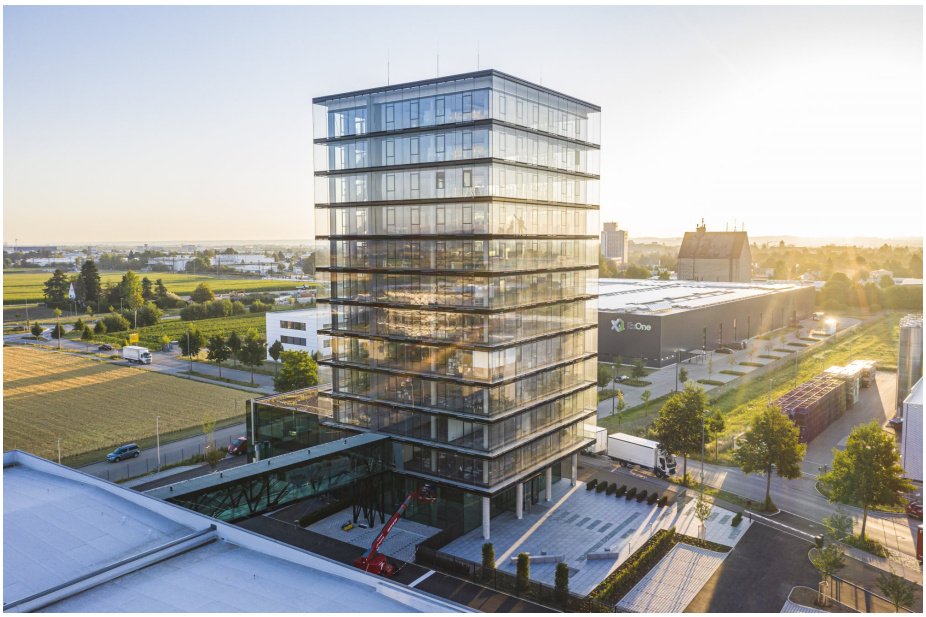
Roschmann office & production buildings, Gersthofen, Germany



Client **Roschmann Group**
Completion **2019** GFA **53,820 ft² / 5.000 m² (office); 161,459 ft² / 15.000 m²(production)** Architect **WUNDERLE; KÖGL** Photos **© Roschmann**

The client wanted a future-oriented building with low energy requirements for operation, i.e. for heating, cooling, ventilation and artificial lighting, which provides a good indoor climate, with pleasant room temperatures in summer and winter and good air quality, as well as sufficient daylight.

Transsolar developed the integrated comfort and energy concept and demonstrated its performance with the help of simulation calculations.
The client is a well-known glass manufacturer and builds facades and roof structures. The glass envelope of the twelve-story office building is therefore an essential element of the concept. It provides weather protection without sacrificing comfort and ensures daylighting while remaining transparent. Visual and acoustic connection outside is possible and the solar shading system is housed in the double facade in a functionally reliable manner. Operable windows allow individual natural ventilation; decentralized ventilation components integrated into the facade ensure basic ventilation.

The administration building features multi-person offices, meeting rooms, a conference floor, cafeteria, lobby, and technical and storage areas.

For the offices, mainly decentralized ventilation and component activation is realized; cafeteria and lobby are centrally ventilated.

The production hall is divided into three areas. A mezzanine includes foremen's offices, changing rooms, restrooms and a recreation room. The production area uses natural ventilation exclusively. Efficient gas-fired dark radiators provide targeted heat there.
The exterior façade of the mezzanine has motorized external venetian blinds. The users have the option of controlling the sun protection themselves.

In the administration building, component activation covers the base load for heating during the cold winter months and essentially provides active cooling for the building.
Exhaust air is controlled by the standard floor. The heat from the exhaust air is transferred to a heat exchanger, which is connected to the cold side of the geothermal heat pump.
The heat recovery efficiency is at least 70%. In summer, the exhaust air heat pump is switched off.

A geothermal well primarily provides the building with heating and cooling. The system is equipped with reversible heat pump and has three modes of operation: In winter, the heat pump extracts heat from the depths. It thus covers the total heating load. If cooling is required, free cooling is initially provided by brine pump operation, and only when there is a higher demand as the next stage the heat pump runs again, but in the reverse mode, recooling via the well.