

AT_Auersthal_zu-haus

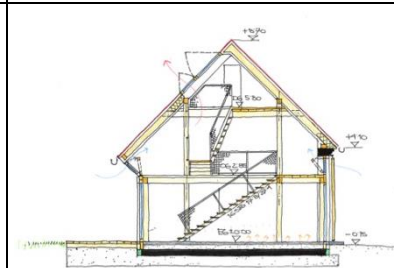
Image 01:
Exterior view ©Jörg Seiler



Image 02:
Interior view ©Jörg Seiler



Image 03:
Ventilation scheme
©Martin Rührnschopf



Building Specifications

Address	2214 Auersthal, Austria
Building Category	Residential
Year of Construction	2013
Special Qualities	Active House
Location	48° northern latitude, 17° eastern longitude, 178 m above sea level, located between other single family houses in a small town with a population of approximately 2.000 in the lowlands of Lower Austria.
Climate	Cfb (warm temperate, fully humid, warm summer), monthly mean temperature below 22 °C, at least seven months with a monthly mean temperature above 10 °C

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

Evaporative Effects: Trees are planted south of the building for shading purposes and to improve the microclimate.

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

Form: On the site of the old barn, the new building incorporates the appearance of the original farm building, but with modern characteristics. It is north-south orientated, integrated into the existing row of houses and connected to the parents' home. The traditional functional elements of the ventilation slits and the sliding barn doors were retained and reinterpreted. The new sliding door also creates the flexibility to completely close the street front or open it up.

The form and the position of windows are optimized for natural ventilation of the building.

Morphology: Access on the ground floor from the north. It comprises a wardrobe, a toilet, a spacious living, kitchen and dining area. The three floors are connected through an open space which promotes natural ventilation.

The rooms are situated and connected to support both cross ventilation and the stack effect.

Envelope: An overhanging roof in the south provides shade during summer.

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

Airflow Guiding Components: Windows dedicated for Ventilative Cooling can be opened mechanically.

Airflow Enhancing Components utilize cross ventilation and the stack effect.

IEA EBC Annex 62 Ventilative Cooling

Actuators, Sensors and Control Strategies
<p>Sensors: CO₂ sensors and time controllers are installed</p> <p>During Control Strategies: During the heating period the ventilation is controlled utilizing CO₂ sensors, in the summer the windows are always open from 10:00 pm to 7:30 am and closed during the day. The residents can override the automatic control.</p>
Building Energy Systems (Heating, Ventilation, Cooling, Electricity)
<p>Heating: The building is connected to the gas condensing boiler of the neighbour. The heat is distributed by low-temperature floor and wall panel heating.</p> <p>Cooling: No active cooling provided.</p>
Building Ownership and Building Facility Management Structures
<p>The residents maintain the building.</p> <p>Architect: Martin Rührnschopf</p>
Aknowledgements
<p>n/a</p>
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