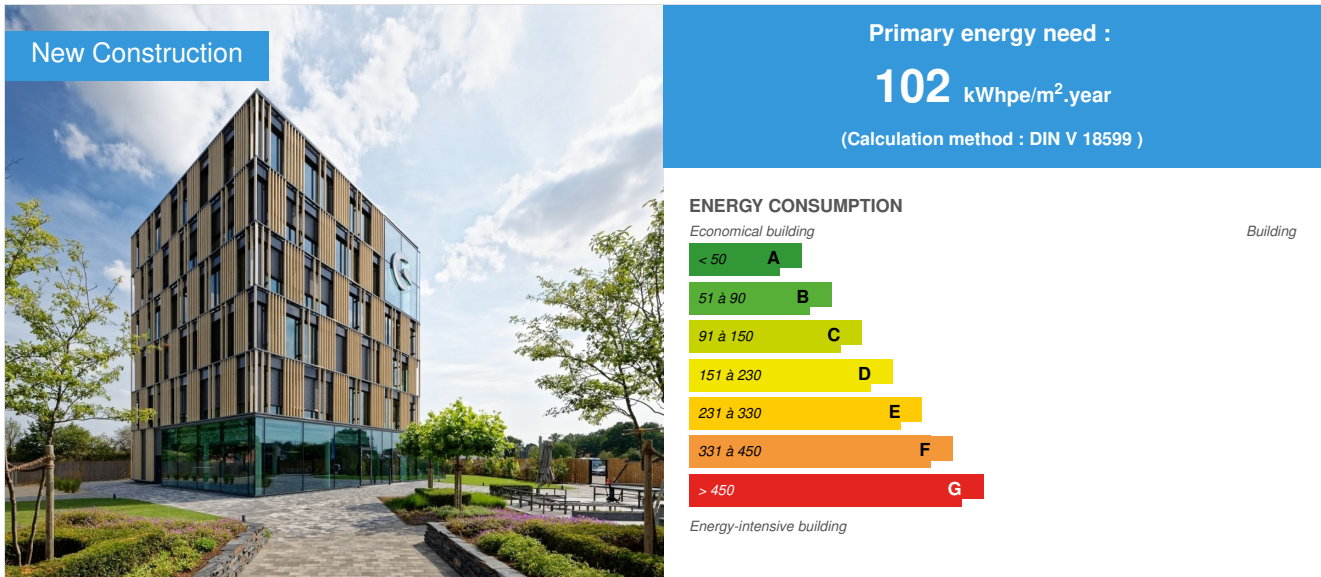


Office building in hybrid construction, shopware AG

by Kerstin Büning / © 2021-03-01 08:08:15 / Deutschland / © 2656 / DE



Building Type : Office building < 28m
Construction Year : 2019
Delivery year : 2019
Address 1 - street : Ebbinghoff 10 48624 SCHÖPPINGEN, Deutschland
Climate zone : [Cfb] Marine Mild Winter, warm summer, no dry season.

Net Floor Area : 2 006 m² NGF
Construction/refurbishment cost : 3 800 000 €
Cost/m2 : 1894.32 €/m²

Certifications :



General information

Light, wood and openness - the six-storey office cube of the software developer Shopware in Schöppingen, Westphalia, offers its users a comfortable working environment. The original design came from the architectural firm Bock Neuhaus Partner. We convinced the client of the tried and tested hybrid construction method, which harmonises different materials such as wood and reinforced concrete, and redesigned the architecture accordingly.

Integral planning and the integration of Building Information Modelling (BIM) ensured the smooth and speedy completion of the new building. Thanks to a high degree of prefabrication, a very short construction time was achieved.

The workplaces and rooms were deliberately designed to be open. The construction with visible material surfaces offers comfort and high quality and the use of wood provides a friendly atmosphere.

In addition, the natural building material is renewable and stores carbon dioxide. With its properties, the material ensures a good indoor climate in the offices and thus enables concentrated and healthy working.

In order to bring a lot of natural light into the building, the new building was given a glass façade in the form of a timber post-and-beam construction on the upper floors and an aluminium post-and-beam façade on the ground floor. In keeping with the design of the existing building, the glass façade was fitted with Accoya wood louvres in some areas.

Certified Gold status from the DGNB: One of the decisive factors for the positive assessment by the DGNB was the implementation in timber hybrid construction. The use of wood scored particularly well in the "life cycle assessment" criterion. Furthermore, the new building is particularly convincing in the criteria "quality assurance of the construction", "quality of the building envelope", "indoor air quality" and "flexibility and adaptability".

