

EDGE Suedkreuz Berlin

Ensemble of two timber-hybrid office buildings comprising a Carré building, a rectangular building, a basement garage, gastronomic units, and commercial spaces

Address: Hildegard-Knef-Platz 2 and 3, 10829 Berlin

Client: SXB S.à r.l. / EDGE

Floor area: 32,000 sqm

Completion: May 2022

Service stages: 1-4, partly 5, general specifications and creative/design management, BIM

Architect: Sergei Tchoban

Project partners: Stephan Lohre

Team: Julia Angelstorf, Lev Chestakov, Giorgia Fontana, Ulrike Graefenhain, René Hoch, Anastasia Kapustina, Valeria Kashirina, Birgit Koeder, Achim Linde, Fabiana Pedretti, Dennis Petricic, Manuela Peth, Soeren van Ost, Fabio Prada, Anja Schroth, Katharina Stranz, Carolin Trahorsch, Karsten Waldschmidt

Collaborating architects: Service stage 5: granz + zeher architekten GmbH, Berlin

General contractor: ARGE SXB, Suedkreuz Berlin ZECH Bau GmbH, CREE Deutschland GmbH, Rhomberg Systemholzbau GmbH represented by ZECH Bau GmbH, Berlin

Project management: SMV Bauprojektsteuerung Ingenieurgesellschaft mbH, Berlin

Landscaping: service stages 1-4, hochC Landschaftsarchitektur, Berlin; service stage 5, granz + zeher architekten GmbH, Berlin

Structural engineering: Buro Happold GmbH, Berlin; BIT Buero fuer integrale Tragwerksplanung GmbH, Berlin

Building technology: Buro Happold GmbH, Berlin

Sustainability consulting and DGNB/WELL certification: Buro Happold GmbH, Berlin

Interior design: de Winder Architekten GmbH, Berlin

Façade planning: Arup Deutschland GmbH, Berlin

Façades / glass-fibre concrete panels: Rieder Group, Maishofen, Austria

Façades / wall modules: Opitz Holzbau GmbH & Co. KG, Neuruppin

Hybrid ceilings: BWE-Bau Fertigteilwerk GmbH, Lemwerder, thomas allton GmbH, Henningsdorf

Solar-shading glazing: MicroShade A/S, Glostrup, Denmark

Roof construction Carré-Atrium metal: Biedenkapp Stahlbau GmbH, Wangen

Roof construction Carré-Atrium Wood / ETFE foil: Temme // Obermeier GmbH, Rosenheim

Trees / Wood: Blumer-Lehmann AG, Gossau, Switzerland

Mullion-transom construction (Entrance, Skylounge): Wipfler Fenster + Fassaden GmbH, Zusmarshausen-Wörleschwang

Wood Mullion-transom construction: Kerto® LVL (structural laminated veneer lumber), Metsä Group, Espoo, Finland

Photographer: HG ESCH

EDGE Suedkreuz Berlin is a seven-storey office complex consisting of two buildings with a total floor area of approximately 32,000 sqm. The complex stands on an approximately 10,100 sqm site and has been built using sustainable, climate- and resource-saving, and modular hybrid-timber construction techniques. The larger of the two freestanding buildings contains approximately 20,000 sqm of floor space. This makes it – for some time to come – the largest hybrid-timber building in Germany and one of the largest in Europe. The German Sustainable Building Council (DGNB) certified the project as Germany's most sustainable building in 2022. Since summer 2022, it has served as the new German headquarters for the energy supplier Vattenfall.

The area around Berlin Suedkreuz regional, long-distance, and S-Bahn station, part of the so-called 'Schoeneberger Linse', is developing into a new urban district with an attractive mix of functions (housing,

work, culture, and trade). The new office complex is part of a new urban district. Its planning involved restructuring the area between Sachsendamm, Hedwig-Dohm-Strasse, Hildegard-Knef-Platz, and Lotte-Laserstein-Strasse. The smaller of the two buildings (the 'Solitaire') is an elongated freestanding building which continues the line of the façade of the larger office building. The latter is a quadrangle-type structure (the 'Carré') with an irregular trapezoidal footprint. The two buildings form a street front facing Hedwig-Dohm-Strasse. In the direction of Südkreuz Station, they create a new urban plaza with green spaces and seating.

The Carré building

The heart of the Carré building is a spacious, light-filled atrium. A two-storey entrance lobby with a clear height of seven metres facing the plaza in front of the building opens up the massive, strictly gridded volume and directs the gaze firmly towards the building's impressive interior. The 26-metre-high atrium is covered by a transparent ETFE foil roof carried by a wooden-truss construction. The continuous floor-to-ceiling windows in the offices, the glazed entrance area, and the large panoramic window in the building's lounge additionally contribute to the abundance of daylight.

A central highlight is the four treelike shapes of different heights which grow skywards under the foil roof as if in a greenhouse. Their lamellate spruce-wood structure gives them a resemblance to gigantic mushrooms. At ground level, green islands of tranquillity group themselves around their stems. The atrium is additionally enlivened by community and food areas. The crowns of the so-called 'Trees' carry platforms for recreation; these form green leisure and communication zones at various heights. The largest is 14.87 metres high and has a platform with a diameter of 6.20 metres; the lowest is 4.28 metres high with a diameter of 7.20 metres. These structures are linked by filigree steps with white railings, which – on the other side of the classical building core – lead via the platforms to the adjacent floors of offices.

The fifth floor has a sky lounge with panoramic windows and a spacious external terrace. The lounge is openly linked to the atrium space and, like the offices, may be reached on foot via the 'tree stairs'.

In every part of the building – from the supports, beams, windows, and doors to the claddings and railings – wood is visible in all the interior areas. Each of the building's inner corners contains a building core with a safety staircase and elevators.

