ALLPLAN
A NEMETSCHEK COMPANY

wörner traxler richter
planungsgesellschaft mbh

Project: Hospital Frankfurt Höchst, Germany

FIRST EUROPEAN HOSPITAL COMPLIES WITH PASSIVE HOUSE STANDARD USING ALLPLAN

"The greatest challenge in the Frankfurt Höchst project was to merge data from various project members to form a central model. This was achieved by combining Allplan Architecture with Allplan Allfa."

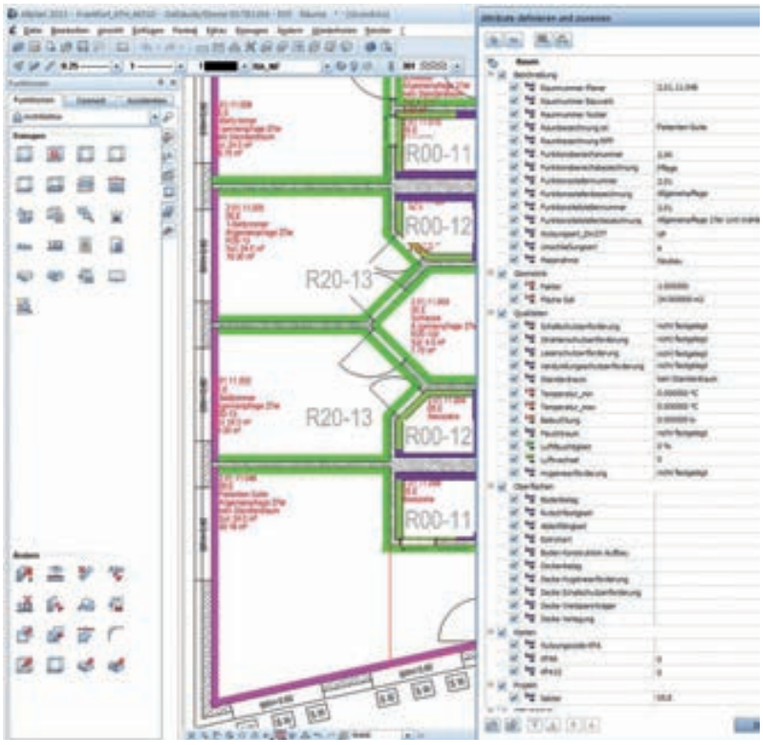
Architects from the firm of wörner traxler richter used solutions from the ALLPLAN portfolio to design the first hospital which complies with the passive house standard.

By applying Allplan Architecture and Allplan Allfa, they succeeded in acquiring and integrating simulation data for all trade planners in the architecture model quickly and without loss. This allowed them to simulate the thermal behavior of the hospital over the period of an entire operating year and to optimize the design of the technical building equipment.

ABOUT THE CUSTOMER

The company wörner traxler richter planungs-gesellschaft mbh is managed by architects and engineers Petra Wörner, Stefan Traxler, Martin Richter, Lutz Steernagel, Christian Strauss and Sven Nebgen, and by Petra Cleven, business economist.

With a work force of over 140 employees, the architects office specializes mainly in health-care, university, and social buildings from its locations in Frankfurt, Dresden, Munich, and Hamburg. Since the company was set up in 1971, wörner traxler richter has gained a pan-European reputation. Dirk Hennings is Managing Director of BIMwelt GmbH and consultant at wörner traxler richter. He has many years of experience as consultant and product developer for software solutions for the civil engineering industry. He acts as advisor on matters concerning CAD and CAFM and has profound knowledge of the hospital construction sector.



Highly detailed data for more precise simulation results

THE PROJECT CHALLENGE

The Frankfurt Höchst hospital is presently under construction in Frankfurt am Main. It is the first hospital in Europe to comply with the requirements of the passive house standard – this was one of the main demands stipulated by the City of Frankfurt. The requirement was a challenge even for an established firm such as wörner traxler richter.

The typical specifications in the passive house standard call for increased insulation in the walls, windows, and roof. At the same time, medical equipment such as MRI scanners and X-ray machines, as well as hundreds of people generate a significant amount of heat in a hospital. These thermal factors had to viewed over one year and must be taken into consideration at the planning stage. Therefore the architecture model in Allplan had to be supplemented with data from trade planners to complete the calculations and supply sufficient information for the energy simulation.

RE-INTEGRATE
THE SIMULATION RESULTS
in the planning process

PLAN THE FIRST
European hospital to comply
with the passive house standard

SIMULATE THE
THERMAL BEHAVIOR
of the hospital over a period of a fictitious year

INTEGRATE ALL
the relevant data in the architecture model
before starting energy calculations

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THE SOLUTION

To design the Frankfurt Höchst hospital based on the passive house standard, wörner traxler richter switched its work method over to BIM. The Planners used the Allplan Architecture solution to exchange data bidirectionally with the Allplan Allfa CAFM system.

"The major advantage for the project was that we were able to run simulations based on the Allplan architecture model and not have to work with a separate simulation model," says Dirk Hennings. The facility management system Allplan Allfa compiled and transferred data from several specialist planners to Allplan Architecture. Since Allplan Allfa is web-based, it was no problem to send data over the Internet for integration in the Allfa database.

Special input masks were created for each planning associate. The data acquired in this way was then transferred via the bidirectional interface to Allplan Architecture and integrated in the architecture model. The architects then forwarded the supplemented model to the Ida-ICE simulation software to conduct energy simulations. The results of this energy calculation were then returned to Allplan Architecture for use in the subsequent planning process.

This made it possible to simulate the thermal behavior inside the building over a period of a fictitious year.

BENEFITS

"By combining Allplan Architecture and Allplan Allfa, we saved a great deal of effort in the Frankfurt Höchst project," explains Dirk Hennings. "Otherwise, we would have had to enter and manage huge amounts of data by hand to achieve a similar result. So the solutions offered by Allplan really saved us a great deal of time and money." Since the pioneering Frankfurt Höchst project, the Allplan Architecture and Allplan Allfa software programs have become established at wörner traxler richter, as well as with their specialist planners.

LOSS-FREE DATA EXCHANGE
with specialist planners through the use of Allplan Allfa

Detailed architecture model forming the basis for meaningful
ENERGY SIMULATIONS

SIMPLE DATA TRANSFER
to the simulation program via the IFC interface

"The unique combination of CAD and CAFM from ALLPLAN is a decisive advantage. The two come from a single source. And this is the way to conduct a simulation based on the architecture model – instead of using a simulation model as base."

Dirk Hennings

ABOUT THE COMPANY ALLPLAN

ALLPLAN is a leading European vendor of open solutions for BIM (Building Information Modeling). For more than 50 years, the company has supported the AECOM industry with a pioneering software portfolio and is playing a key role in promoting the digitalization of the building industry: innovative, geared to the requirements of customers – and with best quality "Made in Germany".

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