Factsheet

Uni Witten/ Herdecke:

Climate-friendly timber construction

Sustainable building materials like wood play an important role in reducing carbon emissions during construction. In a recent project for Witten/Herdecke University, timber construction specialist ZÜBLIN Timber – together with Berlin-based architects Kaden + Lager – fully exploited the potential of the hybrid timber construction method. The new extension building on campus fully showcases the benefits of this renewable, carbon-sequestering building material.

The aim of the project was to create a distinctive new space for the university and its students using wood as a building material, while at the same time allowing for a flexible room layout. Following 18 months of construction, the three-storey extension building was completed in time for the start of the 2021/2022 winter semester. In addition to office, administration and seminar rooms, the new building also includes a library, event rooms and a café/bar as an inspiring “future space” for the university’s 2,600 students and more than 900 employees.

Cover The new campus building was opened in autumn 2021 @ Witten/Herdecke University, Johannes Buldmann



The project at a glance

- **Type**: New timber hybrid university extension building
- **Client**: Private Universität Witten/ Herdecke GmbH, Witten
- **General contractor**: Ed. Züblin AG, Subdivision Ulm / Business Unit ZÜBLIN Timber GmbH
- **Architect**: Kaden + Lager, Berlin
- **Project schedule**: 3/2020 – 9/2021
- **Contract value**: € 22 million
- **Gross floor area**: 7,000 m²
- **Facilities**: about 300 study places for students in different variations, nine seminar rooms, multi-storey library, café with lounge, event room for up to 350 people, 5 office corridors with about 100 workstations
- **Energy standard**: KfW55
- **Certification**: BNB silver certification for sustainable construction



1 Floor-to-ceiling windows in the seminar room @ Universität Witten/Herdecke, Johannes Buldmann

Watch the making-of video of the building's inauguration here.

Why create a building from 1,382 cubic metre of wood?

Wood is climate friendly, because it stores carbon dioxide. And that is precisely why the client and the architect's office chose this renewable resource as the most important material for the new building. The ZÜBLIN Timber team installed about 10,000 different timber construction elements for a total of 1,382 cubic metre of wood and wooden materials. The amount of wood used in the project can bind up to 1,382 tonnes of CO_2.

From the supporting structure to the interior fittings to the façade, the innovative new building fully exploits the structural and engineering potential of wood. The building consists of a skeleton frame made of LENO® cross-laminated timber ceilings (spruce from certified sustainable forestry sources) and a façade construction of untreated domestic larch.



Wood – the building material that grows back and can bind CO_2

- Wood is a natural building material and one of the most important renewable resources used in construction.
- Every cubic metre of wood used in the construction binds one tonne of climate-warming carbon dioxide from the atmosphere.
- The use of wood can reduce the need for other building materials (such as concrete), the production of which emits large amounts of CO_2.
- The possibilities of building with wood are almost unlimited.
- Wood provides a natural indoor climate.

Maximum flexibility thanks to timber-frame construction

By choosing a timber frame construction as the supporting structure with a minimal number of supports, the building offers a high degree of flexibility in the room layout and allows for optimal, long-term use. The only exceptions are the basement floors and the staircases, which for technical reasons were built the conventional way using reinforced concrete.

The new building project in Witten specifically made use of products, technologies and processes that create a pleasant atmosphere for students and teaching staff. The post-and-beam and exterior façades made of untreated native softwood give the building a dynamic and light appearance. Floor-to-ceiling wood-aluminium windows contribute to optimal illumination and a pleasant ambience. The focus in the interior is on openness and communication, although several quiet spaces for concentrated work are provided as well. The premises can also be flexibly and quickly adapted to different usage requirements. Seven of the nine seminar rooms have movable walls and offer a flexible spatial concept for different types of work for 25 to 200 persons. The possibility of connecting the new building to the existing buildings at a later date was already taken into account during the design and construction phases.



> Projects like our new building at Witten/Herdecke University show what the future of construction can look like. As a sustainable, flexible building material, wood offers immense potential, that we want to use. In Witten, we've shown how much is already possible today.
>
> **Simon Pfeffer**
> Business Unit ZÜBLIN Timber GmbH



2 Sustainable hybrid timber construction for Witten/Herdecke University @ Witten/Herdecke University, Johannes Buldmann / **3** The library extends over several floors. @ Witten/Herdecke University, Johannes Buldmann

Low-tech energy concept: saving energy without any complex technology



The building's mechanical and electrical equipment was designed in line with a low-tech energy concept that involves minimising the building's energy consumption without the need for complex technical systems. In terms of sustainability, the team, in an integrated planning process, developed an individually optimised heating, cooling and ventilation concept for each room that works in combination with the façade. This was accomplished as follows:

- The building allows for natural ventilation from the first floor up and hybrid-style ventilation in the basement and ground floors.
- The indoor air meets all modern quality standards, as confirmed by an indoor air measurement.
- The triple-glazed timber-glass façade offers internal glare protection and is fitted with external solar shading that responds to the amount of sunlight coming in.
- The smaller rooms from the first floor upwards are heated using radiators. The large rooms on the hillside and ground floor can be heated with underfloor convectors that are situated close to the façade. The incoming air is preconditioned to approx. 20°C and can be regulated for each room accordingly.
- A building acoustics measurement confirms compliance with all sound specifications according to DIN 4109.

ZÜBLIN Timber – the STRABAG Group's timber construction specialist

ZÜBLIN Timber stands for ambitious and pioneered solutions in the field of timber construction. The company complements ZÜBLIN und STRABAG's traditional building construction and civil engineering activities with its own expertise in timber construction and serves as a single-source provider for the development, production, delivery and execution of high-quality timber construction systems – from simple structural frames to complex timber engineering and façade construction to turnkey project execution. ZÜBLIN Timber works hand in hand with its clients to develop efficient solutions and a sustainable quality of life.

Learn more about ZÜBLIN Timber.



Contact

Simon Pfeffer
ZÜBLIN Timber GmbH
www.zueblin-timber.com