

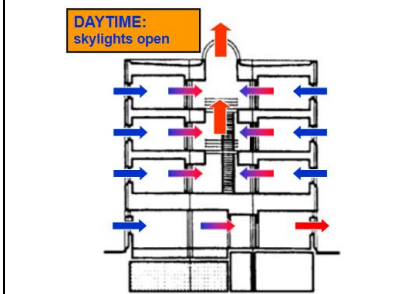


DK_Lyngby_BRF-Kredit		
Image 01: East view © Danish Building Research Institute	Image 02: Internal view © Danish Building Research Institute	Image 03: Ventilation scheme © Danish Building Research Institute
		
Building Specifications		
Address	Klampenborgvej 205, 2800 Kongens Lyngby, Denmark	
Building Category	Office	
Year of Construction	1986	
Special Qualities	n/a	
Location	56° northern latitude, 13° eastern longitude. Located in urban area and surrounded by buildings of the same size. The main building is exposed to a moderately busy road whereas the surroundings of three remaining office blocks are quieter	
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)		
n/a		
Vent. Cooling Architectural Design Elements (Form, Morphology, Envelope, Construction & Material)		
<p>Form: Four-storey office complex, consisting of a main building and three interlinked office blocks</p> <p>Morphology: The main building has a central atrium, which extends down to the ground floor, while the office blocks have lengthwise, glass covered arcades, which connect the first, second and third floors only. The main activity in this building is administration. There are both open plan offices holding up to 10-15 people and single person cellular offices. The floor area is approximately 20 000 m²; of which approximately 50 % is office space and meeting rooms, 30 % is circulation area and remaining space is taken by services (cloakrooms, plant room and others)</p> <p>Envelope: The windows have aluminium frames and are triple-glazed, while the arcade windows are double glassed. There is 4 m² of skylight glazing installed for each meter length of arcade, resulting in about 85% glazing</p> <p>Construction: This building is of high mass construction, consisting of reinforced concrete columns and girders supporting prefabricated facades, which are finished with a brick exterior face.</p>		
Vent. Cooling Technical Components (Airflow Guiding Components, Airflow Enhancing Components, Passive Cooling Components)		
<p>The arcades may be used as “stacks” or chimneys, which allow stale air to be removed through open skylights at the top; Outdoor air can enter the building through office windows.</p> <p>Night cooling is activated during the hot period. The skylights have exterior fabric shading. There are also manually operated exterior venetian blinds to shade each office window.</p>		

IEA EBC Annex 62 Ventilative Cooling

Actuators, Sensors and Control Strategies
<p>In each office block, the opening of the skylight windows is controlled by means of a number of temperature sensors positioned in the upper part of the arcade.</p> <p>Manually operated multi-position windows in the offices</p> <p>Both the skylight fabric shading and the venetian blinds are controlled automatically through the use of light sensors.</p> <p>The venetian blinds can also be operated manually on an individual basis. The manual over-ride is not permanent and reverts to the automatic setting after certain time period.</p>
Building Energy Systems (Heating, Ventilation, Cooling, Electricity)
<p>Space heating is supplied by a conventional radiator system with thermostats on each radiator.</p> <p>A joint heating plant, fuelled by natural gas, supplies space heating and hot water.</p>
Building Ownership and Building Facility Management Structures
<p>The building is occupied by BRF-kredit.</p> <p>Architect: KHR A/S</p>
Acknowledgements
<p>n/a</p>
<p>Datasheet Source:</p> <p>Building description is made based on information materials provided by NatVent Case Study Summary. Extensive building monitoring has been carried out.</p> <p>© 2/2 All images and copyrights belong to the original owners and are reproduced for the purpose of training and education only</p>