

PRESS RELEASE

Gossau, March 2025

New timber construction techniques for the 'Stammhaus'

Blumer Lehmann uses *CLT curved* in the construction of its new head office

'Stammhaus' is the German term that Blumer Lehmann's timber construction experts are using to refer to the company's new reception and office building in Gossau, Switzerland. The name is derived from an impressive Free Form staircase in the atrium, whose sculptural shape is reminiscent of a tree trunk, or 'Stamm'. During the construction of the head office, the parties involved successfully harmonised new timber construction techniques, an attractive working environment and modern aesthetics.

The new head office of Blumer-Lehmann AG, a Swiss timber construction company based at Erlenhof in the Canton of St. Gallen, is a state-of-the-art timber building designed by K&L Architekten. The centrepiece of the office and reception building is a Free Form staircase made of curved solid wooden panels, the design and timber construction technology of which were developed in collaboration with the University of Stuttgart's Institute for Computational Design and Construction ICD. The design of the staircase combines computational design methods, digital production and traditional timber construction craftsmanship, forming an architectural synthesis and creating a spatial experience that showcases the pioneering possibilities of wood as a traditional building material.

A meeting place for everyone

Blumer Lehmann has been developing plans and ideas for a new office building that would bring together the company's diverse activities that take place at Erlenhof for more than 20 years. The 'Stammhaus' will be a vibrant place where ideas emerge and flourish, embodying the very spirit of our company,' commented client Katharina Lehmann. In its design, K&L Architekten focused on transparency, creating lots of visual axes for communication and integrating a multi-storey atrium featuring the staircase sculpture that gives the building its German name as a central element for gatherings.

The office building has a footprint shaped like a quadrangle with one acute angle. It provides space for 180 office workstations over five floors, not to mention function rooms and event spaces, plus a cafeteria with a terrace on the ground floor. A spacious foyer and the curved atrium staircase offers visitors a warm welcome. On the second floor, a walkway connects the new building to the neighbouring production hall, where there are plans to create additional office space on the upper floor.

Sustainable workstations that are fit for the future

The office spaces extend along the outer facades, while the meeting and retreating spaces, small kitchens and cloakroom alcoves are grouped around the access core clad in green-varnished silver fir. In the flexible office floors, clay walls improve the indoor climate, acting as thermal storage units. The coloured clay plaster contrasts with the timber surfaces, creating specific colour accents. Good room acoustics in the open-plan office areas are guaranteed thanks to the timber acoustic ceilings and a natural wool carpet.

Active cooling was deliberately avoided in favour of sustainable low-tech solutions. Warm air escapes through the atrium and automated windows on all floors provide fresh air and automatic cooling at night. Meanwhile, during the daytime, all the office areas can be naturally ventilated individually and manually. The surrounding balconies provide all the windows with sufficient shading. The temperature of the internal meeting rooms is controlled by means of clay cooling ceilings, whose cooling capacity is generated in an eco-friendly manner through geothermal energy piles.

Timber skeleton frame featuring new composite technology

The vision of the 'Stammhaus' was made a reality by drawing on an efficient construction method and sensibly using regional materials. The office building is organised as a conventional timber skeleton frame over several floors and braced with a concrete core. Around the vertical access core featuring stairwell, wet rooms and lift, everything is made of timber. The visible timber components come from the company's very own sawmill, while others were processed by external producers into semi-finished and finished products. The project team found a special solution for the floor slabs: the timber-concrete-timber composite saves on concrete and eliminates the need to bond the components together. To ensure a shear-resistant connection between the laminated timber ribs of the floor slabs and the CLT panels lying on top, recesses were milled into both the panels and beams, which were only filled with concrete after installation.

