ATP Architects and Engineers

Customer Success Story

Autodesk® Revit® Architecture
Autodesk® Revit® Structure
Autodesk® Revit® MEP

Integrated Green Design

Autodesk BIM solutions help ATP Architects and Engineers design a green shopping mall in Slovenia

Before using Revit, our design teams had to manually coordinate their efforts, which greatly increased the chances of errors. Using intelligent Revit models makes our project designs more consistent and coordinated.

– Werner Blunder
Architect and Head of
BIM Management
ATP Architects and Engineers

Image courtesy of ATP Architects and Engineers

Project Summary
In the Siska district of the Slovenian capital Ljubljana, SES Spar European Shopping Centers is currently developing a new 32,000-square-meter shopping mall slated for opening in the fall of 2012. The project has ambitious goals. In addition to providing an enjoyable shopping experience, the mall will be a vibrant part of the city. The facility will offer visitors entertainment and cultural opportunities, and act as a gateway to Siska's neighborhoods and transportation networks. The €100m project will contain space for approximately 90 stores, as well as extensive balcony areas for restaurants, and open spaces throughout the facility. The facility also includes 1,500 parking spaces on two levels. When it opens, it is expected that the mall will provide 700 new jobs. Not only is the project socially responsible, it will also be environmentally responsible—designed to strict energy and carbon-neutrality standards.

ATP Architects and Engineers (ATP) is responsible for the project's design. ATP is one of Europe's largest integrated design companies. Founded in 1951 as a traditional architectural office, the company is now an interdisciplinary firm that offers integrated architectural and engineering services. ATP has over 420 employees at its offices in Innsbruck, Vienna, Munich, Frankfurt, Budapest, Zagreb, and Zurich. The company specializes in designing innovative, sustainable building projects that exceed client expectations.

An Urban Update
The project posed several challenges for ATP. First and foremost were the expectations of the client. "Overall, SES wanted the development to be more of an urban district center than a shopping mall," explains Gerhard Oberrauch, ATP's lead architect on the project. "Our design had to adhere to the client's existing development plan, but also integrate the facility with the surrounding environs." In addition, there were city and country-specific regulations to be considered, which differ from the Austrian and German regulations that ATP designers were used to. "We could only meet those challenges with a perfect design," says Oberrauch. So ATP relied on Autodesk Building Information Modeling (BIM) solutions to create its 'perfect design'.

The Solution
ATP's architects, structural engineers, and MEP engineers all relied on integrated model-based workflows for their design efforts. The design team developed the project using an intelligent model-based design process with the Revit platform products—enhancing cross-discipline collaboration and helping the team avoid design conflicts. As a result, the project design and documentation was better coordinated and more accurate.

Autodesk®

Integrate design disciplines for improved project coordination

ATP's reliance on an integrated Revit-based design model also optimized project and change management. Representations of the design—such as 3D views, 2D drawing sheets for plans or sections, and informational schedules and take-offs—are direct presentations of the underlying design model. Therefore, any design change made by any member of the design team was automatically reflected in all views of the project and all project documentation, minimizing errors in the finished plans and improving the quality of the design.

Integrated Model-based Design
During design development, ATP's architects used Revit Architecture software. The ability to create and visualize the design in 3D rendered and perspective views of the underlying model helped the design team better visualize the emerging design and make more informed design decisions. In addition, the bidirectional associativity between the model and any view of the model, including production drawings, kept the design and documentation coordinated for optimized project and change management.

ATP also used Revit Structure to design the mall's supporting structures, create framework plans, and for integrated structural analysis. By relying on an integrated modeling platform, ATP's structural designers referenced the Revit architectural model for their design, minimizing errors due to translation data loss or manual coordination with the architects. Non-supporting components were hidden, and then structural components such as supports, beams, foundations, and loads were added. In parallel, the architects referenced the emerging structural design for multi-discipline clash detection and improved coordination. The framing design was developed and the model passed to the structural engineers for analysis. The Revit Structure software simultaneously creates a physical model for layout, coordination, and documentation as well as an analytical model for structural analysis, helping ATP reduce redundant modeling efforts and streamline the analysis process.

ATP piloted the Revit MEP software on this project, using the software to design and document the facility's building systems, including the heating, ventilation, electricity and sanitary systems. The advantages of the integrated Revit platform and the direct use of the architectural model were particularly helpful for ATP's MEP design efforts, and the firm is now implementing Revit MEP for future projects.

Transition to BIM
The strategy for utilizing BIM on this Siska mall project was developed by b.i.m.m. GmbH, a European technology firm offering BIM implementations services. "As an integrated interdisciplinary design firm, ATP's in-house groups provide all the design services needed for a project such as this," explains Anton Gasteiger, b.i.m.m.'s managing director. "Revit is an ideal tool for integrated design because all different design disciplines access a central Revit project model that is shared between users. For example, the architect works independently in a local copy of the model and the software synchronizes changes made to that local model back into the master project file. In turn, the architect refreshes the local copy with changes from other users in other disciplines such as the structural engineer and the building technician. In this manner, all the project design teams work in the same model simultaneously."

