ALLPLAN
A NEMETSCHEK COMPANY

Project: Residential and commercial building Bad Bramstedt (Schleswig-Holstein)

Allplan in practice

FIRST DESIGN VISUALLY, THEN BUILD!

CORE architecture used much more than just the basics of Building Information Modeling (BIM) when they created a residential and commercial building in Bad Bramstedt.

When planning their "residential and commercial building in Bad Bramstedt" project, the architects from CORE architecture created a three-dimensional building model in Allplan Architecture and used it as the basis for communication with all those involved in the project from the outset. In addition, the model also served as a basis for the tenders and for determining the quantities and costs. To be able to add the current terrain situation to the 3D model, the architects used a 3D laser scanning survey to capture the 3D site data as a point cloud. They then compared the data acquired in this way with the building and environment model in Allplan Architecture and expanded it using the newly added information.

Commercial building
Street view

BACKGROUND AND CHALLENGE

The residential and commercial building in Bad Bramstedt (Schleswig-Holstein) is a spacious single-family dwelling. A commercial building with multiple uses is being built on the plot next to this building. It will include a police station, an administrative office, additional office space, and large basement areas, as well as an underground parking garage. The design for both building complexes began in November 2014 and the project is expected to be finished by August 2018. The client placed particular value on sustainability, cost efficiency, and quality, and therefore these became the focal points of the construction project. From the start, the client explicitly insisted that everyone involved in the project should coordinate on a model basis under the direction of a competent BIM manager, which in this case was CORE architecture.

However, the construction project had a difficult start. CORE architecture first joined the project after the client's difficulties with the previous architectural firm led to a parting of ways. This meant that the Hamburg-based architects from CORE architecture were initially faced with the mess of a poor design and a basement that was already partially constructed. The client wanted the existing design to be revised. The goal was to keep the basement that had already been constructed and incorporate it into the new design. This meant that an inventory of the building parts already built and the surrounding terrain was necessary at the start of the project. In addition to these challenges, all project participants, including the client, had to be convinced of the philosophy of the Hamburg-based architects of "first design visually, then build."

APPROACH AND SOLUTION

The architects carried out the inventory of the plot and then compared the result in the form of a scatter plot with the design in Allplan Architecture and adjusted it accordingly. Work could then continue by using this information as a basis.

The architects worked with a three-dimensional model from the start and they were able to repeatedly capitalize on the advantages of their BIM methodology throughout the design process. For it soon became clear what the difficulties were that the client had experienced with the drafting and planning methods of the previous architectural firm: That company had only worked with traditional two-dimensional drawings and were only able to partially convey the proposed design to the client.

CORE architecture revised the original design and discussed specific aspects of the plan with the client. The building model made it possible to identify errors and to discuss spatial dimensions and their effects as a whole. To do this, they met with the client in their offices and used the large

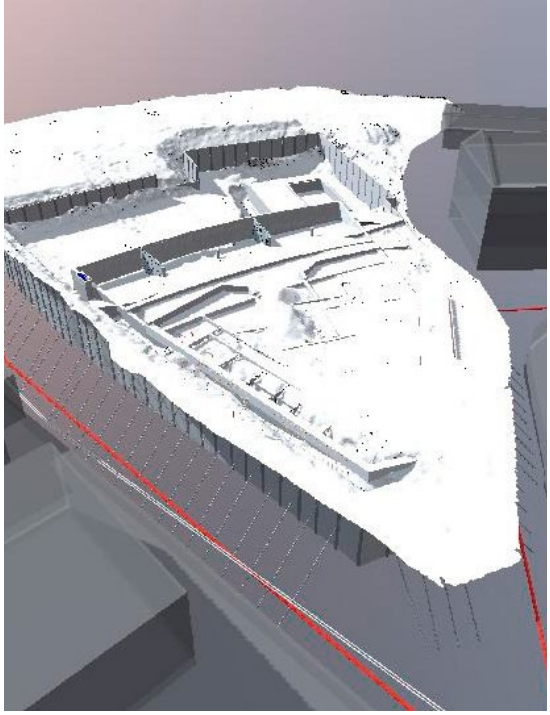


Fig. left:
Overview of the residential and commercial building

Fig. right:
Scatter plot with shoring planning

monitors there to display and discuss the three-dimensional building model in Allplan Architecture and Solibri. For the client and everyone else involved in the project, the different aspects of the design became significantly more transparent through this process.