Natural protection from the sun

The suspended facade gives the building depth and an interplay of shadows. Surrounding balconies with vertical timber lesenes provide protection against sun and glare when sitting at the workstations. Where more sun protection and privacy is required, they are supplemented by horizontally layered timber stacking elements. The design of the southwest facade facing the yard is

inspired by the image of the boards stacked to dry next door in the sawmill. But the facade's 'stacks of timber' consist of finger-jointed spruce lamellas resting on around 10,000 roof-stick braces, which are the small blocks used as spacers to allow air to circulate when storing wood. Reconciling the facade's aesthetics with wood protection was another challenge that Blumer Lehmann's project team successfully overcame.

A Free Form staircase with curved timber segments

The heart of the building is the atrium featuring the Free Form staircase that gave the 'Stammhaus' its name. It passes through all five floors of the building, serving both as a vertical circulation area and an identity-forming communication space. In contrast to the building's strict grid-like structure, the atrium's curved surfaces allow unique spatial qualities to unfold. They allow views both in and out and form seating alcoves and balconies that bring the atrium together with the surrounding floor levels.

On the outside, the curved timber segments form convex wall surfaces that appear almost textile-like. Towards the central air space, the precise points where the curved elements intersect with one another articulates a sequence of sweeping ridges that extend vertically through the floors and emerge as a sculptural relief in the incoming daylight. A round skylight above the atrium provides daylight. The lightweight structure made of an ETFE foil cushion measuring 8.5 metres in diameter combines aesthetics with lightness.

An innovative space structure with *CLT* curved

While K&L Architekten handled the architectural design and planning of the entire 'Stammhaus' project, the ICD of the University of Stuttgart, in collaboration with the client, the planning team of Blumer Lehmann and the architects, designed the curved and sloping surfaces of the atrium and the staircase. The curved wall elements made from cross-laminated, curved solid wooden panels also have a load-bearing function. The atrium's perimeter walls have a radius of three metres. Thanks to the walls' curvature, the structure is exceptionally rigid, enabling a wall construction of just 130 millimetres at most. The load-bearing inner stringer of the staircase sculpture is only nine centimetres thick. Despite this minimal material thickness, the structure ensures load transfer across all five floors, supporting the staircase, the adjacent floor slabs and the roof structure above. The use of curved components with just two different radii contributes to the structural efficiency. The different staircase components create an interplay of lines and curves.

Computational Design

Striking a precise balance between the design, structural and production technology aspects was one of the particular challenges. Supported by a team of engineers from SJB Kemptner Fitze, the design team computationally modelled the elements for automated production. The computational design methods enabled precise control over the structure's complexity.

Following the design specifications, the curved components were made from *CLT curved* by Blumer Lehmann. The components' geometry and their connections with their many thousands of pre-drilled holes at different angles were extremely challenging. The extensive effort required for precise production proved its worth during assembly, as all the differently inclined joints of the curved panels fit together immediately.

A research project and *CLT curved*, a new production line

The Free Form atrium was a good opportunity for Blumer Lehmann to continue its cooperative relationship with the University of Stuttgart's Institute for Computational Design and Construction. For the researchers, it offered the chance to further develop the computational design and production methods for the curved timber components during design and detailing. For Blumer Lehmann in its capacity as the industrial partner, the focus was on turning the vision of the special atrium design into a reality from both a technical and a structural standpoint. The geometrically challenging panels were ultimately made using wood from the company's very own sawmill. Blumer Lehmann is currently further developing *CLT curved* consisting of cross-laminated, bent solid wooden panels – made from raw spruce lamellas from the company's very own sawmill – as a product for international approval.

