

DK_Frederiksberg_Retten på Frederiksberg

Image 01:
Southwest view
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Image 02:
Southeast view
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Image 03:
Atrium
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Building Specifications

Address	Howitzvej 32, 2000 Frederiksberg, Denmark
Building Category	Office
Year of Construction	2012
Special Qualities	n/a
Location	56° northern latitude, 13° eastern longitude, located in flat land. Located in a dense urban area with surrounding buildings of the same size
Climate	Cfb (warm temperate climate, moist with adequate precipitation in all months and no dry season, warm summer with the warmest month below 22°C)

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

The building is sheltered from wind to the east by the old courthouse building. In other directions it is exposed to wind and sun.

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

Form: The shape of the five-storey courthouse building is designed considering the classical design of the surrounding buildings, as well as the triangular shape of the site.

Morphology: The building has a total floor area of 5.500m² and contains eight new courtrooms with associated offices and facilities. The internal flow between the different user groups (employees, witnesses, defendants and guests) is separated thus ensuring a high security level. An atrium located in middle of the building brings daylight into the building and serves as a stack for natural ventilation. Offices and hallways which are situated around the atrium are naturally ventilated. Total naturally ventilated area is 2.365 m².

Envelope: Automatically controlled windows are integrated in façades and in the roof in such a way that the performance of the natural ventilation is facilitated.

Construction: Heavy mass building with insulated brick walls and concrete slabs

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

Airflow Guiding Components: Natural ventilation is ensured by automatically controlled vertical windows, interior windows / flaps and vertical skylights. The primary natural ventilation principle is stack ventilation. The air is supplied via the facade windows and is distributed around the office, and then is passed to the atrium via interior flaps. The flaps are located in the walls between the office / hallway and hallway / atrium. In the atrium, the air rises and leaves the building via skylights at the top of the atrium. Offices located far from the central atrium are ventilated by single side ventilation. A mechanical exhaust is installed in offices with single side ventilation.

IEA EBC Annex 62 Ventilative Cooling

Actuators, Sensors and Control Strategies
Chain actuators operate façade windows and roof openings Room sensors for temperature and CO2 Weather station measuring wind speed/direction, rain, temperature and humidity was set on the rooftop NV Advance™ control system for natural and hybrid ventilation, mechanical exhaust, radiators, external solar shading and smoke ventilation It is possible for the users to overwrite the automatic control.
Building Energy Systems (Heating, Ventilation, Cooling, Electricity)
Hybrid ventilation in offices located far from the atrium Mechanical mixing ventilation with heat recovery Information about electrical systems is not available.
Building Ownership and Building Facility Management Structures
Frederiksberg municipality owns the building. Architect: 3XN A/S
Acknowledgements
n/a
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