news

GROWTH

How we're getting fit for the future

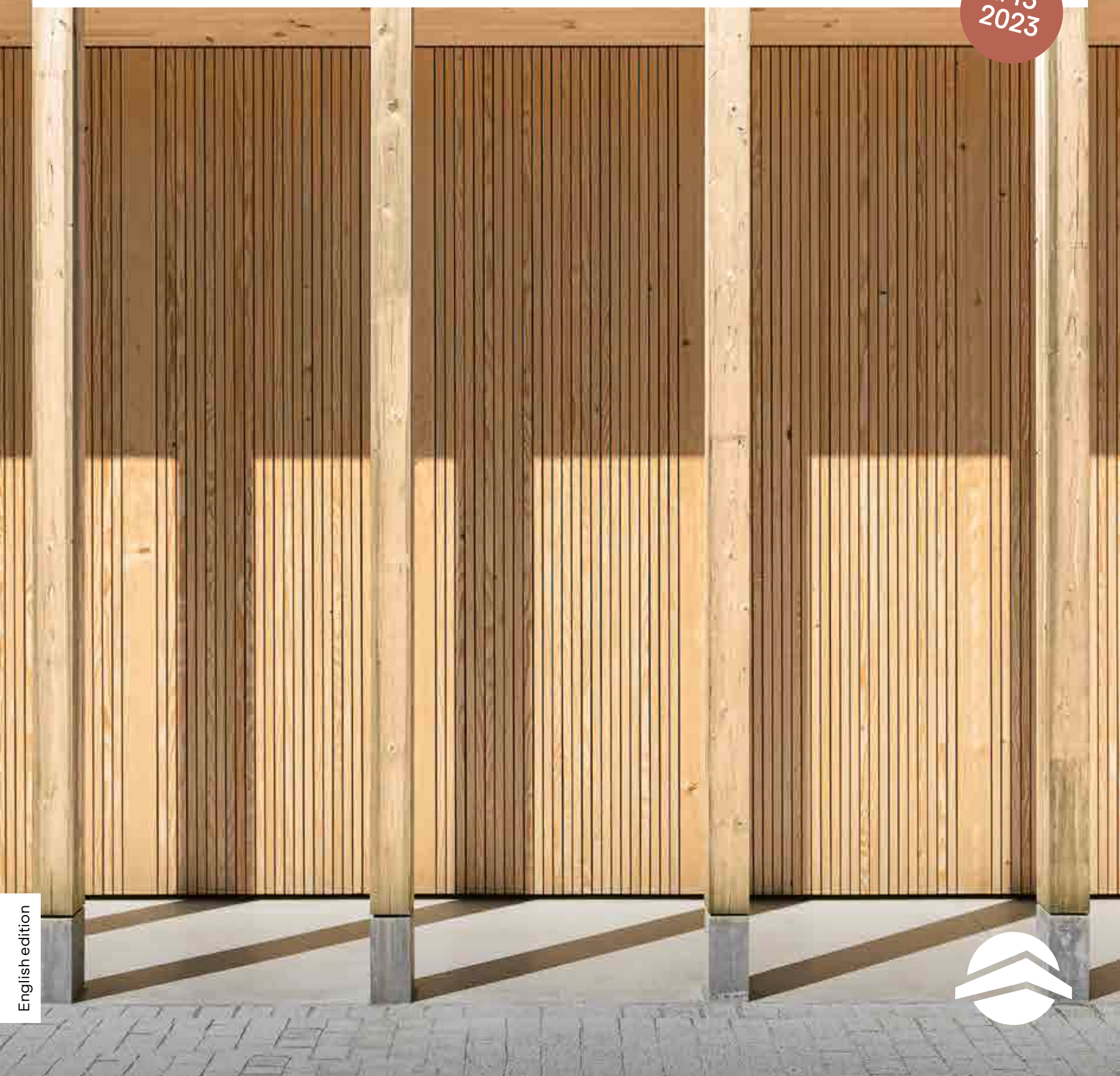
IMPACT

HORTUS: a pioneering project for sustainable construction

KNOWLEDGE

Integrated planning is targeted and efficient

#15 2023



English edition

‘We are Blumer Lehmann.’

DEAR READERS,

Not only have we been busy with our many exciting client projects; we have also been developing in new directions and ‘remodelling’ our company group. As of early 2023, all divisions now come under the same Blumer Lehmann brand. This simplifies our company structure and standardises both internal and external communications. It is now even easier to illustrate clearly how our products and services intertwine along the timber life cycle and work together holistically.

The collective brand name also means that our people at Blumer Lehmann can now grow even closer together – across all divisions and locations. This will most likely strike you from the very first leaf-through of this edition of News, as our magazine has a new structure and reflects our wider changes.

We are delighted to share with you the many different areas of the timber industry and timber and silo construction that have kept us thinking and moving forward over recent months.

This edition gives you detailed insights into pioneering sustainability projects, subjects such as parametric planning or integrated project development, and some internal highlights. We’ll also take you with us to our construction sites, including to Toggenburg, the Red Sea and Scandinavia. And we will introduce you to some of our employees, who are very used to thinking outside the box and really digging into their work.

We hope it’s an inspiring read.

Katharina Lehmann
CEO at Blumer Lehmann

In this edition, we focus on sustainable construction projects, staff development and strategies for our future.

In this issue:

Join us on a visit to the construction site to take a look at our projects.

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Fit for the future

Timber construction has been booming for years and projects are growing ever larger. We want to help shape this development and orient ourselves toward the future. Our CEO Katharina Lehmann on meaningful growth, the company's 'fitness regime' and our commitment to sustainability.

How does Blumer Lehmann approach growing demand at home and abroad?

We are constantly developing our expertise – as well as our products and processes – in the timber industry, in modular construction, in Free Form work, and in timber construction and silo construction. With our ongoing investment projects at our Gossau site, we are creating the necessary infrastructure for this. In doing so, we are bringing the module production facilities – at present partly located elsewhere – back to our Erlenhof site allowing us to once again accommodate all our employees in Switzerland in one location. This consolidation also allows us to optimise our processes, and improve our service range and infrastructure for our apprentices and assembly specialists.

Our stated goal is still to maintain our identity as a Swiss company while making ourselves competitive on an international scale as well. In addition, we make our added value as accessible as possible to clients wherever it makes sense. In doing so, we also minimise transportation costs and therefore carbon emissions, particularly in element and modular construction. This was the reason for commissioning our production facility for timber and modular construction in Großenlüder, Germany. And we are continuing on our current path. We will continue our targeted investment in staff and infrastructure at our other locations as well, and channel our specialist knowledge in silo construction and Free Form into projects around the world.

And not to forget the new office building we are planning at our headquarters, with over 150 workstations! This will provide our employees in sales, project development and planning, project management, services and management the ideal work environment for even closer cooperation.

We are now a team of around 450 timber specialists and other highly trained professionals, all working hard for our clients and projects at home and abroad.

How does the company manage to stay so innovative?

The drivers of innovation are beyond doubt our clients, who present us with new challenges through their ideas and commissions. And we are open and curious towards tackling these challenges. In everything we do, we are excited about advancing timber as a building material, pushing the boundaries and, in doing so, discovering new solutions. We are ideally equipped to do this with our employees and their expertise across all the disciplines, which they continue to cultivate every day. This includes sales, project planning and development, production, logistics, assembly and the contributions made by many other specialists. Only the interplay of all these disciplines can lead to a perfect result. Our aim is to foster and cultivate this expertise throughout the company even more with our in-house Blumer Lehmann Academy. And, naturally, the strong Swiss franc pushes us to stay dynamic and to optimise costs and processes.

> 'In everything we do, we are excited about advancing timber as a building material, pushing the boundaries and, in doing so, discovering new solutions.'

> 'We no longer think in terms of individual disciplines — timber industry and timber construction — but instead in terms of combined added value and a fascination with wood.'

Blumer Lehmann has seen sustained growth over recent years. What growth targets has the company set for itself?

We don't want growth at any cost, but instead make decisions that help enhance our locations as well as increasing added value and client benefit. We also respond to current developments in the world of timber. On the one hand, timber is booming because it can contribute significantly to the decarbonisation of construction. On the other hand, timber is unbelievably well-suited to prefabrication, which gives us as a company the edge in both production and efficiency. As a result of these trends, we have decided to grow in our added value, with our processes and with the resources we have available. This will allow us to master larger projects and order volumes. The acquisition of the oa.sys company in Vorarlberg, with its powerful team, also took place with this aim in mind. It has allowed us to expand our offerings for the construction of large-scale residential and commercial properties.

So Blumer Lehmann is growing as a whole. Yet its component parts are also moving closer together?

Yes, this is also demonstrated by a combined presence under the Blumer Lehmann brand since the start of the year. We no longer think in terms of individual disciplines – timber industry and timber construction – but instead combined added value and a fascination with wood. This is why many of our investments at Erlenhof can only be identified from a holistic viewpoint. They form the foundation on which the entire company is being developed – all divisions and all locations.

And how do the sustainability goals fit in with how Blumer Lehmann is developing?

Ultimately we are committed to making the right decisions when it comes to overall impact – whether in relation to climate impact, protecting resources, energy consumption or social and economic sustainability.

In matters of environmental sustainability, we look at overall operations, at our overall balance of services provided, and at our products and buildings. We measure our emissions and improve our performance on an ongoing basis. And we document the products we create so we can communicate transparently. We are helped in this, of course, by the facts that we work with a local, renewable raw material in an integrated value chain, and that we understand the overall system and minimise transportation. Our vision remains: round timber is delivered to us, and whatever is left over at the end is dispatched as energy through the power lines. The word waste is not in our vocabulary.

Blumer Lehmann Academy

Lifelong learning and specialist knowledge are a top priority. We also need to continually expand our expertise in all areas of wood in order to stay innovative and meet market demand. Hence the Blumer Lehmann Academy: to foster the skills and potential of the people in and around our company, across a variety of levels.
This includes the following three cornerstones:

Apprenticeships
As a training company, we offer apprenticeships for young people. The objective is to foster technical, personal and social skills. In addition, we also train people in the foundations of specialist professions and activities 'on the job' as part of our in-house professional training.

Blumer Lehmann offers the following four apprenticeships:
– Carpenter EFZ
– Timber Industry Specialist EFZ
– Woodworker EBA
– Draughtsperson (specialisation in architecture) EFZ

The next 'Bock auf Holz' (Thirst for timber) information sessions about apprenticeships will take place on 8 and 29 November 2023 at 4 pm at our Erlenhof site.

Register online at
↳ blumer-lehmann.com/en/events/bock-auf-holz-infoanlass

Training for partners and clients
Specific training, workshops and tours for students, apprentices and business partners.

We also strongly believe in training specialist cohorts from different apprenticeships as well as students, timber construction technicians, engineers and architects. Our experts in planning, architecture and engineering provide students and anyone else interested with a more in-depth exploration of timber construction knowledge via tailored workshops over several days, lectures or tours, for example.

Kai Strehlke, Head of Digital Processes and CAD/CAM, evaluates the models planned and produced by students from ArchitekturWerkstatt in St. Gallen.

Training and support
Development and career planning for specialist and management pathways for existing employees.

We support development and career planning for our employees for their specialist and management pathways. Annual staff evaluations serve as a foundation for this. Supervisors and employees decide together if and when specialist and social skills will be fostered and supported financially through internal or external training programmes.

