

Munich's state-of-the-art real estate ensemble to be the city's future portal in the east

Bavaria Towers is one of the most spectacular building projects in Munich in recent years. Each building is certified as sustainable and equipped with cutting-edge building automation from SAUTER – embedded in the superlative architecture of Spanish architects Nieto Sobejano Arquitectos from Madrid.

The Bavaria Towers development consists of four buildings and is the first major high-rise project to be approved in Munich for years. Three office towers and a hotel tower offer fantastic conditions for companies and guests, whose priorities are first-class infrastructure and comfort. Designed as Green Buildings, they form a harmonious ensemble that will enhance and reshape Munich's eastern edge.

Bavaria Towers ascending high

Ranging from 46 to 83 metres in height, the high-rise development reaches for the Munich sky. It is therefore visible from some distance in the city and when approaching on the A94. Its curved forms and transparent facades bear the hallmark of the Nieto Sobejano Arquitectos office in Madrid, the winner of the architectural competition. Almost 400 million euros in total are being invested in the project. It has a rental area of 62,000 m² and will be the new eye-catcher in Munich's Bogenhausen district. This part of the city will soon be home to more interesting building projects, attractively combining living, leisure and work. Munich's east is modernising.

SAUTER product quality and dependability the key to success

Along with striking architecture, the planning also earmarked user comfort, quality and energy efficiency. With its impressive solutions and reliable execution during the short construction phase, SAUTER won the approval of both building contractors for providing the building automation. Two of the buildings were put up by PORR Deutschland GmbH and the other two by Implenia Hochbau GmbH. Each building has individual energy and room concepts and so customised control strategies are used. These include weather forecast control, comprehensive consumption recording with energy management and the Green Building monitor. Technical solutions are rewarded with the high sustainability standard, verified in the building certification as per DGNB and LEED.

Comfortable, efficient network in the room

The second-highest tower, known as the Blue Tower and 72 meters high, is particularly remarkable. The options offered by networked building automation are exploited to the full here, with a range of benefits for users. The new, innovative touch room operating unit – SAUTER ecoUnit365 – is the convenient user interface to the technology (human – machine). The flexibly adjustable equipment make it intuitive and easy to operate. A multi-sensor installed in the ceiling detects occupancy and brightness. The user therefore controls their own "command centre" conveniently and energy-efficiently throughout the working day. The state-of-the-art LED lighting is automatically regulated with constant brightness. Sunshading autonomously ensures reduced sunlight and eliminates glare. When the user is absent the systems switch to the economical set-back mode. No interventions are actually required unless the user wants to deviate from the standard program.

The demand-led system operation enables energy costs to be decreased. This is because the energy consumption of a building is determined by the operating time, room temperature and lighting specified by users in the rooms. But how can the savings made via demand-led, customised system operation be evaluated? The European EN15232:2012-09 standard (Energy performance of buildings - Impact of Building Automation, Controls and Building Management) enables this question to be answered. Cost savings made through room automation and central building management can also be estimated. In the case of the Blue Tower, the integral building automation improves the energy efficiency of the building from category C to B as per the standard. When compared to a control system that does not combine and optimally balance the different climate systems, sunshading and lighting, this leads to an estimated energy cost saving of 20 % – a considerable figure over the long usage phase of a building. But best of all, this happens completely automatically and unnoticed via sophisticated operating modes.



Cutting-edge control technology ensuring interconnection

Technical solutions and management systems with intelligence are an essential component of the building operation. This is particularly the case for complex buildings with a high proportion of glass, and system technology with complicated interconnections. In the Blue Tower, SAUTER Vision Center also reduces the work needed to remodel the office space. When room divisions are being changed, only an adjustment within the air-conditioning software is necessary. Room segments are grouped into new rooms using the "Moving Wall" function. The adjustment can be made during operation with the air-conditioning thus immediately ready for use again. This saves time and money and a physical change to the hardware within the rental area is not required.

Generating central energy using geothermal energy

In the Blue Tower the heating is provided through a 110 kW ground water heat pump and 650 kW district heating connection. The heat pump is used exclusively for heating the component activation. Long operating periods occur for warming the concrete ceilings. This type of base temperature regulation is achieved efficiently and sustainably via the very low temperature difference between the well water and heating supply. In the summer time the ground water directly cools the component activation through a heat exchanger. If the well water is not sufficient, the compression refrigeration machine, with a cooling output of 780 kW deployed for the rest of the building, is used. When using the ground water, the following should be considered: the energy balance between the input and the output from the ground must be compensated over the course of the year. This is continually monitored by the SAUTER energy management system and verified at the end of the year.

Integral room automation and weather forecast providing a consistent room climate

In the Blue Tower the weather forecast is used to control the base temperature regulation. The effects of a temperature change are experienced in the room only 8 to 10 hours later with this system. The integration of the weather forecast therefore helps to condition this slow heating and cooling system almost seamlessly. During spring and autumn in particular, when the Föhn winds sometimes cause sudden weather changes in Munich, low-energy climate control in the building is needed. While users are present, quickly adjustable underfloor convectors respond to individual requirements. Room operating units give users direct control of the heating and cooling devices. Four climate zones are provided for each storey to enable a sufficient, precise fresh air supply. Variable VAV controllers create the air volume flow and close outside the usage period. This also considerably reduces energy costs.

Energy management and building certification

Meters in the primary and secondary networks of the energy supply provide comprehensive consumption recording. This makes the building performance verifiable and enables further optimisations. This system, which is also used to establish the energy consumption for the LEED certification, ensures that all meters are continuously read and evaluated. The system operator is kept up to date via short, informative reports and alarms. Also integrated in the system is the 'well log' where the ground water is balanced for heating and cooling purposes. Users – be they energy technicians, amateur energy consultants or those with no particular technical interest – can check the Green Building monitor in the lobby to view the system operation and CO₂ footprint of the building. This will also provide information about correct use of the system technology – a positive motivation to avoid overriding the heating and cooling setpoints and causing increased consumption.

Prime example of all-round expertise

SAUTER's overall solution adds to the uniqueness of the high-rise ensemble in the east of Munich. It also has an advantageous effect on user comfort, energy costs and sustainability. Furthermore, as of September 2018, SAUTER FM is now on board as the technical operator. Another success that confirms the strong performance of SAUTER. SAUTER FM is currently involved in the final building phase and, depending on how completion runs, will be briefed on the technology in the individual buildings. Thus, the start-up team is already working on the tenant pool and seamless transition to the operation phase. A demanding and exciting period for SAUTER FM too. Watch this space!

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