one stone. If you have to drill down deep anyway, you can also tap into geothermal energy, which is an excellent idea. Anything that provides multiple benefits is ultimately more efficient, cost-effective and environmentally friendly as well.

**Timber construction is seen as a highly promising way of achieving the Bauwende and decarbonizing the**

**“With ecological forest management and sensible use of wood in long-term products, there is a realistic chance of actually combatting climate change.”**

**STEFAN WINTER**



**construction industry. The EU has paved the way for this with the Green Deal and the New European Bauhaus initiative. In practice, however, there is often a lack of skilled workers and the producers of timber building materials are unable to keep up with the growing demand. How can we turn this situation around?**

For one thing, the market naturally regulates a great many things. And the market has also already begun this adaptation process, with many traditional building companies now focusing very intensively on timber construction. People recognize the direction that this development is taking and are investing accordingly. This won't happen overnight, but we are in the process of massively ramping up production capacity. Moreover, the timber industry fortunately has relatively few recruitment problems compared to bricklayers and concrete workers. Timber construction is still an attractive career choice for young people. They are attracted by the craftsmanship aspect and the natural beauty of wood. At the same time, today's carpentry profession offers digital work processes with software-controlled CNC machines – that's a brilliant mix. Timber construction is without a doubt the building sector that has made the most progress in terms of pre-fabrication and digitalization.

#### **What about the state of our forests?**

We had widespread bark beetle damage not only in Germany, but also in Austria and Switzerland. We will have to consider new forest management measures for the future. But I remain highly optimistic that no matter what the forest yields, with modern processing technologies we can produce materials that, when used over long periods, can store carbon for 50, 100 or even 150 years. With ecological forest management and sensible use of wood in long-term products, there is a realistic chance of actually combatting climate change and reducing the amount of CO<sub>2</sub> in the air.

#### **Do you also see potential for decarbonization in other building sectors?**

There are of course also exciting developments with other

materials. Construction companies are working intensively on concretes with lower CO<sub>2</sub> emissions, with other aggregates and with low-density concretes. It's always in crisis situations that people start to focus their engineering acumen on finding new solutions. Fortunately, there is also a great deal of engineering expertise today among young women who are interested in environmentally relevant topics and bring new creativity to the table. I am confident that we will see a host of inventions and advancements in the coming years.

**“Everyone should have heard the shot being fired. We're in a hurry, and in the construction sector we have a huge influence on what happens to the climate as a whole.”**

**STEFAN WINTER**

#### **Currently, timber hybrid high-rises are being built that will soon surpass the 100-metre mark.**

#### **What further developments do you expect to see in urban timber construction?**

I can imagine hybrid high-rises being built up to the 300-metre threshold. From a purely technical point of view, I can't think of any limitations. Wood is a material with an extremely good strength-to-weight ratio, which means that its weight is extremely low in relation to its structural properties. So I can envision wood primarily playing a role in the densification of existing urban landscapes. In Central Europe, at any rate, this will be a major focus for the industry, with additions, extensions, added storeys and other expansion projects.

#### **What other challenges will the construction industry have to contend with in the future?**

We will have to deal intensively with urban mining, in other words, with recovering materials that we have already used, including timber. In a large-scale research project with the Karlsruhe Institute of Technology, we are currently analysing how to evaluate used timber for its performance properties. This also applies to other building materials.

#### **What small steps can each individual take?**

We have to work on reducing our carbon footprint. This is also a matter of education. Sometimes it's very difficult to teach people that a little less meat is healthy for them and good for the environment. Or that taking the train is in fact better than driving an SUV. We each have to start with ourselves.

