

AT_Vienna_Bildungscampus Sonnwendviertel

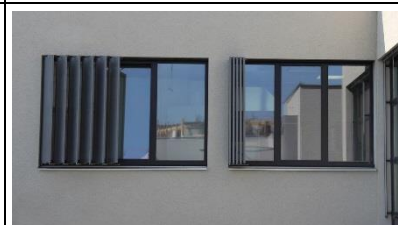
Image 01:
Exterior view ©MA34



Image 02:
Interior view ©MA34



Image 03:
Exterior view of facade ©MA34



Building Specifications

Address	Gudrunstraße 110, 1100 Vienna, Austria
Building Category	Educational
Year of Construction	2014
Special Qualities	n/a
Location	48° northern latitude, 16° eastern longitude 315 m above sea level
Climate	CfB – The city has warm summers with average high temperatures of 24 to 33 °C with maximum exceeding 38 °C and lows of around 15 °C. Winters are relatively dry and cold with average temperatures at about freezing point. Spring and autumn are mild.

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

The entire building complex consists of four connected wings which each facing different orientation. The garden area contains some green around the building, but not specifically for improving microclimate.

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

Form: Three wings have two-storeys with flat, leafy roofs which help to reduce solar heat gains. One wing has four storeys.
Construction & Material: Due to solid construction, the building has lots of thermal mass. Openings between the classes and the common areas contribute to enhance the level of air exchange within the building.

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

Additionally to an automatic outer shading system, a night-ventilation system had been developed and implemented. Under specific conditions, windows are opened partially.
Airflow Guiding Components: Automated windows in each classroom tilt open during night ventilation.
Airflow Enhancing Components: To raise the air exchange rate, the exhaust air ventilation supports natural circulation when necessary.

Actuators, Sensors and Control Strategies

The outer shading system as well as the night ventilation is implemented into the building control system. Solar radiance, wind speed and temperature sensors placed in the building and outside are used as control variables. The automatic shading system can be manually overridden.

IEA EBC Annex 62 Ventilative Cooling

Building Energy Systems (Heating, Ventilation, Cooling, Electricity)
<p>The building complex is connected to the municipal district heating system. Due to the different user requirements, radiators, floor heating or a combination of both is implemented. Warm water production and distribution is managed centrally for the wet areas connected to the gym. Single consumers (toilets, etc.) have electrical geysers. Active cooling only exists for the server room and IT classes.</p> <p>Several central ventilation systems provide the necessary air exchange in common used areas. Classes are equipped with decentralised ventilation systems which are controlled by CO₂- sensors.</p> <p>Additionally, a photovoltaic system is installed on parts of the roof.</p>
Building Ownership and Building Facility Management Structures
<p>Building owner: City of Vienna Architect: PPAG Facility Manager: PorrReal</p>
Aknowledgements
<p>n/a</p>
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