BEHIND THE CONSTRUCTION FENCE | CONSTRUCTION DETAILS | TECHNOLOGY

Volksschule Christian Bucher Gasse 14, Vienna

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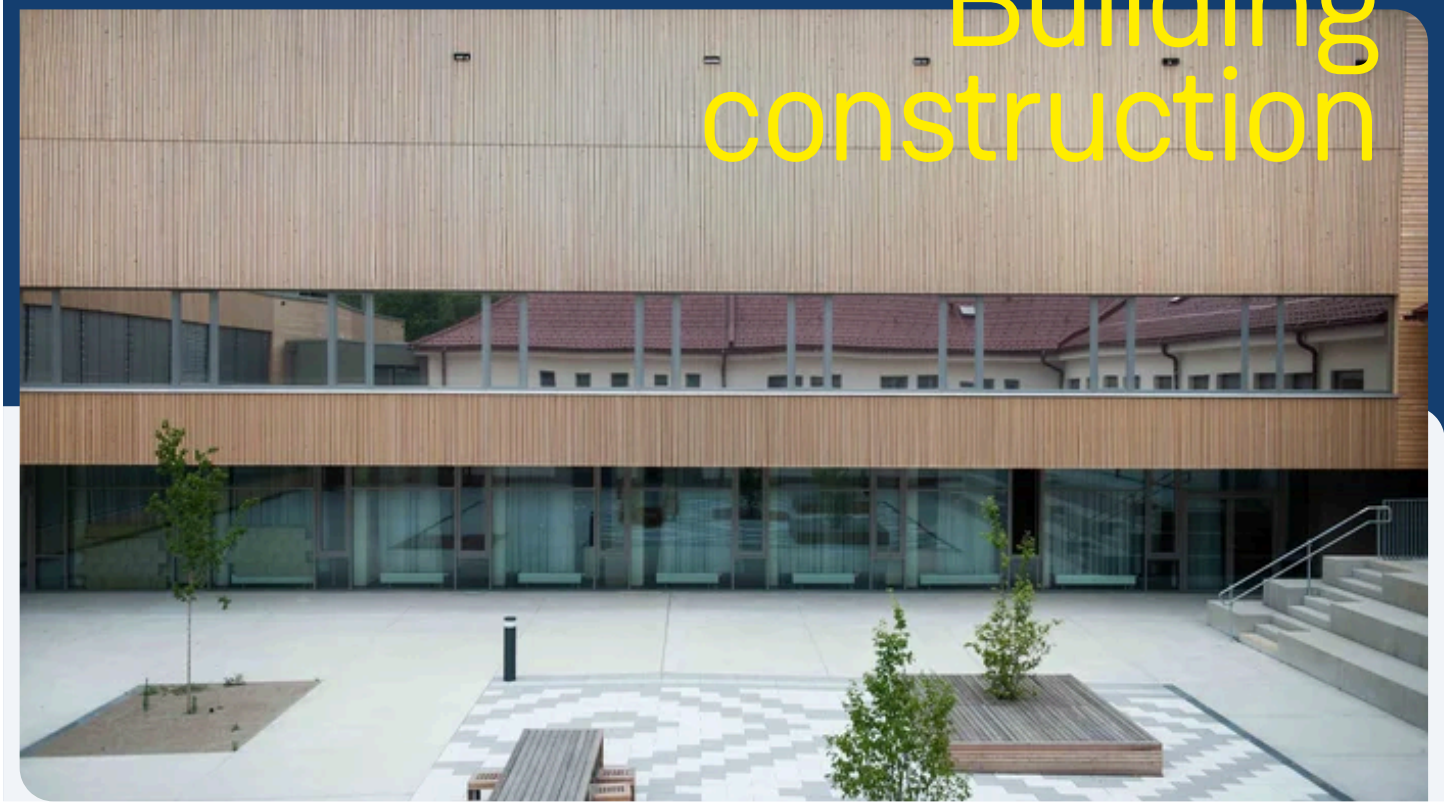
Building construction



Factbox

Client: Stadt Wien MA 56 - Wiener Schulen

Contractor: PORR Bau GmbH

Architect: Dietrich | Untertrifaller Architekten ZT GmbH

Contract Type: Generalunternehmer

Project Type: Building construction . Revitalisation

Scope: Conversion and extension of a school using solid timber construction, carried out during school operations under cramped conditions

Contract Volume: 12 million euros

Construction Start: 09/2016

Construction End: 06/2019

PORR revitalised the 1950s-built school in a series of construction phases, adding a modern timber extension.

