

## IT\_Pfitsch\_Passivehouse Pichler

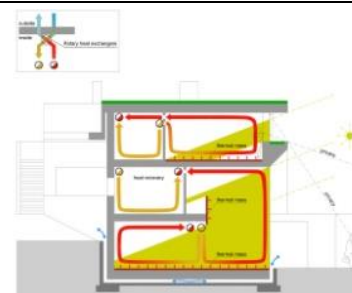
**Image 01:**  
Exterior view south  
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**Image 02:**  
Interior view  
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**Image 03:**  
Heat recovery concept  
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### Building Specifications

**Address** 39049 Pfitsch, Italy

**Building Category** Residential

**Year of Construction** 2009

**Special Qualities** Passive House

**Location** 46° northern latitude, 11° eastern longitude  
slope inclined to the west, adjoining land plots with single family houses and afforested

**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)

Solar Site Design by leaf tree planting in front of the south western building gap and north side of the building.  
Wind Exposure Design with wind guided into the south western building gap.

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

**Form:** The two-family house is a long stretched building parallel to the slope, three-storey building to the west but only two storeys to the east, balustrade above the first two floors facing south to guarantee privacy to each living unit. This barrier serves also as a flowerbox, rain protection, venetian blind and active rainwater container. Its geometry allows maximum solar radiation and provides shade for the glass elements.

The adjustment towards south permits planned solar-energy profit and necessary protection from the cold northern winds. The entire extension of both floors of the duplex flat is visible from outside through glass facades which serve, as "solar-stove" during winter.

**Morphology:** Access to the loft area (living area and kitchen) facing southwest in the ground floor via a single row open stairwell on the South side. Sleeping rooms and sanitary facilities are orientated for both living units mainly towards the West and North side of the building.

**Envelope:** The green roof supports cooling in summer, heat insulation in winter and it also serves as rainwater storage. Ventilated façade via reefing blinds in front of laminated glass.

**Construction & Material:** Wooden frame construction, thermal hemp mats used for insulation, Comfort climate is supported by consciously planned thermal masses.

## IEA EBC Annex 62 Ventilative Cooling

<b>Vent. Cooling Technical Components</b> (Airflow Guiding Components, Airflow Enhancing Components, Passive Cooling Components)
<p>Airflow Guiding Components: Night ventilation is done by window ventilation. Rising up the floor from the slope makes use of ventilation under the house.</p> <p>Airflow Enhancing Components: Utilization of stack-effect over two storeys via the open staircase in the first living unit and the skylight in the upper living unit.</p>
<b>Actuators, Sensors and Control Strategies</b>
<p>Control Strategies are manual.</p>
<b>Building Energy Systems</b> (Heating, Ventilation, Cooling, Electricity)
<p>Heating: The heating and ventilating system with heat recovery stands in constant interplay with the thermal cover and delivers warmth without any additional energy sources (heater, geothermal-energy, solar-collectors, etc).</p> <p>Only in rare cases the wood pellets burner for the hot-water processing, should support the heat exchanger of the ventilation system and the floor heating system in front of the high glass façade.</p> <p>Ventilation: Each of the two living units has its own ventilation system with heat recovery. Humidity recovery in the Ventilation System is regulating and transporting air humidification.</p> <p>Hoval ventilation system, ventilation combination unit HomeVent® RS-250, distribution through partially pre- insulated ducts in the pit.</p> <p>The ventilation under the frame-house guarantees its dryness in the earth-zone.</p>
<b>Building Ownership and Building Facility Management Structures</b>
<p>The building is occupied by the owners. No service contracts known.</p>
<b>Acknowledgement</b>
<p>Certificate Klima:aktiv gold</p> <p>Deliberately no regulatory mechanisms for cooling .</p>
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