Text length

approx. 9,000 characters

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Construction details for Blumer Lehmann's 'Stammhaus' head office building

Client: Blumer Lehmann

General Contractor: Blumer Lehmann

Architecture: K&L Architekten AG

Design Atrium Structure: ICD Institute for Computational Design and Construction

(Prof. Achim Menges), University of Stuttgart

Atrium construction method: Free Form

Atrium structural engineers: SJB Kempter Fitze AG

Parametric planning, scripting: Blumer Lehmann

Timber construction: Blumer Lehmann

Timber skeleton frame structural engineers: Blumer Lehmann

Location: Erlenhof, 9200 Gossau, Switzerland

Completed in: 2024

Images:

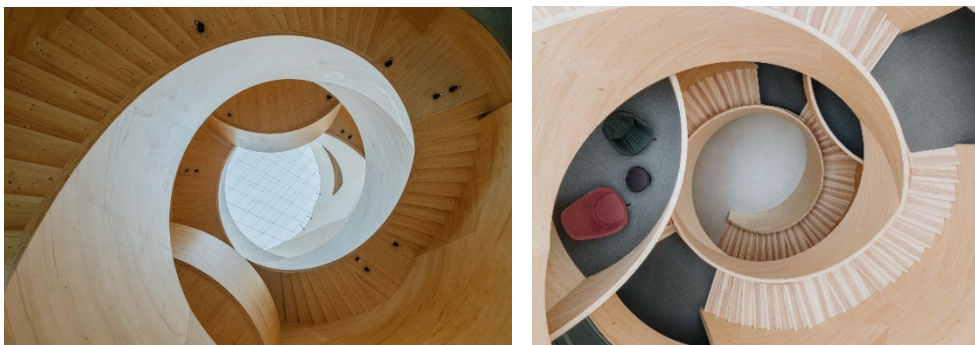


Full view of the 'Stammhaus' building with surrounding balconies and suspended facade made of vertical timber lisenen

Photo credit: Jan Thoma | Blumer Lehmann

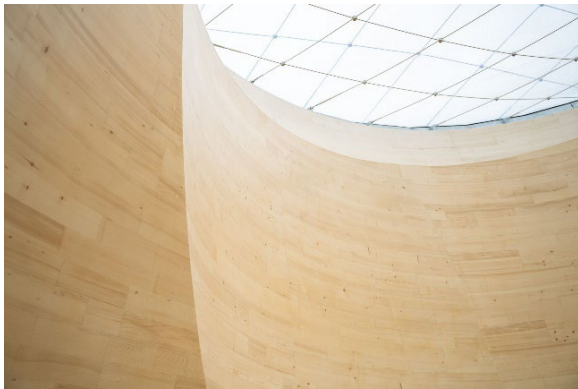


View from the inside, looking towards the southwest facade made of spruce lamellas, inspired by the image of the boards stacked to dry in the neighbouring sawmill
Photo credit: Jan Thoma | Blumer Lehmann



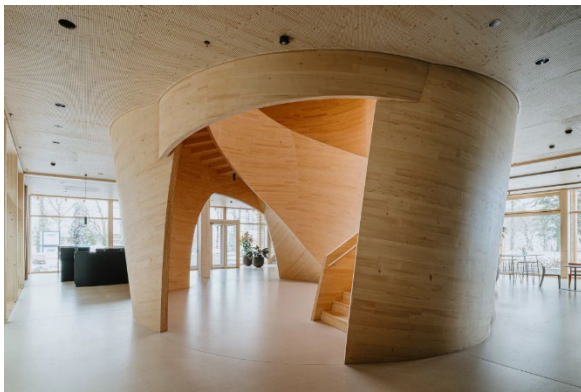
((left)) View looking upwards into the atrium, a Free Form construction, with staircase
Photo credit: Jan Thoma | Blumer Lehmann

((right)) View from above, looking down into the atrium with staircase and meeting alcoves
Photo credit: Jan Thoma | Blumer Lehmann



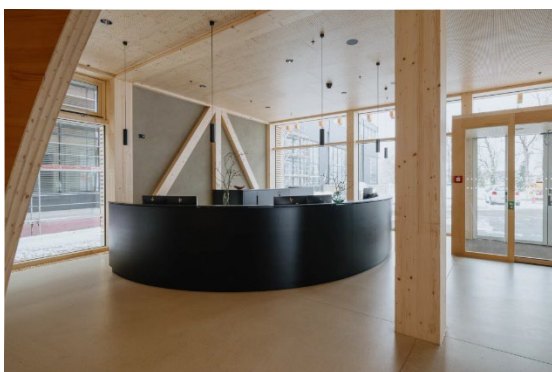
The skylight, a lightweight structure made of an ETFE film cushion, provides daylight in the atrium