See more details about this project

<https://www.brueninghoff.de/unternehmen/newsroom/aktuelles/news/gold-fuer-shopware-neubau/>

<https://www.brueninghoff.de/unternehmen/newsroom/aktuelles/news/arbeiten-im-hybriden-buero/>

Data reliability

Assessor

Photo credit

Brüninghoff Unternehmensgruppe

Stakeholders

Contractor

Name : Brüninghoff GmbH & Co. KG

Contact : Frank Steffens, info@brueninghoff.de, 46359 Heiden

<https://www.brueninghoff.de>

Construction Manager

Name : Brüninghoff GmbH & Co. KG

<https://www.brueninghoff.de>

Stakeholders

Function : Contractor

shopware AG

info@shopware.com, 48624 Schöppingen

<https://www.shopware.com>

Contracting method

Maximum Guaranteed Price

Owner approach of sustainability

The goal of the building?

We wanted to offer our employees a beautiful, modern and sustainable working environment in which they feel comfortable.

What benefits did you see at the beginning of the project?

Sustainability is a value that is deeply anchored in our corporate philosophy. So the advantage is that we can offer our employees a great working environment while at the same time we can set an example for sustainability.

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This time we made a conscious decision to build upwards and thus leave as small a "footprint" as possible.

Architectural description

In addition, the natural building material is renewable and stores carbon dioxide. With its properties, the material ensures a good indoor climate in the offices and thus enables concentrated and healthy working.

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Certified Gold status from the DGNB: One of the decisive factors for the positive assessment by the DGNB was the implementation in timber hybrid construction. The use of wood scored particularly well in the "ecological balance" criterion. Furthermore, the new building is particularly convincing in the criteria "quality assurance of construction", "quality of the building envelope", "indoor air quality" and "flexibility and convertibility".

If you had to do it again?

On the whole, we are very happy with how it went. The construction time, for example, was a big plus.

Building users opinion

The employees enjoy working in the "Tower" and are very satisfied with most aspects of the new building.

Energy

Energy consumption

Primary energy need : 102,00 kWhpe/m².year

Primary energy need for standard building : 120,00 kWhpe/m².year

Calculation method : DIN V 18599

Final Energy : 75,00 kWhfe/m².year

Breakdown for energy consumption :

Primary energy: heating 39 kWh / m² * a, lighting 14 kWh / m² * a, hot water 2 kWh / m² * a, ventilation 25 kWh / m² * a, cooling 23 kWh / m² * a

Envelope performance

Envelope U-Value : 0,18 W.m⁻².K⁻¹

Building Compactness Coefficient : 0,33

Indicator : n50

Air Tightness Value : 0,96

Renewables & systems

Systems

Heating system :

- Heat pump

Hot water system :

- Individual electric boiler

Cooling system :

- Reversible heat pump

Ventilation system :

- Double flow heat exchanger

Renewable systems :

- Heat pump

Renewable energy production : 42,00 %

Other information on HVAC :

Heated and chilled ceiling sails

Gas engine heat pump reversible

Solutions enhancing nature free gains :

External sun protection to reduce solar radiation in summer

GHG emissions

GHG in use : 27,00 KgCO₂/m²/year

Methodology used :

Module B according to EN 15804 and EN 15978

GHG before use : 6,00 KgCO₂/m²

Building lifetime : 50,00 year(s)

, ie xx in use years : 0.22

GHG Cradle to Grave : 33,00 KgCO₂/m²

Modules A to D according to EN 15804 and EN 15978

[LCA berechnet mit Generis Software im Rahmen der DGNB-Zertifizierung Kriterium ENV 1.1](#)

Life Cycle Analysis

The life cycle assessment was prepared according to the specifications of the DGNB and DIN 15978. It covers the building's construction and technology over its entire life cycle. The assessment according to DGNB was carried out on the basis of the referen

[Die Oekobilanz wurde in Varianten durchgeführt, um die Umweltwirkungen zu verringern. Dabei wurde eine konventionelle Stahlbetonbauweise mit der Holzhybridbauweise verglichen.](#)

Indoor Air quality

Measurement of 5 rooms as part of the DGNB certification.

