NEMETSCHEK Allplan

Loft Apartments, Berlin, Germany

Architecture firm 213, Berlin, Germany

Individuality in 3D

The popularity of living in cities has been rising steadily for a number of years. The primary reason for this is centrality, a factor that is playing an increasingly significant role in determining where people choose to live, particularly in view of the climbing fuel prices. However, many city dwellers are unwilling to forego some form of garden. Berlin-based architecture firm 213 offers the solution to this problem. The architectural concept of this unique project combines the advantages of city life with the need for green space.

Three loft apartments with between 140 and 200 square metres of living space are under construction in the centre of Berlin's Prenzlauer Berg district. Each of these apartments is to be extended with the addition of a roof terrace with ample scope for the green-fingered. "We specialise in complicated construction projects in inner-city locations. Our aim is to fulfil our customers' individual requirements, as complex as these can sometimes be. In order to realise this successfully, we use the digital building model in Allplan Architecture to plan all of our projects," explains Markus Schell, founder and director of 213. In addition to the construction of apartments, restaurants and hotels, the architecture firm also counts full interior design among its range of services.

3D model provides visual control

The original idea for the loft apartment project consisted of constructing multi-level single family homes characterised by their individuality and with individual access to a rooftop. The architecture firm purchased the roof structure of two residential buildings for this purpose. The fact that three-storey buildings cannot be erected due to planning laws meant that 213 had to look for an alternative solution. Two apartments are planned to encompass two storeys, with the lower level con- stituting the living area and the upper level intended as the rooftop garden. Since the customer has insisted on having three storeys in the third apartment, access down to an empty apartment on the fifth floor of the building will be created.

First, the old, pitched roofs of the residential buildings were dismantled and replaced with new, barrel-shaped shell roofs. "The roof geometry in the shell construction proved to be extremely complex due to the exceptional curvature and the embedded gardens. In order to ensure that we had a clean, consistent diagram, we drew the lines on the computer and then transferred them to the 3D building model. This also allowed us to avoid planning errors that we would have otherwise only become aware of once construction was underway," says Markus Schell.

Virtual ambience

The shell construction is one of the oldest roof shapes around and is usually built using stone or concrete. Markus Schell, however, is using solid wood to build the shell of the loft apartments. This involves joining thin wooden beams to form a solid surface. The connecting elements are also wooden beams, thereby avoiding the use of any extraneous materials. Markus Schell has indicated that even the inner lining of the roof shell will consist of natural materials such as clay and lime. "The goal of the project was to create a unique spatial atmosphere through the contrast between organic materials and an archetypal roof shape. In addition, the use of solid wood in the construction is environmentally sound and also saves significant amounts of energy thanks to its excellent insulation properties."

The decision to go with the shell roof is also beneficial in that there are no constraints on how occupants configure their living space. This is down to the fact that there are no additional, load-bearing elements such as walls or supports. "Apart from the dimensions of the apartments and the materials we wanted to use, nothing was certain at the beginning of the planning phase. Everything else was planned in accordance with the requirements and ideas of the buyer," states Markus Schell. The architecture firm is using Allplan Architecture and CINEMA 4D to create realistic animations of the loft apartments, thereby enabling customers to experience their ambience virtually - long before construction begins. "We were able to use the detailed visualisations to rapidly realise every idea with precision. They provided a clear decision-making basis for customers and the participating construction firms and were instrumental in curbing the planning period to a mere seven months," continues the Berlin-based architect.

Optimised cooperation

213 relied on another of Allplan's functions to ensure smooth and seamless workflows within the team: the Workgroup Manager. The Workgroup principle facilitates the uniform administration and organisation of plans in an architecture firm. It guarantees rapid access to a project from all workstations, thereby securing the basis for smooth, parallel cooperation within a team. Markus

Schell used the 3D PDF from Nemetschek and Adobe for optimal data exchange with the planning partners. Once a 3D model has been created in Allplan, it can simply be exported in PDF format from the CAD system and forwarded to all parties involved in planning. During the construction phase, the 3D PDF file acts as a digital building folder in which all building data for documentation and presentation to customers is stored and can be accessed directly. “The fact that all construction participants can be fully networked with each other without the need for considerable expenditure is a huge advantage, particularly for small architecture firms. The solution enables us to communicate more efficiently with customers and partners, thereby generating clear competitive advantages for us,” adds Markus Schell.