DK_Lyngby _E. Pihl & Son Headquarters

Image 01: Exterior view © Danish Building Research Institute	**Image 02:** Interior View of office area © Danish Building Research Institute	**Image 03:** Extraction fan and skylights © Danish Building Research Institute
		

Building Specifications

Address	Nybrovej 116, 2800 Kongens Lyngby, Denmark
Building Category	Office
Year of Construction	1994
Special Qualities	n/a
Location	58° northern latitude, 13° eastern longitude, located in flat land, in urban area. The building is surrounded by same size office buildings to northeast and southeast, and residential buildings in other directions. The building is also sheltered from wind by other buildings in northeast and southeast directions
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 direct wind impact by leaf tree planting along northwest side of the building. It is also sheltered from wind by other buildings in northeast and southeast directions

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

Form: A three-storey office building angled in a diagonal symmetry in which the sides of the angle reflect each other
Morphology: The corridors are skylight galleries and formed as a panopticon space. A canteen extends out from one of the wings. About 2,000 m2 (75%) is used for offices and meeting rooms, 400 m2 (15%) is circulation area, the remainder is toilets and cloakrooms (100 m2) and the canteen (200 m2). Typical floor area is around 2700 m2 and the building volume is 8000 m3.
Envelope: The facade of the building is brickwork and glass while the roofs are made of in-situ concrete. The windows and the glassed facades are made from reflective glass.
Construction: The internal concrete walls and ceilings are exposed, and the thermal mass of the building can be characterized as heavy.

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

Airflow Guiding Components: Specially designed multi-position ventilation openings in the offices and openable skylights in the corridors. Ventilation openings in the offices are located in distinctive narrow window bands above the ordinary windows.
Airflow Enhancing Components: Two extract fans, located on the roof of the building as an integrated part of the skylights, are intended for use in case the natural driving forces are insufficient.

Actuators, Sensors and Control Strategies
Room sensors for temperature, illumination. In order to take advantage of night time cooling and outdoor air supply, the ventilation openings and the openable windows in the skylights are automatically controlled. The roof fans are activated when the internal temperature reaches 26^{o}C.
Building Energy Systems (Heating, Ventilation, Cooling, Electricity)
Information about heating and electrical systems is not available.
Building Ownership and Building Facility Management Structures
The building is owned and occupied by E. Pihl & Son (one of Denmark's major contractors) Architect: KHR A/S
Acknowledgements
n/a
Datasheet Source: Building description is made based on information materials from NatVent case study summary. Extensive building monitoring has been carried out.