Photo credit: Jan Thoma | Blumer Lehmann



Foyer and entrance to the curved atrium staircase on the ground floor

Photo credit: Jan Thoma | Blumer Lehmann



((left)) Visitor reception on the ground floor of the 'Stammhaus' building

Photo credit: Jan Thoma | Blumer Lehmann



((right)) Counter in the cafeteria – in what is known in German as the 'Stammlokal' (a term meaning 'regular hangout spot', which, like 'Stammhaus', also happens to incorporate the

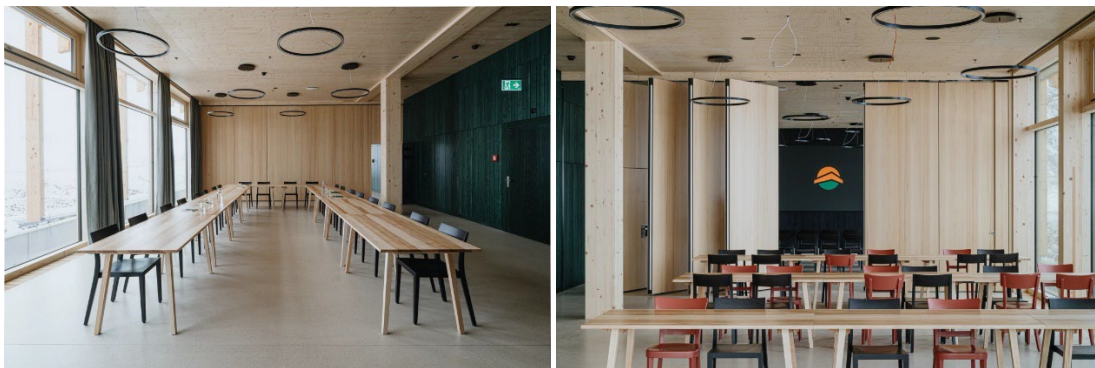
word 'Stamm', or 'tree trunk')

Photo credit: Jan Thoma | Blumer Lehmann



The furniture in the 'Stammlokal' consists of the existing, refurbished chairs, combined with new, black 'Horgenglarus' chair models

Photo credit: Jan Thoma | Blumer Lehmann



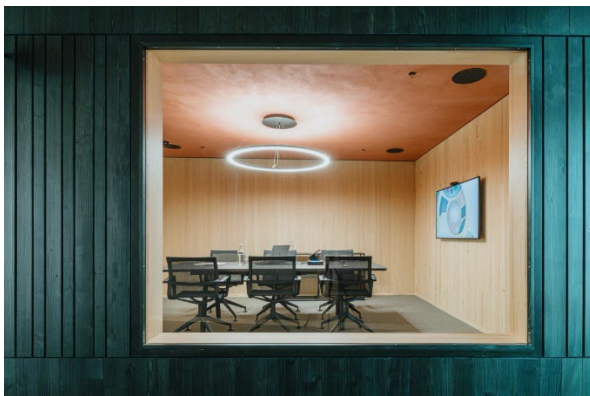
Versatile events spaces on the ground floor

Photo credit: Jan Thoma | Blumer Lehmann



Access core with cladding made of silver fir varnished in green, and single-person offices on one of the office floors