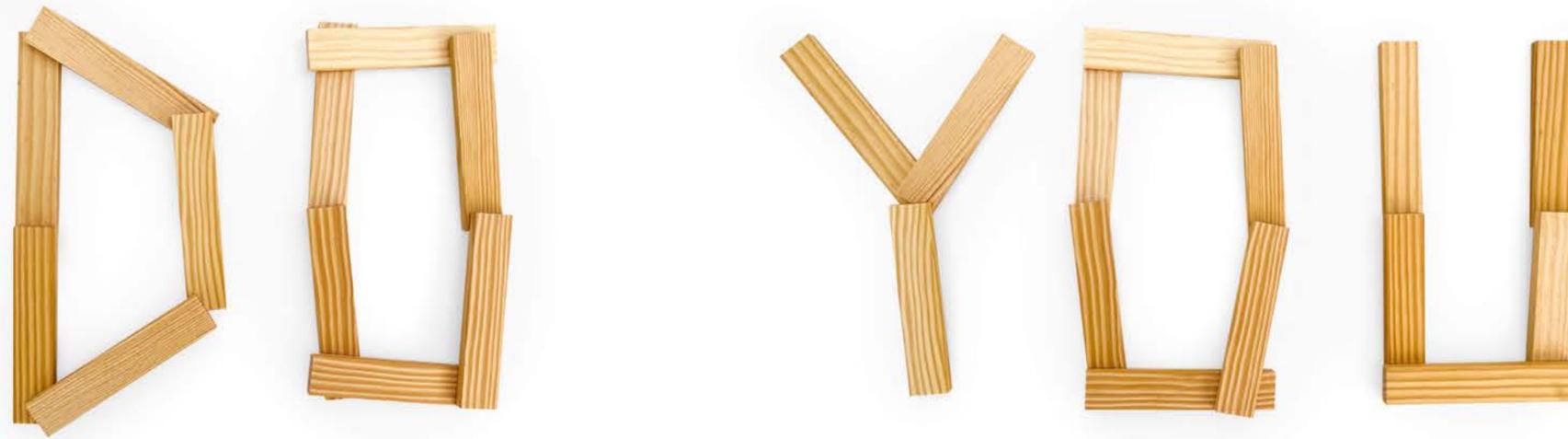
#### **So we can achieve this?**

I wouldn't say that humanity is completely incapable of failing here. But wood could be a key to tackling climate change. To quote Hans Joachim Schellnhuber, Director Emeritus of the Potsdam Institute for Climate Impact Research: “Reforest the planet, retimber the city”. I find that an excellent approach that I am happy to continue to support.

*Interview:*  
**Gertraud Gerst**



**PROF. STEFAN WINTER** completed an apprenticeship as a carpenter before studying civil engineering at the Technical University of Munich. In 1993, he founded bauart Konstruktions GmbH, which ranks among Europe's leading engineering firms in timber construction. Since 2003, he has held the Chair of Timber Construction and Structural Engineering at the Technical University of Munich and has written numerous technical publications on the subject.



Wood is one of humanity's oldest building materials, and since the turn of the millennium it has been experiencing a major revival. But there is a fundamental difference between the materials used in modern structural timber design and the log cabins familiar from days gone by.

The timber construction products available for today's projects and their special features are outlined on the following pages by *Bernhard Egert*, Head of Timber Construction at UBM Development AG. —>



## What exactly is...?



### Solid structural timber (KVH)

is a trademarked name for refined sawn softwood that fulfils precisely defined product characteristics. This solid timber product is kiln-dried and graded according to strength, and finger jointing allows it to be produced in lengths that exceed conventional structural timber. It supplies dimensionally stable structural components for detached houses, multi-storey residential blocks and also industrial and hall construction.



### Cross laminated timber (CLT)

consists of at least three lamellas that are glued together crosswise, i.e. at right angles to one another. This planiform timber material has high dimensional stability and can bear loads in several directions. It is used predominantly for walls, floors and roofs. CLT elements can be fully prefabricated in the engineering hall and fitted with windows and finished facade cladding, for example.



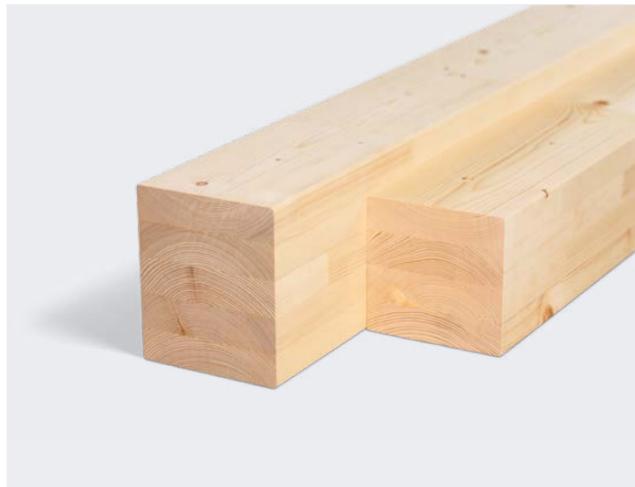
### Laminated veneer lumber (LVL)

is an engineered wood with one of the highest strengths. It is composed of several layers (each approx. 3 mm thick) of softwood veneers that are glued together. This creates a material with high load-bearing characteristics that is also sustainable, predictable and dimensionally stable. Laminated veneer lumber for structural timber design is supplied as boards and also beams, for example by Stora Enso (photo).



