BEHIND THE CONSTRUCTION FENCE | CONSTRUCTION DETAILS | TECHNOLOGY

# Traunkirchen Forestry Training Centre

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## Building construction

## Factbox

**Client:** Gemeinnützige Zuwo Zufrieden Wohnen GmbH

**Contractor:** PORR Bau GmbH

**Project Type:** Main contractor incl. execution planning

**Scope:** Construction of a training centre, renovation of a heritage-listed villa

**Contract Volume:** 25 million euros

**Construction Start:** 05/2017

**Construction End:** 08/2018

**Location:** Traunsee

PORR was the main contractor for the erection of Europes most modern forestry training centre on the site of a former hospital in Traunkirchen on Lake Traunsee.

Creation of the new training campus involved the construction of two new buildings and complete renovation and conversion of the existing heritage-listed building. The client considered the preservation of the old structures to be particularly important.

In April 2017, following a multi-stage tendering process, PORR was awarded the contract to build the new Forestry Training Centre in Traunkirchen. The contract involved construction of the school building and the residential building (170 beds), together with the complete renovation of a heritage-listed former hunting lodge, where the school administration is to be housed. A combination of solid construction and timber was used for the school and the residential building. The school building also houses a sports hall (including changing and equipment room), a cafeteria including catering facilities, classrooms, seminar rooms, entrance hall and assembly hall. The residential building contains 85 bedrooms, a common room, shooting ranges, workshops and an underground garage. Two glazed axial walkways connect the three main buildings.

Tradition meets modernity in the ballroom of the hunting lodge, which has been transformed into an administrative building. Source: Gerd Kressl

In addition to the short construction period (15 months), a particular challenge was posed by the contractual requirement to certify the campus according to the klimaaktiv Gold Standard. klimaaktiv, which focuses on energy efficiency, climate protection and resource efficiency, is Austria's best known evaluation system for building sustainability: it guarantees compliance with the highest standards. All monitoring, acceptance and testing procedures were carried out by PORR Design & Engineering (PDE); IAT GmbH, another PORR subsidiary, took responsibility for the sealing and sheet-metal work. Installation of the 100m firing lane and all work on the outdoor facilities were carried out by PORR's Civil Engineering department.

> Originally, everything was planned and approved in reinforced concrete. We obtained new permits to add timber elements.

**Richard Weissenböck**
Site manager, PORR Bau GmbH

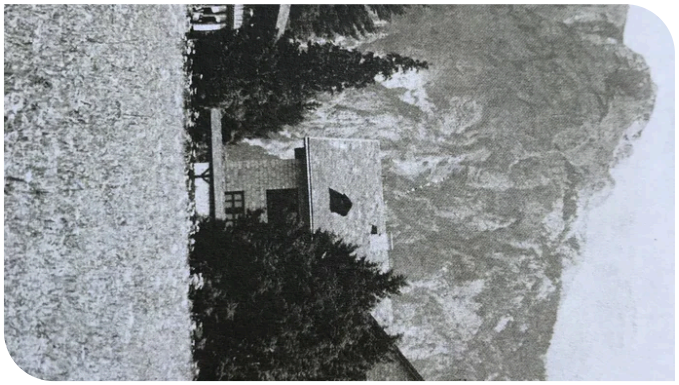
# New building permits needed

Construction progress at the new training centre on Lake Traunsee in October 2017. Source: Gerd Kressl

One interesting feature of the contract was the contractually-agreed requirement to obtain the final building permit. Why was this necessary? The two new buildings and connecting walkway were originally planned as reinforced concrete; these plans had been submitted and a valid permit obtained. However, the property subsequently changed owners, and the new owner, non-profit organisation Zuwo Zufrieden Wohnen GmbH, was keen to use timber structures for parts of the buildings – rendering the original building permit invalid.

PORR supplied all the necessary new presentation documents, certificates, timber structural designs, fire-resistance checks, etc. and obtained the new building permit needed for the timber construction. Additional permission was also obtained to create a 100m firing tunnel for long guns, which had not been included in the initial application. Another change agreed with the building authorities was the partial extension of the attic floor in the residential block.