Photo credit: Jan Thoma | Blumer Lehmann



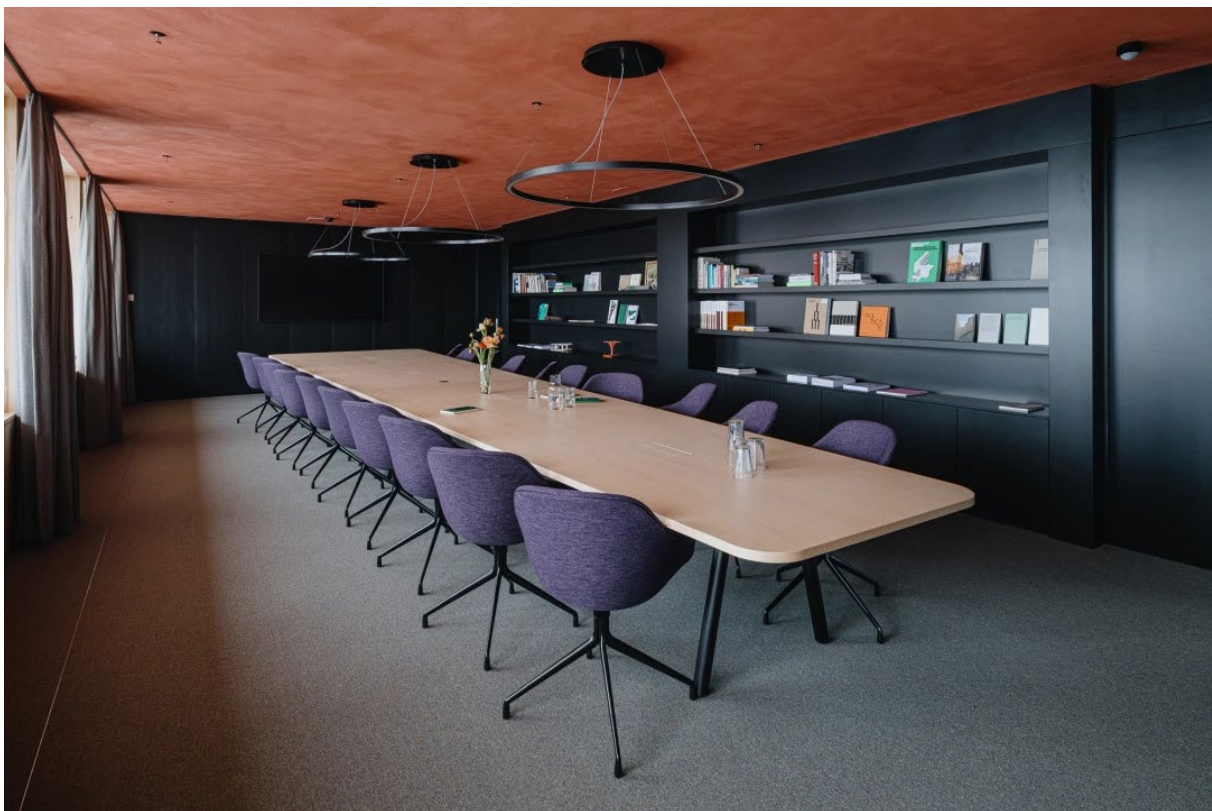
The access core features a small kitchen, cloakroom alcove, stairwell, toilets and meeting and retreating spaces

Photo credit: Jan Thoma | Blumer Lehmann





Workstations in the office building's open-plan space
Photo credit: Jan Thoma | Blumer Lehmann