Result:

TVOC micrograms per cubic meter: 84-260

Formaldehyde micrograms per cubic meter: 18-31

Comfort

Health & comfort :

Open and flexible working concepts have been on the rise for several years. The new Shopware building follows this growing trend in office construction. The workplaces and rooms were deliberately designed to be open. A concept that promotes direct communication between employees in everyday working life. In order to meet changing requirements, the rooms can also be rearranged quickly and flexibly. In the realisation of the open work areas, the hybrid supporting structure offered a high degree of leeway. The construction with visible material surfaces offers a high quality of stay and the use of wood provides a friendly atmosphere. In addition, the natural building material is renewable and stores carbon dioxide. With its properties, the material ensures a good indoor climate in the offices and thus enables concentrated and healthy working. In addition, heating and cooling sails were installed above the workplaces, allowing the rooms to react flexibly to the respective weather conditions in winter and summer.

Products

Product

Wood-concrete composite floor

Brüninghoff GmbH & Co. KG

Brüninghoff, Industriestraße 14, 46359 Heiden, presse@brueninghoff.de

<https://www.brueninghoff.de>

Product category : Rohbau / Struktur, Mauerwerk, Fassade

The HBV ceilings from Brüninghoff combine the advantages of both building materials, so that material properties can be achieved that would not be achievable by using individual materials. Given the sound and fire protection requirements that cannot be met with a pure wooden ceiling, the HBV ceiling is lighter than a comparable reinforced concrete ceiling, and large spans are possible (5.50m-9.50m).

Prefabricated wall elements

Brüninghoff GmbH & Co. KG

Brüninghoff, Industriestraße 14, 46359 Heiden, presse@brueninghoff.de

<https://www.brueninghoff.de>

Product category : Rohbau / Struktur, Mauerwerk, Fassade

Thanks to a high degree of prefabrication, a very short construction time could be achieved. The exterior walls were prefabricated at Brüninghoff's headquarters in Heiden, transported to the construction site and assembled on site. The individual wall elements are up to 18 metres long. Therefore, possible deformation had to be taken into account during handling. For this purpose, Brüninghoff developed a special truss construction that prevented deflection and facilitated the lifting of the long elements to the assembly site.

Due to the short construction time due to the high degree of prefabrication, the client was very impressed.

Costs

Construction and exploitation costs

Global cost : 8 429 000,00 €

Reference global cost : 10 368 000,00 €

Global cost/Work station : 56193.33

Reference global cost/Work station : 10368000

Cost of studies : 60 000 €

Total cost of the building : 3 800 000 €

Additional information on costs :

A life cycle cost calculation was carried out according to DGNB. The life cycle costs include production, maintenance, renovations, consumption of energy and water during the use phase, and cleaning costs. Due to the economical production and the use of environmental heat (air source heat pump and air conditioning with highly efficient heat recovery), the life cycle costs could be reduced by 19% compared to the reference value according to DGNB.

Energy bill

Forecasted energy bill/year : 18 800,00 €

Real energy cost/m² : 9.37

Real energy cost/Work station : 125.33

Urban environment

The six-storey, innovative hybrid building is an extraordinary construction project for Schöppingen and the Münsterland region with an address effect and an impact as an "activator" of the neighbourhood.

The new building has a positive regional and supraregional impact. The building and its use complement the neighbourhood (office use in a commercial area) through its independent charisma and character (construction, façade). Due to its height, it is visible from afar and has a supraregional impact/address effect on the neighbourhood.

The new building creates synergy effects on a technical, economic, utilisation or social level, which form a spatial cluster and therefore exert a high attraction both for customers and for users, who can thus realise the proximity to associated or also competing companies. A fitness and training/seminar area will move into the adjacent building (former workshop). Thus 4 uses are available that complement each other: Office, gastronomy, fitness, training.

Land plot area

Land plot area : 13 888,00 m²

Built-up area

Built-up area : 19,00 %

Green space

Green space : 7 520,00

Parking spaces

3613 m² of ground-level parking space for cars and bicycles. 6% of the car parking spaces were realised with e-charging columns. E-bikes are provided for employees, e.g. for the lunch break.

Building Environmental Quality

Building Environmental Quality

- Building flexibility
- indoor air quality and health
- biodiversity
- consultation - cooperation
- acoustics
- comfort (visual, olfactive, thermal)
- energy efficiency
- renewable energies
- building end of life management
- mobility
- building process
- products and materials

Contest



Date Export : 20230411213708