

SUSTAINABLE AND SAFE

overview

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HOHO VIENNA - THE SECOND TALLEST WOODEN HIGH-RISE IN THE WORLD

The HoHo Vienna is a 24-story commercial building that combines office and business space as well as a hotel, apartments, a restaurant and health, beauty and wellness areas. Built in a hybrid construction of wood and concrete, this building is particularly characterized by its feel-good atmosphere, practiced sustainability and energy efficiency. There were many challenges in this unique project - also in terms of fire protection and safety.

By 2028, around 11,000 residential units for more than 20,000 people and thousands of jobs will be built in "Seestadt Aspern", Vienna's largest urban development area. One of the showcase projects is the 84-meter-high wooden high-rise HoHo Wien, planned by investor Günter Kerbler and idea generator Caroline Palfy, Managing Director of cetus Baudevelopment GmbH, and ready for occupancy in fall 2019 after three years of construction. The building complex comprises two structures with a total of five components between six and twenty-four floors and two basement levels. The total gross floor area amounts to 25,000 m², of which 19,500 m² is rental space. The total investment volume is around 75 million euros, and the construction costs for the building services amount to around 17 million euros.

In this innovative and internationally acclaimed project, there were new requirements in many areas, which also presented certain challenges to an experienced team of planners and executing companies. In the case of the pressurized ventilation system, which is indispensable for a fire protection and safety concept, the know-how of the ventilation and air conditioning specialist TROX Austria was called upon. Together with the planning office Zencon - Planung, Management, Immobilien GmbH, which carried out the complete project planning of the TGA installation for the client cetus Baudevelopment GmbH in cooperation with ENGIE Gebäudetechnik GmbH, a solution was implemented that ensures the greatest possible safety in the event of a fire.

Surprising: Wood is TOP in fire protection

As a combustible building material, wood struggles with more stringent fire codes than steel or concrete. While the fire load is a higher one as the supporting structure begins to burn, wood is not unsafe because of this, as the two fire tests required by the authorities have shown. By forming a "char layer," burning is delayed and thus controllable. Although steel is not combustible, it loses its strength abruptly under the influence of heat - even in reinforced concrete girders. To prevent this from happening in the first place, many preventive measures have been taken at HoHo Vienna. An area-wide fire alarm system for early warning, a sprinkler system, shafts made of non-combustible building materials, small fire protection sections - and a pressurized ventilation system ensure that people can feel comfortable and safe.

Safety through overpressure - the components

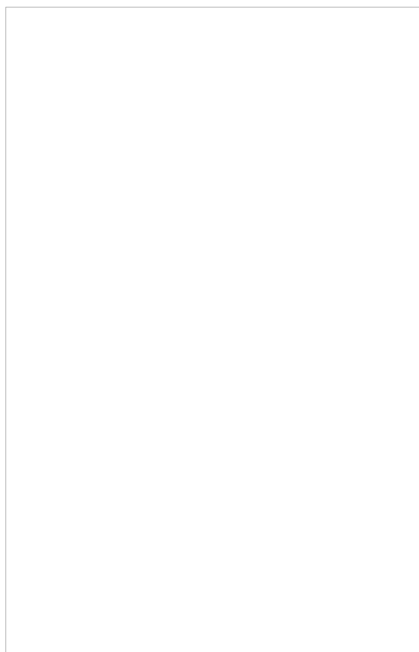
The installation of a pressure ventilation system that mechanically regulates itself and maintains a constant overpressure in the stairwell of at least 50 Pa ensures that escape and rescue routes remain smoke-free in the event of a fire. This serves for self-rescue as well as for the support of the emergency services. The positive pressure causes leakage areas (e.g. around doors) to flow from the protected area into the potentially smoky area. A flow of smoke or smoky air into the overpressure area is thus prevented.

The components used are proven quality products from TROX. Pressure relief is provided by several pressure control units positioned in a targeted manner. The supply air is introduced via axial fans of the latest generation. CE-certified smoke extraction axial fans are used for the outflow.

In addition, 3 lift systems (fire department lifts) were installed. There, too, the supply air is provided by axial fans and the pressure is relieved by self-regulating pressure control units.

Franz Capek, Project Manager Business Development at TROX Austria, points out a technical specialty: "The special feature of this HoHo solution is the control by means of a BUS system. In buildings of this size, control cabinet wiring would be far too costly and resource-intensive. With a

BUS solution, one saves both material and cabling effort - and remains flexible. Individual components in the periphery can be easily controlled, no matter where they are located in the building. With this scalable, flexible system, the specifications of the high safety standard and also future requirements can be met."



Flexible bus control - the technology

"The control of pressurized ventilation in large properties always places special demands on the planning team. Here it is helpful to be able to draw on experience from many projects to find appropriate solutions," says Reinhard Brenner, Head of Business Development, underlining the complexity of this solution. "If there are changes in the use of the property or if rental areas are changed, these changes can be quickly adapted to current needs. Especially for future maintenance work, the executed bus system is optimally prepared," Brenner emphasizes the advantages of this solution. Special projects require special measures: "Due to the architecture, many things had to be installed in the visible area. In addition to the usual approach - a clean but functional installation - aesthetics also play a decisive role here"

Rene Mayerhofer, Managing Director Zencon - Planung, Management, Immobilien GmbH, adds: "The bus system of the pressurized ventilation was a relief to be able to represent the necessary requirements. Right from the start, we attached great importance to continuously coordinating the detailed planning with the accepting inspection body." But even with the most careful planning, there are one or two hurdles to overcome during implementation on site.

Sustainable and resource-saving - the ecology

Not only was great importance attached to technical perfection in this project - the HoHo Vienna also impresses with its sustainability concept. Walls and ceilings inside the house are made of spruce wood with a transparent water-based coating. According to the project planners, it takes only one hour and 17 minutes for the entire amount of wood needed for construction to grow back in Austrian forests. Overall, the timber construction saved nearly 3,000 tons of CO2 compared to a conventional concrete building, they said.

But that's far from all: As is customary in the Urban Lakeside, the 24-story high-rise was built according to the TQB rating system of the ÖGNB and also received the international LEED certification in GOLD. The energy concept includes elevators with energy recovery, photovoltaic systems, foundation absorbers and a decentralized ventilation system with conditioning. Intelligent building technology further reduces operating costs.

The focus on environmental protection and resource conservation coincides perfectly with TROX's high sustainability and quality standards. "We ensure the longevity of our products through high quality. A longer product service life always means a saving in manufacturing-related resources and CO2 emissions," Capek confirms TROX's sustainable orientation.

The learning experiences in the collaboration between the specialists are also lasting. "With each project, the level of knowledge and the view of details is expanded. Valuable conclusions were drawn, especially in terms of organization and execution," Albel sums up. Mayerhofer adds, "The project team from the planning phase to implementation must work very closely together to achieve a positive result. For the future, it is extremely important that the accepting agency is very closely involved in the detailed planning in order to coordinate all experiences in a timely manner."