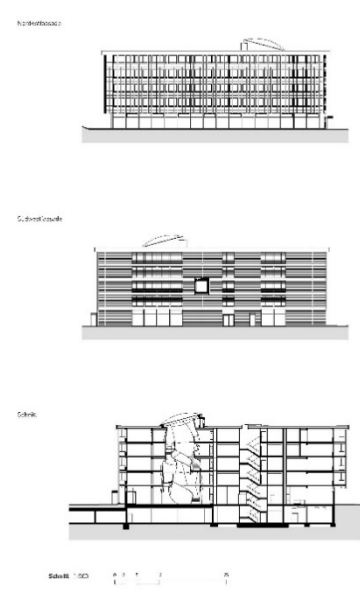
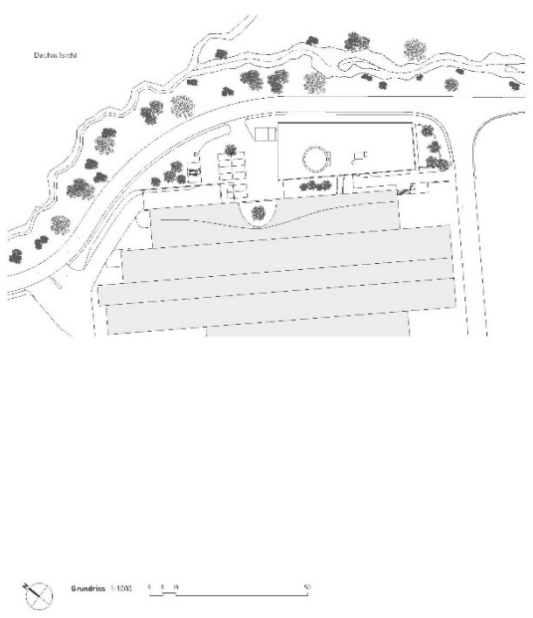
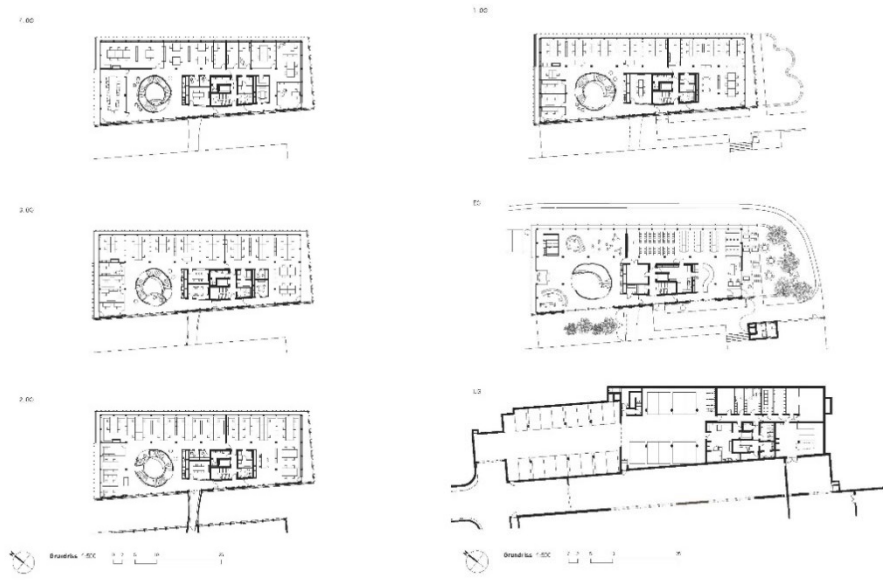


Meeting room on the fourth floor
Photo credit: Jan Thoma | Blumer Lehmann

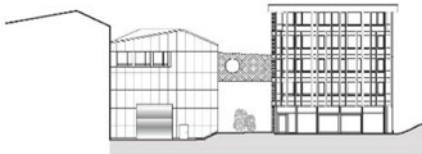


Model of an early design of the 'Stammhaus'

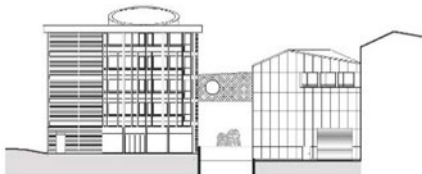
Plans, floor plans, sections



Südfassade



Nordwestfassade



Schnitt



Schnitt 1:500



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About the Project Partners

Blumer Lehmann – Faszination Holz

As a leading timber construction company, Blumer Lehmann harnesses the potential of timber in all its facets and works to advance timber engineering internationally. More than 500 employees work at the headquarters in Gossau, St Gallen, at locations in Switzerland, Germany, Austria and Luxembourg, and on assignments around the world on a wide variety of customer projects.

