



■ Building Type / Use
Residential Building

■ Country
Gothenburgh, Sweden

■ Client
Älvstranden utveckling AB

■ Architect
J Larsson White Architects A

■ Occupation
2008

Aims

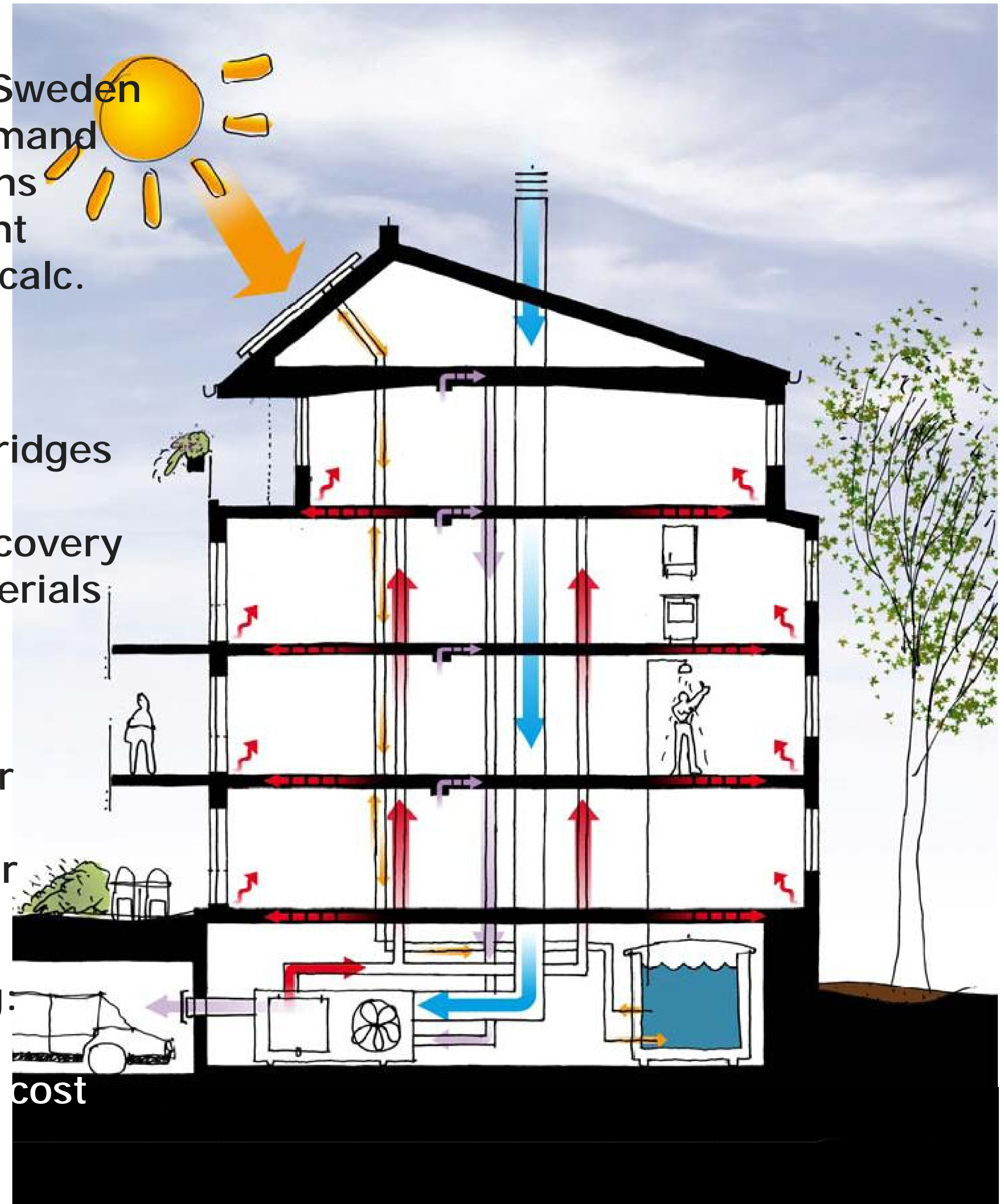
- To build the first large passive house in Sweden
- To reach a quarter of normal heating demand
- To emit a quarter of normal CO₂ emissions
- To create a very good indoor environment
- To make extensive simulations and LCC-calc.
- To have reasonable rents

Solutions

- Highly insulated envelope with no cold bridges
- No conventional heating system
- Very tight envelope and efficient heat recovery
- Environmentally sound and certified materials
- Solar panels for hot water
- District heating for additional heating
- Energy efficient appliances and lighting
- Individual metering of hot and cold water
- No PVC and halogens
- Moisture control and monitoring first year

Cost

- Additional investments for energy saving:
2,5% = 5 million SEK ~ 550 000 EURO
- Same rent as normal due to low running cost



Building data

Gross Floor Area: 15021 m²
 No of flats: 115
 Expect. no residents: 170
 Parking under courtyard

Heating and cooling

Very low heating demand supplied through preheated ventilation air. Energy sources are district heating and solar panels. No cooling.

