



E-Office

A prime example for energy efficiency

• Background

- The corporate development of the company, then known as Steweag, at the end of the 1950s gave rise to the establishment of a central administration office.
- The building was a well-proportioned 10-storey structure with ground dimensions of approx. 40 x 20 m and had a clear façade design with continuous mosaic banding in three grey tones and flush-mounted aluminium framed windows.
- The mosaic façade itself had already been renovated several times to repair the many small damaged areas.
- After the merging of the companies, the fundamental need for a joint administration office for Energie Steiermark was clear.



- **The new E-Office**



• The new E-Office

- Photovoltaic system with a surface of 550 m², installed on the façade, on the flat roof above the 10th floor and on the canopy of the entrance, which generates a yield of approx. 71,000 kWh/year.
- Heat pump system using geothermal energy as the energy source for supporting the heating and air-conditioning system, operated through deep holes with a total length of 1200 m. The annual yield is approx. 80,000 kWh.
- Use of rainwater for WCs, resulting in an annual saving of approx. 2,240,000 litres of drinking water.
- Solar energy plant for generating warm water for the canteen area and the showers in the workout room.



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- Glass and aluminium façade with an insulation thickness of 18 cm using mineral wool. According to the energy certificate calculations of the firm Rosenfelder & Höfler, this generates a heating requirement of 22.8 kWh/m²a. With this value, the E-Office corresponds to Building Class A and can be referred to as a “low-energy construction”.
- Shading system without darkening rooms, the folding shutter system prevents the sun’s rays striking the glass surface of the window. This considerably reduces the amount of heat transferred into the building in the summer, as the need for air conditioning is considerable higher than the need for heating in an office building with high internal heat sources generated by people, equipment (PCs, monitors, etc.).
- The entire heating usage in the new E-Office is 52% lower than in the old building, even though the gross surface area has increased by 50%.

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- The total volume of electricity purchased for the new E-Office is 47% lower than for the old building, even though the gross surface area has increased by approx. 50%.
- Installation of window contacts that shut down the room technology (heating/air-conditioning) if a window in the corresponding room is open. With the option of being able to open the windows, it's possible to ventilate the room with outside air. However, the contacts should prevent windows staying open for a long time.





ENERGIE STEIERMARK

• The new E-Office

- Office lighting using self-regulating standard lamps. These lights adjust the required light intensity according to the time of day by automatically switching on and off. The savings compared with conventional lighting with an on/off switch are approximately 40%.
- Light deflection through the skylight strip using reflective high-performance film on the skylight window ledge. Daylight is deflected down into the office by reflecting the sunlight onto the ceiling.
- Off-air management via heat recovery.



- ## The new E-Office

- E-Wunderwelt on the ground floor is used to illustrate the energy source, alternative power generation and conduction, and demonstrates energy savings. E-Wunderwelt is designed for visits by lower secondary school pupils.
- Elaborate, state-of-the-art fire protection system installed for the first time in Styria as part of the construction of a high-rise building. In addition to a complete sprinkler system, full protection through fire detection, fire dampers, a fire alarm system and fire compartmentalisation, also pressure ventilation systems, extraction systems and electromechanical window opening for evacuating the building and fire fighting were installed by the fire brigade.



Thank you!