### BauBuche

is beechwood laminated veneer lumber. This most recent addition to the range of innovative materials has extraordinarily high mechanical properties. Used in timber construction and available from Pollmeier (photo), for example, it enables high load-bearing and large-span support structures that are slimmer and save an even greater amount of resources. As it looks so attractive, this kind of wood is popular above all for visible constructions.



### Glued laminated timber (glulam)

consists of at least three lamellas that are glued with their grain running parallel down the length of the timber. This processing achieves high dimensional stability and a load-bearing capacity that is up to 80 percent higher than solid timber with a cross-section of the same size. These post-shaped components are used in construction as beams or columns, and they are produced in lengths of up to 50 metres, for example by Hasslacher (photo).



### Arched beams

are glulam beams with a single or double curve. Glued laminated timber can be produced in almost any individual shape. The high load-bearing capacity of this material allows not just wide spans, but also an entirely new design of support structures, opening up new possibilities to architects for the implementation of their own visual language.



**"Contemporary timber products are really high-tech materials that are used as load-bearing elements in multi-storey timber construction due to their improved characteristics."**

BERNHARD EGERT

# Time travelling in Zollhafen Mainz

Back in the days of the Roman Empire, “Dimesser Ort” in Mainz was an important trading port and a prosperous residential area. An archaeological sensation uncovered during construction work in the former customs port of Mainz bears witness to the early history of the new urban quarter currently under construction.



1912

**AERIAL VIEW**  
THE IMPRESSIVE ARCHITECTURE OF THE CUSTOMS PORT, WHICH WAS ALMOST COMPLETELY DESTROYED IN WORLD WAR II.

When archaeologists came across a nearly life-size statue during construction work for a residential complex in Zollhafen Mainz in autumn 2020, they immediately realized that it was a spectacular find. A well-preserved, nearly 1.50-metre statue of Salus, the ancient goddess of health and prosperity, was recovered from rubble dating back 2,000 years. This significant discovery showed that Dimesser Ort, which was later named after

St. Theonistus, a 5th century bishop, must have been the social centre of the Roman military base of Mogontiacum, the precursor to today’s Mainz. The statue was made in 231 AD and stood in a busy square. Salus was worshipped for her ability to bring prosperity and security to the Roman state and its inhabitants. Archaeologists are convinced that anyone who erected a statue of Salus must have had a cultured background.

## Central residential quarter of Mogontiacum

It has long been known that an affluent district of artisans and merchants was situated between the current Mainz district of Neustadt and the banks of the Rhine. More than a hundred years ago, the Jupiter Column was found here, and in 2019 archaeologists discovered an entire section of a Roman road. This major route into Mainz was once lined with magnificent villas that boasted amenities like water basins and underfloor heating. We now know that the area on Rheinallee boulevard has always been part of the city and has a history that goes back more than two millennia. While the Romans built a harbour for their war fleet adjacent to the old town of Mainz, Dimesser Ort served as a customs and trading port, which was used to supply the legions. This strategically important location on the Rhine made Mainz the capital of the Roman province of Germania Superior.



231 AD

**SAFE HAVEN**  
THE STATUE OF THE GODDESS SALUS DATES BACK TO THE YEAR 231 AND WAS SAID TO BRING PEOPLE PROSPERITY AND SECURITY.

## Am Brand

Even after the decline of the Roman Empire, Mainz retained its importance as a centre of trade and commerce. Frisian merchants established a large trading centre in the town, but it was destroyed in the great fire of 886. This tragic event inspired the name Am Brand (Brand = fire) for the area between the market,

## 14th century

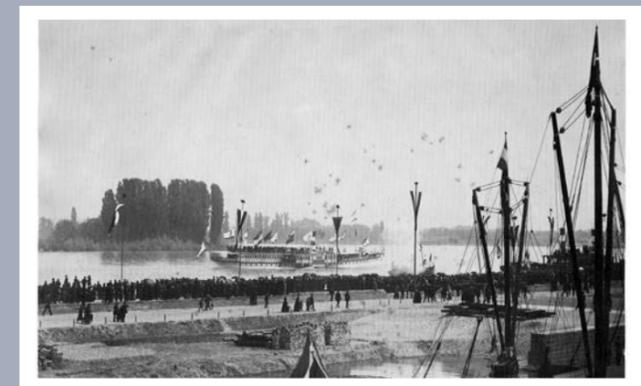
**KAUFHAUS AM BRAND**  
IN THE EARLY 14TH CENTURY THE CITIZENS OF MAINZ BUILT THE KAUFHAUS AM BRAND, ONE OF THE LARGEST AND MOST IMPOSING GOODS STORES OF ITS TIME.



