



Allianz stadion – a prime example for modern precast construction
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Allplan in practice

SHORTER CONSTRUCTION TIME AND RELIABLE DELIVERY DATES THANKS TO PRECAST

ALLPLAN PRECAST FACILITATES DESIGN OF COMPLEX GEOMETRIES

Built in record time, the Allianz stadion in Vienna – home of the Austrian cult soccer club Rapid Wien – is a showcase project for modern precast construction. The use of precast concrete elements played a decisive role in ensuring that the tight schedule of only 17 months construction time could actually be met.

Oberndorfer Betonwerke played a major role in the construction of the home of the traditional Viennese club. It is one of the leading precast construction companies in Austria and has been a satisfied customer of Allplan Precast, ALLPLAN's Competence Center for precast design and detailing, for many years.

Oberndorfer's design team was responsible for the technical design, production and assembly of the 880 precast elements with a length of 10.5 meters and a weight of 12.5 tons. Other prefabricated elements in the stadium include the 150 staircases as well as the up to 18 meter high external columns with a total weight of over 40 tons.

In addition to the scale of the project, the very complex geometry with a large number of intersections of the various precast concrete elements also posed a major challenge for the design team.



Stand elements and stairs for the new home of the soccer club Rapid
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HIGHEST PRECISION

Furthermore, the interplay between architecture, challenging statics, complex HVAC including electrical planning (approx. 2,000 electrical boxes and over 5,000 m of electrical conduit) also had to be coordinated and precisely harmonized.

The stand elements, which were produced in the form of double L-elements for the new Rapid stadion, are a 100% in-house development of Oberndorfer. Production took just less than eight months, including design and preparation, as well as a concrete research and test phase as well as the construction of prototypes.

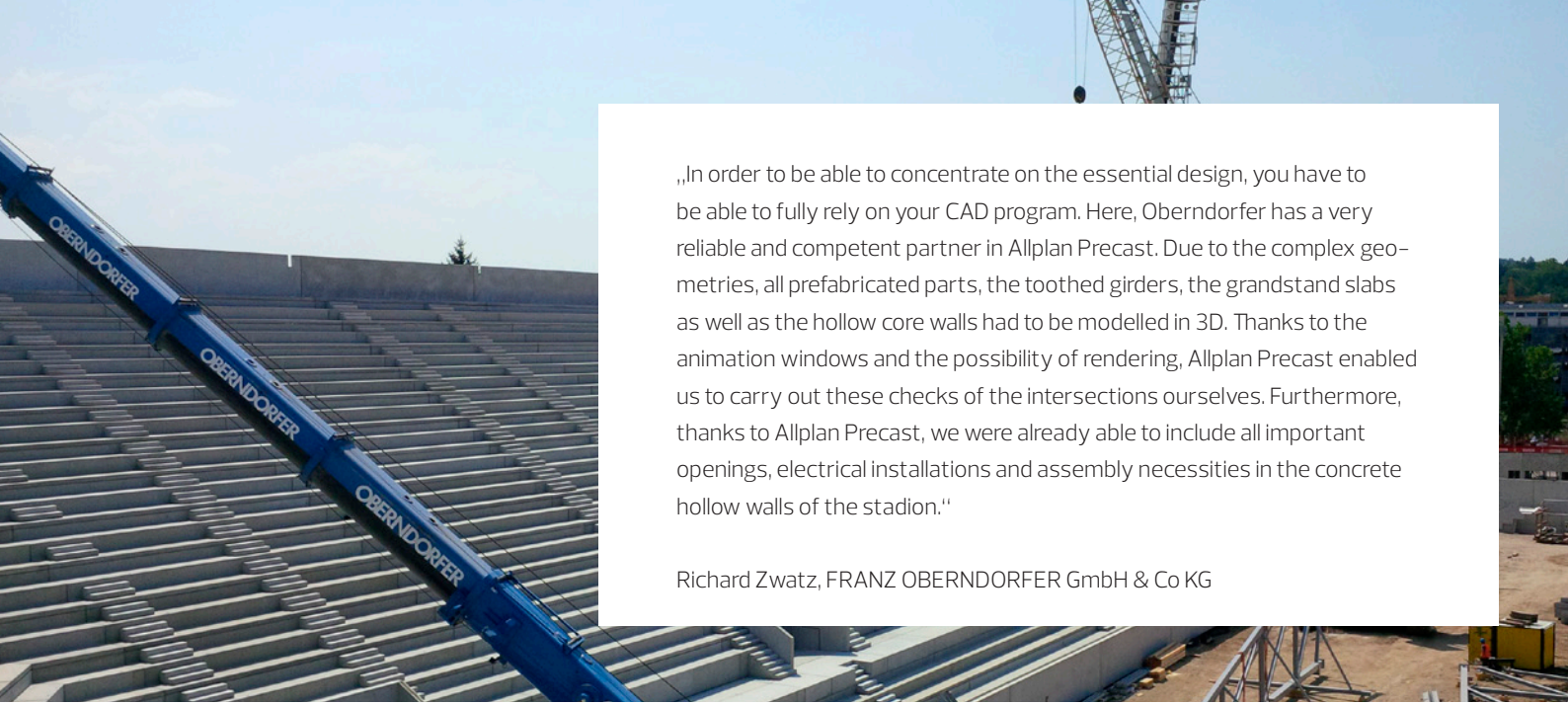
In addition to stand elements, precast staircases and the associated special parts, concrete double wall elements, hollow core slabs and filigree ceiling slabs, as well as exterior and interior columns and concrete stand girders made of concrete were also delivered to Hütteldorf for the new Allianz stadion.

