



Company (architects): MR 2 | Architects: Miroslav Rajić, Marin Račić | Photo: Robert Leš

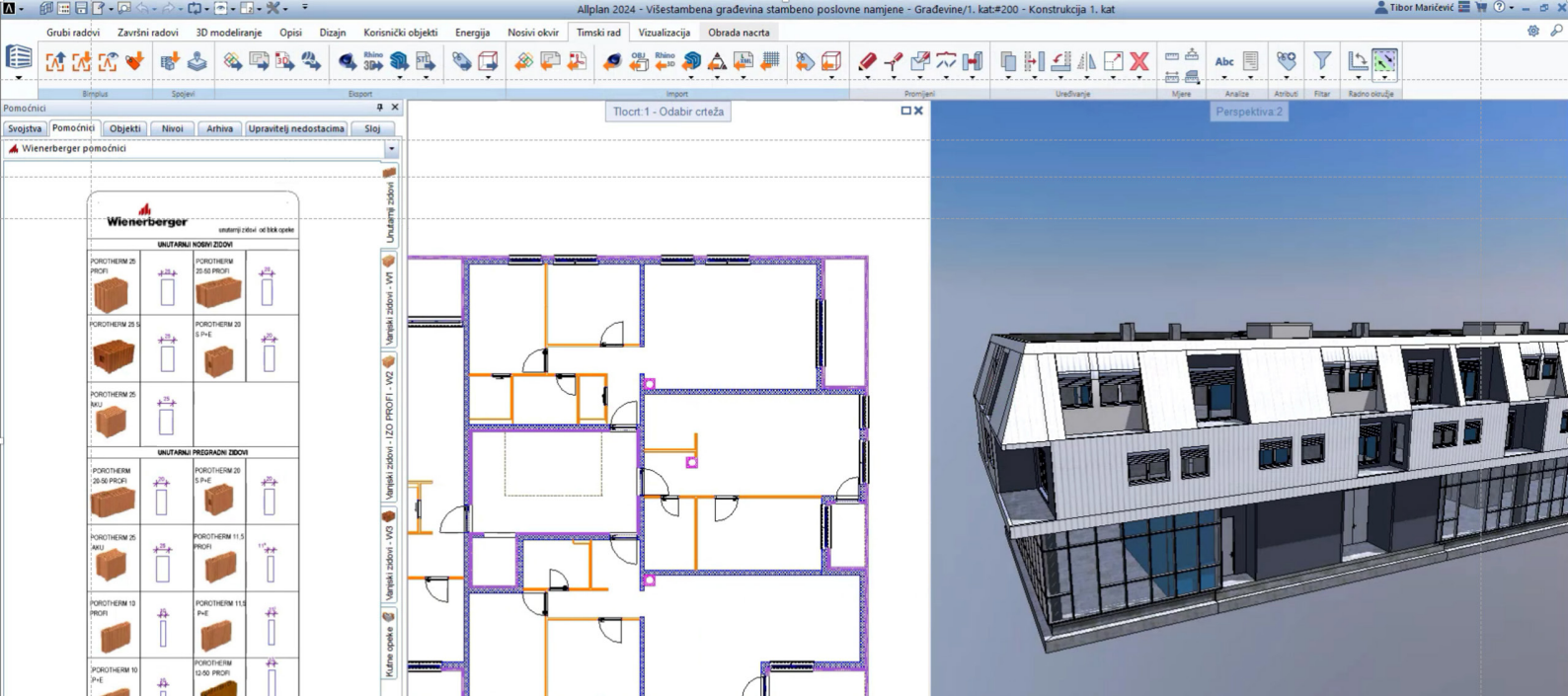
ALLPLAN in practice

FROM ARCHITECTURAL VISION TO STRUCTURAL REALITY: THE KUTINA MIXED-USE BUILDING PROJECT

ALLPLAN's OPEN BIM workflow transformed a complex mixed-use building project in Croatia, streamlining collaboration from initial design to final reinforcement.

In the heart of Kutina, Croatia, where traditional family homes define the urban landscape, an innovative mixed-use development emerged as the perfect testing ground for advanced OPEN BIM processes. This distinctive project, brought to life by MR 2 arhitektonski studio d.o.o. in Archicad, faced the delicate challenge of urban integration – namely, how to introduce a contemporary commercial space without disrupting the neighborhood's established character.

Their solution: a cleverly disguised building that presents itself as a single-story house with a generous attic, wrapped in sleek aluminum sheeting. This architectural sleight-of-hand minimizes height differences from surrounding homes while housing an ingenious interior designed like a pedestrian walkway, essentially creating an indoor street within the commercial space. Baldinistudio, an ALLPLAN Authorized Partner and user, recognized the complexity of this project as an opportunity to demonstrate how a comprehensive BIM workflow can seamlessly link architectural vision with structural reality.



Seamless Data Transfer Through OPEN BIM Collaboration

The entire project workflow was built around the OPEN BIM philosophy, which proved to be more than just a theoretical concept. Baldinistudio explored two successful scenarios for data transfer: first importing the architectural model directly to BIMPLUS, and then importing it to ALLPLAN before transferring to BIMPLUS. Both approaches worked perfectly, confirming that there would be no future integration challenges. The transformation of the BIMPLUS model using AutoConverter went exactly as planned, requiring only that the users follow the defined steps. The SCIA Engineer model was also generated without complications using the Structural Analysis Format (SAF) file.