1887

**FORMAL DINNER**  
THE DESIGN FOR THE FORMAL DINNER TO CELEBRATE THE INAUGURATION OF THE CUSTOMS AND INLAND PORT, DESIGNED BY THE ARTIST CLEMENS KISSEL.

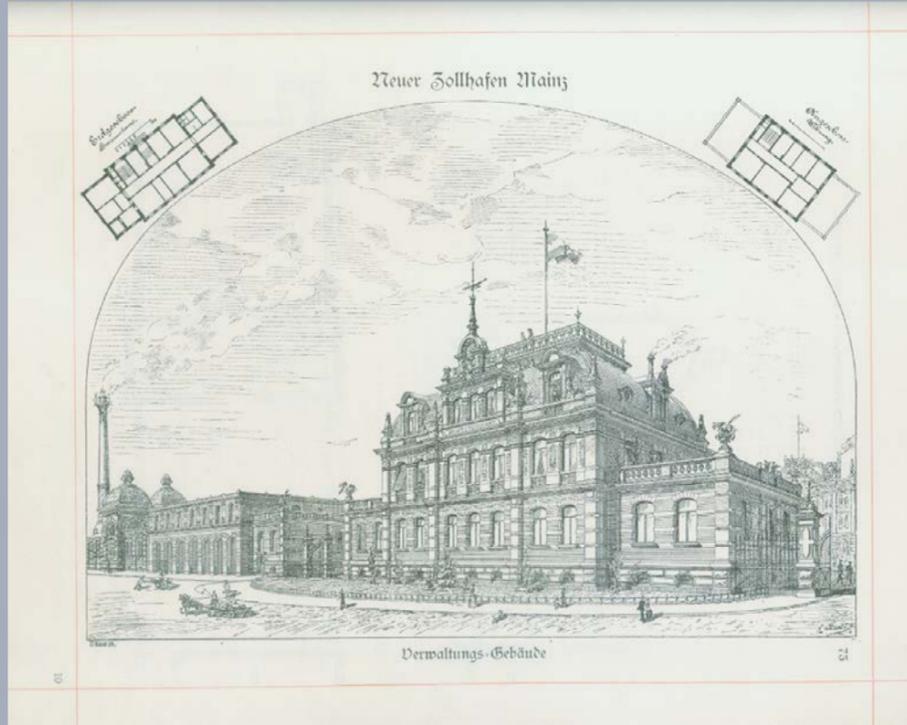
the town hall and the Rheingoldhalle. It was here in the early 14th century that the citizens of Mainz built one of the largest and most imposing goods stores of its time, with two storeys and nearly 900 square metres of floor space. Not only did the grand “Kaufhaus Am Brand” allow Mainz to control and tax all business transactions within the town walls, but the structure also served as a symbol of the city’s economic importance. In accordance with the staple right, which had been in force in Mainz since 1317, all goods transported by boat had to be presented for sale here for three days before they were allowed to be shipped onwards.



**OPENING CEREMONY**  
PHOTOGRAPH OF THE INAUGURATION OF THE CUSTOMS AND INLAND PORT ON 6 JUNE 1887.

### Construction of the customs and inland port

Successive wars and the repeal of the staple right in the early 19th century delivered a series of setbacks to trade until the construction of the customs and inland port transformed the city once again into a flourishing hub of commerce. When it was opened in 1887 according to plans by the city's urban planner, Eduard Kreyßig, it was considered one of the most modern free ports of the day. The five-storey warehouse on the tip of the southern basin was built so that ships could dock alongside it on three sides. Subsequent constructions included an administration building, the machine and boiler house, two storehouses, warehouses and, some-time later, the granary and wine store.



**1887**  
**URBAN PLANNING**  
 HISTORICAL DOCUMENTS WITH PLANS BY EDUARD KREYSSIG SHOW THE ADMINISTRATION BUILDING WITH THE BOILER HOUSE IN THE BACKGROUND.

### 1864-1896

**EDUARD KREYSSIG** WAS MASTER BUILDER TO THE CITY OF MAINZ IN 1864-1896 AND PLAYED A DECISIVE ROLE IN THE DEVELOPMENT OF ITS URBAN ARCHITECTURE.