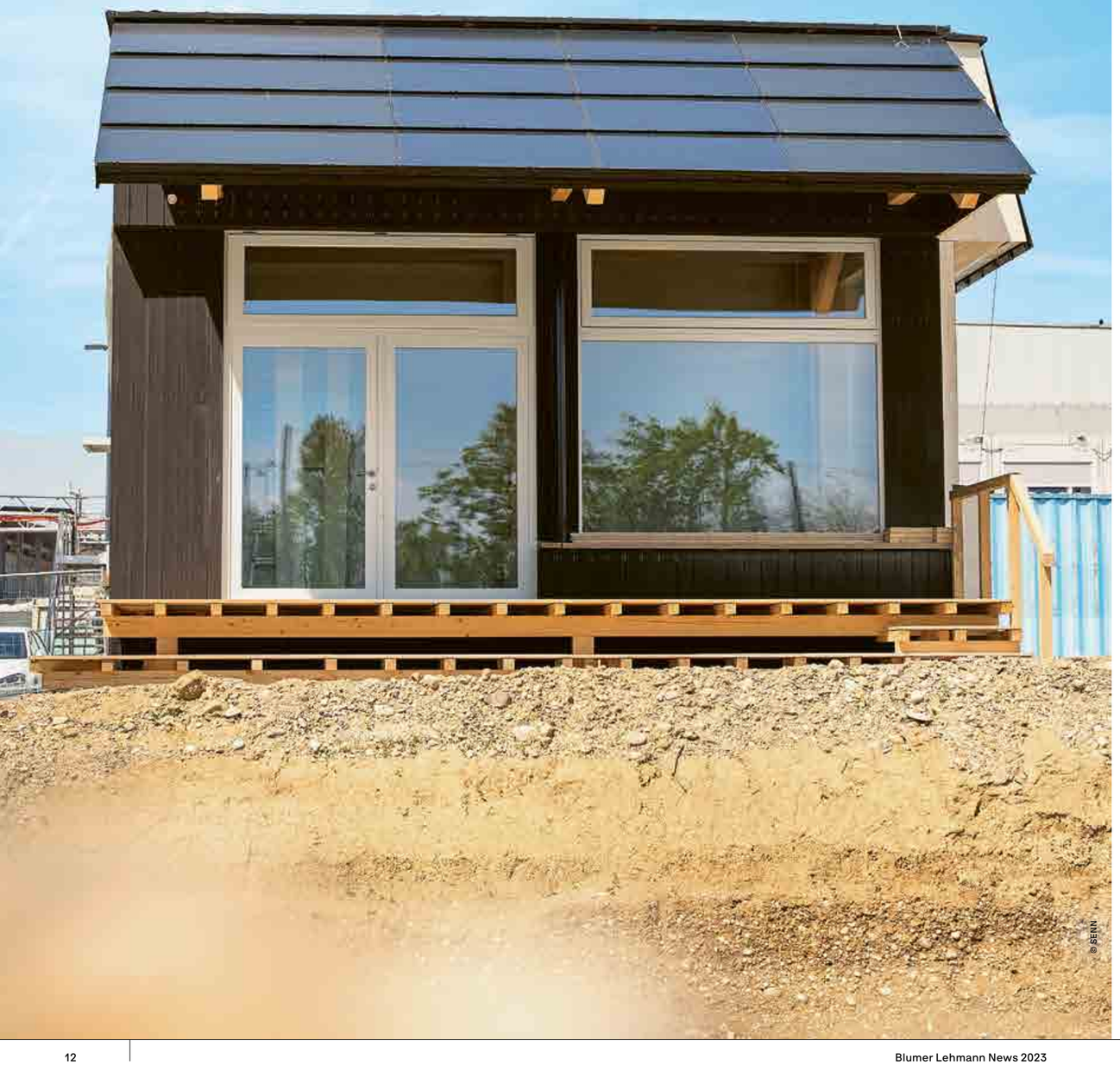
A focus on training was front and centre on our big 'We Are Blumer Lehmann Day'. Florian Koller, Assembly Team Manager, shows his team how to use an MKII loading system correctly. This system is used to keep people safe when unloading modules and elements.

We Are Blumer Lehmann Day 2023

In early July, employees from across all our locations got together at Erlenhof in Gossau to discover new things, grow together and celebrate across borders, locations and divisions.

House of Research, Technology, Utopia and Sustainability

HORTUS



© SENN

HORTUS – developed by SENN, © Herzog & de Meuron

Allschwil, timber and modular construction

A pioneering project for sustainable construction, HORTUS researches how native, regional materials perform in modern applications. The renaissance of clay and solid timber for building.

Digital and technology firms will find the ideal working environment in HORTUS and will benefit from the interchange with each other and the life-sciences industry nearby.

Long before construction starts on the BaseLink building site in Allschwil, our project manager Martin Eggenberger already knows that more than 4,000 crane motions will be necessary to erect the shell of the future office building. He knows this because part of the comprehensive project development process is a reliable assembly concept and a mock-up that supports the choice of materials, specifies the architecture and defines production processes. ‘The size and dimensions of the building are remarkable. Every parameter and every step must be synchronised: the construction programme, production speed, logistics, assembly concept with weatherproofing, and the organisation of the assembly processes, the rhythm of which is largely determined by the crane. Ultimately, it is the painstaking planning of these processes down to the smallest screw that will ensure we deliver the expected quality reliably and on time.’

Always transparent

This fundamental principle is even more crucial than usual for the project on the BaseLink site in Allschwil because HORTUS explores new avenues and shows the way forward. The pilot project sets new standards with its sustainable construction approach using natural materials from the region. The client SENN, together with Herzog & de Meuron architects and the engineers at ZPF, laid the foundation for the climate-friendly office building covering around 10,000 m² of floor space. At Blumer Lehmann, we were on hand with advice early on in the process with our timber construction expertise. Once planning was complete, we were able to deliver answers to structural questions and material choices in an initial stage involving a 3 × 6 m full-storey mock-up. For the client, it is hugely important that the origins of any timber used are fully transparent. Project manager Martin Eggenberger: ‘In total we are using around 3,000 m³ of local Swiss wood. We secured procurement back in the autumn of 2022, in collaboration with

↖ A full-storey mock-up helped to resolve structural questions and material choices early on.

← HORTUS sets new standards for sustainable construction with components made from natural materials subject to circular processing.

five saw mills and 30 forestry districts, to ensure that the wood could be felled in time and delivered via short transportation routes.'

Sustainability of the highest standard
The principles of a circular economy, cradle to cradle and second life played a large part in project development in terms of the building materials used. The aim is for every component to be removable, so when the lifespan of the building comes to an end, they will either be returned to the forest or reincarnated for a second use. But for the HORTUS project, sustainability goes at least one step further. It builds with materials that have been left as pristine as possible and are largely unprocessed. As a consequence, plenty of solid wood and only minimally glued laminated timber is used. Beech wood available locally is used instead of the usual spruce for constructions subject to high structural load. The ceilings are made with specially developed wood-clay composite elements, three quarters of which are made up of material excavated on the building site. And the energy supply is maximised using a photovoltaic system on the roof and façade. This means that within one generation, the building will offset the embodied construction energy consumed and become energy positive.

Customisable rentals
HORTUS is scheduled to open in 2025. Digital and technology firms in particular will find a convenient and healthy working environment here, and will benefit from the interchange with each other and the life-sciences industry nearby. A corresponding rental concept involves fitting out the rental spaces in a raw & ready style. Tenants can then arrange their own room dividers and interior decor as needed. HORTUS complements this by providing fully equipped communal spaces like a lounge area, meeting room and sanitary facilities.

The components for the building were as unprocessed as possible, with plenty of solid and deciduous wood and little laminated timber used.

Sustainability in focus

Clay – traditional building material for contemporary use
Together with the company 'Lehm Ton Erde', Blumer Lehmann developed a field factory where the wood-clay composite elements for the floor elements were manufactured on-site in tents. The joint venture took up operations in late summer on a free construction space alongside the building site.

How does that work exactly?
The formula for the rammed earth mixture was created by 'Lehm Ton Erde'. It consists of 76 % local excavation material from the construction site and 24 % local marl. To create the final mixture, the individual parts of the mixture were sieved and broken up and laid ready near the field factory, protected against the elements with tarps. A wheel loader mixes the excavated material with the marl every two weeks and puts it into its final state. The finished mixture of earth is then decanted into the prefabricated timber elements via two specially developed mini feeders and compacted to rammed earth using plate compacters. In total, around 3,000 tonnes of earth mixture was processed into rammed earth for the 12,000 m² ceiling area.

The rammed earth protects the three-layer board above it against fire. The elements were submitted to a fire test and are REI60-certified; this means they guarantee 60 minutes of fire and smoke resistance. The mass of the rammed earth is noise insulating and levels out temperature. The porous surfaces balance out spikes in humidity and regulate the indoor climate: timber and earth are the perfect pairing in this ceiling system.

Beech and spruce
The aim of the project is not only to procure construction timber from the local area, but also to process it without glue as far as possible. This is no mean feat when it comes to the static demands on a timber structure. Hence why beech wood is also used alongside the traditional spruce wherever necessary. Beech is widely available in the local area and is also able to withstand high loads. The challenge comes from beechwood being more difficult to process due to its hardness, and its reaction to humidity is more marked than spruce.

↳ blumer-lehmann.com/hortus

Luxury in timber on the Red Sea

Saudi Arabia, Free Form

The gigantic new tourist destination ‘The Red Sea’ is finding form. More specifically: many contoured and double-curved Free Forms. Timber expertise from Eastern Switzerland is creating luxury hotels on the Red Sea with beach villas, restaurants and a golf clubhouse.

Construction work is running at full speed on the west coast of Saudi Arabia to build the regenerative luxury travel destination ‘The Red Sea’, with a total of 50 hotels, 8,000 rooms, around 1,000 residential buildings and its own international airport. Since back in 2021, Jephtha Schaffner has been in charge of planning, production and supervision of assembly for our timber construction projects at this tourist destination. This includes 178 holiday villas, four restaurants and a bar, a spa, a gym, a day nursery, an aquatic centre and two reception buildings for the ‘St. Regis Red Sea Resort’ and ‘Nujuma, a Ritz Carlton Reserve’ hotel complexes on Ummahat Island, as well as the golf clubhouse on the main island of Shura. ‘All told, the building projects meant we were dealing with a new level of complexity in terms of geometry and construction design using double-curved components,’ Schaffner says, describing the challenges of the gigantic construction project, adding: ‘And we had to find a way to work around the tight time frame, the cultural differences and the enormous project organisation on the construction site.’ →

One of the luxury buildings forming part of the new tourist destination ‘The Red Sea‘ is the golf clubhouse with its Free Form roof on Shura Island.

A challenge on all counts: the roof of the golf clubhouse with double-curved components weighing up to 2 tonnes.

Free Form clubhouse roof on Shura Island

Shura Island is at the heart of the new destination 'The Red Sea'. 11 resorts by international luxury hotel chains, a marina, shops and clubs as well as an 18-hole golf course are being built here. The clubhouse for the golf course, located directly on the shore, was designed by the architects at Foster + Partners. This beautifully proportioned group of buildings with a restaurant, reception, golf shop and changing rooms is due to open its doors in 2024. Until then, our project team will tackle the challenge of erecting the building with its exceptional roof made of five contoured leaf-shaped sections. Our contract includes not only production and delivery of the components but also on-site assembly.

The 664 roof beams made with laminated timber – each one unique in both shape and size – are a challenge to assemble, alone because of their double-curved shape and the enormous dimensions of the components. Laid end to end, the 20 roof beams stretch to a length of 200 m. The largest component for the clubhouse weighs 2 tonnes. And the technical connections necessitated by the statics use around 20,000 connectors, such as screws or steel plates, per roof structure and require specialist expertise – plus, if nothing else, stamina for the assembly process.

> Enormous shell-like components and double-curved designs — skilled craftsmanship and precision work were required for the assembly.

'All-day dining' on Ummahat Island

On Ummahat, the team is busy creating the reception building for 'Nujuma, a Ritz-Carlton Reserve'. Six structures in extravagant shell-like designs form the central body of the building. Two smaller, enclosed buildings house an all-day-dining restaurant and form the central hub of the hotel complex. Two larger buildings with translucent roofs serve as lounges. Four additional shell-like structures are home to the kitchen and toilets. Here, too, the dimensions of the enormous components with their double-curved design require plenty of skilled craftsmanship and precision work for the assembly.