Revitalising the school complex included building additional classrooms, a sports hall and an events hall. The work was carried out in four construction phases each lasting six months, while the school remained open.

In 2016, the City of Vienna tendered a project to revitalise the school in Christian Bucher Gasse in Vienna's 21st district, Floridsdorf. The contract was awarded to PORR in September 2016 and included renovating the main school block during ongoing school operations, plus building additional classrooms, a sports hall and an events hall. Extensive outdoor areas including a sports field were also to be developed.

The City of Vienna placed great importance on using environmentally-friendly materials and sustainable construction techniques. To meet this requirement, cross-laminated timber (CLT) was used for the structural work and the façades.

The environmentally-friendly structure is complemented by extensive green areas on the flat roofs, which reduce heat radiation. Solar panels have also been installed, which supply the building with sustainable energy.

By optimising the specialist foundation work and using prefabricated components, PORR was able to continue work throughout the winter months, thereby keeping the construction period to a minimum. The work was completed over four construction phases of six months each.

Demolition and new construction

The first construction phase involved building one section of the new classroom block. This was handed over on schedule for occupation, and once the pupils had moved out of the temporary classrooms erected in the 1980s, the second construction phase could begin. In this second stage, the northwest section of the existing school building was demolished and a new classroom block was built. On completion of this phase, the school was able to make use of 15 new classrooms, a media room, a library and various rooms for large and small groups.

> The two-storey sports hall, which protrudes 6m over the forecourt to create a covered entrance, presented a particular challenge.
>
> **David Glößl**
> Site manager, PORR Bau GmbH

Overhanging challenge

The third construction phase saw the erection of the administrative wing and sports hall on the first floor. The two-storey sports hall, which protrudes 6m over the forecourt to create a covered entrance, presented a particular challenge. The overhanging section of the hall was built with 26cm thick CLT walls. The enormous tensile forces generated by the overhang could only be absorbed by creating dovetails in the solid timber walls.

Once the new sports hall had been completed, work began on conversion of the old sports hall, transforming it into a dining room and events hall – which is used not just by the school, but by the whole district.

By the end of phase 3, PORR had installed a total of 4,300m² of solid CLT ceilings and 3,100m² of solid CLT walls.

Dovetailing in the solid timber walls absorbs the enormous tensile forces. Source: Gerfried Tamerler/PORR

Accessible design

During the final construction phase, PORR built new media rooms, workshops and recreation rooms, and the caretaker's accommodation.

The opportunity was taken during the renovation work to make the school complex fully accessible and create a sheltered courtyard. The outdoor areas were also developed, with facilities including a sports field, a motor skills area and a garden laboratory, as well as extensive green spaces.

Summary

PORR handed the project over to the City of Vienna on schedule in June 2019. In retrospect, dividing the work into four construction phases worked exceptionally well. The experience gained during the first phase played an important part in PORR's ability to master the complex tasks and overcome the specific technical challenges that arose during later phases.

Technical data

Excavation volume	4,400m³
Timber-framed walls	1,900m²
Gross floor area	8,400 m²
Car parking spaces	9
Drill piles	262
Concrete incorporated	1,600 m³
Steel incorporated	30 t
Reinforced concrete incorporated	141 t
CLT solid timber ceilings 10-26cm	4,300m²
CLT solid timber walls 10-26cm	3,100 m²
Suspended timber façade	2,070 m²