

Designing the precast concrete elements with the 3D model in Allplan Precast resulted in significant time savings and increased the quality of the components.

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#### Allplan in practice

## RESIDENTIAL COMPLEX IN THE NORTH OF BRATISLAVA RELIES ON PREFABRICATION **ADVANTAGES OF BIM AND 3D MODELING FULLY EXPLOITED USING ALLPLAN PRECAST**

The Karpatium Rezidence housing area was built in the attractive quarter of Krč on the outskirts of Záhorská Bystrica, one of the most dynamically growing residential districts in Bratislava. The 145 residential units – designed by the Slovakian architectural company, FVA – blend harmoniously into the surroundings. For example, even the underground garages score points, with a green park on their roofs.

The design for the residential building complex Karpatium Rezidence was developed entirely in BIM, which greatly facilitated project coordination while eliminating potential design errors during the preparation phase. In addition, working with the

building information model (BIM) resulted in significant time and cost savings.

### **BIM FACILITATES DESIGN, CONSTRUCTION, MAINTENANCE**

Due to the speed and accuracy of the precast concrete components, the contractor opted for prefabrication. Polívka's design team, Hritz Precast Engineering s.r.o., created all precast elements using Allplan Precast, the software for highly automated design and production of slabs and walls. In total, around 15,000m<sup>2</sup> of precast filigree slabs and 18,000m<sup>2</sup> of double walls, as well as many precast balconies and stairs were used for Karpatium Rezidence.



For the Karpatium Rezidence housing complex in Bratislava, the contractor relied entirely on precast elements and used prefabricated balconies, stairs, element slabs and double walls.

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## INCREASES EFFICIENCY WITH AUTOMATED PROCESSES

A unique feature of is the linking of 3D modeling with NC data output for fully automated production. This is because takes over numerous routine activities automatically, such as shop drawings, basic reinforcement, transport anchors, component documentation, reports, etc. This allows the design team to fully concentrate on their actual core tasks.

The designer creates a real 3D model with all necessary fixtures (e.g. cabling), all openings required for the individual trades, and the installed reinforcement according to the structural analysis. In the background, the shop drawings are automatically created based on the preset templates for each element type. Likewise, automatically creates a list of fixtures with a detailed breakdown.