The Nujuma Resort beach villas are arranged in a circle, and at their heart stands the all-day-dining restaurant with its six shell-like buildings.

Island getaway in an unparalleled natural setting

Foster + Partners created the design of the 82 beach villas in Nujuma, a Ritz-Carlton Reserve with shell-like roofs, and chose a lightweight timber architecture to conserve nature.

↳ blumer-lehmann.com/nujuma-a-ritz-carlton-reserve

St. Regis Red Sea Resort by Kengo Kuma: inspired by the islands, Kengo Kuma designed the 90 villas as low-rise beach houses with gently contoured roofs, and as spiral-shaped water villas.

↳ blumer-lehmann.ch/st-regis-red-sea-resort

The end-to-end process chain

On parameters, geometries and three-dimensional models. And how parametric planning is lifting architecture and timber construction to a whole new level.

URSULA FRICK

... sees parametrics as the ideal fusion of her two fields of study: construction engineering and architecture. She has been at Blumer Lehmann since 2017 and works with her team to develop expertise on all aspects of parametric planning as well as taking care of a wide variety of tasks ranging from project development and consultation in the early stages to creating bespoke geometries for production. 'Maggie's' in Leeds, her first project for Blumer Lehmann, and 'Sunflower', a sculpture created from her own architectural designs, are particularly close to her heart.

Free Form timber sculpture 'Sunflower'
↳ blumer-lehmann.com/sunflower-india

Maggie's Centre Leeds
↳ blumer-lehmann.com/maggies-centre-leeds

Free Form projects like the tourism structures for The Red Sea, the new Swatch building in Biel, Maggie's visitor centre in Leeds, and the Cambridge Mosque have demonstrated that almost no design is too unusual to be built. Ursula Frick, Head of Geometry and Parametric Planning, explains what it means to model and program geometries and to set up a system of rules through functions or construction principles.

What exactly is parametric planning?

In contrast to traditional CAD planning, which we use to draw plans, in parametric planning we program using a three-dimensional model. This means we are creating a system of rules – for example for an arched beam – by describing it using functions, parameters or construction principles and defining its position in the building, its curvature, connections to other components, etc.

What are the main distinguishing features of a parametric model?

Practically speaking, it involves digital 3D models that accurately define all elements, joints and connections of an architecture project subject to the given parameters. This allows us to create an end-to-end digital process chain that links the CAD design of the building directly to computer-aided CAM production. The result is precise individual components that fit together perfectly. Without parametric tools, it would be virtually impossible to execute highly complex structures such as the Swatch building.

When is parametric planning useful, or even necessary?

First you ask yourself if a configuration is random or follows a rule. If the rule can be identified, then the component or building can be parameterised, making it modifiable and adaptable. An example of this is our current project, the St. Regis Red Sea Resort, with its spiral-shaped villas and buildings with an arched design. The logic of the roofs is similar across all the structures, but the dimensions and shapes are different. So we program the basic principle – how angles and spans relate to each other – and apply this to the 200–300 different components. This saves an enormous amount of time.

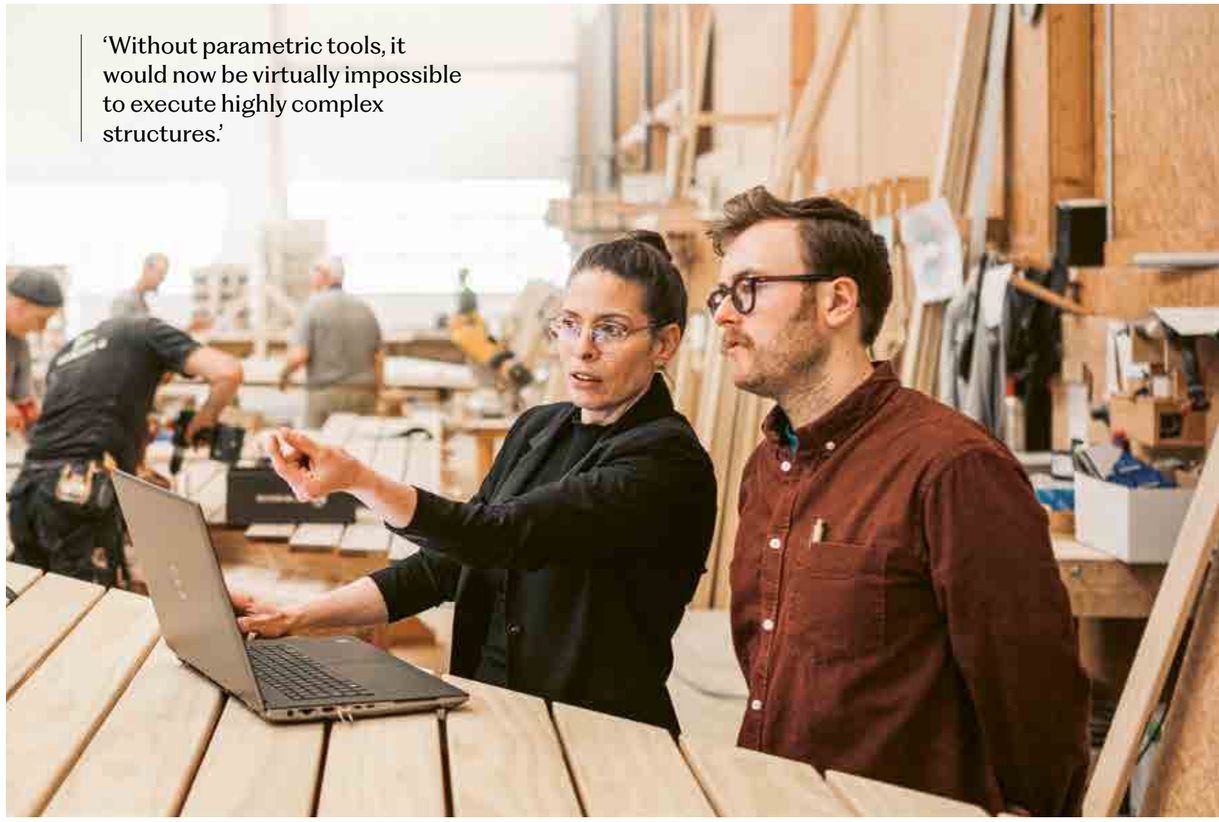
How does timber construction benefit from parametric planning?

We are able to link up the information digitally, from the design to the production data. This means not only that our 3D models can be created with greater precision and efficiency, but the data can also be optimised for each individual machine. We can also carry out adjustments and incorporate information into the digital plans much more quickly, for example for transportation, segmentation or the assembly sequence. For the roof of the golf clubhouse in 'The Red Sea' project, for example, we designed a digital model that covered all the elements necessary for planning – from the axis model to static calculations all the way to detailed connection points. That means that the 20,000+ connectors in one roof element, for example steel plates and screws, were already marked out in the model.

Does the process change from design to production?

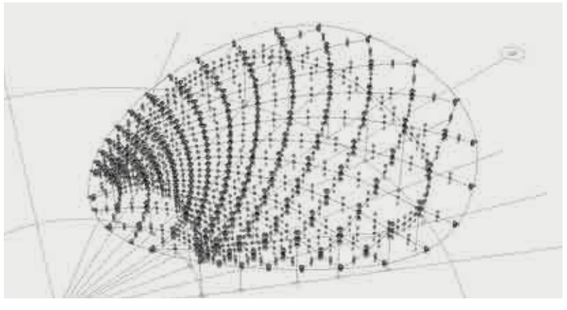
Many architects also use parametric planning tools. So their designs are already passed to us as 3D models. Or they go another step further and provide us with so-called geometry or design method statements. These describe the geometry with its system of rules, for example the underlying logic in relation to basic form and proportions. We then use this rule system to build our own 3D model, make any necessary adaptations and use it to generate optimised data for CNC processing.

More on parametric planning and programming:
↳ blumer-lehmann.com/advanced-geometry-services



'Without parametric tools, it would now be virtually impossible to execute highly complex structures.'

Ursula Frick, Head of Geometry and Parametric Planning in conversation with team member Bertie Hipkin.



Axis model of the golf clubhouse.

The rule system for the golf clubhouse at the Red Sea resort

Our team was able to create a complex parametric model using the geometry method statement from Foster + Partners. This supported efficient planning of the clubhouse roof, from a very detailed statics model and exact modelling of all beams and their segmentation to the more than 20,000 pre-defined connectors in the roof support structure, such as steel plates and screws. Our contract includes not only planning, production and delivery of the components but also assembly.

Precisely constructed

Heilbronn (DE), timber and modular construction

In Heilbronn, more space is given to innovative work. The transparent architecture of the Innovationsfabrik 2.0 is striking in its simple appearance, thanks to a timber structure visible from both inside and out. Yet the implementation is far from simple.

> The presence of wood throughout creates a comfortable and natural atmosphere for people using the building.

The Zukunftspark Wohlgelegen in Heilbronn is being augmented with a new cube structure built in timber, with office space for start-ups and other innovatively minded enterprise. The layout concept also envisages that spaces will see diverse use – as workshops, studios and for new work environments. The five-storey building known as 'Innovationsfabrik 2.0' is to be built as a new replacement structure at a very high-profile location in Heilbronn, between the WTZ Tower and Neckarufer Park.

The stand-out feature of the Innovationsfabrik is not just its noteworthy location, but also the amount of timber used in the build as a renewable, reusable and recyclable raw material, a feature of the pioneering façade design with its striking V-shaped diagonals. The timber structure is not covered here by façade formwork, but is instead deliberately left exposed in order to underline the resource-conserving architecture. The visibility of the natural materials and its demonstration of connectedness to nature thus constitute an architectural statement on a variety of levels.

Encountering wood, both inside and out

The visuals of the Innovationsfabrik 2.0 are a symbol of how the modern spaces inside are used: the guiding principle of fostering scientific exchange is embodied in a sustainable and transparent architecture. This concept is not only visible from the outside, but is sustained in the interior of the building. The wooden beams of the structure can also be seen in the light-filled meeting and social areas and are a core element of the interior design. This presence of wood throughout creates a comfortable and natural atmosphere for people using the building.

The structure of the timber-hybrid construction with its V-shaped façade supports is reminiscent of half-timbered buildings and serves to brace the structure. This means there is no need for bracing walls inside the Innovationsfabrik, which allowed the room layouts to remain incredibly flexible. A high level of prefabrication of the timber elements also resulted in short planning and construction times.

Implementation of the structure, with its V-shaped façade supports, needed to be technically faultless and highly precise because even the tiniest of inaccuracies could have amounted to huge discrepancies. It is precisely these challenges of timber construction that stimulate and inspire us in our work. Our project team has already completed its work on time. The Innovationsfabrik is due to be ready for use in early 2024.

↳ blumer-lehmann.com/innovationsfabrik-heilbronn

The V-shaped timber supports make the resource-conserving architecture visible far and wide and create a façade that fits with the open nature of the Innovationsfabrik.

© Fotos: Stadt Heilbronn/Innovationsfabrik Heilbronn

Efficient and targeted

When developers, architects, specialist planners and contractors get together early on to develop a project, everyone benefits from a targeted and cost-efficient solution. Markus Rutz, Division Manager of Timber and Modular Construction at Blumer Lehmann CH, explains why integrated planning reflects a contemporary approach to construction.

Markus Rutz, what approach does integrated planning take?

In contrast to conventional planning processes, the planners work together with the people carrying out the work in an integrated project team right from the start. Everyone involved works together to design and develop the upstream and downstream processes and integrate what needs to be ordered, planned and built. This ultimately results in a financially sound project with optimal cost-benefit ratio. Not just that: it also avoids idle times – that is, planning stages that need to be repeated – because no-one noticed in time that the cost of any planned implementation would be too high.

Which models of cooperation are best?

