

AT_Pressbaum_Sun light house

Image 01:
Exterior view south elevation
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Image 02:
Interior view first floor
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Image 03:
Section plan technical system
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Building Specifications

Address Grenzgasse 9, 3021 Pressbaum, Austria

Building Category Residential

Year of Construction 2010

Special Qualities NZEB, AH, CO₂ neutral

Location 48° northern latitude, 16° eastern longitude, 315 m above sea level, slope inclined to the east, lake located at the valley bottom, the site is early shaded from the west because of the slope, adjoining land plots with single family houses and afforested

Climate Cfb (Maritime temperate climate, fully humid, warm summer)

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

Solar Site Design and Wind Exposure Design: Wind flow in the south western two-storey building incision

Evaporative Effects from Plants or Water: Leaf tree planting in front of this gap

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

Form: Long stretched building parallel to the slope, thus three story building to the east but only two stores to the west, increased room height, two story gap in the middle of the building facing south west

Morphology: Main entrance on the ground floor with living room, kitchen, dining room west sided, a single row open stairwell on the northeast side gives access to the first floor with bedrooms and children's rooms and the basement and allows natural ventilation.

Envelope: The window openings, skylights as well as vertical glazing - are positioned strategically to make use of the stack effect and Ventilative Cooling. Total window surface makes 42% of the useable living area.

Construction & Material: Massive wood construction, use of concrete in the basement provides additional mass

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

Airflow Enhancing: Stair well makes use of stack effect.

IEA EBC Annex 62 Ventilative Cooling

Actuators, Sensors and Control Strategies
<p>The ventilation is depending on the season, during the heating period controlled domestic ventilation with heat recovery Non-heating period automatic window ventilation with manual override. Sensors measure indoor and outdoor temperature, wind speed, CO2 concentration and humidity. According to precisely defined criteria, the windows open and close automatically driven by chain actuators. Additional Lux meters on the ceiling and on the outside.</p>
Building Energy Systems (Heating, Ventilation, Cooling, Electricity)
<p>Geothermal heat pump with integrated solar plant, controlled domestic ventilation system with heat recovery, tied PV system</p>
Building Ownership and Building Facility Management Structures
<p>Building Ownership: private Architect: Juri Troy Architects</p>
Acknowledgements
<p>Detailed monitoring in operation with and without occupancy available. Klima:aktiv zertifiziert Listed in Sustainia 100, 2011, Vorarlberg prize for Timber Construction, 2011, International Architectural Award, 2011, Special price Austrian ecolinx, 2010</p>
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