

## DK\_Fredericia\_A2 SEA (Promecon)

**Image 01:**  
South view  
©A2SEA A/S



**Image 02:**  
Roof windows  
©Window master



**Image 03:**  
Air inlets  
©Window master



### Building Specifications

<b>Address</b>	Kongens Kvarter 51, 7000 Fredericia, Denmark
<b>Building Category</b>	Office
<b>Year of Construction</b>	2010
<b>Special Qualities</b>	Natural ventilation with sound insulation
<b>Location</b>	56° northern latitude, 10° eastern longitude. Located in a rural area between a motorway and a railway with no surrounding buildings
<b>Climate</b>	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 not sheltered from either wind or sun.

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

**Form:** Long stretched three-storey building with flat roof.

**Morphology:** Landscaped office with an atrium in the middle. The building is designed in such a way that all working places have a view to both north and south. Total area of the building is 3.112 m<sup>2</sup>. Naturally ventilated area is around 1.700 m<sup>2</sup>.

**Envelope:** Large window sections at the south and north facades have automated openings for natural ventilation. Atrium serves as a stack for the natural ventilation system. Roof windows are placed in a row above the atrium

**Construction:** Medium heavy building. A load-bearing structure is made of steel frame

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

**Airflow Guiding Components:** The air enters the building through the sound proof openings integrated in the vertical windows and is guided to the atrium where it leaves the building through automated roof windows. Roof windows are closed in case of rain, and cross ventilation is used instead.

**Airflow Enhancing Components:** Natural ventilation is achieved by stack ventilation via the atrium. The openings are equipped with noise reduction. Automatic solar shading is added to the south side windows of the building

## IEA EBC Annex 62 Ventilative Cooling

<b>Actuators, Sensors and Control Strategies</b>
<p>Façade windows are operated by chain actuators and the roof openings by spindle actuators.</p> <p>Room temperature and CO2 sensors for each zone</p> <p>A weather station measuring wind speed/direction, rain, temperature and humidity was set to the rooftop.</p> <p>The building uses NV Advance™ system, to control the natural ventilation, smoke and fire ventilation, room heating and solar shading.</p>
<b>Building Energy Systems</b> (Heating, Ventilation, Cooling, Electricity)
<p>Mechanical ventilation in meeting rooms and kitchen.</p> <p>The building is connected to district heating and heated up using radiators.</p> <p>Information about electrical systems is not available.</p>
<b>Building Ownership and Building Facility Management Structures</b>
<p>The building is occupied by the A2SEA A/S.</p>
<b>Acknowledgements</b>
<p>n/a</p>
<p>Datasheet Source: WindowMaster A/S © 2/2 All images and copyrights belong to the original owners and are reproduced for the purpose of training and education only</p>