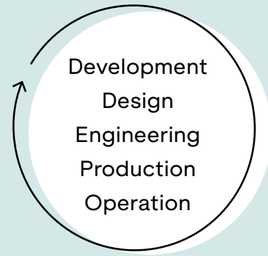
We often take part in general contractor competitions that look for a contractor to function as a full-service contractor (FSC) to coordinate an entire project. A starting point could be, for example, an area-wide project for a site with defined use. For competitions like this, we work together with architects and specialist planners from our network. Where we are awarded the FSC contract, we bring on board all the necessary subcontractors to carry out the project.

A more recent approach to working together is the working group. This is where the client takes a leading role and assigns specific implementation packages. In St. Gallen, we recently won the working group competition for the innovative 'FABRIK.SG' project, a vertically-interlinked commercial building with modern workstations for industry and commerce. We won the judges over with our proposal for the building shell that included costings and was developed together with Blumer Techno Fenster AG and merz+egger ag. Whether it's full-service contracting or a working group, so-called design & build models bring together the planning and implementation stages of a building project. Everything is developed in an integrated project team, with the expertise and detailed know-how of the construction process already forming part of planning.

> 'The question must always remain: what is best for the entire project?'
>
> Markus Rutz, Division Manager of Timber and Modular Construction at Blumer Lehmann CH

Integrated project development

Design & build
Integrated project delivery
Single-phase



Source: thebranch.ch

The design & build process model guides the client and contractors from the start in a collaborative process through the entire project.

What are the key factors that allow a building project to be planned in an integrated way?

A team needs to be made up of companies that take an active role and want to see the bigger picture. This is because, in addition to each party's own services, it is also necessary to coordinate interfaces, optimise across disciplines and keep the goal in mind. The question must always remain: what is best for the entire project? On the other hand, the client needs to formulate the project aims and parameters clearly so they have the backing and development input of the whole team.

What part do contractors play in project development?

Contractors are involved early on to support conceptual decision-making. This stage involves selecting specific building grids, shaft spaces or floor plans, proposing cost-efficient span widths and making early determinations on the construction of external walls and ceiling and roof structures. In doing so, we always see things from the perspective of the client and keep a constant eye on ease of production and assembly.

And how does the client benefit from contractors being part of the process from the start?

We work together collaboratively and have the same objective: we want to hit on the best solution quickly and avoid idle time. If the client has the people who carry out the work sitting around the table from the start, then all pertinent issues are sure to be resolved because the expertise from planning, construction and operation are pooled early on. For the client, this gives them the certainty that the building can be planned, produced and assembled within the given time frame. A similar process can also often be used for contracts awarded by public bodies – all with great transparency throughout the construction process. And as the firm carrying out the work, we also have the opportunity to work directly with the client and understand their requirements better. We are able to take on more responsibility in the project and steer it in the right direction.

SKILL

© Nightnurse Images

© Ralph Brühwiler

Wood hits the right note

Wildhaus, timber and modular construction | Free Form

With the ‘Klanghaus’ (Sound House), Klangwelt Toggenburg is getting its own musical and architectural centre. An accessible sound box made from Toggenburg wood, it provides space for events showcasing natural tone music.

The Klanghaus is being built as a dedicated space for the music that belongs to Toggenburg as a living cultural asset. The aim is primarily to provide a space for natural tone music and professional or amateur musicians. The location of the Klanghaus – standing above Unterwasser at 1,200 metres above sea level and on the banks of Schwendisee lake – and its architecture and acoustics represent a great challenge for planning and implementing this construction project.

Tonewood

Wood plays a central role in the Klanghaus. ‘The wood brings out the sound of the architecture – auditory, visual, but also tactile – for example when the resonance spaces are made to vibrate through stamping on the oiled oak parquet,’ so write the authors of the chapter ‘Virtually an instrument’ in the book ‘Touch Wood’. This discusses the elaborated position paper by Marcel Meili for the Klanghaus project. The position paper, developed by Meili together with the sound artist Andres Bosshard, won the architecture competition. Following Meili’s death, the creation of tunable sound spaces was continued by the architects at Staufer & Hasler ‘in the direction and spirit he intended’. As a member of ‘ARGE Holzbau Klanghaus’ – together with Abderhalden Holzbau AG, Andreas Bischof GmbH and Brändle Bedachungen AG – we play our part in creating this building and bringing out its sound. As joint GC, we were responsible for the entire building shell consisting of the Free Form roof, timber construction, the translucent elements as well as the roofing and sheet-metal work. In addition, our project team developed a contractor version for the support structure that was more efficient to produce and assemble while also saving on cost.

> The aim is for the Klanghaus to be a cultural hub in Toggenburg, attracting musicians from far and wide.

Timber structure with wings

The Klanghaus, with its façade of spruce shingles and its three-wing building design, is guided by the panoramic landscape of the Toggenburg area: the Wildhauser Schafberg mountain, the Schwendisee lake and the valley mouth to the east. Within the timber structure, unparalleled acoustics unfold across four sound spaces that can be tuned just like an instrument, as well as two open-air stages. Not just the architecture and acoustics warrant extra attention, but also the underside of the roof with its Free Form geometry.

A ceremonial inauguration of the Klanghaus is scheduled for spring 2025. Forming part of the tourism concept ‘Klangcampus’, the aim of the Klanghaus is to create a hub for all music and sound enthusiasts and also stimulate the region’s economic development.

↖ The Klanghaus provides a home and fitting architecture for the traditional sounds of Toggenburg.

← Within the timber structure, unparalleled acoustics unfold across four sound spaces that can be tuned just like an instrument.

↓ The individual components for the Free Form roof underside were parametrically planned and prefabricated in our production facility.

By rail and ferry to the construction site

Sylt (DE), silo and facilities construction

Installing a complete winter services facility on the island of Sylt was not something our five-person silo construction assembly team does every day.

The timber components for the new salt storage depot and the components for the brine facility were transported by lorry, train and ferry to the North German island of Sylt. Our assembly team spent roughly seven weeks on site. Though they stayed in tourist accommodation, there wasn't much holiday mood to spare – because ultimately, the aim was to get a lot done in a short space of time.

Salt store and brine facility

The complete facility was designed by planning engineer Peer Brennecke working at Brelo. As subcontractor to the contractor Plus-POHL, Blumer Lehmann was responsible for implementing the salt storage and vehicle depot as well as for planning and assembling the brine mixing facility with a GRP storage tank. Detail planning for the timber depot proved to be more challenging than it first seemed, as the project manager responsible, Sascha Aerne, explains: 'A combination of the architecture of the monopitch roof and the heavy wind loads on the island demanded high levels of timber construction dexterity.' Ultimately, we were able to find the right solution together with our engineering partners at Niederegger AG in St. Gallen.

↳ blumer-lehmann.com/
salt-storage-halle-brine-facility-sylt

Salt storage depot for 600 m³ of salt with brine facility and technical services room.

Filling the silo with rock salt via the filling pipe.

The complete facility, optimised for the environment

Burgwindheim (DE), silo and facilities construction

It took just three months from start of planning to handover of the new complete winter services facility to the client.

Smart water protection

Winter services for the region were equipped with a new salt silo with a capacity of 500 m³ as well as a Quanto brine mixing facility and a brine storage tank with 40 m³ volume. In accordance with applicable water protection regulations, an interception system was also put in place for any brine overflow. A system like this protects the ground water and recovers the rock salt. This is filtered out of the water and fed back into the brine mixing facility.

↳ blumer-lehmann.com/
gritting-silo-system-burgwindheim

Brine

Brine, or pre-wetted salt, is the term used for a salt solution that is made by combining water and salt. Brine that is ready to use is applied in winter services at concentrations of around 20–22 %.

Rock salt

Rock salt is quarried from underground mines and then ground up by machines. It is the cheapest form of salt but also contains impurities. To be used for brine, it needs to be cleaned via sedimentation or filtration.

KNOWLEDGE

Team player

Robby Rademacher travelled through various different staging posts on his professional pathway to timber construction. Nowadays, he values communication as part of a team and brings his copious professional experience to his role as project manager.

For Robby Rademacher, the fascination of wood lies in its versatility and the opportunities created by a natural material. Perhaps he was also influenced as a child, when he worked with wood alongside his grandfather, a joiner, in the double garage converted into a workshop. And maybe carpentry held greater interest for him later, when he was already a joiner by trade, because carpenters tend mostly to work in teams. His switch from joinery to the carpenter's workshop took place gradually. The traditional journeying process brought Rademacher to Switzerland and, for the first time, to timber construction. Through his journeying companions he found his first timber construction jobs and got to grips with the work of carpenters. Several years and two qualifications later, another journeying companion put him in touch with Blumer Lehmann.

Studies and changes of direction

Following his joinery apprenticeship, journeying and professional practice, Robby Rademacher studied construction engineering at TH Köln, specialising in water management, and found work after his studies in an engineering firm in Germany. After a year and a half spent primarily working on protracted dyke sanitation projects, he 'pulled the ripcord', as he himself describes it. 'I registered at Augsburg University to study Timber Construction Engineering – Integrated Planning and Construction, to learn more about multilevel timber construction.' In the course of his studies, a former journeying companion returned, excited, from a visit to Erlenhof, and Robby told him about his future plans – that he wanted to move to Switzerland. 'I had already heard from others about Blumer Lehmann, and it had just recently opened a location in Grafschaft – which felt like an option for me in case I got homesick when I was in Switzerland …'

So in December 2021, Robby Rademacher started work at Blumer Lehmann – first in production, at his own request to learn all about the processes there, then later as a project manager. He is currently supporting the HORTUS project in the planning team and is finding out that, 'In pilot projects, the usual project tasks are joined by others arising from new developments. But I love the end-to-end sustainability of HORTUS. I sometimes need to keep this in mind on very busy days.'

Direct career path or a variety of staging posts

Robby Rademacher also thinks that he fits into the Blumer Lehmann team well because of his prior career path. From talking to other new recruits, he discovered that, 'Of course there are lots of people who went straight from a carpentry apprenticeship into the job. But there are also other people I work with who first gained lots of experience in another field, or those who threw themselves into the work and were able to achieve a lot that way.' For his part, he is a big fan of his work environment: 'At Erlenhof, even the walk from the car park to the office is exciting. There's so much wood sitting around and the wonderful smell! I find that really inspiring.'

Building on experience

The structured approach to work he acquired through his studies and his time in the engineering firm is very useful to him in his present work. In his work with CAD software, he also draws on his experience with similar CAD software and has already got to grips with three-dimensional modelling. He sees a great value in early collaboration and coordination internally with production and procurement as well as external service providers. 'There's an intensive exchange that makes it easy to approach colleagues, even the really experienced ones. For the HORTUS project, for example, the site manager who was going to head up assembly was involved in planning from the very start. As new project managers, there's a lot we can learn from his ten years of experience.'

More information on careers at Blumer Lehmann
↳ blumer-lehmann.com/career

> 'There's an intensive exchange that makes it easy to approach colleagues, even the really experienced ones.'

Modular school buildings that grow with need

Timber and modular construction

Agility and flexibility are now the core challenges that our schooling system is facing. How can architectural designs for school buildings help in this dynamic environment?

The traditional idea of a school has changed a lot over recent years. An inflexible teacher-centred approach has been replaced by cluster schools with open learning landscapes. These schools promote a new learning culture, where year groups work together closely and create autonomous communities across ages. This leads to individualised learning opportunities and more flexible teaching formats that do justice to the diverse needs of students.

The architecture of school buildings plays a crucial role in modern education. The school building can function as a 'third teacher' and encourage learners' creativity. This is why we have developed specific base models for educational facilities. As modules, they can be configured in a flexible and customisable way. Fixed, predefined spatial units such as lesson, group or technical rooms can then be put together to form a school building that meets specific requirements. This free and individualised configuration knows no limits.