As a visionary urban planner, Kreyßig set the course for the coming century. Under his direction, Mainz experienced a massive building boom that transformed it into a major construction site for several

decades and altered the character of the city. With his plans for the northern expansion of the city, he is considered the founder of Neustadt, which was designed in the style of Paris – with wide avenues and lush green parks. He modernized the water supply, installed a city-wide sewerage system and built embankments for enhanced flood protection. These improvements allowed Mainz, for the first time since the Roman era, to stem the recurrent epidemics that had plagued the city. Many of the historic structures in the city's grand old harbour fell victim to bombing raids towards the end of the

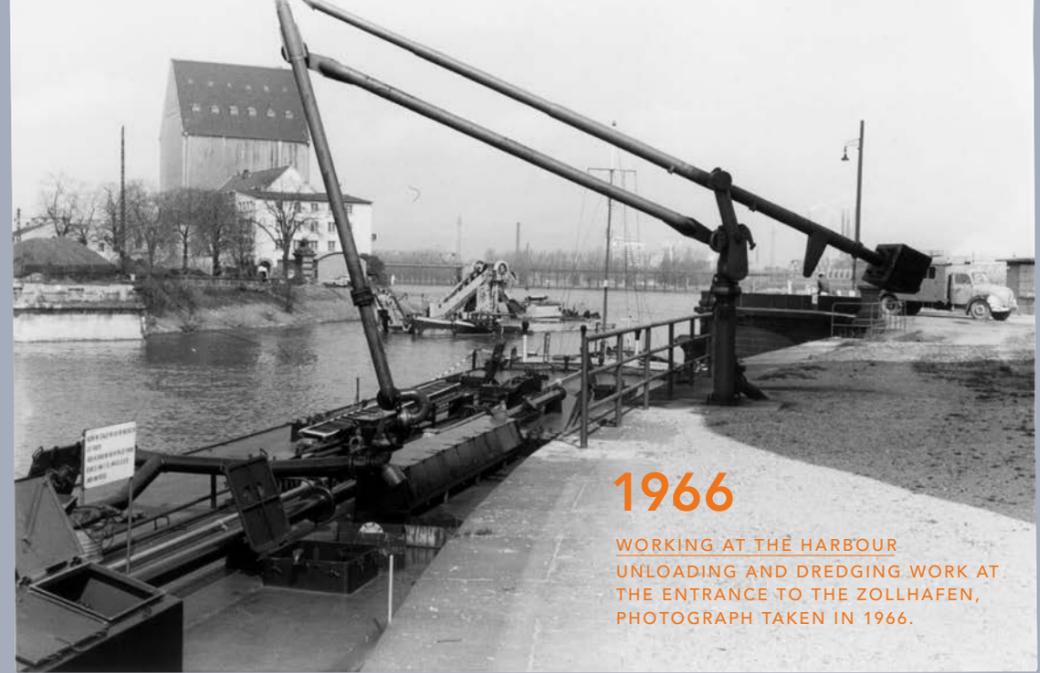
Second World War. 85 percent of the infrastructure was destroyed; only the wine store and the boiler and machine house survived the attacks.

### Conversion to a container port

The next radical change at the former customs port – and at all ports worldwide – was initiated by American shipping magnate Malcolm McLean, who revolutionized freight transport with his invention of the standardized container. In the 1970s, the customs and inland port was gradually converted into a container port.



**2008**  
**RELOCATION**  
 THE CONTAINER PORT IS MOVED FURTHER DOWN THE RHINE TO THE INDUSTRIAL PORT.



**1966**  
**WORKING AT THE HARBOUR**  
 UNLOADING AND DREDGING WORK AT THE ENTRANCE TO THE ZOLLHAFEN, PHOTOGRAPH TAKEN IN 1966.

The cranes gave way to large container bridges, rendering dockworkers, warehouses and storage facilities obsolete. It was a transformation that brought about new challenges. The heavy truck traffic through the centre of Mainz made life increasingly difficult in the city. Following a site analysis in the early 1990s and a raft of expert assessments, the future development of the harbour was clear. The container terminal was to be relocated further north, at the industrial port, where there was ample space and the possibility of further expansion of capacity in the future.

### A new residential and business district

This relocation left in its wake a valuable urban area in a central location with direct access to the Rhine, which today – just as in the Roman era – ranks among the most attractive residential and business districts in all of Mainz. The historic buildings that survived the war have been preserved and converted during the course of the area's development. The wine store now houses modern offices, while the former power station for the port has become the cultural landmark of the new quarter. Kunsthalle Mainz, which since 2008 has been housed in a converted brick building designed by Eduard Kreyßig, brings contemporary art and art lovers to the

### 2023

**NEW URBAN QUARTER**  
 THE ATTRACTIVE HARBOUR SITE HAS BEEN CONVERTED INTO A RESIDENTIAL AREA; THE KUNSTHALLE MAINZ ART GALLERY HAS MOVED INTO THE BOILER AND TURBINE HALL.



former customs port. In place of the mighty chimney that once stood between the boiler house and the locomotive shed, a narrow tower now rises into the air, leaning at an angle of seven degrees and designed by architect Günter Zamp Kelp. As an abrupt incision in the architectural biography of the former customs port, it marks the beginning of a new chapter in Mainz's urban history.