# Complete renovation of the hunting lodge



The former hunting lodge was the home of the Buchberg state hospital from 1921 to 2009. Source: Forestry Training Centre

The former hunting lodge has been adapted to a number of uses over the years. Back in the 1920s, for example, the villa was sold by the owners to the State of Upper Austria, and transformed into a lung sanatorium. Between 1973 and its closure in 2009, the building served as a special hospital for non-specific respiratory tract complaints. To prepare the heritage-listed building for its new role as an administrative building, a complete overhaul and conversion was – once again – necessary. During this process, the client attached particular importance to preserving the old structures. PORR removed the old asbestos fibre-cement tiles from the roof and replaced them with a new non-toxic double roof covering. The existing roof trusses had to be professionally overhauled, and all the original hand-cut rafters and purlins retained. Preservation of historical monuments also dictated that the windows should be replaced with wooden windows modelled on the originals.

# Spruce up and stabilise

Internal supporting walls had to be removed from the large dining hall and the ceilings underpinned with steel beams. Source: PORR

An unpleasant surprise met the PORR workers when they exposed the old wooden ceilings: various damages meant compliance with the relevant norms was impossible. Additional timber had to be incorporated into all the ceilings. In addition, all the gaps in the original Traunstein marble facade had to be supplemented with original material, and the facade restored to its original condition; a clock on one of the gables also needed renovation, and in addition to the above-ground work, all the drainage systems and underground pipes in the cellar were brought up to date. All covered components were fitted with fresh seals and perimeter insulation. An old arch, exposed during the renovation work, is now a feature in the newly-built bistro. Internal supporting walls on the second floor had to be removed and the ceilings underpinned with steel beams before the large dining hall could be created as required. An external emergency stairwell was built on the north side, as specified by the authorities.

# Stacks of wood

Timber is the main construction material used in the canteen. Source: Gerd Kressl

As a forestry training centre, the new training campus aims to stress sustainability. Consequently, timber had an important role to play as a construction material. Both the school and residential blocks were largely built based on timber structures. Where fire protection permitted, wood was also used for the walls and surfaces. Sample tests of the wooden facade and its rear ventilation were carried out at a 1:1 scale on site, inspected and approved by the architect. The wooden facade and windows have been optimised for insulation quality. The roof areas are being used to generate solar electricity. Heat is supplied from a biomass power station. The multipurpose hall and server rooms are cooled by means of heat density cooling together with the use of a spring located on the grounds. In the spirit of the klimaaktiv building standard, electric vehicle charging points have also been installed, along with bicycle stands.

All storeys and areas are connected by internal and external stairwells and lifts. A particular challenge for the planners was the design for the shooting facility in the basement of the residential building. This needed to be centrally located, but with entirely separate access, secure, and with optimal sound insulation.

# Focus on sustainability

The original building is in the foreground; behind it can be seen the new timber buildings with solar panels on the roof. Source: Gerd Kressl

The innovative and thermally high-quality building envelope, coupled with state-of-the-art efficient building technology and the 123 kWp solar system, represents an important foundation element for the klimaaktiv “Gold” certificate. PDE supported this aspect of the project from the initial contract award through to the inauguration of the Centre. Initiatives such as building project management and optimisation of the energy technology across the entire project meant that PORR could act as a “one-stop shop” to meet all the customer’s requirements. The subsequent quality assurance was carried out via various measurements, e.g. airtightness in the spaces, quality of the air inside and sound insulation. Great collaboration between the construction site and PDE ensured that the klimaaktiv Gold Standard was achieved without significant additional effort for the contractor or extra costs for the client.

# Technical data

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| **Excavation** | 15.000m³ |
| **Concrete incorporated** | 5.500m³ |
| **Reinforced concrete** | 600t |
| **Effective area** | 15,000m² over 500 areas |
| **Plot area** | 3ha |
| **Outdoor car parking** | 58 |
| **Underground car parking** | 11 |
| **Wooden walls** | 4.500m² |
| **Floor slabs** | 2.300m² |
| **Asphalt** | 4.000m² |
| **Cross-laminated timber** | 2.000m³ |
| **Laminated timber** | 700m³ |

# Summary

The training campus has been in full-time operation since September 2018. The ambitious deadline was only met thanks to great cooperation between all the teams on the construction site and the different subsections.

# Gallery