Stuttgart
Radiation Clinic.
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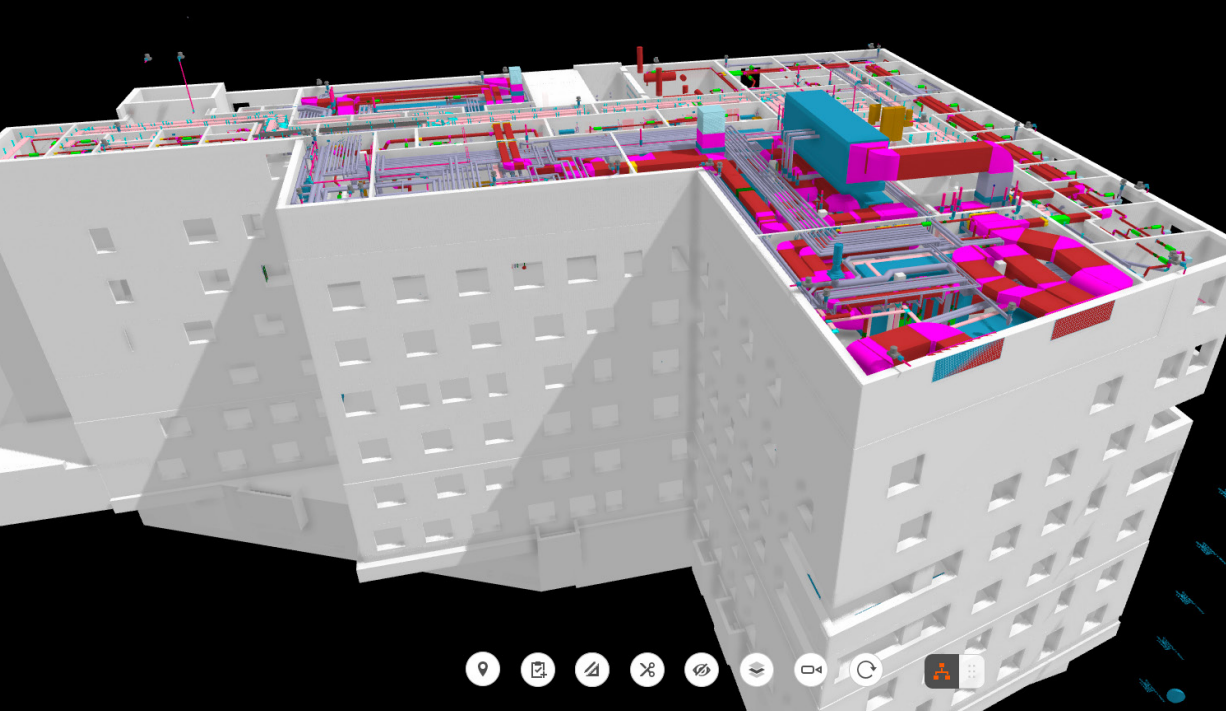
Allplan in Practice

INTEGRATED BIM PLANNING FOR THE STUTTGART RADIATION CLINIC

The hospital of the state capital – Stuttgart comprises a large number of specialist clinics and depart-ments on its extensive grounds. Located close to the city center, southwest of Stuttgart's main train station, the new Stuttgart Cancer Center Eva Mayr-Stihl (SCC) is currently being built at Hegelplatz, marking an important milestone in the restructuring of the city's hospital.

Schmidt Plöcker Architects from Frankfurt were commissioned by the general contractor, Gustav Epple, for model-based BIM execution planning, in service phase 5, as well as overall BIM coordina-tion. For comprehensive planning and coordination Schmidt Plöcker rely primarily on the BIM function-ality of their design software Allplan and in Bimplus for collaboration.