**1967**  
**CHANGING TIMES**  
 PHOTOGRAPH OF THE CUSTOMS AND INLAND PORT AROUND 1967 BEFORE ITS TRANSFORMATION INTO A MODERN CONTAINER PORT.



## QUARTER

Tree-lined avenues, small boutiques and independent cafés with thoughtfully assembled menus. Neustadt in Mainz is a cosmopolitan district with a similar flair to Berlin's artsy neighbourhood of Friedrichshain. As a new quarter on the banks of the Rhine, the Zollhafen has added the relaxing beach bar, an inviting harbour promenade and a splash of contemporary art.



# A THRIVING NEIGHBOURHOOD



1:  
**FETTE HENNE**  
THIS NEW CAFÉ ON GARTENFELDPLATZ, ON THE CORNER OF FRAUENLOBSTRASSE, ENTICES PASSERS-BY INSIDE WITH THE WAFTING SCENT OF FRESH CINNAMON PASTRIES, WHICH TAKES THEM STRAIGHT TO THE CAKE COUNTER. DELICIOUS SAVOURY TREATS ARE ALSO ON OFFER, SUCH AS THE VEGAN BREAKFAST AND LUNCH TAPAS

2:  
**GREEN, SO GREEN**  
ONCE PLANNED BY THE CITY'S VISIONARY MASTER BUILDER EDUARD KREYSSIG, NEUSTADT IS THE MOST POPULAR RESIDENTIAL QUARTER IN MAINZ, WITH ITS MANY GREEN SPACES AND AVENUES



1: A ROUND TOUR  
STROLL LEISURELY ALONG A CIRCULAR ROUTE THROUGH THE NEW QUARTER AND AROUND THE HARBOUR BASIN

2: OUTDOOR LIVING ROOM  
GARTENFELDPLATZ IS AN URBAN OASIS IN THE MAINZ DISTRICT OF NEUSTADT. THE SHADE OF HONEY LOCUST TREES IS ENJOYED BY CHILDREN AND OFFICE WORKERS ALIKE

3: MATTHIAS SCHMIDT  
FATHER AND RESIDENT OF KAUFMANNSHOF

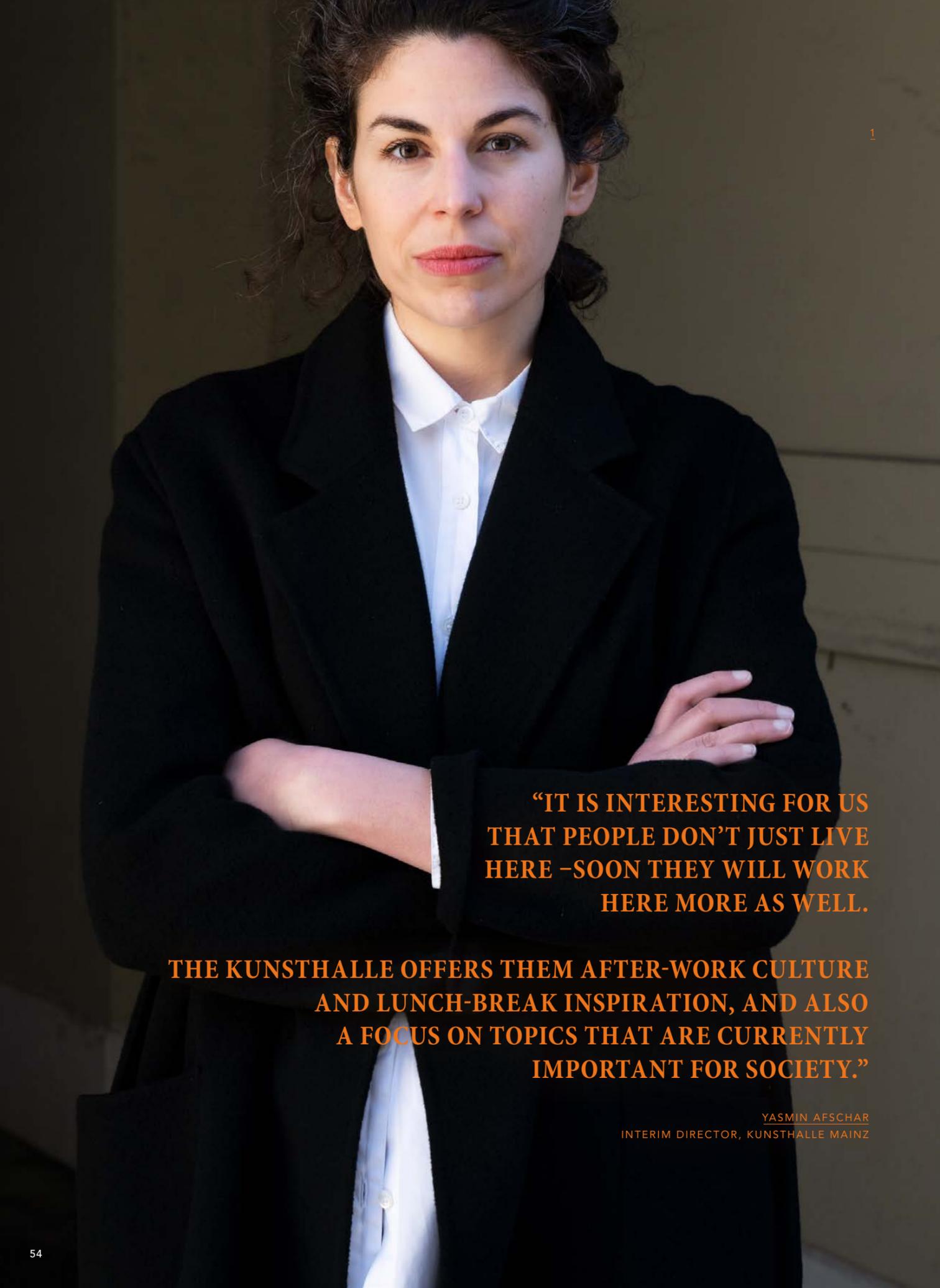
4: LIVING ON THE WATERFRONT  
WITH MAN-MADE WATERWAYS AND HARBOUR BASIN ON ITS DOORSTEP, THE KAUFMANNSHOF OFFERS A 360° WATERSIDE LOCATION