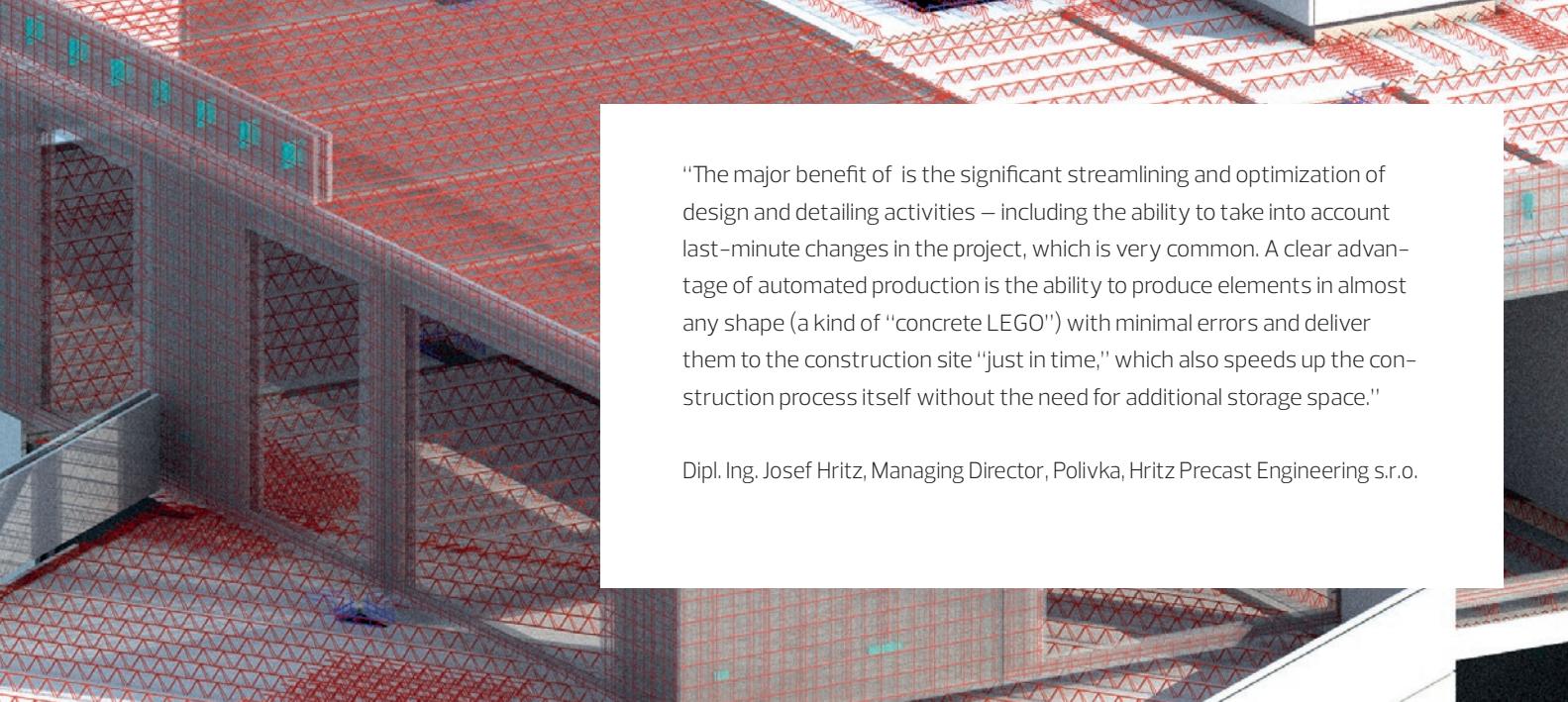
## SUPPORTS BIM

In addition, the program generates the required amount of main and distribution reinforcement, areas, volumes, the quality of the concrete used, and a number of other specific values. In addition, also generates an overall summary that serves as the basis for invoicing and is automatically exported to the prefabrication system for invoices.

The automatically generated data is then used by industrial robots or transmitted to the mesh welding system with the required amount of reinforcement. Through these automated workflows, significantly increased the efficiency of design and detailing in the Karpatium Rezidence project.

## PROJECT INFORMATION AT A GLANCE:

- **Focus:** Precast construction
- **Precast design software:** Allplan Precast
- **General contractor:** BTK – bývanie, teplo, klimatizácia s.r.o.
- **Architectural office:** FVA, s.r.o.
- **Structural analysis:** PROPLAN, s.r.o.
- **Precast design:** Polivka, Hritz Precast Engineering s.r.o.
- **Technical support:** FRANZ OBERNDORFER GmbH & Co KG, Ing. T.Tupy
- **Double walls:** 17,884,13m<sup>2</sup>
- **Filigree slabs:** 15,171,02m<sup>2</sup>



"The major benefit of is the significant streamlining and optimization of design and detailing activities – including the ability to take into account last-minute changes in the project, which is very common. A clear advantage of automated production is the ability to produce elements in almost any shape (a kind of "concrete LEGO") with minimal errors and deliver them to the construction site "just in time," which also speeds up the construction process itself without the need for additional storage space."

Dipl. Ing. Josef Hritz, Managing Director, Polivka, Hritz Precast Engineering s.r.o.

## HRITZ PRECAST ENGINEERING S.R.O.

Polivka, Hritz Precast Engineering s.r.o., based in Bratislava, is today one of the most important engineering and consulting companies in Slovakia. The offered services focus on the areas of building structures for land utilization, building permits and execution projects. In addition, the company also deals with the overall coordination of construc-

tion preparation, static and thermal calculations and assessments, as well as energy performance certificates. The engineers specialize in large-scale projects such as administrative buildings, shopping centers or industrial production facilities.

## 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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