The entire interior design concept as well as the development of the new office worlds for Vattenfall was developed and accompanied in the implementation by de Winder Architekten Berlin.

The 'Solitaire' building

The Solitaire building has a two-storey entrance lobby with a clear height of seven metres. Floors 2 to 7 contain offices. The ground floor houses gastronomic, commercial, and retail spaces. Here too wood is a ubiquitous architectural and design element. The building is entered from the new urban plaza. Vertical access is by means of a central core with a safety staircase and two elevators. The landscaped outside space of the lounge on the building's roof has a garden-like quality.

Both the Carré and the Solitaire building have a flexible modular ground plan on all levels. This can be adapted to individual requirements. With an extensive deconstruction concept, the issue of circularity was integrated into the planning at a very early stage. The flexibility and reusability of the building is ensured, among other things, by avoiding load-bearing interior walls, a room height of at least 3m, a well thought-out arrangement of the staircases and the zoning of the technical building equipment.

The four main pillars of the buildings' energy supply are sufficiency, efficiency, combined heat and power and load management. In the process, conditions were created to sensitise the users to a conscious, efficient use of energy. The office spaces are air-conditioned by suspended smart ceilings. A sufficient amount of daylight in the offices minimises the need for artificial lighting.

The two buildings in the office complex share a basement garage with 218 e-mobility spaces for tenants. The bicycle room contains approximately 100 bicycle places, including for e-bikes; there are 32 additional spaces in outside areas.

The office areas as well as the associated ancillary and circulation areas are barrier-free, and all outdoor areas are also designed to be accessible.

The façades

The façades have a regular grid consisting of weather-resistant glass-fibre concrete panels. The grid is articulated by horizontal strips and coloured vertical panels. Pylons structure the façades vertically. Glass-fibre pilasters visually reinforce the socle section. The rhythmic façades have a restrained colour scheme which has been chosen individually for each of the two buildings. Two different shades were selected for each façade. In the case of the Carré the colours are Sahara sand for the horizontal strips and terracotta for the vertical structures. The reveals are visually set apart by their silver-grey colour. The Solitaire has corresponding colours: Sahara sand for horizontal elements, silver-grey for vertical elements. The two buildings enter into direct dialogue with one another through their colours and dimensions.

The sustainable façade elements of the two buildings weigh only 30 kg per sqm and are also recyclable. In addition, the façade absorbs CO₂ from the air due to the thinly ground cement top layer and thus has a decarbonising effect.

The glass bays with fixed glazing and MicroShade solar protection additionally accentuate the façades; these are one-storey in the case of the Solitaire building and two-storey in the case of the Carré. The remaining windows are fitted with anti-glare protection and external sun protectors.

Hybrid-timber construction

The construction of the buildings focused on reducing the CO₂ footprint as much as possible, especially the weight of the complex, and on using sustainable materials that can be recycled according to the cradle-to-cradle principle. EDGE Suedkreuz Berlin is the first project in Germany to be recorded for the building construction with a 100% match on the MADASTER material database. It has a material passport that allows the materials used to be reused and recycled.

The use of prefabricated modules had a positive impact on various aspects of the construction process. The wooden elements, such as wall and ceiling modules, were prefabricated, then assembled and adjusted on the building site. This ensured a precise construction schedule and an especially time-efficient and accordingly economical construction process. The wall elements were made regionally in Neuruppin; the ceiling elements, in Lemwerder and Henningsdorf. Altogether, 1190 wood-hybrid ceiling elements, carried by 1280 glulam façade supports, and 445 multibox wall elements with a total area of 16,000 sqm were made.

The natural material wood is everywhere in the interior and office spaces and makes an important contribution to a lastingly healthy indoors climate for users. Wood possesses a high heat-storage capacity but limited thermal conductivity. Existing heat is retained for longer in the room than heat from other construction materials. The delayed cooling reduces the amount of energy required. Wood is also lighter and more energy-efficient to transport than mineral construction materials. This project used approximately 3500 cbm of PEFC-certified spruce.

Through the intelligent combination of wood with concrete, the modular hybrid solution from CREE-Buildings can save up to 50 % CO₂ per sqm of floor area. Low construction weight, short shell construction times, high reliability in planning and costs, and long durability are other advantages of this construction method. The construction materials used in EDGE Suedkreuz Berlin are extensively recyclable using the principle of cradle-to-cradle recycling. Reinforced-concrete construction elements were kept to a minimum, being used for fire compartment separation or to stiffen the building. Wood and hybrid-timber elements were installed as the load-bearing framework, especially in the interior; concrete was used for the foundations and basement. The

wooden supports and beams carry the building's overall vertical loads. Compared to conventional reinforced concrete construction, the weight of the building could be reduced by up to 50 % through the timber hybrid construction. This also reduced the use of concrete for the foundation slab, which had an additional positive effect on this new office complex's CO₂ balance.

The stairs in the atrium of the Carré are designed as a metal construction in order to avoid unnecessary material consumption with high timber cross-sections and costly metal substructure. The design of the components responds directly to the strengths and qualities of the respective materials and promotes the saving of the resources used and reduces the weight of the components. The roof structure weighs only 45 kg per sqm due to the specially developed metal nodes, the ETFE foil as well as the filigree wooden components, and ensures greater lighting in the atrium below thanks to narrower cross-sections. At the same time, the roof construction can withstand wind loads of up to 100 kg, as each bar can not only bear tensile but also compressive forces.

Certificates

EDGE Suedkreuz Berlin received the DGNB Platinum certificate with the highest score ever achieved in Germany of 95.4%. In addition, the ensemble was certified with DGNB Diamond for its outstanding design and architectural quality. The project has furthermore received a WELL v2 Platinum certification.