**“WE FELL IN LOVE WITH THE PLACE. THE QUALITY OF LIFE IS HUGE WITH THE RHINE AND ZOLLHAFEN, AND YOU CAN GO EVERYWHERE BY BIKE.”**

MATTHIAS SCHMIDT  
FATHER AND RESIDENT OF KAUFMANNSHOF





1

**“IT IS INTERESTING FOR US THAT PEOPLE DON’T JUST LIVE HERE –SOON THEY WILL WORK HERE MORE AS WELL.**

**THE KUNSTHALLE OFFERS THEM AFTER-WORK CULTURE AND LUNCH-BREAK INSPIRATION, AND ALSO A FOCUS ON TOPICS THAT ARE CURRENTLY IMPORTANT FOR SOCIETY.”**

YASMIN AFSCHAR  
INTERIM DIRECTOR, KUNSTHALLE MAINZ

1: YASMIN AFSCHAR  
INTERIM DIRECTOR OF  
KUNSTHALLE MAINZ

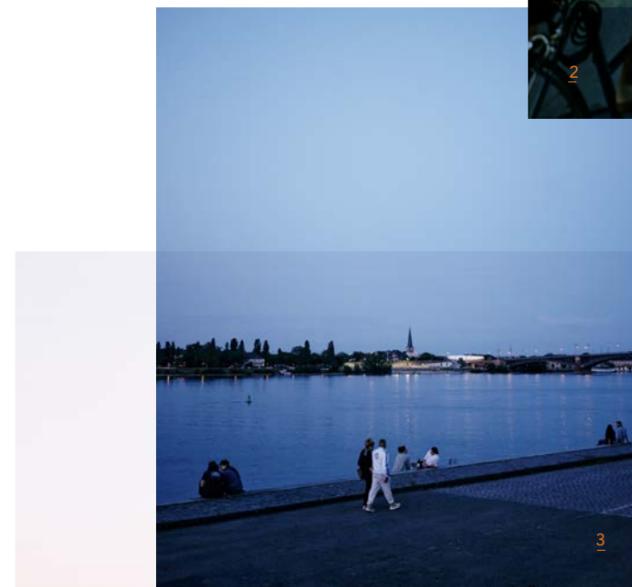
2: BICYCLE-FRIENDLY  
ZOLLHAFEN MAINZ IS DESIGNED AS  
A BICYCLE-FRIENDLY DISTRICT WITH  
EVERYTHING IN THE DIRECT VICINITY.  
BICYCLES ARE AVAILABLE FOR HIRE  
FROM NUMEROUS STANDS AROUND  
THE HARBOUR BASIN

3: MAINZ BY NIGHT  
THE HARBOUR PROMENADE HAS BEEN  
RECLAIMED AFTER BEING INACCESSIBLE  
FOR MANY YEARS

4: SHIP AHOY!  
THE RENOVATED QUAY WALL ON  
THE SOUTHERN MOLE IS A POPULAR  
MEETING PLACE FOR SUNBATHING,  
FISHING AND SHIP SPOTTING



2



3



4



“THE F.MINTHE IS WHERE THE PEOPLE OF MAINZ GO WHEN THEY AREN’T AWAY ON HOLIDAY.”