The complete timber life cycle

A fascination with wood has defined how we think and act as a business since 1875. Blumer Lehmann processes the natural raw material that is timber into innovative products, services and structures in a complete cycle of sustainable value creation. Each year in our sawing, planning and finger-jointing facilities, we turn 170,000 m³ of Swiss logs into an extensive range of sawn timber products for the construction industry. The residual timber is processed into animal litter and carbon-neutral pellets and used as an energy source for our own power plant. Using timber construction methods, Blumer Lehmann develops, plans, produces and delivers new builds – including Free Form projects in collaboration with world-renowned architectural practices – as well as conversions with additional storeys and renovations. Furthermore, the company develops and manufactures modular timber

structures that make affordable residential space and maximum flexibility possible, even when space is limited. Blumer Lehmann also specialises in silos and facilities for road and winter maintenance across Europe – automated and equipped with modern conveyor technology.

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Vorarlberg-based oa.sys baut GmbH has also been part of the Blumer Lehmann Group since January 2023. The timber construction company complements the portfolio with services relating to large-volume residential and commercial construction in Austria and Germany.

K&L Architekten

K&L Architekten was founded in May 1999 by Kay Kröger and Thomas Lehmann after studying at ETH Zurich and abroad. Today, with around 20 employees, the office is a medium-sized and established architectural practice in St.Gallen. In 2023, the management team was expanded to include the new partners Johanna Deinet and Flurin Ghilardi in order to create a solid foundation for the further development of the office.

K&L Architekten take a holistic approach to develop optimal results and solutions that fulfil both technical and aesthetic requirements. Their projects are testimony to the search for coherent answers to the questions of our time, characterised by constant development and redesign until the optimum solution is found. The aim is to achieve a very high architectural quality, which is reflected in the synthesis of the inner and outer values of the projects.

Sustainability is a central aspect of their work. K&L Architekten are convinced that only integral and integrating solutions can create truly ecologically sustainable values. This means both future-proof and durable designs and concepts that are viable and open to further development.

Over the last 25 years, K&L Architekten have tackled an impressive range of projects, from single-family homes in alpine settings to inner-city residential and commercial buildings and large sports and wellness facilities. Their designs are clever, well-thought-out and tasteful, and are characterised by sophisticated floor plans, a wide range of materials and colours, and their spatial impact. The buildings and projects bear witness to a sensitivity towards the city and its history, landscapes and local traditions, as well as towards craftsmanship, construction and supporting structures.

ICD Institute for Computational Design and Construction, University of Stuttgart

The Institute for Computational Design and Construction (ICD) explores the integration of computational design methods, robotic fabrication and construction processes, and related novel material and building systems for a more sustainable and future-oriented architecture. Timber construction is a focus area of this research.

As a leading institution in the interdisciplinary exploration and realization of innovative timber building systems, the ICD investigates a diverse range of timber construction methods from segmented timber shells for long-span structures and flexible timber skeleton systems for multi-story buildings to novel natural fiber-wood hybrid structures and self-shaping curved cross-laminated timber constructions for special applications.

Over the past 15 years, the ICD has realized numerous pioneering demonstrator buildings as part of this research. Notable examples include the BUGA Wood Pavilion for the 2019 Bundesgartenschau in Heilbronn, the LivMatS Biomimetic Shell for the University of Freiburg in 2023, and the Wangen Tower for the 2024 Landesgartenschau in Wangen im Allgäu. These projects have been widely published internationally and have received numerous prestigious awards, including the German Sustainability Award, the German Design Award, the Iconic Award, and the Federal Timber Construction Award (HolzbauPlus).

Since 2019, the ICD has been a key member of the Cluster of Excellence IntCDC (Integrative Computational Design and Construction for Architecture), the first and only Cluster of Excellence in the field of architecture and construction. IntCDC fosters interdisciplinary research at the intersection of architecture, structural engineering, production and systems engineering, computer science and robotics, as well as the humanities and social sciences, with a strong emphasis on timber construction.