



Office Building Aviatica,  
Prague, Czech Republic

### Allplan in practice

## SHINING DEBUT FOR A NEW CITY QUARTER

The former factory premises of aircraft engine manufacturer **Waltrovka / Walter Engines** is located in the district of **Jinonice**, in the fifth administrative department of Prague.

Investment management group Penta Investments is planning to build a new city quarter with three office complexes (Aviatica, Dynamica and Mechanica) and various residential complexes on this 169,000 m<sup>2</sup> site in the coming years. The first phase of this "Waltrovka Development," totaling over 200 million euros, was concluded in June 2015 with the completion of the "Aviatica" office building. The approximately 49,500 m<sup>2</sup> building, the name of which alludes to aviation and thus to the former Walter factories was designed by the Prague-

based engineering office Building s.r.o. Aviatica is an ultra-modern, glass building complex that impresses above all with its contoured, organic form. Viewed from the eastern end, the ground plan is an oval, the entire area of which is used in the two lower floors as an underground car park. Above ground, the building encloses an oval green inner courtyard, which on the eastern side opens out onto a large public square in front of the building. Vertically, the office complex is also dynamic and alternates between four and nine above-ground



stories. The two towers, also oval in shape, seem almost like independent entities, and their narrow ends project both beyond the building facade and into the courtyard.

Aviatica is primarily a precast concrete skeleton construction. The section of the tower that projects beyond the building's cubature was created using cantilevered steel girders supporting concrete slabs. Prestressed concrete beams span the large entrance to the courtyard. The prestressing for these beams was implemented through external loads. As a subway line passes alongside the two underground stories, these were isolated against vibration. This isolation consists of two slabs connected to each other by vibro-isolation elements. The building foundation was created as a pile foundation with bored piles.

From the prestressing of the concrete beam and the vibration isolation through to the different pillar patterns between the underground and over-ground stories, the project involved many technical construction tasks that the engineers would normally have tackled in separate teams with different software solutions. However, the building client expressly wanted the BIM (Building Information Modeling) working method to be applied so that the building data and building model could be subsequently used for facility management and adjustments in line with customer requirements. Aviatica was therefore the first project Building s.r.o. executed using the BIM working method.

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#### PROJECT INFORMATION AT A GLANCE

- > **Focus:** Hochbau
- > **Software used:** Allplan Engineering

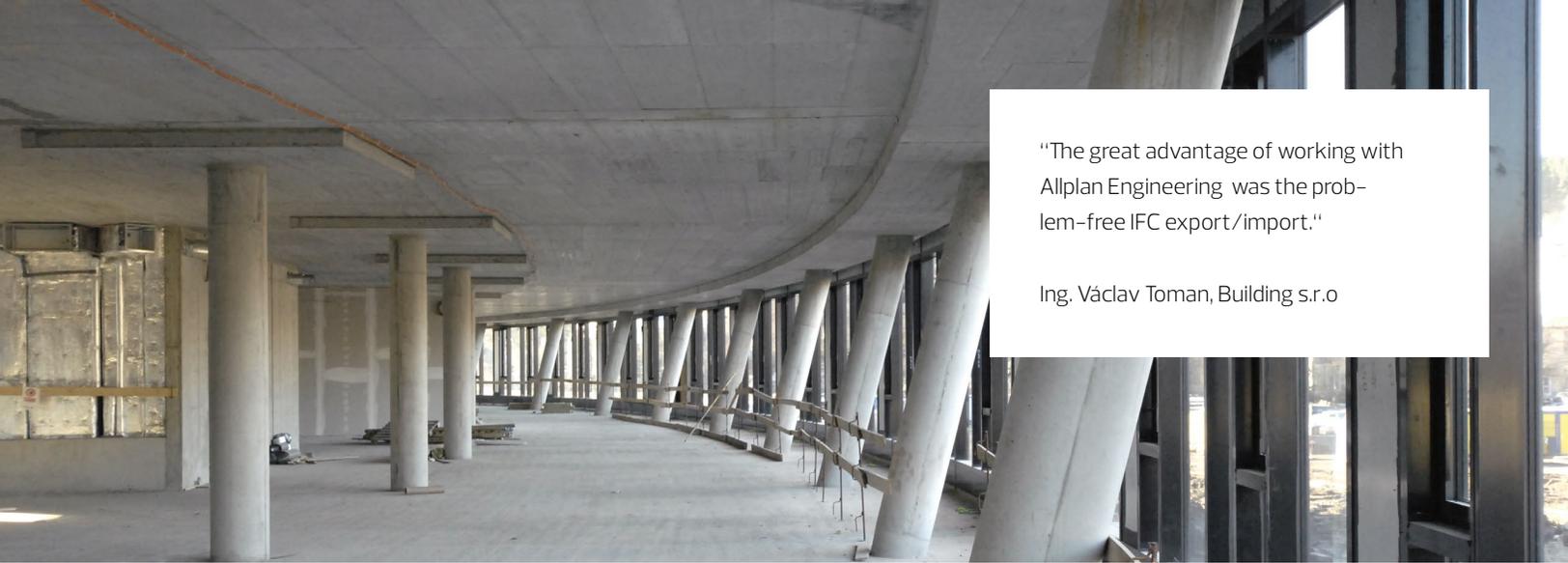
#### PROJECT DATA

- > **Client:** Penta Investments s.r.o.
- > **General contractor:** PSJ a.s.
- > **Architect:** Cigler Marani Architects a.s.
- > **Engineer:** Building s.r.o.
- > **Construction start:** 12/2013
- > **Completion:** 06/2015
- > **Gross floor area:** approx. 49,500 m<sup>2</sup>
- > **Area (rentable):** approx. 27,000 m<sup>2</sup>

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"We tried to utilize as much information as possible for later use – not only for exchanging data during the different design stages, but also for providing information to future stakeholders like contractor companies or even facility management", says Ing. Václav Toman, engineer at Building s.r.o.

The company used solutions from Allplan and SCIA from Nemetschek for this. The shell or reinforcement plan was created with the help of Allplan Engineering, and modeling and calculations were carried out in SCIA Engineer. The Open BIM format IFC was used for data exchange between the two programs. In this way, the different processes could be ideally linked with each other and project progress synchronized accordingly.



"The great advantage of working with Allplan Engineering was the problem-free IFC export/import."

Ing. Václav Toman, Building s.r.o

In the Scia&ALLPLAN User Contest 2015, Aviatica was awarded the "Special Prize of the Jury". The main reason behind the jury's decision was the aesthetically curved building. However, the systematic use of the OpenBIM working method was also praised – in particular, the use of the IFC formats for exchanging the models between Allplan Engineering and SCIA Engineer during the design phase and the option of using the complete BIM model for future facility management.

#### FURTHER INFORMATION ON BUILDING S.R.O

Building s.r.o. was founded in February 1992 as a construction design and engineering office. The company deals primarily with all phases in the design of office and residential buildings as well as public institutions. The office specializes in reinforced concrete construction. To offer its customers buildings with state-of-the-art construction planning, Building s.r.o. operates a quality management system in accordance with EN ISO 9001.

## ABOUT ALLPLAN

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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