BIM is firmly establishing itself in the construction process. This is clearly evident, as more and more projects are being realized with this digital planning method. It is no longer a ques-tion of how large a project or is it worth using. Model-based planning can be worthwhile even for a single-family house. For example, when building work is to be executed with a high degree of prefabrication. Nevertheless,



Project system in Bimplus for the connection of external specialist planners.
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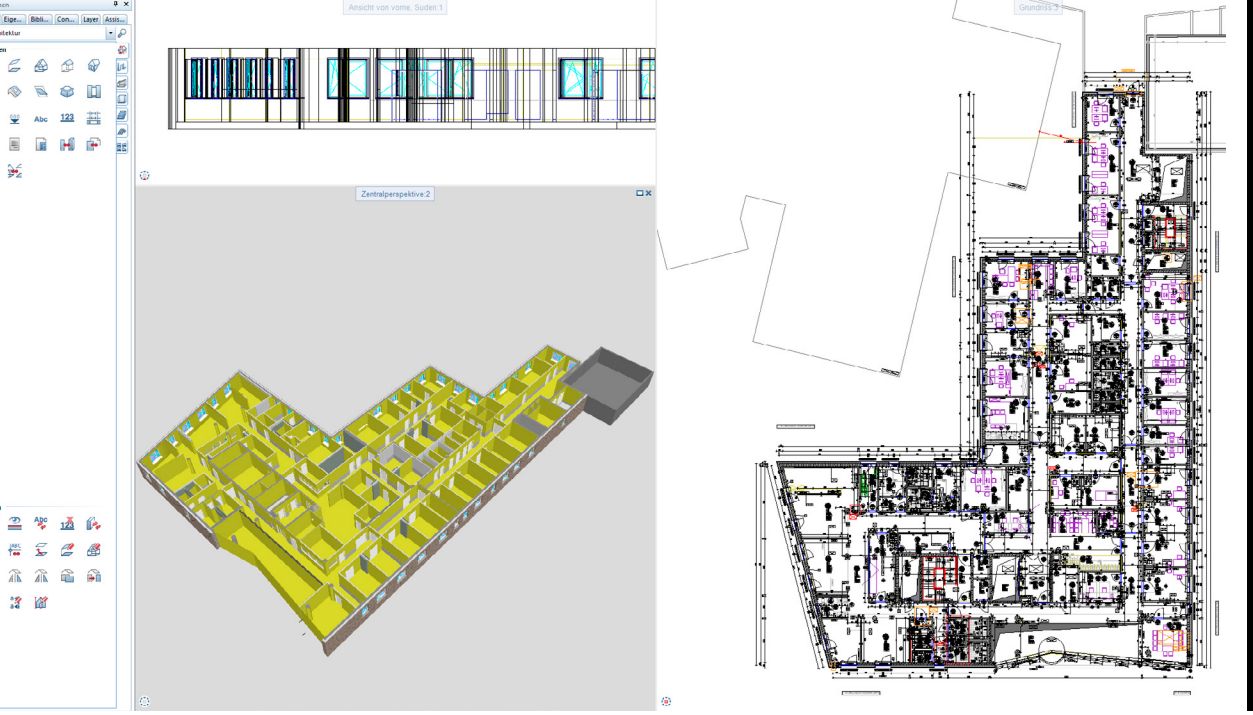
there are various construction tasks for which BIM has become indispensable. Highly technical buildings such as hospitals or special clinics benefit immensely from the digital model: Complex specialist planning can be comprehen-sively integrated, coordinated and design errors minimized. The designing architect's office is thus once again becoming the essential project manager in the design, planning and con-struction process.

CHALLENGING CONSTRUCTION TASK – NEW CLINIC BUILDING

For Schmidt Plöcker, the project is by no means the first BIM project, but it is nevertheless an exceptional one. The new radiation clinic places high demands on the architects, the specialist consultancies and the Stuttgart-based general contractor Gustav Epple. For example, the logistical situation on site is challenging, because parallel to the new building being constructed, there are other clinic buildings on the site that will continue with treatments and operations throughout the construction phase. Construction noise, dust and obstructions caused by construction vehicles must therefore be kept to a minimum. Added to this is the complex technical planning in advance: In addition to a day clinic, patient and treatment rooms, the necessary offices and storage rooms, numerous special laboratories and specially protected radiation rooms will be built in Building G by 2024. For this purpose, the architectural office also coordinates specialist design consultancies that do not yet work on a model basis or do not incorporate their specialist models into the coordination model. Against this background, the weekly coordination meetings with the various design participants, in which specialist design and architectural design are reconciled, are fundamental.

