BEHIND THE CONSTRUCTION FENCE | CONSTRUCTION DETAILS | TECHNOLOGY

BVH Erdberg Site 26 – NORD2 Laendyard

06.11.2019 / Österreich / Michael Teggan

Building construction

Factbox

Client: Joint Venture JP Immobilien und CA Immobilien Anlage AG

Contractor: Porr Bau GmbH

Architect: Malek Herbst ZT GmbH BEHF Ebner Hasenauer Ferenczy ZT GmbH

Contract Type: Generalunternehmer

Project Type: Building construction. Residential building

Scope: Construction of a residential complex including commercial areas, consisting of two 11-storey blocks and two 7-storey blocks

Contract Volume: approx. 30 million euros

Construction Start: 08/2016

Construction End: 05/2018

As part of a revitalisation project at the former Siemens factory site, PORR has built a residential complex on the Danube Canal in Vienna.

The Laendyard project consists of four buildings and a great deal of architectural diversity. The main challenges included the protruding balconies for the upper storeys, a cramped construction site and difficult soil conditions. The project team were supported by various PORR subsidiaries.

Towards the end of summer 2016, joint venture partners JP Immobilien and CA Immobilien Anlage AG awarded PORR the contract for the prestigious Laendyard construction scheme on the former Siemens land, part of the Erdberg site in Vienna's third city district. The Laendyard project encompasses construction of 270 homes and 1,500m² of commercial space in four buildings. The complex has guaranteed unobstructed views, thanks to its location right next to the Danube Canal. In addition to the attractive outlook and its high quality of living, the location boasts superb connections to the public transport network, cycle network, and major and minor road networks.

PORR had already been awarded a contract to build 220 flats on this site six months before acquiring the Laendyard project. The project managers were therefore able to fully exploit the synergies and bring a net order volume of 30 million euros into the country through the new project. The two residential projects are both referred to as "Laendyard" and are part of the city development area "Site 3". This site is a revitalisation of the former Siemens factory location for mixed use, with residential, office, restaurant and retail spaces.

At the ground-breaking ceremony on 6 Sepember 2019: Karl-Heinz Strauss (PORR CEO), Marion Weinberger-Fritz (Manager of Raiffeisen Vorsorge Wohnung GmbH (RVW)), Elisabeth Binder (Manager of Raiffeisen Vorsorge Wohnung GmbH (RVW)), Erich Hohenberger (Head of Vienna's Landstrasse district), Daniel Jelitzka (JP Immobilien) and Florian Nowotny (Board member at CA Immobilien Anlagen AG).

> In order to build on the 6,600m² base plate as efficiently as possible and keep to the tight schedule, four large cranes worked at full load during peak periods.

Michael Teggan
Construction manager, PORR Bau GmbH

Complex temporary construction pit system and foundations

Up to four large cranes were in use on the construction site at peak periods. Source: PORR

As soon as the construction site containers were in place, the excavators rolled in to start on the earthworks and underground demolition work. The soil conditions meant that the soil had to be completely replaced in some areas. PORR specialist civil engineering provided in-house support for these activities.

The temporary construction pit system was then created on the Erdberg site using sheet-pile walls. The neighbouring site had to be underpinned and the remaining construction area was secured with a slope. For the basement that runs below almost the entire site, a foundation was laid over the entire site using base plates reinforced with haunches: a haunch is a triangular angled piece placed over the transition area between the column and the support. Once the 6,600m² base plate was complete, the 1-2 storey basement, which will be largely used for underground parking, was then built onto it. In order to work as efficiently as possible on the considerable area and keep to the tight schedule, four large cranes were used at peak periods, working at full load to move the numerous heavy precast and semi-finished parts to their final installation positions.

Overhanging challenges

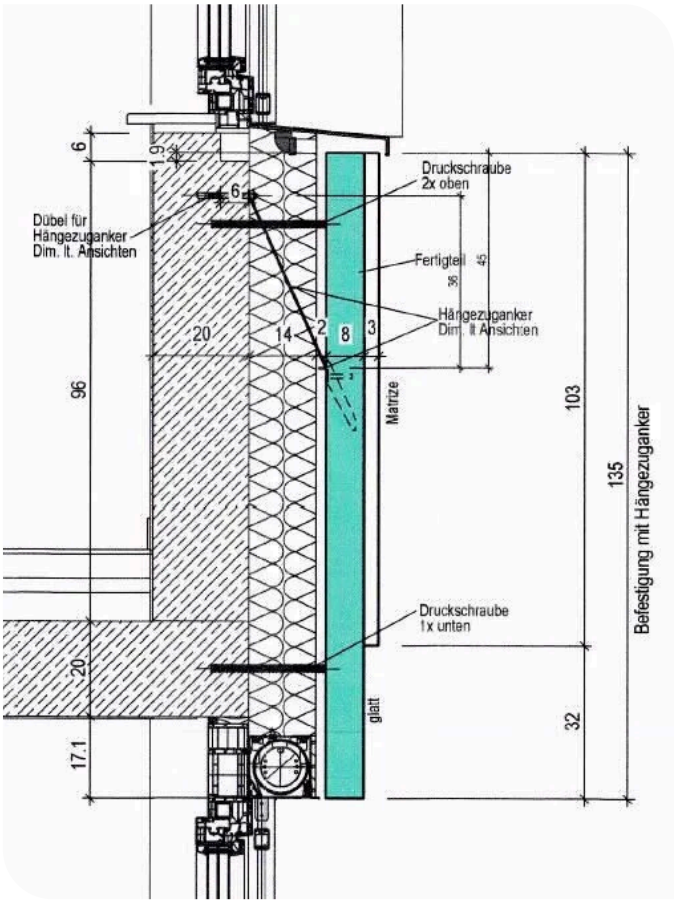
The overhanging balconies in the three top storeys presented a major challenge during the carcass construction. Source: PORR