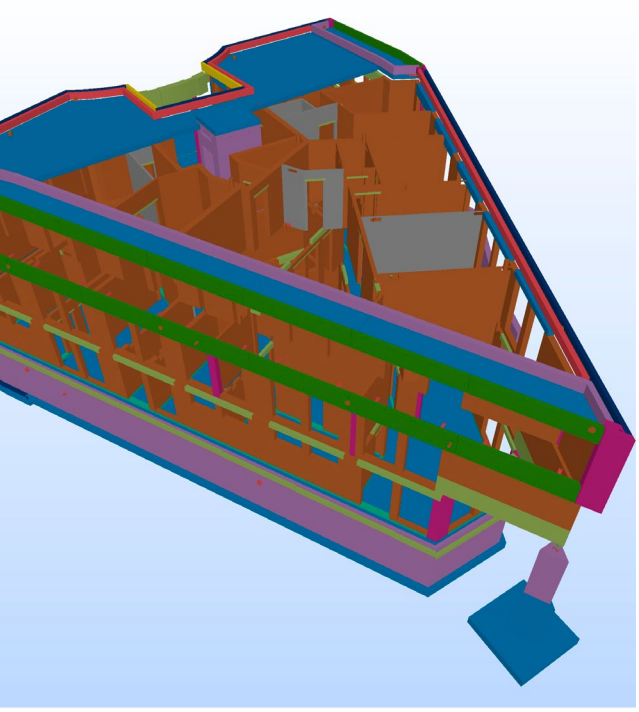
The architects also relied on the building model in Allplan Architecture for the subsequent tenders. Instead of the usual approach, they calculated the quantities and costs directly from the existing model. This saved them a considerable amount of time and money. The 3D model was also an advantage when planning the construction process. This was also modeled in 3D, checked for collisions, and then discussed in detail with the local residents and authorities.

But it was not just the architects who designed in 3D. The two-dimensional HVAC and utilities planning (heating, ventilation, and sanitary facilities) were also modeled three-dimensionally and integrated into the building model in Allplan Architecture. It became clear that the original design was much too complicated and expensive. Based on this knowledge, the client instructed a complete revision of the design. The client can only make such decisions based on a building model, of this the architects from CORE architecture are certain.

HOW DOES BIM WORK AT CORE ARCHITECTURE?

CORE architecture does act as a general contractor, but primarily employs architects in its own office. For all other trades, they work together with specific partners. However, to ensure that BIM works to the satisfaction of everyone involved and leads to the desired results, they must have the same "BIM repertoire." That is why CORE architecture likes to work together with partners with whom they share a common "BIM learning curve." Processes and procedures were defined in advance and coordinated with all project partners so that any collaboration runs as smoothly as possible.

Allplan Architecture, Solibri (model checker) and other design software—such as Bim4You—are the commonly used programs in the Hamburg architectural firm. The architectural firm values working exclusively in line with the OpenBIM method and also expects this from its partners.



