DK_Copenhagen E_Kontorhus

Image 01: Interior view of open office ©H+ Arkitekter	**Image 02:** Exterior view of patio ©H+ Arkitekter	**Image 03:** Automated façade windows for natural ventilation ©Window Master
		

Building Specifications

Address	Landskronagade 35, 2100 Copenhagen E, Denmark
Building Category	Office
Year of Construction	1959 (renovated in 2004)
Special Qualities	n/a
Location	56° northern latitude, 13° eastern longitude, located in flat land. Located in a dense urban area
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 protected from the wind in all directions because of the surrounding buildings. A water surface is located in the patio.

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

Form: Four storeys rectangular shaped building consisting of four interconnected segments placed around an open yard.
Morphology: Naturally ventilated part of the building mainly consists of an open plan offices, a number of meeting rooms, staircases and elevator shafts. The total floor area is 11.000 m2; 6.200 m2 are naturally ventilated.
Envelope: Automated windows function partly as a building envelope and partly as vents for natural ventilation
Construction: Heavy mass construction

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

Airflow Guiding Components: The air enters the building through automated window openings at the windward side and escapes through the leeward side of the building. Some of the open plan offices are equipped with a mechanical extraction to assist the natural ventilation when the natural ventilation is insufficient due to outdoor conditions. Other naturally ventilated offices are arranged in a way that only single side ventilation through façade windows with the same orientation is possible. Rooms with single side ventilation are equipped with mechanical extraction to assist the natural ventilation driving forces.
Airflow Enhancing: Landscaped office area is ventilated using cross ventilation principle.

Actuators, Sensors and Control Strategies

Chain actuators operate façade windows
Temperature and CO2 sensors in offices and meeting rooms
Temperature sensors in staircases and elevator shaft
Weather station measuring wind speed/direction, rain, temperature and humidity was set on the rooftop
NV Advance™ system is control natural and hybrid ventilation
Besides the automatic control, manual window control is also possible. 30 min after the manual control has been activated for the last time the windows are switched back to automatic control.

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

Single side ventilation with mechanical extraction (hybrid ventilation) in some offices and meeting rooms
Mechanical mixing ventilation with heat recovery
Information about heating and electrical systems is not available

Building Ownership and Building Facility Management Structures

Magisternes Pensionskasse owns the building.
Architect: Hou + Partnere Arkitekter; Engineer: Leif Hansen Engineering A/S

Acknowledgements

n/a

Datasheet Source:
WindowMaster A/S