During the work on the carcass, the team faced a major challenge in constructing the balconies for storeys 9 to 11 on the Erdberg site, as they protrude 2.4m from the structure along a length of 36m. Due to the height of the falsework, the balcony plates could not be supported with the conventional technique of setting up a heavy-duty scaffold from the ground. Structural engineers were brought in to develop a special solution: welded I-beams that were 3–4 times the length of the overhang were installed on the reinforced concrete plates on the eighth storey, where they protruded over the external edge of the building to the full width of the balconies. Underpinning for the balcony plates could then be built on these I-beams. In this way, the effective load-bearing forces were transferred from the underpinning through the I-beams and floor plate into the building. Once the blacktop work had been completed by PORR subsidiary IAT GmbH, it was time for the topping-out ceremony.

> To erect the overhanging balconies for the top three stories, we worked with the structural engineers to develop a special solution using welded I-beams.

Michael Teggan
Construction manager, PORR Bau GmbH

Diversity outside...



The mounted rear-ventilated facade on construction block 3 is composed of precast concrete slabs. Source: BEHF Ebner Hasenauer Ferenczy ZT GmbH

The Laendyard project is characterised by diversity and variety. This design approach is particularly evident on the building facade. The length of the building along the Erdberg site has an eye-catching glazed post-and-beam facade for the ground floor commercial areas. The facade structure extends over two storeys and is particularly striking due to its narrow supports, which were developed by converting the reinforced concrete solid construction to a reinforced concrete skeleton for this area.

Construction blocks 1 and 4 also boast a showy facade that can be seen from a distance: shimmering pearly gold Alucobond with a fully-insulated dark-green abraded surface. Alucobond facades are usually constructed as part of mounted rear-ventilated facades. For the Laendyard project, however, the Alucobond facade is a purely decorative element with a continuous impermeable coat beneath it.

The facade on construction block 3 was equally resource intensive: it consists of mounted precast concrete slabs produced using a patterned vertical stripe template to create the visual element. The supporting structure consists of compression screws and panel anchors.

… and inside

The diversity in the project is not limited to the externalities; it is also carried over to the interior of the building. Each building has an individual own colour scheme and the foyers have a different design at each stairwell. The flats in the different storeys of each construction block are also fitted out differently. This includes the heating system – underfloor heating or radiators –, the wallpaper and floor coverings, plastic window frames vs. wooden with aluminium shells, diverse HVAC options, and even different door sizes and decking materials for the balcony and terrace areas. The higher-quality flats have larch wood decking from PORR subsidiary Wibeba on their balconies and terraces.

M&E and external areas

All four Laendyard buildings are fitted with fire alarm systems and smoke and heat extraction systems, including electronically controlled dome lights and windows in the stairwells. The stairwells also have pressure ventilation systems with door closers. A CO warning system with automatic exhaust valve has been installed in the garage.

The buildings are set off by a generous outdoor area with a time-switched fountain in the “village square” and a children’s play area. PORR civil engineering subsidiary Allbau was involved in the paving and asphalting work in and around the complex.

Summary

The completion of the Laendyard project represents a milestone in the Site 3 revitalisation scheme. Laendyard stands for high quality furnishings and diversity inside and out. A particular highlight: from the roof terraces on the four buildings, renters can enjoy a panoramic view extending from Prater to St. Stephen’s cathedral.

Technical data

Living areas	approx. 16,200m²
Garage area	approx. 5,200m²
Gross floor area	approx. 33,500m²
Plot area	approx. 7,000m²
Commercial areas	approx. 1,500m²
Terraces and roof terraces	approx. 600m²
Garage parking places	157 cars and 12 motorbikes
Other areas	approx. 3,500m²
Building pit depth	approx. 11m at the deepest point
Construction pit system	Sheet-pile walls
Steel incorporated	approx. 2,200t
Concrete incorporated	approx. 21,000m³