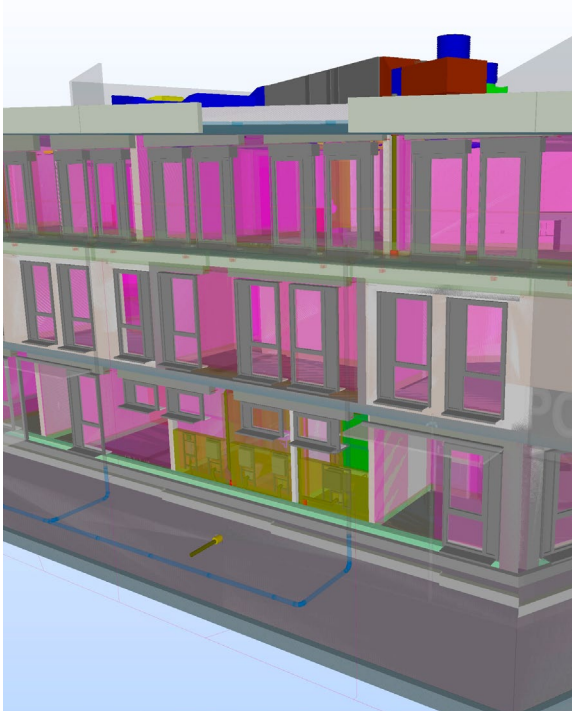


Fig. left:
Structural analysis of a technical model with pre-cast elements

Fig. right:
Central model created from 18 technical models

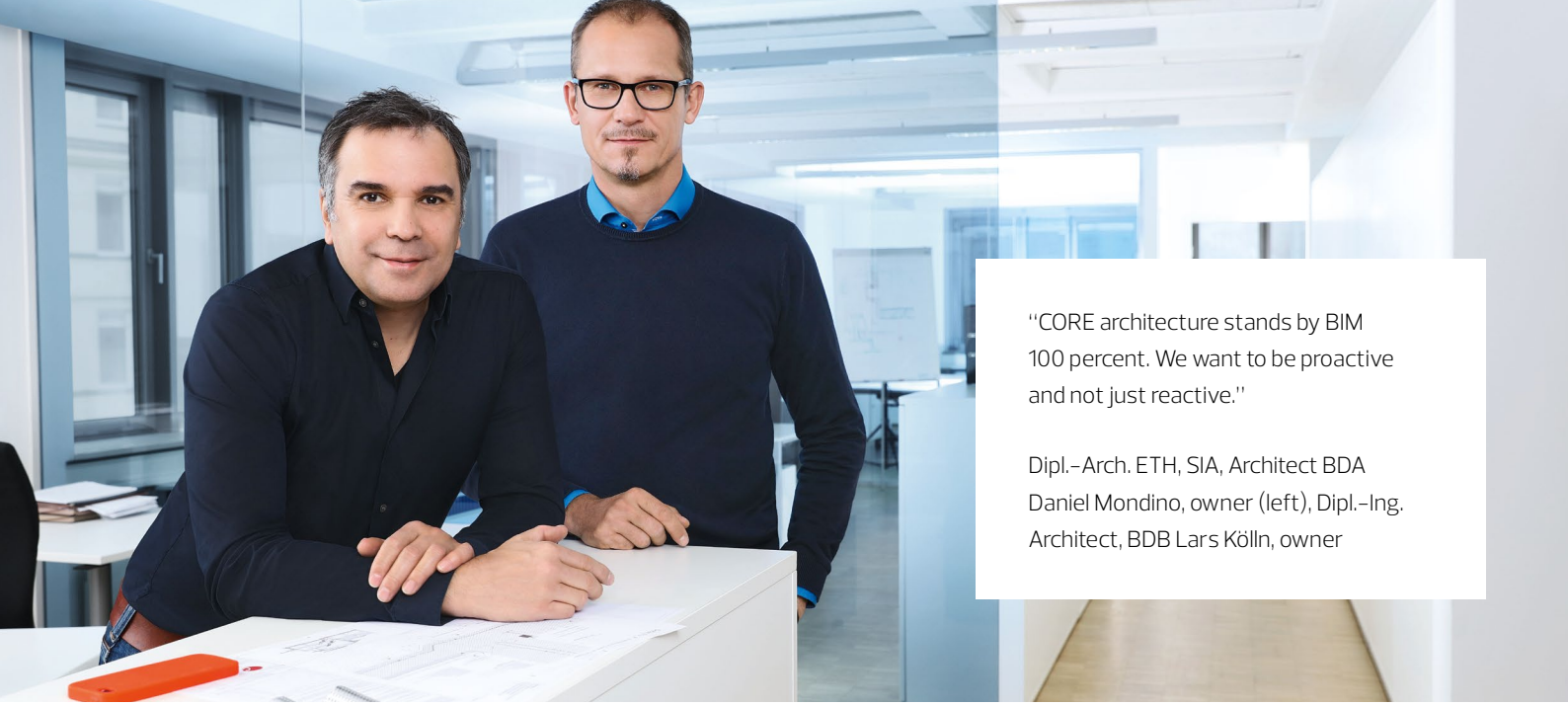
Model files are exchanged in the data formats of BCF and IFC. The building model itself is created and managed by the architects in Allplan Architecture.

WHAT ARE THE ADVANTAGES OF BIM?

Like many other offices who work with BIM, CORE architecture also learned a great deal in recent years and learned the hard way in the process. Collaborations with new or foreign partners have become more difficult and there are currently only a few companies who are suitable for an effective partnership. In addition, many companies overestimate themselves or do not take BIM seriously enough. Despite these hurdles, CORE architecture sees itself as a pioneer in the field of BIM and has therefore deliberately decided to be proactive instead of just reactive.

During the construction project in Bad Bramstedt, the advantages of the BIM methodology quickly became apparent: A three-dimensional design reduces the familiarity process within the design phase to a minimum, right from the start. The communication with all those involved in the project was successfully facilitated and was transparent for everyone through the building model, and at the end of the project there were time and cost savings, fewer risks, and, last but not least, a satisfied client. The conclusion of the Hamburg-based architects on the topic of Building Information Modeling is therefore clear:
BIM is definitely worth it!

- **Simplified work processes**
- **Reduced work expenditure**
- **Risk minimization**
- **Considerable time savings**
- **Improved communication with the client**
- **Calculation of quantities and costs from the model**



"CORE architecture stands by BIM 100 percent. We want to be proactive and not just reactive."

Dipl.-Arch. ETH, SIA, Architect BDA Daniel Mondino, owner (left), Dipl.-Ing. Architect, BDB Lars Kölln, owner

THE CUSTOMER

The Hamburg-based office CORE architecture is managed by Lars Kölln, Dipl.-Ing. (FH), Architect BDB, and Daniel Mondino, Dipl.Arch. ETH SIA, Architect BDA. The office undertakes architectural responsibilities in all phases of work while exclusively using the Building Information Modeling (BIM) methodology. The architects focus on using OpenBIM in the process. The office covers a wide range of projects, from new buildings to reconstruction and conversion, and commercial construction to interior design. CORE architecture has both public and private clients among its customers.

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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