NEW MODELING ACCORDING TO STRICT SPECIFICATIONS

sweco architects were commissioned for the design planning up to the building permit phase. With the change to service phase 5, Schmidt Plöcker were then brought on board directly by the general contractor. They remodeled the entire building on the basis of the approved plans. The necessary time for this – from four to six weeks, depending on the size of the project – had to be scheduled. Alexander Dill, project manager and partner at Schmidt Plöcker, explains why remodeling is necessary for most projects: "We took over a model from service phase 3, but found that the attribution was missing. In order to have certainty and to ensure the necessary quality, we remodeled according to our own project specifications and modeling guidelines in our BIM software. With the model created in Allplan, we were then able to collaborate efficiently with the various specialist disciplines. For the MEP-specialist consultancy, for example, it is enormously important to have an attributed overall model. This enables them to implement their specialist design throughout and for the entire building."



Creation of the project with Allplan.
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OPEN BIM AS AN ESSENTIAL PLANNING METHOD

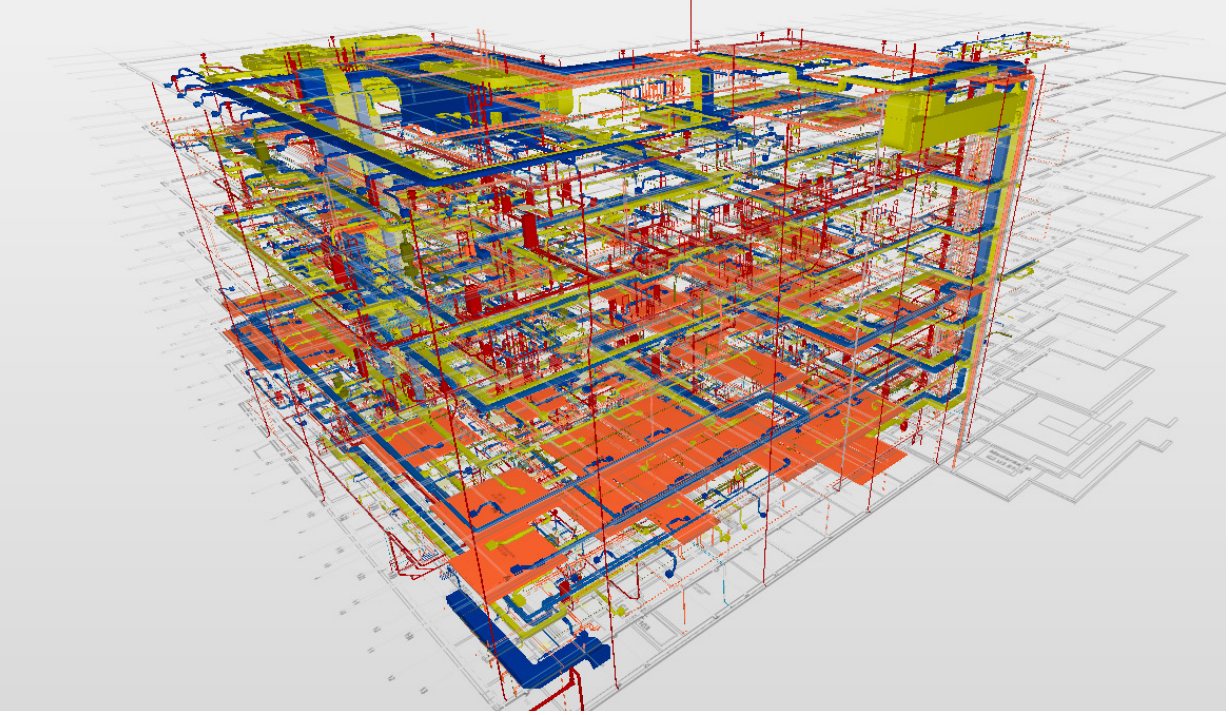
The project partners involved met for several BIM workshops at the start of the implementation planning. Here, they were asked which of the specialist consultancies work on a model basis and can be integrated into the coordination, which exchange standards apply, and which model contents should be transferred. Together with Gustav Epple, Schmidt Plöcker developed a BIM execution plan (BEP). The hospital is an OPEN BIM project. This means that the central model-based exchange format is IFC. The BCF (BIM Collaboration Format) communication format was used for the coordination and exchange of tasks, e.g. if a ceiling opening or a pipe routing does not fit: Problem points can be clearly located in the model using so-called "model viewpoints", viewed, commented on and then corrected in the spe-cialist design phase. The exchange via IFC with the specialist consultancies was carried out at the radiation clinic via Dalux; the collaboration tool was Bimplus. The Bimplus cloud-based platform was used by the integrated specialist consulting offices for the building services and the structural engineering. Stefanie Grolik, who is responsible for BIM coordination and quality management at Schmidt Plöcker: "We were able to transfer further specialist design such as radiation protection or building physics into the model by entering the data ourselves. We chose Bimplus as our central and cloud-based collaboration tool. We were able to use it for our architectural model with other platforms, for example to edit room books. This interface allowed us to bi-directionally manage the input of the necessary properties."