Different spatial units – untold possibilities

A huge range of options are available not just for planning layouts but also for interior design, to ensure sensory considerations are also planned into the construction of a school or childcare facility. Alongside the functional aspects, an important part is also played by form, colour and materials. Fit-out for the main spaces and infrastructure rooms is adapted according to individual need and includes cloakrooms, cabinet systems, worktables, chairs, whiteboards and other work equipment. Other fittings can be added as required. The choice of materials for the interior finishing is also large. The walls are built using a combination of OSB wood panels and rendered gypsum fibreboard as standard. Other options can be incorporated depending on requirements, such as return walls, desk ledges, glass screens and wall-mounted drinking fountains.

Draft of a cluster school with hybrid modular/elemental construction, created by Sauerbruch Hutton, Berlin.

© Sauerbruch Hutton

Cluster school made with base models

Customised school buildings with healthy indoor conditions are created within short planning and construction times using standardised, serially produced timber modules. Blumer Lehmann has developed two base models in a modular timber design specifically for educational facilities. These can be planned and produced efficiently and configured flexibly. The resulting school buildings support modern teaching concepts, for example by dividing the layout into clusters with open learning zones.

↳ blumer-lehmann.com/school-buildings

Benefits of modular school buildings

- Flexible adaptation of spaces to accommodate school rooms required
- Simple construction of temporary structures thanks to a sustainable design with reusable modules
- Customisable design of floor plans, interior design and façades
- Reliable scheduling, high cost certainty
- Efficient and reliable planning and implementation

The three-storey school building in a hybrid timber modular/element construction features 28 classrooms, a kitchen and a canteen.

A new chapter in school construction

Dresden (DE), timber and modular construction

The timber modular/element construction of the new school building in Dresden met the conditions not just for sustainability, but also for an arrangement with learning clusters.

The children and teachers at Primary School 33 in Dresden have already been able to move into their new school building. The new building on Schilfweg in the Seidnitz district is a first in two ways: the school is one of the first buildings we produced in our facility in Großenlüder in Hesse. It is also Dresden's first school structure built in a climate-friendly design. The architects at Peter Zirkel Gesellschaft von Architekten in Dresden designed the three-storey timber structure with a green timber façade and green roof. As general contractor, we were responsible for planning and implementation.

Beyond sustainability

The new school building was built in a hybrid design combining modular timber architecture and classic element construction, and from the start was mindful of the entire lifespan of the building. For this reason, most of the components are jointed, not glued. The modules and materials can be taken apart again, reused or recycled when the school building is one day dismantled or due to be rebuilt at another location. And the 2,200 m³ of wood used in the building sequesters just as many tonnes of carbon from the atmosphere.

Flexible interior design

Inside the school building, 112 timber modules create healthy and comfortable indoor conditions. For the primary school building concept, the timber construction approach also offered the flexibility of combining classrooms, group rooms and specialist teaching spaces into open learning zones and creating multifunctional learning clusters.

© Till Schuster

The construction projects recently completed by our locations in Germany and Luxembourg offer high quality space for living and learning.

© FAZ

© Jürgen Pollak

Frankenallee residential complex

Frankfurt (DE), timber and modular construction

On Frankenallee, where two former office buildings of the Frankfurter Allgemeine Zeitung FAZ once stood, two apartment buildings have now been created. The new development houses 43 residential units spread over a six-storey block facing the street and a three-storey rear building. The two residential buildings are connected by a basement level with underground parking, cellars and technical rooms, and share a green courtyard that lies between the two. As joint general contractor, Blumer Lehmann Germany implemented the building complex with its larch-wood façades in a solid-timber design. The quick construction method with prefabricated wall, ceiling and roof elements made from laminated, cross-laminated and solid timber was a bonus for our team, particularly given the limited space on the inner-city construction site.

École internationale

Mondorf les Bains (LU), timber and modular construction

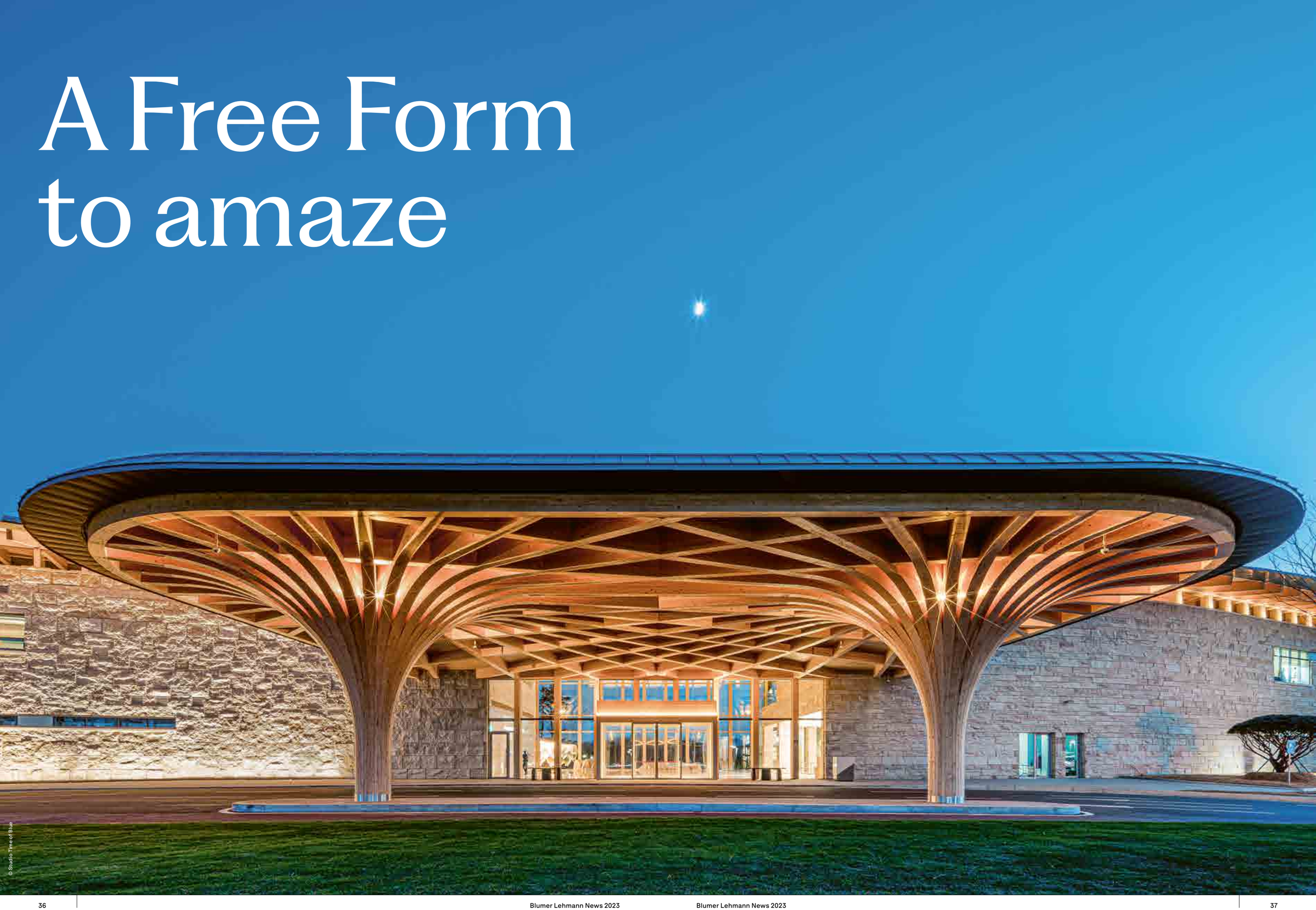
Our Luxembourg team executed a school construction project in 'multinational' collaboration across three locations: planning in Grafschaft in Germany and Grevenmacher in Luxembourg, plus modular production in the German factory in Großenlüder and at Erlenhof in Switzerland. Two new modular structures are already supplementing the École internationale building. The two-storey Haus E consists of 84 timber modules and houses a canteen with industrial kitchen on the ground floor. The upper storey has classrooms as well as art, music and drama spaces and is fully accessible via a lift. A total of 48 modules create 'Haus D', which also has two levels and provides more teaching space. And a third modular structure is still underway – the three-storey Haus G, with 66 timber modules that will be handed over to the client in autumn 2023.

Fuchshofschule

Schorndorf (DE), timber and modular construction

The five Variel pavilions of the primary school in Schorndorf, dating back to 1963, are unique in their structural engineering and are for this reason listed buildings. With the expansion into an all-day school and the planned renovation of the pavilions, an extension building became necessary. Together with Bauart Architekten und Planer, we won the general contractor competition and were tasked with executing the new school building as full-service contractor. The new two-storey building in a modular timber design features a silvery grey varnished timber façade to continue the visuals of the Variel pavilions, and offers the space required for all-day care: kitchen and canteen, childcare rooms and event spaces, common rooms and learning zones as well as classrooms, music and multipurpose rooms.

A Free Form to amaze



© Studio Time of Blue

Pocheon (KR), Free Form

We were again chosen to create a golf resort for one of our clients in South Korea. The Free Form entrance portal bestows an impressive reception on guests to the Hillmaru Country Club.

↑ The entrance portal is supported by two striking tree-like columns made from double-curved spruce beams and clad in three-ply panels.

→ The timber elements planned and produced in Switzerland were put together on-site to form a contoured total roof area of 5,300 m².

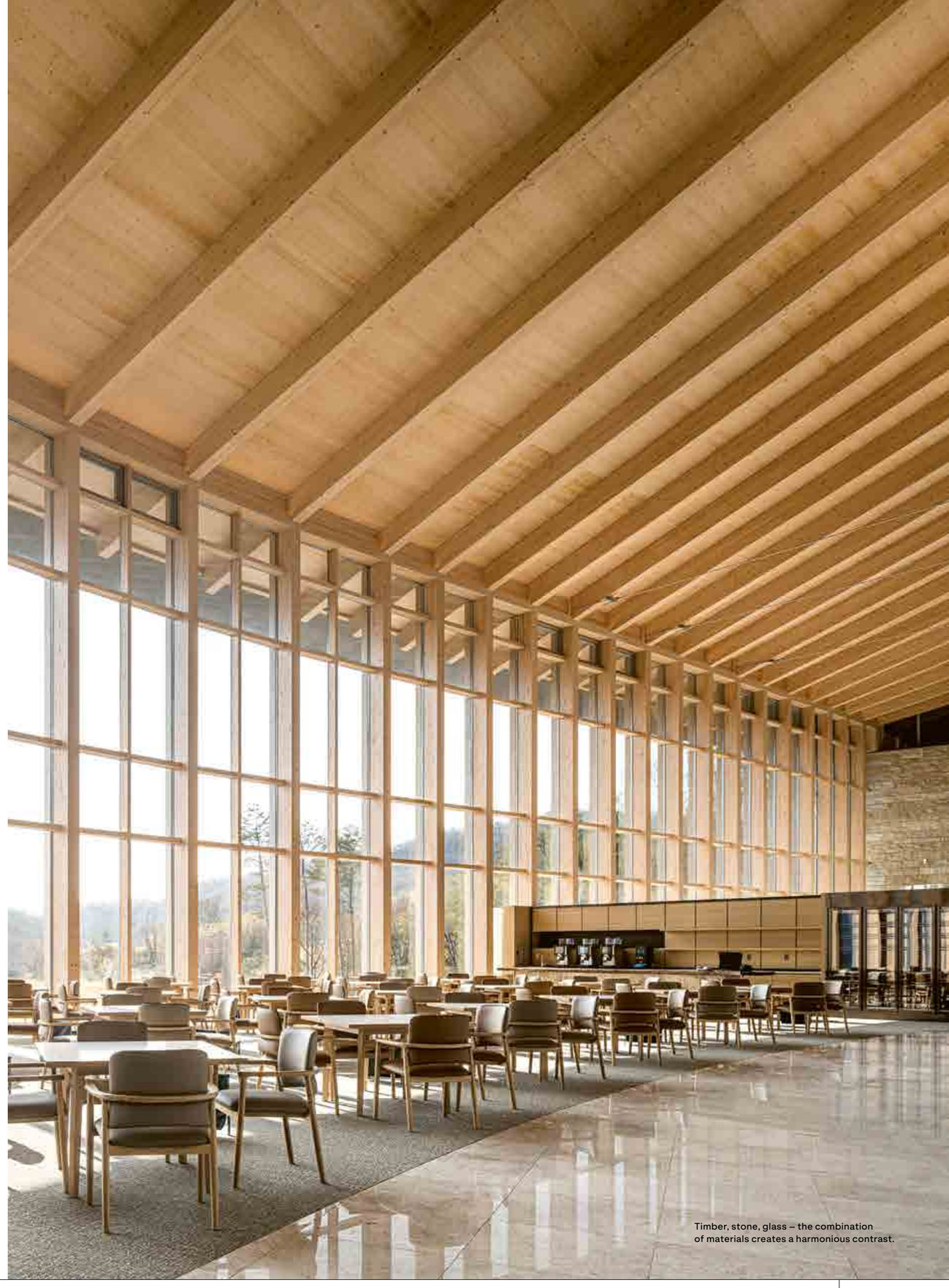
North of Seoul, our client Donghoon D.O.S. created a golf course in a class of its own. Similar to the construction of the clubhouse near Changnyeong around 10 years ago, the client again looked to our timber construction expertise. The Hillmaru Country Club features a 283-hectare, 54-hole golf course, 200 spaces for golf carts and a luxury restaurant with 300 seats. The dimensions of the clubhouse are accordingly large – as is its Free Form entry portal. Alone under the two tree-like structures made of spruce and fir that straddle the driveway, there is a multi-lane drop-off zone.