"Having the model in BIMPLUS as an intermediate tool for translating the 3D structure to an analytical model has benefits," explains Gianmarco Baldini of Baldinistudio. "In a traditional approach, you export an IFC file from one application and import it into the next, hoping everything will be fine, but there is almost no control over the process. Using BIMPLUS and AutoConverter, you can examine different models and their variations in a color-coded way, so you can easily see all the differences architects made in a new version of the building even before you start working on it," he continues.

The collaboration platform further enhanced the BIM workflow by providing powerful communication

tools that went beyond basic file sharing. Through BIMPLUS, engineers could pinpoint specific concerns by selecting and annotating objects directly in the 3D environment, assign tasks to team members, and maintain oversight of the entire process. This created a truly collaborative digital environment where all stakeholders could engage with the model in real time, addressing potential issues before they impacted construction, and ensuring that both architectural vision and structural requirements were seamlessly integrated – exactly what BIM was designed to do.

AutoConverter: Transforming Architectural Models to Structural Analysis

The AutoConverter functionality played a key role in the project's workflow, streamlining the transition from architectural design to structural analysis. Instead of manually connecting nodes in SCIA Engineer (where engineers must manage each individual connection point), AutoConverter provided a guided approach with clarity at each step of the conversion process. This resulted in better precision, less fatigue for draftsmen, and significantly faster results.

"We like AutoConverter for its ease of use, guided approach, and clarity of the ongoing process, where the engineer can be 100% sure what is happening in each step during the conversion," notes Baldini. The software automatically recognized building elements, applied appropriate material definitions,



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handled alignment issues, and prepared the model for transfer to SCIA Engineer. This automated process eliminated many of the tedious, error-prone steps traditionally required to convert between architectural and analytical models.

Reinforcement Automation: Closing the BIM Loop

One of the most impressive aspects of the ALLPLAN workflow was the ability to complete the full circle of data – from architectural design to structural analysis and back to architectural and detailed structural design representation. The team wanted to explore the quickest and most optimal way to transfer calculations and 3D reinforcement from SCIA Engineer to ALLPLAN, with the aim of minimizing human effort and letting the computer do most of the work.

"If SCIA Engineer can put 3D reinforcement into columns and beams, then let's do it this way. Then there is no chance of misinterpreting the calculation, because SCIA Engineer does it for you," Baldini explains. The one-dimensional members were reinforced directly in SCIA Engineer and then transferred to ALLPLAN for further detailing, combination with other reinforcement, and preparation for printing, which saved a lot of time. This approach eliminated the need for draftsmen to manually interpret SCIA Engineer data when drawing reinforcement, reducing both time requirements and opportunities for error.

The reinforcement data could then be exported back to the architectural model, allowing architects to visualize the structural elements within their design environment. This closed the BIM loop and gave all stakeholders access to the comprehensive project data.

A New Standard for BIM Integration

The Kutina mixed-use building project demonstrated that an almost seamless data round-trip is essential for keeping designers in a creative flow without constantly battling import-export issues. The ALLPLAN, SCIA Engineer, and BIMPLUS workflow enabled smooth communication between architects and construction engineers, enhancing the efficiency of the design process and optimizing construction costs without compromising quality. The building earned acclaim, winning the Big SEE Architecture Award 2024 and setting a new standard for architectural and urban design in smaller cities like Kutina.

By leveraging the power of ALLPLAN Cloud and BIMPLUS for collaboration, using AutoConverter for model translation, and automating reinforcement processes, the project team delivered a high-quality building that successfully blends into its surroundings while providing an innovative commercial interior space. The OPEN BIM approach proved not just theoretical but beneficial, validating ALLPLAN's commitment to seamless integration across different design disciplines.



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Baldinistudio d.o.o.

Baldinistudio d.o.o. is a leading company specializing in the digitalization of the construction industry through Building Information Modeling (BIM) solutions. Founded in 2003, the company has grown into a regional leader in the implementation of advanced software tools for architecture, construction, and engineering.

With over 20 years of experience, Baldinistudio is recognized as a trusted partner for businesses seeking to improve their operations through digital transformation and BIM technology implementation. By continuously monitoring industry trends and adapting to market needs, the company continues to play a key role in the modernization of the construction industry in the region.

About ALLPLAN

ALLPLAN is a global provider of AEC software with BIM solutions for architecture, structural engineering, detailing, fabrication and construction. True to our "design to build" claim, we provide tools that enable earlier data-driven design decisions, support digital fabrication and leverage information throughout the entire construction process. Integrated cloud technology further optimizes interdisciplinary collaboration on building and infrastructure projects. Our innovative workflows empower architects, engineers, and construction

professionals to deliver their projects more productively, safely, and eco-consciously.

Around the world, over 700 dedicated employees continue to write the ALLPLAN success story. Headquartered in Munich, Germany, ALLPLAN is part of the Nemetschek Group – a pioneer for digital transformation in the construction sector.