PROJECT INFORMATION AT A GLANCE

- **Focus:** Clinic building for radiotherapy | Building class 5 (special construction)
- **Software used:** Allplan 2021
- **Architect:** Schmidt Plöcker Architekten PartG mbB
- **Client:** Clinical Center of the State Capital Stuttgart
- **Service phases:** 5
- **Object size:** gross floor area 14,273.80m²
- **Costs:** 65 million euros
- **Start of construction:** 2nd quarter 2021
- **Construction completion:** January 2024

FLEXIBLE PROCESSES IN EVERY PROJECT

As with any conventional project planned without BIM, the processes are never static and identical. They developed from the results of the various BIM workshops. In the case of the new clinic building, there were concrete specifications. For example, the architect's office was given an extensive attribute list that was to be incorporated into the modeling. Together with the general contractor, it was then clarified which of the attributes would be included in the modeling with the BIM software



Merging the models for architecture, structure in Solibri.
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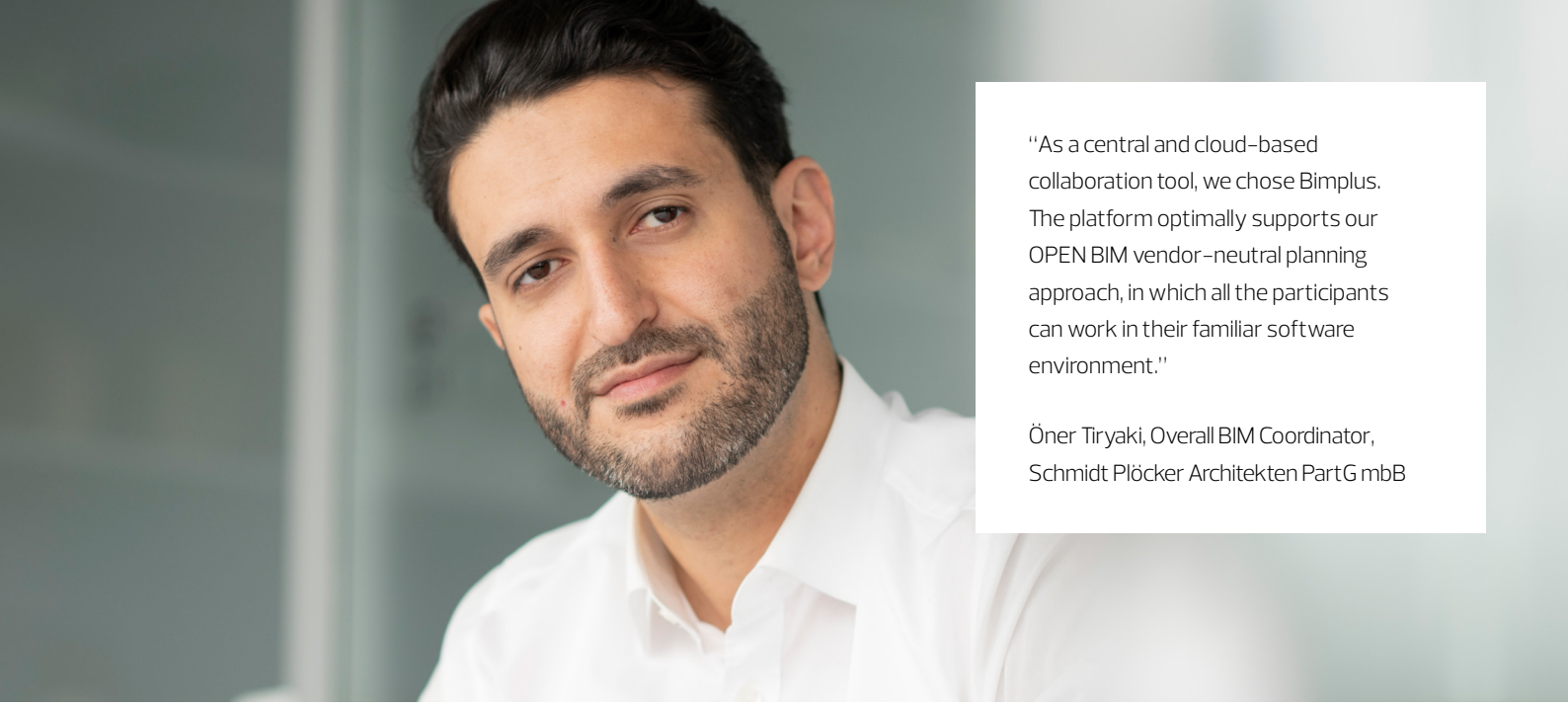
Allplan. Solibri was used for the coordination of the specialized design and the alignment in the coordination model as well as the internal quality management. In addition, various tools for translating the BIM model into virtual reality and a native IFC viewer for checking IFC files were used.