Timber construction expertise from Switzerland

According to designs by YKH Architects in Seoul and in cooperation with our engineering partner SJB Kempter Fitze AG, we planned and produced the timber elements in Switzerland and assembled them on-site into a contoured roof surface covering 5,300 m². It spans the 160 metre long clubhouse and is complemented by the impressive projecting roof over the reception area. Inside the country club, the exposed timber roof creates a harmonious contrast to the stone building sections and large-scale windows.

Traditional design element

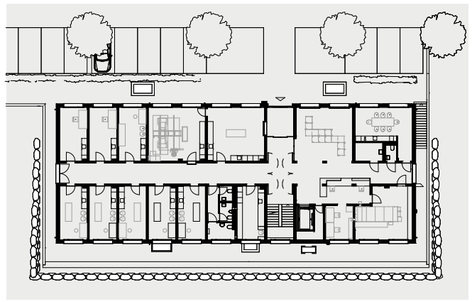
With the remarkable roof structure, YKH Architects gave the clubhouse an unmistakeable aesthetic while also integrating a traditional Korean design element. The roof slope projects out from the building by three metres and, in doing so, takes up an architectural motif common in traditional Korean roof structures.



Timber, stone, glass – the combination of materials creates a harmonious contrast.

A vision becomes reality

© Elisa Florian



↑ 66 timber modules make up the new building – prefabricated and fitted out with timber façade, building technology, electrical and sanitary installations.

↖ Thanks to the efficient modular design, the timber structure was soon ready and fulfilled all requirements of a modern medical centre.

Mosnang SG, timber and modular construction

Three doctors in Toggenburg initiated a bold project. A shortage of GPs, hospitals being closed – in order to fill the gaps in outpatient medicine, they established the Mosnang health centre.

The project demonstrates great determination on the part of everyone involved. The three doctors wanted to work with the municipality to secure basic medical services in Toggenburg and cut waiting times as well as the distance to the nearest emergency department. The Mosnang municipality supported the project with a land sale and a loan for the new medical building. How did the new health centre manage to open its doors within just one year? For the architects at K&L Architekten in St. Gallen, who drew up the design for the building, it was clear from the start: ‘Nothing but a modular structure would do.’

GC drives the project along

The time from the groundbreaking ceremony to the first working day in January 2023 was just nine months. Our project team was responsible for the specialist planning, production and assembly of the modular timber structure and so could play a huge part in getting the health centre finished quickly. ‘All aspects of project collaboration ran very smoothly,’ says site manager Matthias Höpli. ‘As general contractor, we instructed our subcontractors directly and used our experience to plan efficiently and coordinate reliably.’ Unforeseen tasks also found space in the schedule. During excavation, for example, the hillside needed to be additionally secured with a soil nail and shotcrete wall. To save time, the teams split up the excavation and concreting of the underground parking into three work sections that overlapped in part.

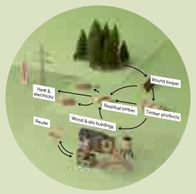
Processes run in parallel

During this time, the 66 timber modules were being created at Erlenhof. These were fitted with windows, timber façade, building technology as well as walls and ceilings back in the factory, to make them quicker to assemble on-site. All modules are the same size and, with their dimensions of 3.22 × 7.6 m, determine the building grid. The architects had planned the building in this basic structure from the very beginning and integrated everything the client had asked for: 25 treatment rooms, an x-ray room with radiation protector plates, a trauma room, two cloakrooms, a large medical therapy room and a pharmacy with medication robot. Larger spaces, such as the conference room or common area, could be created by omitting some of the module walls and replacing them with columns and partitions, for despite the basic grid provided, modular timber structures are flexible and adaptable. And just one week before topping out, they are still capable of far-reaching changes, as demonstrated by the Mosnang health centre. A medical area reenvisaged at short notice required three modules to be changed. ‘It was challenging, having to find a solution that quickly,’ remembers Matthias Höpli. ‘We needed to identify which walls were not under static load and could be adapted. Ultimately, all modules were delivered as planned, and we adapted the three modules on-site.’ And, it’s worth noting, without disrupting the schedule.

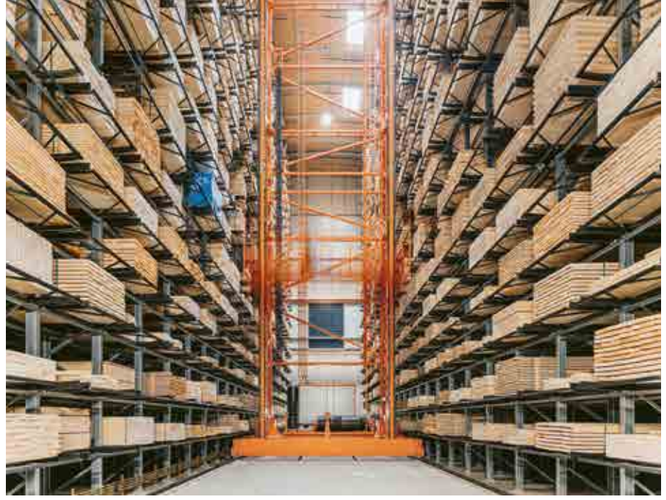
↳ blumer-lehmann.com/health-centre-mosnang

Enhancing efficiency in the timber industry

The infrastructure at Erlenhof is being expanded further. True to our guiding principle, ‘customer-oriented, innovative and efficient’, we are continually working on improving our processes, enhancing performance and closing the value chain with our timber-processing operations.



All you need to know about our circular economy:
↳ blumer-lehmann.com/wood-cycle



A warehouse that thinks for itself

Large warehousing spaces optimise logistics between the sawmill and downstream processing. Our intelligent high-bay warehouse can be trusted to ensure that our wide range of products can be accessed and delivered quickly at any time.

Swiss wood

Wood as a construction material is easy to obtain, continually grows back, requires little energy to process and is versatile in its applications. Anyone who supports increased environmental added value chooses Swiss wood. Because short transportation routes save energy. Not just that: Using Swiss wood protects Swiss forests and the regional wood industry and secures jobs in the wood industry.

SWISS WOOD

Valuable energy

One of the ways we use residual timber from the sawmill is as a natural energy source. We need around 80,000 m³ of residual timber to generate heat and power for our processes. Of this, 70 % comes from our own production, and 30 % as residual forest wood from suppliers. Not just that: with an annual production of 45,000 pellets, we cover around 10 % of Swiss consumption from our facility in Gossau.

Improving timber quality

In our finger-jointing mill, we improve the quality of wood by cutting any defects out of the wood and putting it back together again using finger jointing. We use cutting-edge scanning and planing technology in a fully automated process to create high-quality, finger-jointed products such as slats, profiled boards up to 6 m in length, and façades in a range of wood qualities.

Diversity of wood

Swiss wood from sustainable forestry forms the basis for our comprehensive range of timber products for builders’ merchants, tradespeople, industry and private customers. Operations in our Timber Industry division transform it into sawn timber, slats, construction timber, terrace railings, façades, planed products or structured wood – to measure, in standard lengths, different qualities as well as in large volumes.

More information about Blumer Lehmann products and services
↳ blumer-lehmann.com/product-range

Indoor pool using Swiss wood

Timber industry

The architectural competition stipulated the use of Swiss wood as material for the new structure. Now 1,200 spruce trees from the Appenzell forest are creating feel-good conditions in the indoor pool.

Soothing indoor pool architecture: Egli Zimmerei AG implemented the new indoor swimming pool in Appenzell according to plans by Peter Moor GmbH, and with plenty of native wood processed by the Blumer Lehmann Timber Industry division.

© Roger Frei, Zurich

Regional wood shapes the appearance of the new two-storey indoor pool in Appenzell. The exposed spruce wood of the supporting structure and the façades, both inside and out, was processed in our saw, finger-jointing and planing mills on client request.

Wood processing to measure

The architectural competition already included a stipulation from the client – the Canton of Appenzell Innerrhoden – that the new indoor swimming pool building should use as much regional wood as possible from the cantonal forest and local wood businesses. The contract for the timber construction went to Egli Zimmerei AG. Our Timber Industry division was contracted to supply the considerable amount of timber required: around 1,600 m^3 of spruce wood was processed to meet the requirements of the building project, made to measure and in the stipulated quality. On the one hand, we produced laminated timber lamellas that now function as twin girders to form the timber support structure of the new two-storey swimming pool building. On the other hand we also processed the round timber we received into finger-jointed lamellas in N1 rift/quarter sawn quality, which were used to form the façade.

From round timber to construction timber

Certified with the Swiss wood label, Blumer Lehmann only processes regional wood. And the fact that the client had wood from their own forest processed for the project in Appenzell is no coincidence. According to Urban Jung, Division Manager for the Timber Industry division at Blumer Lehmann, the local supply chain model is gaining in popularity with clients – particularly municipalities constructing public buildings. ‘We mill the wood and take care of any downstream processing required.’ For the indoor swimming pool project in Appenzell, his team delivered the wood for the support structure to Hüsser Holzleimbau AG, who processed it into laminated timber in the quality specified. The wood for the façade lamellas, on the other hand, went straight to the Blumer Lehmann finger-jointing mill.

Finger-jointed quality

‘We are able to manipulate the wood quality depending on its intended use,’ says Jung, explaining the benefits of finger jointing. Depending on requirements, defects are cut out of the wood, the remaining pieces are put back together, and the timber products are supplied in the desired lengths between 3 and 6 m, he explains, and adds: ‘We don’t just produce lamellas on our finger-jointing mill, we also make slats, rough-planed timber, weatherboarding, cladding with a visible groove, rhomboid cladding and interior panelling.’

‘We are able to manipulate the wood quality depending on its intended use.’

Urban Jung, Division Manager for Timber Industry Blumer Lehmann

Timber processing

TO ORDER AND TO MEASURE

At Erlenhof, we produce a comprehensive standard range of timber products. And we are also happy to process the wood from your own forest in accordance with your specific needs.

FINGER-JOINTED WITH SWISS WOOD

Our range also includes finger-jointed façade lamellas and cladding in industry quality, appearance grades N1, N2 and in rift/quarter sawn.

Diverse challenges

Despite planning a move to Switzerland, seven years ago Maximilian Calim moved to Germany instead, where he has learned a lot about brine facilities.