SUSTAINABLE CONSTRUCTION

The precast technology also scores in terms of sustainability: during construction of the stadion, energy consumption was reduced by 60% thanks to the precast design. Due to precise planning and better waste management, the amount of waste was reduced by 90% compared to a traditional construction method.

PROJECT INFORMATION AT A GLANCE

- > Focus: Precast construction
 - > Precast design software: Allplan Precast
 - > Precast design: FRANZ OBERNDORFER GmbH & Co KG
 - > More than 5,000 precast concrete elements, of which
 - > 880 grandstand elements
 - > 150 precast stairs
 - > External columns up to 18m high, with a total weight of over 40 tons
 - > Production time: 8 months
 - > Assembly time: 7 months for building shell
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„In order to be able to concentrate on the essential design, you have to be able to fully rely on your CAD program. Here, Oberndorfer has a very reliable and competent partner in Allplan Precast. Due to the complex geometries, all prefabricated parts, the toothed girders, the grandstand slabs as well as the hollow core walls had to be modelled in 3D. Thanks to the animation windows and the possibility of rendering, Allplan Precast enabled us to carry out these checks of the intersections ourselves. Furthermore, thanks to Allplan Precast, we were already able to include all important openings, electrical installations and assembly necessities in the concrete hollow walls of the stadion.“

Richard Zwatz, FRANZ OBERNDORFER GmbH & Co KG

FRANZ OBERNDORFER GMBH & CO KG

Founded as a small craft business more than 100 years ago, FRANZ OBERNDORFER GmbH & Co KG rose to become the leading precast concrete construction company in Austria. The company offers innovative solutions for smaller as well as complex construction projects and is well-known for developing new technologies.

The entire range of services from production and delivery to installation is offered. Oberndorfer now employs around 950 people and produces precast elements in eight plants in Austria and neighboring countries.

ABOUT THE COMPANY

ALLPLAN is a global provider of BIM design software for the AEC industry. True to our "Design to Build" claim, we cover the entire process from the first concept to final detailed design for the construction site and for prefabrication. Allplan users create deliverables of the highest quality and level of detail thanks to lean workflows. ALLPLAN offers powerful integrated cloud technology to

support interdisciplinary collaboration on building and civil engineering projects. Around the world over 500 dedicated employees continue to write the ALLPLAN success story. Headquartered in Munich, Germany, ALLPLAN is part of the Nemetschek Group which is a pioneer for digital transformation in the construction sector.

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