THE COORDINATION MODEL AS THE FOUNDATION OF PLANNING

Even though Solibri checking software is an important tool in Schmidt Plöcker's design and planning, it was clear from the outset that every project architect should understand the model and be able to work with it. The coordination model for integrated planning was the basic foundation for this; the basis was very high quality modeling by the project team on the radiation clinic. Öner Tiryaki, overall BIM coordinator at the Stuttgart Radiation Clinic: „Our coordination model was easily derived from Allplan. We have constantly developed it further and passed it on to our colleagues with great transparency. The comparison between the structural model and the architectural model was particularly important. The ‚Provision for Voids', the openings, were cut with our model. So, before the formwork plan was finally checked, we could already point out that there were deviations." And he continues, "The full integration of the specialist models enabled transparent, interdisciplinary collaboration as well as communication for all parties involved."

GOOD FEELING IN THE TEAM – DUE TO EXCELLENT COOPERATION

The schedule at the Stuttgart Radiation Clinic is tight and the planning workload high. One floor had to be completed every four weeks. But the close cooperation that the planning participants were able to demonstrate over time gave confidence in each other. Even subsequent coordination that arose over the course of the project did not dampen the positive mood of the executing architectural firm, the specialist consultancies or the general planner. Schmidt Plöcker recognize another advantage of the BIM planning method here: communication at eye level and a noticeable increase in openness in dealing with each other. Nevertheless, it would be desirable for further specialist consultancies to recognize the advantages of BIM planning in follow-up projects over the next few years, and thus further advance comprehensive, integrated planning. After all, the greatest possible benefit of any BIM project is achieved when all participants consistently apply the BIM method.



"As a central and cloud-based collaboration tool, we chose Bimplus. The platform optimally supports our OPEN BIM vendor-neutral planning approach, in which all the participants can work in their familiar software environment."

Öner Tiryaki, Overall BIM Coordinator, Schmidt Plöcker Architekten PartG mbB

THE CUSTOMER

For Schmidt Ploecker Architects from Frankfurt am Main, good architecture is modern but never fashionable. According to this credo, which is based on the lifespan of real estate, the goal of their work is architecture that confidently takes its place and stands out positively through its shape, scale, and material. In the office, 50 architects work in well-trained project teams on new buildings, revitalizations, conversions, and interior designs. The range of activities includes the architectural concept, planning, and realization of projects of different sizes and service phases, from urban design, office construction and conversion, and housing, to public buildings such as schools and hospitals.

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 600 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.

ALLPLAN GmbH
Konrad-Zuse-Platz 1
81829 Munich
Germany
info@allplan.com
allplan.com

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