Escape from home in South Tyrol to find a job in Switzerland. With this sense of purpose, Maximilian Calim presented himself to Blumer Lehmann on impulse and unannounced in Switzerland seven years ago. Jakob Frischknecht and Hans-Georg Hirt, who are in charge of silo construction in Switzerland and Germany, thought the qualified mechatronics engineer was perfect – as an electrotechnology specialist at our Klosterlechfeld site in Germany. The flexibility that Calim now so appreciates in his employer was exactly what he himself demonstrated back then by quickly packing up his things and moving to Klosterlechfeld.

His main duties at first included programming electronics enclosures for the silo facilities. In time, he was also given the job of selecting the electronic components to improve the facilities. He is now also in charge of time tracking for staff, takes care of organisational tasks for assembly on-site and helps coordinate the individual projects to make sure everything happens on time and runs smoothly. And Maximilian is now also already taking on more and more management tasks in preparation for his future role as Division Manager of Silo and Facilities Construction at our German location, when he takes over from Hans-Georg Hirt.

Fascinated by controls

The fact that this man from South Tyrol has no interest in wood, but instead since his childhood has loved anything that can be controlled and moved, is perfect for his wide range of tasks. The most important materials he uses for the construction of brine facilities are stainless steel and synthetic materials. He brings specialist knowledge to the job from his training as a mechatronics engineer, later augmented by professional experience and a few terms of mechanical engineering. For his electrotechnical tasks in particular, he attended seminars where he deepened his programming knowledge. But he learned considerably more on the job, for example troubleshooting for facilities across Germany. ‘There were no instruction manuals and no documentation. I needed to get to grips with the subject matter and get the facilities back up and running again. That’s where I learned the most.’ So much, in fact, that Maximilian Calim ultimately took on the programming for subcontractors’ control cabinets. The team in Klosterlechfeld now offers its clients full-scale controls as a service of its own.

> ‘There were no instruction manuals and no documentation. I needed to get to grips with the subject matter. That’s where I learned the most.’

Plenty of variety and responsibility

Having free rein, planning and organising his own work and taking responsibility are all things Maximilian Calim appreciates, along with highly complex technical brine facilities. ‘Everything is increasingly moving towards high tech, with data communicated straight to smartphones. For this, components need to work together flawlessly.’ Which is why, for him, the commissioning of a facility is always a special moment. ‘When everything works, the ball valves are opened and the gritting vehicle fills up with brine for the first time.’ What’s more, his remit across Europe gives him lots of variety and, with every facility, new challenges.

→ The largest brine facility Blumer Lehmann has ever created is being built in Vienna.

The largest brine facility

At the moment, Maximilian Calim is in Vienna working on one of the largest brine facilities Blumer Lehmann has ever built: a high-performance brine producer that delivers 15,000 litres of ready-to-use brine per hour and features three storage tanks, each with a 50 m^3 capacity and three extraction points. Integration of the new brine facility and dismantling of the old required extensive planning with a great deal of draughting work. The facility will be complete in time for the coming winter season and will ensure some crucial benefits: shorter fill times, greater storage volume and brine production that is five times quicker than before.

↑ Complete winter services facility with timber silos and brine facility.

↖ The hoppers are controlled automatically via the top-class automatic system.

← The screen helps drivers monitor the filling process.

Salt and brine from one source

Müllheim, silo and facilities construction

An attractive and highly automated complete facility was created for the Federal Roads Office (FEDRO) winter services hub in Müllheim in the canton of Thurgau. The client also benefited from our comprehensive expertise in all things salt and brine.

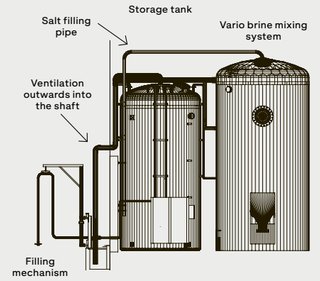
Fill levels always in view

The salt is stored in two new silos made with larch wood and with 400 m^3 capacity. Loading of this valuable cargo is completed right under the silos, while the top-class automated system allows drivers to monitor the filling process in real time. A vibrating needle is activated once the maximum level is reached and transmits a signal straight to the main facility controls, which breaks off the filling process. The Thurgau hub opted not only for traditional winter services using salt, but also for the installation of a Vario brine producer. Given that the brine facility is located inside a shed, a handy filling pipe on the outside of the building made topping up with brine much easier.

A convenient salt manager means the depot manager can keep a constant eye on current salt levels. An online platform identifies and manages levels, while cutting-edge measuring and weighing technology means fill levels in the salt silos and brine storage tanks can be called up in real time.

↳ blumer-lehmann.com/grit-storage-system-muellheim

The brine facility in Müllheim, Thurgau, is located in the neighbouring building. Access to the brine is via the filling pipe on the outside of the building.



Vario silo and brine mixing system

The Vario system is ideal for producing ready-to-use brine with integrated salt storage. The silo size is variable, while the system is mounted on a skirt support that also serves as an installations room. The brine produced is conveyed to external storage containers via pump controls and is therefore able to continually fill and stock up a storage tank. Salt is added straight from the delivery vehicles. Brine production is automatically controlled. Special technical processes enable a high solution and output performance.

↳ blumer-lehmann.com/brine-technology-vario

The creative solution for the roof consists of a Free Form with a load-bearing timber structure and conserves embodied energy.

College architecture reinterpreted

Oxford (UK), Free Form

The standout feature of the Gradel Quadrangles with its classically square building design and courtyard is the Free Form roof.

The new Gradel Quadrangles at New College, Oxford, will be ready for students to use in time for the start of a new term in the autumn of 2023. Named after its core funder, Chris Gradel, they provide students with 99 rooms, a learning centre and a subterranean music hall. David Kohn Architects reinterpreted the building shape with its classically square layout. Blumer Lehmann developed a creative solution for the complex roof design.

Free Form roof with timber structure

The original plan for the roof, with its contoured design and surface area of almost 1,500 m², was to use concrete. As timber specialists, however, we convinced the client that a different solution would be easier to build, as well as more sustainable and innovative in its use of materials: a Free Form roof with a load-bearing timber structure that combined different materials and techniques. The project team opted for laminated veneer lumber (LVL) as the material for producing the rafters, which optimised the entire process. ‘The most cost-efficient solution was ultimately to produce the 1,077 differently shaped individual parts using laminated veneer timber panels,’ states Daniel Bucher, Head of International Sales for Timber Construction and Free Form, explaining the decision.

A solution with environmental benefits

In the roof framework, the laminated veneer timber rafters were combined with curved edge beams made with laminated timber. The roof is covered with OSB panels and tongue-and-groove formwork. The walls are made from prefabricated curved timber frame elements. The interplay of the timber products used was optimised by our specialists in cooperation with the structural engineers. Octagonal ceramic panels ultimately create the desired modern aesthetic, covering the roof in a mosaic style. And the positive side effect is that overall, using our timber roof solution instead of a concrete shell has improved the construction process, the supply chains and the interfaces, and generated less embodied energy.

A huge step for a small carbon footprint

Fredericia (DK), timber and modular construction

The Danish foundation Realdania By + Byg is researching new ways to build houses with low carbon emissions. The MiniCO_2 house uses timber as a building material in as many components as possible.

How much carbon can be saved, especially by choosing specific materials to build with? And how can the construction process be organised in a more efficient and resource-conserving way? With two experimental buildings in Fredericia in Denmark, Realdania wants to develop new approaches and promote healthy, efficient and sustainable construction. The residential building is a timber element construction and contains four 4-room apartments, each with 95 m² of living space.

MiniCO_2 houses with exemplary character

Standing in direct comparison with the timber building are two other buildings, one in concrete and one in brick. In this way, the three MiniCO_2 houses deliver insights into the different construction approaches. Using comprehensive calculations across the entire lifespan, the different materials are evaluated according to the following quality parameters: construction, architecture, indoor climate, flexibility, fire, structural physics, resource availability and build time. As prototypes, the aim is for the knowledge and experience, for example regarding the floor structures used, to be passed on to investors.

Project development with timber construction expertise

The designs for the pioneering five-storey residential building in timber design were created by JAJA Architects in Copenhagen. The client, Realdania, found the timber construction expertise they needed in Switzerland. Our project team was integrated into the project early on, so were able to advise on implementation and develop the timber structure together with the architects and engineers. Many clarifications were necessary for the innovative building design using timber. For example, 23 different combinations of floor and ceiling structures were tested to find the right solution for the project. The test results showed that most CLT and ribbed ceiling solutions reduce carbon emissions by up to 55–70 %, as compared with conventional hollow-core slab solutions, while at the same time meeting the applicable noise and fire protection requirements. The floor elements used needed to evidence the calculated fire resistance time of 60 minutes in a 1:1 fire test, yet ultimately held up for even longer. The specially developed ribbed ceilings with exposed timber beams and natural ceiling insulation passed the required full-scale fire test at the Danish Institute of Fire and Security Technology (DBI).

© JAJA Architects | Realdania By & Byg, Claus Fisker

↳ blumer-lehmann.com/mini-co2

↑ The spruce wood used for the interiors of the seminar rooms creates a positive indoor climate.

← The new seminar building is in an idyllic location on a strip of land where two rivers meet.

→ The star-shaped bathing and sauna building has virtually no external walls and is clad in plenty of glass.

© Heibling Fotografie GmbH

© op-arch

Nestled between mountains and rivers

Appenzell, timber and modular construction

Conferences and swimming at Hotel Hof Weissbad are now even more inspiring and relaxing. A seminar building and indoor swimming pool are a recent addition to the resort in Appenzell.

Hotel Hof Weissbad, set in the Appenzell mountains near the Säntis peak, is growing. The resort is expanding its offerings with a conversion and new construction, while also optimising its environmental footprint. Both new buildings, the seminar building and swimming pool, were constructed in a sustainable timber construction design. The building projects were carried out in close cooperation with PPM Projektmanagement AG as site manager and Appert Hanselmann AG as client representative.

Seminar building

Since June, the new seminar building at Hotel Hof Weissbad has offered a relaxing setting for seminars and courses, with wonderful views over the Alpstein massif. The pure timber construction was designed by K&L Architekten in St. Gallen and includes two seminar rooms and two group rooms, all flooded with light, a foyer and a service kitchen, toilets, technical installations and equipment storage rooms. Situated on a strip of land between the Weissbach and Schwendebach rivers, the large-scale windows of the seminar building draw the natural surroundings into the high spaces with clear room heights of up to 6.8 metres. A large projecting roof on all sides of the building protects a façade made from untreated, rough-cut spruce wood. By implementing the entire timber construction as well as the façade and the interior finishing in spruce/fir with wall panelling and perforated ceilings, we contributed to the success of this stunning building.

> The swimming pool rotunda with its glass façade is guided by the crystalline ‘Alpine architecture’, which fuses nature and architecture.

Swimming pool and sauna building

The new swimming pool, with its star-shaped layout with 32 points, was designed as a standalone building and completed in September 2023. The rotunda with glass façade is guided by the visionary ideas of a crystalline ‘Alpine architecture’ by Bruno Traut, which fuses nature and architecture. The timber structure, built entirely with silver fir, rises up from a basement level of cast-in-place concrete containing technical installation rooms and storage spaces. The upper storey is the true heart of the building. This is where the biosauna, Finnish sauna and steam bath can be found. The large-scale windows afford unobstructed views over the unparalleled Appenzell landscape. The two-storey building was designed by the architects at op-arch in Zurich. Our contract included the timber construction and entire interior finishing, the façade, the terrace and the sauna glazing.

The excitement never lets up – here is a glimpse into recently completed projects and a look ahead at structures we are completing for our clients.

