Factsheet

Esslingen District Government Office

Circular construction – resource-saving and sustainable

The extension of the Esslingen district government office in Baden-Württemberg is setting standards for environmentally friendly and sustainable construction. STRABAG subsidiary ZÜBLIN is leading the turnkey design and construction of a modern new administrative building on the banks of the Neckar River to complement the adjacent eleven-storey existing high-rise. The two-part office building of four and five storeys in the shape of a horizontal figure of eight, designed by BFK Architekten, will replace the old building from 1978, which was in need of renovation and, above all, had become too small..

1 Rendering of the new Esslingen district government office, view from river © Design: BFK Architekten

The building project follows a specially created concept for circular construction. During the dismantling and demolition of the old building by recycling specialist Heinrich Feeß GmbH, the building materials are separated and reprocessed for reuse (urban mining).

The new building is then constructed using recycled building materials. The structural works, for example, will be largely cast from resource-saving recycled concrete. ZÜBLIN is aiming for DGNB Sustainable Construction Site certification for the building project, and a corresponding preliminary certificate has already been issued. Sustainability certification from DGNB (German Sustainable Building Council) recognises end-to-end sustainability quality in accordance with a set of wide-ranging criteria that include construction site organisation and resource protection as well as aspects such as health, social issues and communication with the public, and the quality of the construction work.

The new district administration office, with furnishings and fittings specifically selected to include cradle-to-cradle certified products, is being built to the KfW Efficiency House Standard 40 and will meet the criteria for DGNB Gold Certification. ZÜBLIN is also drawing up a catalogue of ecologically sound building components and a special demolition concept for the new administration building.

1 The old building is systematically gutted and demolished.

Urban mining from old buildings: recycling rate of up to 90 %

ZÜBLIN partner company Heinrich Feeß began systematically gutting and dismantling the old six-storey Esslingen district office building in May 2022. The raw materials are then separated and reused or recycled as much as possible. In order to optimise recycling and reuse, ZÜBLIN and Heinrich Feeß GmbH drew up a material flow balance sheet that details the quantities of each building material to be dismantled along with their respective recycling and disposal paths. As a result, more than 90 % of the materials recovered from the old building can be returned to the cycle.

Examples:

- The 31,500 t of concrete from the old building are crushed and screened directly on site (up to 1,800 t/day). The concrete granulate is then recycled in the Feeß wet separation plant in Kirchheim to produce an aggregate for resource-saving concrete for delivery to nearby concrete plants.
- At the Kaatsch metal processing plant in nearby Plochingen, more than 1,220 t of metal from the old building – from reinforcing steel to aluminium windows to copper cables – are processed for reuse.
- In Zweibrücken, Remondis recycles around 40 t of gypsum planks and cardboard for future use in building construction.

Cube-shaped building complex with flexible space concept

ZÜBLIN Subdivision Stuttgart and ZÜBLIN subsidiary Wolfer & Goebel Bau GmbH are working in a joint venture to realise the new turnkey administration building between Merkelpark and the banks of the Neckar River. The two polygonal structures with spacious inner courtyards are united by a bright, two-storey foyer with a connecting walkway on the first floor to form a cubic building complex with around 33,000 m² of net floor space distributed over four and five floors as well as two basement levels. Once the old building has been completely demolished, construction is scheduled to start at the end of February 2023; the new building should then be completed by September 2025. The new offices will be connected to the existing administration building on two levels and will accommodate a total of 675 workplaces for top management and administrative staff from eleven different departments. Behind the expansive glazed façade, the buildings will provide space for the vehicle registration office, a large and small auditorium, a day-care centre and a staff canteen. The multifunctional spatial design of the new building is divided according to a three-zone concept into a public area, a semi-public zone for people with appointments and an internal area for employees only. With its modular, flexible space concept, the new district administration office is designed to be future-fit.

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2 The new two-part building for the district government office combines two polygonal structures into one building complex in the form of a horizontal figure of eight. © Design: BFK Architekten / **3** Rendering of the new Esslingen district government office, approach to the building © Design: BFK Architekten / **4** More than 90 % of the building materials from the demolition of the original 1978 building are being recycled. © Landratsamt Esslingen, Andrea Wangner.


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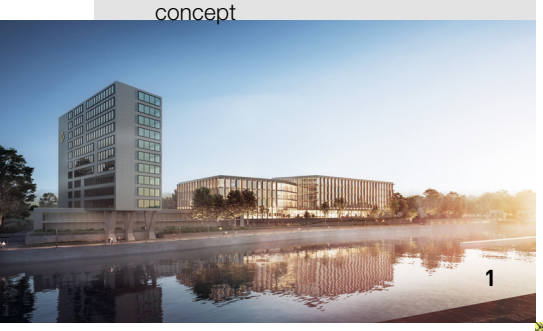
Focus on resource conservation and energy efficiency during construction

Sustainable, circular design and construction are given top priority during realisation of the new administrative building for the district government office

– As a rule, low-pollutant building materials are used that have been found to be harmless to human health according to the AgBB testing scheme and/or at least meet quality level 3 of the DGNB criterion NBV 2018 ENV 1.2 “Risks to the Local Environment”.
– In accordance with the principle of circularity, ZÜBLIN is constructing the new building with the highest possible percentage of recycled building materials, i.e. the material recovered from the old building is reused as much as possible. For example, the structural works are to be made predominantly from resource-saving concrete.
– The energy systems of the new district administration office are designed to meet the KfW Efficiency House Standard 40, which means that the primary energy demand is at most 40 % of the standard for new buildings. This level is ensured, among other things, by use of a heat pump fed with river water for heating and cooling the building via combined thermal radiation/forced-convection ceiling panels as well as the extensive use of photovoltaics to generate electricity on-site. A PV system with an output of approx. 375 kWp on the green roofs, along with additional façade-integrated PV modules with approx. 75 kWp, will generate the electricity for the new building and the for the planned EV charging stations for electric cars and pedal-assisted electric bikes.
– Resource conservation is an important guiding principle for the interior design as well. The furnishings and fittings include cradle-to-cradle certified products, such as office system partitions and wood flooring with FSC/PEFC certification.

Sustainability at a glance

- Circular construction concept
- Material flow balance sheet for systematic building material recycling (“urban mining”) during dismantling and demolition of the existing building
- DGNB Sustainable Construction Site certification
- New building to be constructed primarily using resource-saving concrete
- Use of cradle-to-cradle products
- Heat pump fed with river water for heating and cooling
- Photovoltaic modules integrated into the façade and on the roof
- EV charging stations
- KfW Efficiency House Standard 40
- DGNB Gold Certification for the new buildings
- Catalogue of ecologically sound building components
- Dismantling and demolition concept



1 Rendering of the new Esslingen district government office © Entwurf: BFK Architekten/ **2** Rendering of the new Esslingen district government office © Entwurf: BFK Architekten

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