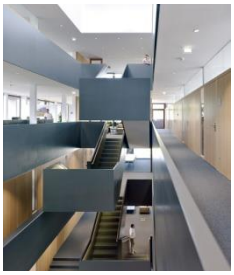
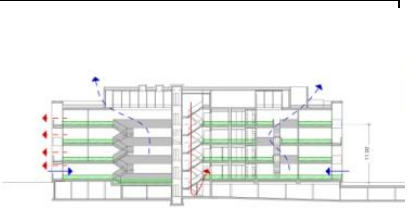
AT_Lauterach_Unternehmenszentrale i+r Gruppe

Image 01: Exterior view ©Bruno Klomfar	**Image 02:** Interior view ©Bruno Klomfar	**Image 03:** Section ©Dietrich Untertrifaller architects
		

Building Specifications

Address	Johann - Schertler-Straße 1, 6923 Lauterach, Austria
Building Category	Other
Year of Construction	2013
Special Qualities	Passive House/Low Energy House
Location	48° northern latitude, 16° eastern longitude Located on a remaining area in between two logistic centre buildings and the railroad to the east, as well as the highway on the south side and a strong frequented street crossing the building site in the west.
Climate	Cfb (warm temperate, fully humid, warm summer) (monthly mean temperature below 19 °C, at least five 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)

Building site is widely open in the west and running up narrowly in the east.
Green islands in between the parking lots with planted trees in the south-, north- and east side of the building.

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

Form: Elongated, compact, four-storey building structure with upstream timber grid protecting the glass façade in terms of spatial and thermal shielding.
Morphology: Concerning indoor space, the cross-linkage of all storeys is essential. The big atrium which acts as reception space for the public and the small atrium which is used more internally and for informal exchanges serve Ventilative Cooling. Transparent meeting rooms at the sides of the building allow extra light into the core zone.
Envelope: Ventilated wooden façade and exposed concrete. The southern façade is shaded by a brise soleil of dark stained spruce. The vertical and horizontal timber elements as permanent shadowing characterize the southern façade. The northern side consists of a plain timber frame façade with horizontal strip windows. All windows are shaded by automatically controlled reefing blinds.
Construction & Material: Composite construction in low-energy standard. Concrete for the structural components (partly core activated), wood for infilling construction and timber windows. Regional and recyclable raw materials (e.g. former fishing nets as floor covering) are used and existing resources are economically employed. Thermal mass activation via floor elements and under floor heating.

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

Airflow Guiding Components: Skylights in both atria open automatically.
Airflow Enhancing Components: Stack effect of atria.

Actuators, Sensors and Control Strategies

Sensors: In-and exterior sensors for temperature.
Control Strategies: Night ventilation is controlled by temperature sensors

Building Energy Systems (Heating, Ventilation, Cooling, Electricity)

Heating: The energy source for heating and cooling is geothermal energy. Floor-to-roof exposed concrete wall with concrete core activation for additional temperature regulation.

Ventilation: Controlled ventilation system with rotary heat exchanger, comfort ventilation by controlled ventilation system with rotary heat exchanger and air humidification during the heating period. CO2- Sensors for areas with high occupation density. Preheated fresh air is blown into the offices via the parapet elements and through overflow orifices in the oak wood panelling partition walls.

Cooling: Thermal mass activation via floor elements and under floor heating.

Electricity: A highly efficient photovoltaic plant powers the heat pump and covers the entire energy demand (including light and computers). The annual energy consumption is 9 kWh/m² and thus far below the threshold value for passive-house standards (15 kWh/m²). The combination of daylight and LED- illuminants ensures an optimum of lighting quality an achieved a 70% energy reduction. Special sensors respond to natural light changes and gradually increase or decrease the brightness in the room. Individual adjustment of lighting, shading and ventilation through operating panels on the computer.

Building Ownership and Building Facility Management Structures

Builder: i+R Gruppe GmbH, General contractor: i+R Wohnbau GmbH
Architect: Dietrich Untertrifaller

Aknowledgements

Austrian national award for Architecture and Sustainability 2014
LEED Platin 2013 (Leadership in Energy and Environmental Design) for the category “new construction”
BTV-Bauherrenpreis 2013

Datasheet Source:
Institute of Building Research & Innovation