Pfadiheim St. Martin

St. Gallen,
timber and modular construction

In August 2023, the Pfadi St. Martin scouts in St. Gallen celebrated the opening of their new clubhouse. The new building is made with prefabricated timber elements and is subdivided for its different uses. Across one third of the building footprint, a two-storey hall for 60 people with kitchen and toilets is also available for the public to hire. The rest of the space is filled with parish rooms for youth work, with a kitchen, storage space and sanitary facilities. The upper of the two floors houses five group rooms used by the scouts. We produced the timber elements and were responsible for the entire timber construction. The scouts themselves contributed plenty of their own labour to the new construction with its simple timber architecture.

Commercial block F122

St. Gallen,
timber and modular construction

The F122 commercial block in St. Gallen, also home to the premises of the St. Galler Tagblatt newspaper, has seen continual expansion over recent years. Led by plans by the architects at Buffoni Bühler GmbH, we are now working in a syndicate with Alpiger Holzbau AG to create two additional storeys on the office building using a timber element construction. We constructed the two floors with a floor space of 46 × 24 m on the existing flat concrete roof and adjoining the neighbouring building. For the widespan timber structure, we produced and assembled beams made with BauBuche. The F122 commercial block has more than 600 workstations and was given around 2,200 m² of additional rental space with the extra levels.

Administrative building and bus depot

Herisau,
timber and modular construction

The clients Appenzeller Bahnen and Regiobus are creating a joint administrative and operations building with bus depot in Herisau. Blumer Lehmann was commissioned as full-service contractor for the construction of the new five-storey structure. K&L Architekten designed the building, which will be built primarily as a timber construction. The ground floor will provide Regiobus with a depot for ten vehicles. If necessary, space for a further four buses can be added to the building. The offices in the upper storeys will be used by Appenzeller Bahnen and Schweizerische Südostbahn. In this way, the building brings together three public transportation companies under one roof as well as offering space to rent for other service providers. It will be ready for occupation in summer 2025.

Blumer Lehmann office building

Gossau, St. Gallen,
timber and modular construction

A timber build for timber builders – what else? The future HQ will be built according to designs by K&L Architekten. We are in charge of implementation in the role of general contractor. The four storeys offer space for around 180 workstations, an entrance hall, an event space and a café with terrace seating. Like like a modern tree trunk, the central Free Form staircase sculpture in bilayer timber twines upwards to connect all storeys. The unique Free Form stairway is developed in cooperation with the ICD/IKTE institutes at Stuttgart University. The façade design of the timber construction is also striking and appealing. Projecting balconies with vertical lesenes provide natural sun protection and are supplemented by timber stacking elements in areas requiring greater sun protection and privacy.

More timber and silo construction references:
↳ blumer-lehmann.com/en/references

Breitenmoser Gustarium

Appenzell,
timber and modular construction

Gustarium is the name of the new food and experience centre at Breitenmoser Appenzeller Fleischspezialitäten AG in Appenzell. The meat processing company, steeped in tradition, contracted us with the architecture, planning and implementation of a new operations building. The company had seen strong growth over a short space of time and needed more space for staff and production. Our planning team designed a three-storey operations building with green flat roof and a floor area of 42 × 25 m. Their production division and the experience centre with exhibition and training room were able to take up operations in the building in May 2023. We were tasked with overall responsibility for this exciting building project, from conception to handover, and carried out all stages of the project: preliminary studies, architectural design, project planning, planning, tendering and implementation. Our contract also included site management and coordination of the different trades involved in construction, as well as production and assembly of the timber elements.

Frauenfeld government building

Frauenfeld,
timber and modular construction

An elegant timber structure, this extension building is a harmonious addition to the government building in Frauenfeld and follows designs by Gäumann Lüdi of Ropp Architekten. Plans for the extension building include shared offices of various sizes with a total of 300 workstations. The timber for the supporting structure comes entirely from the Thurgau cantonal forest. This extension is the first building in the canton of Thurgau to be planned according to the SNBS 2.0 standard for sustainable construction and will receive certification once complete. Timber is the ideal material for achieving the standard's aims, such as high levels of material reusability and thermal comfort as well as optimal indoor air quality. Our responsibilities include timber construction planning, production and assembly of the prefabricated construction as well as the timber façade.

'Baggiwood' residential and office building

Wallisellen,
timber and modular construction

The future residential and office building 'Baggiwood' in Wallisellen offers 24 sustainably-designed 2.5- to 3.5-room rental apartments and flexible office space. The innovatively arranged office spaces on the ground floor will be occupied by the team working for the building client, Baggenstos, an IT company. Further flexi-use office spaces and communal areas will be fitted out and leased. We are carrying out the four-storey timber element construction according to designs by CH Architekten AG. The client places great importance on sustainable and durable materials as well as on new forms of living and working that encourage communication. The wood used for the structure, the ceilings and the façade comes from Switzerland, the photovoltaic system supplies green electricity and thermal ice storage regulates the interior temperature.

Three school extensions, three ways. This is how flexibly the modular timber structures in Gießen and Cologne can adapt to requirements.

More space for secondary school

Gießen (DE),
timber and modular construction

In time for school to start after the summer, the Landgraf-Ludwigs Secondary School in Gießen is getting a three-storey annex featuring plenty of exposed wood surfaces inside and a timber façade. As general contractor, we were responsible for planning and implementing the structure. The extension building consists of 42 timber modules, which were prefabricated in our production facility in Großenlüder, Germany.
With eight classrooms and an IT area, the extension building creates the space so urgently needed and is the secondary school's only building to be fully accessible, with a lift and wheelchair-friendly toilets. The modular timber design and the energy supply, with district heating from the town of Gießen as well as a photovoltaic system on the green roof, all meet the sustainability criteria of the client, Gießen Town Council.

New building with canteen and school kitchen

Cologne (DE),
timber and modular construction

Jankowski Bürgener Architekten Stadtplaner worked together with full-service contractor Blumer Lehmann to develop another school project in a modular timber design for the city of Cologne. Similar to the extension building for the Rosenmaar School, the new free-standing building to expand Osterather Strasse Primary School also has around 2,000 m² gross floor space and two levels. In addition to classrooms and spaces for all-day childcare, the building also houses a canteen with 150 seats and a school kitchen. Despite the differing building concepts for both new school buildings for Rosenmaar and Osterather Strasse, some synergies arise through their identical technical facilities. Both school buildings meet the passive house standard, are heated without the use of fossil fuels and feature photovoltaic systems on their green roofs.


© Jankowski Bürgener Architekten Stadtplaner PartmbB

A school building for new ways of learning

Cologne (DE),
timber and modular construction

School space is in short supply in Cologne, too. For the extension building for its Rosenmaar school, the city of Cologne is also focussing on a modular timber structure – due to the short construction time and sustainable implementation provided by timber as a building material. Not just that: the building design by Jankowski Bürgener Architekten Stadtplaner is mindful of the educational principles 'inclusive – all-day – mixed ages – cooperative' and can be built with a flexible modular timber approach. The result for the Rosenmaar Primary School is a new building with classrooms, physiotherapy rooms and areas for free and innovative ways of learning, for example a bicycle workshop. Plenty of exposed wood creates a comfortable indoor climate, and the additional direct access points mean children can transition quickly between learning areas inside and the outdoor space.

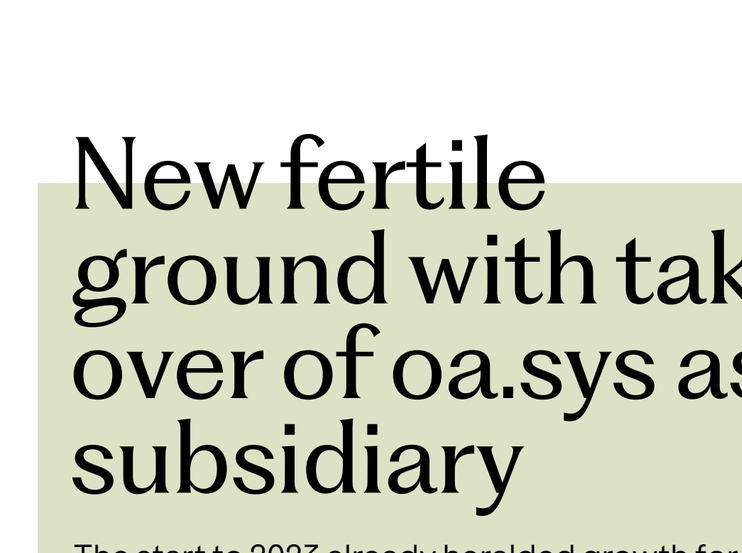
← The three-storey annex for the Landgraf-Ludwigs Secondary School in Gießen was designed with plenty of exposed wood.

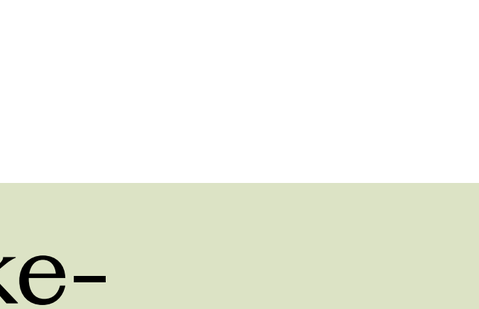
↗ Thanks to its modular timber construction, the extension building for Rosenmaar School in Cologne will be a quick and easy project.

© Till Schuster

New fertile ground with take-over of oa.sys as subsidiary

The start to 2023 already heralded growth for us: the Vorarlberg timber construction company oa.sys became a Blumer Lehmann subsidiary. This merger represents an auspicious strategic step.





Around 28,400 m³ of wood was used for the nine apartment buildings that make up the Naturella development in Langenargen.

© Plösser-Architekten

GROWTH

Marcel Rudigier and Andreas Grabher are the new managing directors at oa.sys.

© Marcel A. Mayer

Since 1 January 2023, it has been official: oa.sys baut GmbH is now part of our Blumer Lehmann company group as a full subsidiary. The cooperation with this Austrian company, however, is not a change for us. We already entered into a strategic partnership with oa.sys two years ago, which allowed us to consolidate our services and resources and support each other's work. It was this successful collaboration that laid the foundations for today's merger.

oa.sys is a fantastic addition for Blumer Lehmann, given that the company has developed over the last few years from a traditional carpentry business into a leading provider for large-scale residential construction. Particularly in multi-storey construction with timber, the company has built up an excellent reputation and is known beyond the limits of Vorarlberg. Their services and expertise are the ideal addition to our portfolio and open up promising opportunities for future residential projects.

Building on a common future

We are confident that the collaboration between oa.sys and Blumer Lehmann offers added value for both companies. The company will continue to provide its clients with the customary comprehensive timber construction expertise under the existing oa.sys brand name and their own presence. A core aspect of the acquisition is retention of their location in Alberschwende. This strategic springboard allows us to further intensify our service delivery to the German and Austrian markets. Production for oa.sys will continue in Alberschwende and complements our existing timber construction branches in Großenlüder and Grafschaft. In this way, the development, planning, production and assembly of timber buildings can be carried out in each location as needed, with specialist planning and production teams deployed.

Siegfried Kohler, former owner and CEO of oa.sys, took on new functions as part of the succession plan. Since then he has continued to be actively involved in sales and project development for clients in Austria and Germany as well as further developing joint strategic projects. An experienced leadership team took on the operational management of oa.sys. Andreas Grabher, a native of Vorarlberg, who previously led production in silo and facilities construction at Blumer Lehmann, now leads the management team together with his seasoned oa.sys colleague Marcel Rudigier.

> 'We are expanding our portfolio to include the services of oa.sys and see lots of potential and new opportunities in the coordinated activities of operations based in Alberschwende, Germany and Switzerland.'
>
> Lukas Osterwalder, Division Manager for Timber and Modular Construction DE | AT | LU at Blumer Lehmann

The merger with oa.sys allows us to look to the future with hope and increased confidence. The joining of our companies not only brings with it a greater wealth of experience and expertise, but also a common vision for sustainable construction and pioneering projects. With our combined knowledge, our passion for wood and our focus on the future, we will shape our industry and develop innovative solutions for the challenges of tomorrow.

More information on oa.sys can be found here
↳ oa-sys.com

Contact
us today

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