Vienna North Hospital
Austria's largest building construction site in Vienna Floridsdorf

Hans Werner Steiner

In June 2012, Porr Bau GmbH, Major Civil Engineering Projects Department, received the order for the shell construction work on the new North Hospital at Brünner Straße 68 in the 21st Vienna District in the amount of around € 98 million from the “Wiener Krankenanstaltenverbund (KAV)” (“Vienna Hospitals Association”).

At the time of placement of the order, the construction site had already been prepared, i.e. the old railway buildings and tracks had been demolished and removed, the preliminary excavation and the construction pit enclosure had been completed and the drainage was in operation.

At the time of construction site take-over
Image: PORR

Project description
As part of the Vienna Hospital Concept 2030, which is aimed at a future-oriented and economically viable supply plan, one of the most modern hospitals in Europe is being built here.

The Hospital Concept 2030 envisages a concentration of the range of services at seven locations by the reorganisation of the Vienna hospitals.

On an area of 111,000 m², a hospital is being built here which will offer a wide range of care and services, with a total of 785 beds in single- and two-bed rooms.

The expected annual capacity is 46,000 in-patient admissions, 250,000 out-patient visits and 17,000 operations. This immense number of patients will be cared for by a staff of approx. 2,500.

Planning and architecture
Architect Albert Wimmer and his KHN Health Team have many years of experience in hospital planning, and are responsible for the architecture and the submission and implementation planning. The technical building equipment has been planned by the ZFG Bureau and the Eipeldauer Bureau.

The architectural concept envisages a curved structure as the main entrance coming from the Brünner Straße, which also accommodates the shopping arcade, the administration and the company kindergarten.

Behind these are the main tracts arranged in the form of five fingers, which contain the Emergency Centre, the operating theatres, the out-patient areas and the wards with the bed tracts. Two helicopter landing pads are located on the highest point of the building. A garage will be built along the entire length of the railway arches, which will also offer additional noise protection.

Since the positive effect of influences from non-medical factors has already been demonstrated in numerous studies, emphasis will be placed on the positive effect of the landscape architecture, and a so-called “Healing Garden” with an area of approx. 47,000 m² is planned.

Very tight construction period
The planned main shell construction time is 20 months. In this
short construction time, the work to be completed includes the preliminary excavation of approx. 200,000 m³, ground improvement by means of vibration pressure and tamper compaction, the production of drill piles and sheet pile walls and slotted walls, and anchoring work. These services were largely awarded internally by PORR.

For the concrete and reinforced concrete work, a total of 220,000 m³ of concrete and 25,000 t of reinforcing steel will be installed, and numerous unforeseen challenges will have to be overcome.

**Construction site logistics**

An important aspect of such a large construction site is naturally the construction site logistics, with the delivery and removal of materials, and in this case in particular the concrete delivery. It was therefore decided at an early stage to set up a mixing system on site. On one hand it is thus largely independent of traffic on the single access road, the Brünner Straße, and on the other hand this also provides the necessary flexibility to be able to produce such large quantities in the short time available. As early as April 2013, i.e. nine months after construction began, celebrations were held to commemorate the first 100,000 m³ of concrete and by mid-2013, 160,000 m³ of concrete had been installed. The maximum weekly performance amounted to 7,000 m³.

**Special challenges:**

- Highly complex baseplates with innumerable jumps on the lower and upper side with the resulting complicated laying of the reinforcement.
- Baseplates over 3 m thick
- Heavy supports for overhangs with steel beams and staxo
- Components with high reinforcement content of approx. 500 kg/m³ concrete in the support level in the Venus section
Several bombs found, with resulting evacuation of the complete construction site and surrounding area

Unexploded bombs bring chaos

Two aircraft bombs were discovered today on the construction site for the North Hospital in Vienna-Floridsdorf. The “Wiener Linien” and ÖBB had to suspend operations, local houses and companies were evacuated. Many people were affected.

The first bomb was discovered towards 11:50, shortly followed by the second. The site on which the North Hospital has been under construction for two years was cordoned off and the Munitions Disposal Service alerted.

The Munitions Disposal Service recovered an American aircraft bomb. A solit from the war, the bomb weighed 250 kg and was still live. A few metres further on, a 160 kg bomb was discovered. This had been produced in the Soviet Union. Both bombs were defused and removed. Nobody was injured.

Production of the external drainage with ductile steel pipes

The order also includes the production of the external drainage with ductile steel pipes up to a diameter of 800 mm, which lie largely in the groundwater area. It was therefore necessary to secure the areas by means of drill piles and anchored sheet pile walls and to drill wells for water drainage.

The pipes and the shafts had to be secured against lifting by means of concrete sheathing.
**Screed and floor structure**

When all finishing services had been tendered out separately by the KAV, we also succeeded in obtaining the order for the screed and floor structure in the amount of around € 16 million.

This includes the production of all floor constructions including screed, monolithic slabs, cavity floors, and the coatings.

---

**Project data**

<table>
<thead>
<tr>
<th>Address</th>
<th>Brünner Straße 68, 1210 Wien</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site size</td>
<td>111,000 m²</td>
</tr>
<tr>
<td>Developed area</td>
<td>51,000 m²</td>
</tr>
<tr>
<td>Parking area</td>
<td>47,000 m²</td>
</tr>
<tr>
<td>Traffic areas</td>
<td>13,000 m²</td>
</tr>
<tr>
<td>Number of beds in single- and two-bed rooms</td>
<td>785</td>
</tr>
</tbody>
</table>

**Project data, shell construction**

- Ground excavation: approx. 200,000 m³
- Concrete volume: approx. 220,000 m³
- Reinforcing steel: approx. 25,000 t
- Vibration pressure compaction: approx. 54,000 m

**Completion and commissioning**

Approx. 85 % of the shell construction work is now completed. Partial commissioning will take place in 2015, and overall completion in June 2016.