SOME MOTHERS SAY THAT IT IS THE BIGGEST SANDPIT IN MAINZ.”

ÖZGÜR IVECEN  
MANAGER, WATERSIDE BEER GARDEN F.MINTHE

1: SAND IN THE PIT  
THE PLAY AREA AT GARTENFELDPLATZ

2: BABY ON BOARD  
YOUNG MOTHER OUTSIDE KUNSTHALLE MAINZ

3: SANDY UNDERFOOT  
UNDER THE LONG ARM OF THE OLD HARBOUR CRANE, PEOPLE LIKE TO SPEND TIME ON THE ZOLLHAFEN BEACH. F.MINTHE OFFERS BEER AND WINE FROM THE SURROUNDING REGION, PLUS FRESHLY MADE SNACKS AND BOWLS

4: ÖZGÜR IVECEN  
MANAGER, WATERSIDE BEER GARDEN F.MINTHE AT THE ZOLLHAFEN



**1: BITING**

BREAM, BARBEL, PERCH AND ZANDER ARE CAUGHT IN THE RHINE HERE BY THE ANGLERS

**2: SITTING**

AROUND THE HARBOUR BASIN THERE ARE MANY PLACES WHERE YOU CAN TAKE A SEAT AND WATCH THE WORLD GO BY

**3: HANGING OUT**

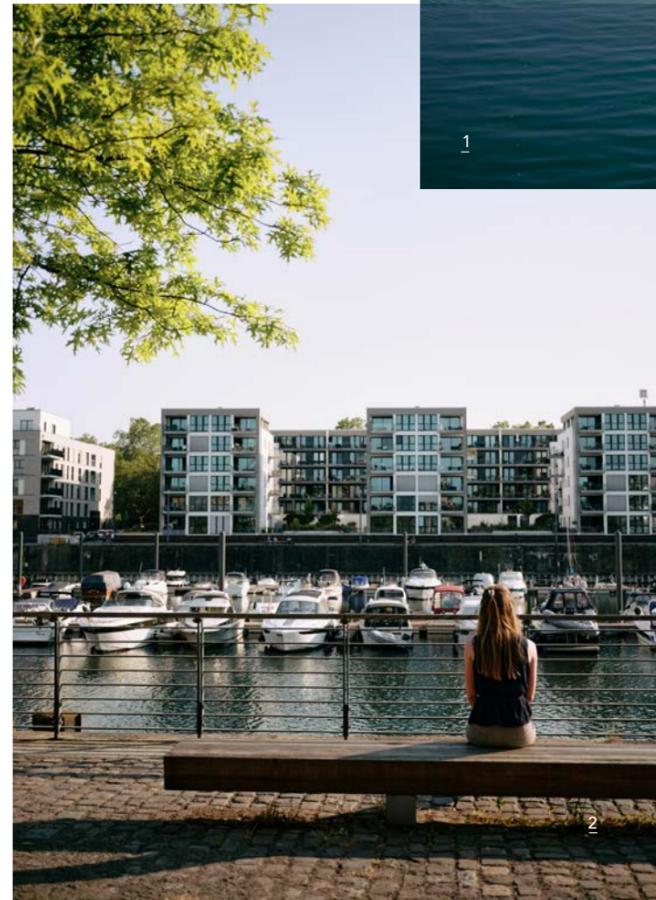
YOUNG PEOPLE NEXT TO THE WATER AT THE KAUFMANNSHOF APARTMENTS

**4: HILMAR HOENESS**

OWNER OF THE BOATING SCHOOL AND SUP SITE "ON WATER"



1



2



3

**“WHERE CARGO SHIPS ONCE DOCKED,  
NOWADAYS STAND UP PADDLEBOARDERS  
AND SAILING BOATS TAKE TO THE WATER  
IN THE NEW MARINA.”**

THE SUP SITE "ON WATER" IN THE ZOLLHAFEN OFFERS COURSES  
IN STAND UP PADDLEBOARDING FOR BEGINNERS AND ALSO BOARD HIRE.



4



**green.  
smart.  
and more.**

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