> The ability to work in an integrated fashion using the Revit family of products has greatly accelerated our design process.
>
> —Gerhard Oberrauch
> Lead Architect
> ATP Architects and Engineers

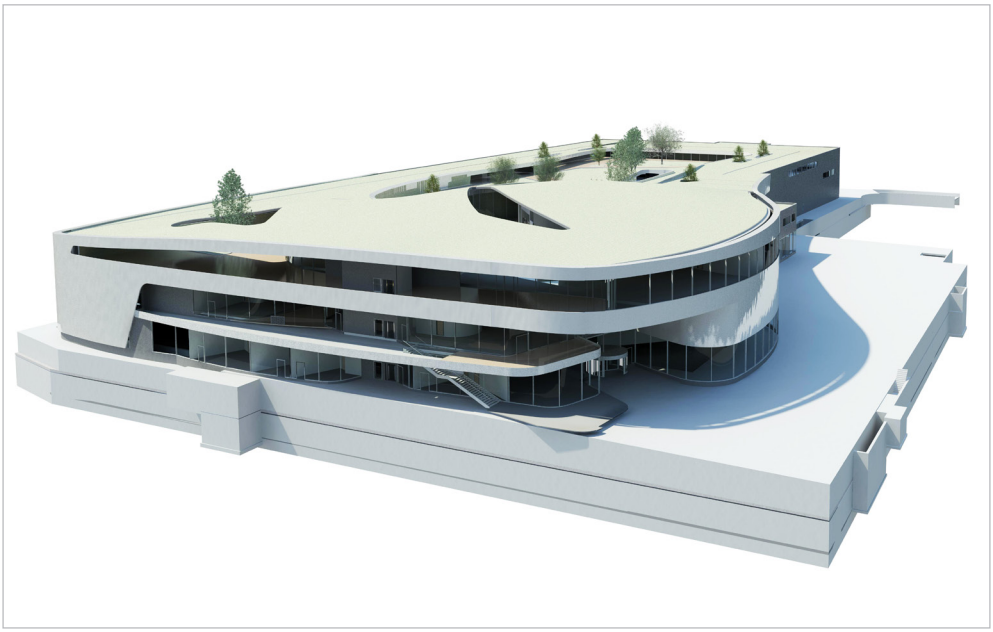

Image courtesy of ATP Architects and Engineers

Because everyone involved in the project uses the same building data model and can constantly add to it in the course of the project, design processes can run in parallel. One discipline builds on another without any loss of information. Everyone is accessing and adding to this central design model, resulting in designs that are naturally integrated and therefore better coordinated. With BIM processes and software, discipline-specific design workflows that were performed largely in isolation are now closely integrated.

"The ability to work in an integrated fashion using the Revit family of products has greatly accelerated our design process," says Oberrauch. "For example, an architect inadvertently models a support structure using an undersized beam. Since all of the disciplines are accessing a shared design model, the structural engineer immediately sees the architect's choice and provides feedback that the beam size should be stronger."

"Before using Revit, our design teams had to manually coordinate their efforts, which greatly increased the chances of errors," add Werner Blunder, architect and the head of BIM management at ATP. "Using intelligent Revit models makes our project designs more consistent and coordinated. And whether a change is made to a model, a schedule, or a floor plan, the software automatically reflects that change across all affected drawings and views."

A New Approach
A BIM approach for project design and delivery is a fundamental change from traditional drawing-based workflows and therefore the transition to BIM can be challenging for some organizations. "When implementing BIM, everyone involved in the project has to embrace teamwork," says Gasteiger. "Everyone has to make their data available to the other people involved in the project. This is essential for project coordination, visualization, and documentation." ATP uses BIM training programs to overcome this challenge. Employees take part in a 3-4 day BIM class that helps them prepare for using BIM software and processes.

Another key aspect of ATP's BIM implementation is the reliance on a BIM site expert to manage and provide guidance on the use of the Revit project model and new BIM worfklows. "The Revit model is like a large storage facility. Everyone adds their own pieces to the design model and the rest of the team uses the Revit software to retrieve the information they need to get their job done. The BIM site expert makes sure that users understand how to get and share information, so that ATP can develop superior projects for its clients," explains Gasteiger.

Image courtesy of ATP Architects and Engineers

Revit is an ideal tool for integrated design because all different design disciplines access a central Revit project model that is shared between users.

—Anton Gasteiger
Managing Director
b.i.m.m. GmbH

Sustainability is Key
Owners are increasingly demanding facilities with ambitious goals for sustainability. The new Siska mall is exemplary in this regard. The project was designed to meet very high energy standards and also takes into account the carbon neutrality of the materials used for its construction. For its achievements in this regard, the building will be subject to BREEAM certification.

In addition to energy savings and using resource-friendly materials, ATP's design strategies were aimed at reducing carbon emissions, linking the facility to existing local public transport, and providing a comprehensive infrastructure for cyclists and pedestrians.

The Future is BIM
ATP is convinced that BIM represents the future of building design and is leading the way. "Our firm was an early adopter of CAD technology and we are now setting new standards in Central Europe for the use of integrated model-based BIM workflows," says Oberrauch. The company is currently transitioning its employees from AutoCAD software to Revit software. "We're still in the initial stages of this transition, but we are already seeing the advantages of BIM and they are very impressive," says Blunder.

For more information, visit:
www.autodesk.com/bim

Image courtesy of Ajmal Perfumes

We are already seeing the advantages of BIM and they are very impressive.

—Werner Blunder
Architect and Head of BIM Management
ATP Architects and Engineers

Autodesk®

Autodesk, Revit, Ecotect, and Navisworks are registered trademarks or trademarks of Autodesk, Inc., and/or its subsidiaries and/or affiliates in the USA and/or other countries. All other brand names, product names, or trademarks belong to their respective holders. Autodesk reserves the right to alter product offerings and specifications at any time without notice, and is not responsible for typographical or graphical errors that may appear in this document. ©2011 Autodesk, Inc. All rights reserved.