

AT_Weiz_Energie und Innovationszentrum

Image 01:
 Exterior view north-east ©Peter Eder



Image 02:
 Exterior view south-east ©W.E.I.Z.



Image 03:
 Interior view south-west ©Peter Eder



Building Specifications

Address	Franz-Pichler-Straße 30, 8160 Weiz, Austria
Building Category	Office
Year of Construction	1999
Special Qualities	Passive House
Location	47° northern latitude, 15° eastern longitude, 477 m above sea level
Climate	Dfb – The city is located in the moderate zone. The average annual temperature is 9.0°C and the mean annual rainfall 799.0 millimeters. The warmest month is July with an average of 19.1°C and the coldest January with -1.3°C on average.

Vent. Cooling Site Design Elements (Solar Site Design and Wind Exposure Design, Evaporative Effects from Plants or Water)

South facing offices, north facing of atrium, offices located around the atrium (U-form) to gain daylight and improve Ventilative Cooling

Vent. Cooling Architectural Design Elements (Form, Morphology, Envelope, Construction&Material)

Form: Atrium faces towards north to reduce solar gains
 Morphology: Windows at the top of the atrium open for Ventilative Cooling 5% (12m²) of Atrium roof.
 Envelope: 40% window area, outer shading of windows, inner shading of Atrium (10% transmission)
 Construction & Material: Wooden construction with additional thermal mass from concrete

Vent. Cooling Technical Components (Airflow Guiding Components, Airflow Enhancing Components, Passive Cooling Components)

Airflow Guiding Components: Windows at the top of the atrium
 Airflow Enhancing Components: The exhaust air socket in the atrium creates low-pressure in the atrium. Thus the exhaust air from the offices facilitates a continuous air exchange.
 Passive Cooling Components: Pre cooling of air through earth to air heat exchanger

Actuators, Sensors and Control Strategies

Sensors and Control Strategies: During winter time, the openings at the top of the atrium are controlled manually. During summer time, it is time controlled. Rain sensors ensure that the windows do not open during rain.

IEA EBC Annex 62 Ventilative Cooling

Building Energy Systems (Heating, Ventilation, Cooling, Electricity)
Heating: Biomass district heating. For individual comfort, possibility to pre heat incoming air electrically in each office Cooling: No active cooling system Ventilation: Centralised ventilation system with heat recovery. Pre cooling and pre heating of air with earth to air heat exchanger Electricity: efficient lighting
Building Ownership and Building Facility Management Structures
Building Owner: W.E.I.Z. GmbH Stadtgemeinde Weiz, Die Steiermärkische Bank und Sparkassen AG, Gemeinde Krottendorf, Energie-Region Weiz-Gleisdorf Facility Management: W.E.I.Z Architect: Georg Moosbrugger
Aknowledgements
Project of Haus der Zukunft; Outcomes of the dynamic simulation by TRNSYS: during design phase: 24.000 kWh/a for heating and max. 27°C in summer Experiences in real: 45.000 kWh/a for heating and over 30° in some offices
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