BR_Schoten_Police Office

Image 01: Exterior view ©Filip Dujardin	**Image 02:** Interior view ©Filip Dujardin	**Image 03:** Interior view of atrium ©Filip Dujardin
		

Building Specifications

Address	Gasketelplein 10, 2900 Schoten, Belgium
Building Category	Office
Year of Construction	2009
Special Qualities	n/a
Location	51° northern latitude, 4° western longitude. Located in a suburban area. 10m above sealevel.
Climate	Cfb (warm temperate, fully humid, warm summer)

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

n/a

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

Construction & Material: The building has a high thermal mass to store the heat by day. All walls are constructed of thermal capacitive materials (e.g. concrete brickwork in façade, hollow core concrete slab in floor) and the internal surfaces were left unrendered to make use of their thermal mass. Natural ventilation by day and night is designed to guarantee a good thermal comfort and indoor air quality.

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

The air enters the building in the offices and leaves the building at the top of 4 atria in the centre of the building. The area of the supply ventilation openings, in relation to the floor area, varies between 0.7% and 1.7%.

Driving force is buoyancy. The height difference between supply and exhaust openings measures 2m and 5m on respectively the first and ground floor. The openings are designed to deliver an airflow of 5 h-1, considering a temperature difference of 7°C.

Airflow Guiding Components: Motorised bottom hung windows as inlets. The same bottom hung windows are opened for 25% max. for hygienic ventilation by day. Motorised bottom hung windows as exhausts. Grilles (passive and motorised) ensure internal flow of air.

Actuators, Sensors and Control Strategies

Building management system, including sensors (temperature and weather station)

The supply openings for night ventilation are automatically controlled. Night ventilation is in operation between 10 pm and 6 am. Night activation requirements are indoor temperatures higher than 21°C and an indoor-outdoor temperature difference bigger than 1°K. Openings are closed if wind speed exceeds 10m/s and rain is noticed. Daytime activation requirements are a maximum indoor temperature exceeding 24°C and an average outdoor temperature exceeding 12°C. The exhaust openings in an atrium are opened when the supply openings in at least one ventilation zone are opened and the indoor temperature in the atrium exceeded 24°C by day. The day ventilation is controlled by occupancy in the individual offices and by CO2-concentration in the landscaped offices i.e. opening when the concentration is higher than 900ppm and closing when it is lower than 600ppm. In addition, the users can manually open and close these windows.

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

n/a

Building Ownership and Building Facility Management Structures

Architect: Huiswerk architecten (architect), Arcadis Belgium (engineering office MEP and structural engineering)

Aknowledgements

n/a

Datasheet Source:
http://www.archello.com/
KU Leuven