Energy

District heating 25 kWh/m²,yr
 Building electricity 35 kWh/m²,yr
 Solar heating 10 kWh/m²,yr
 Bought energy 60 kWh/m²,yr

Water

Potable water 630 l/m²,yr

Env. impact from energy use

Climate change 2,2 kg equiv CO₂/m²,yr
 Acidification 9,8 g equiv SO₂/m²,yr
 Eutrication 19,9 g equiv NO₃/m²,yr
 Nuclear electricity 0,3 kWh/m²,yr



ByggaBo (SE) A-D

Energy B
Indoor B
Chemicals B

EcoEffect (SE) 1-6 stars

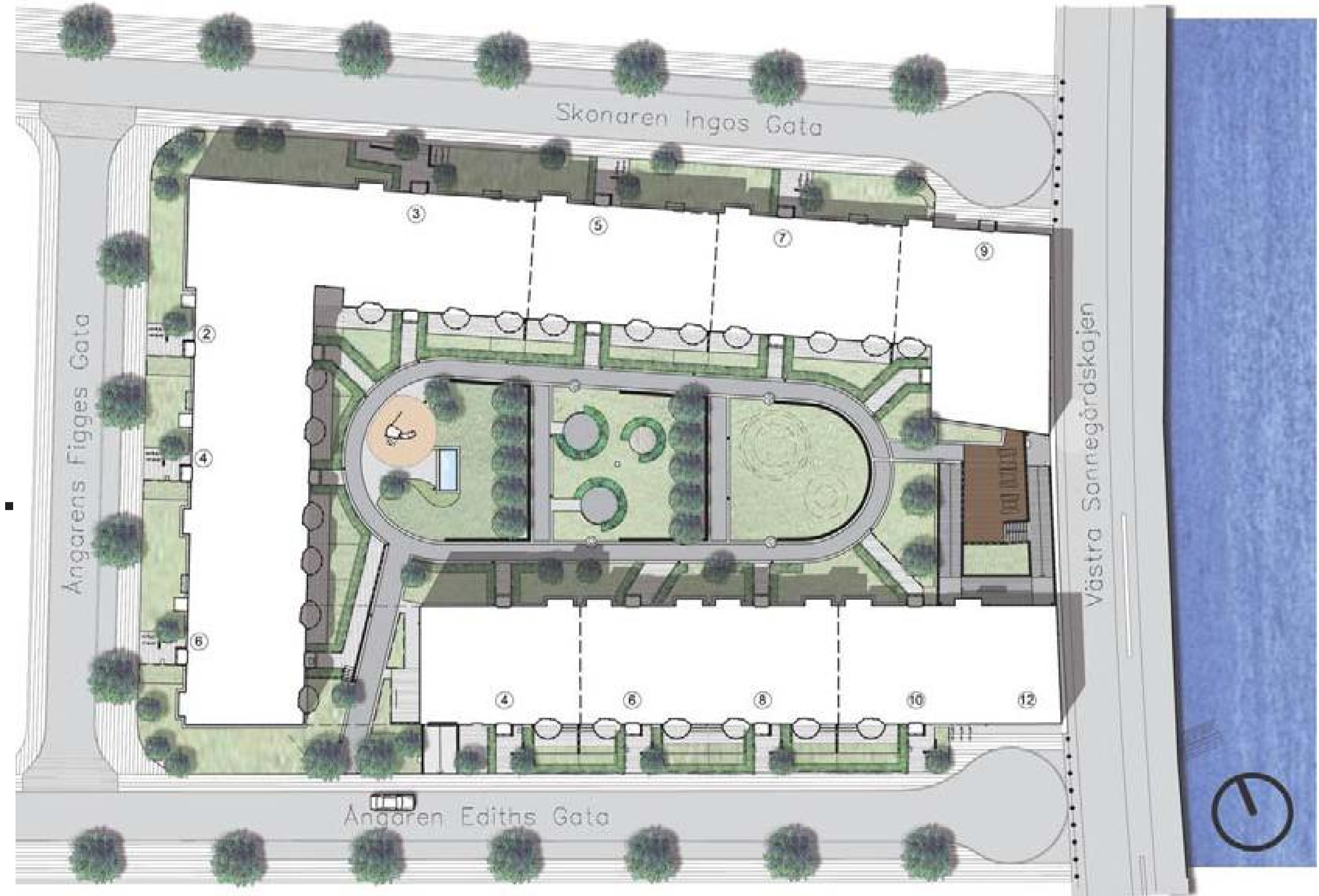
Energy ★★★★★
Indoor ★★★★★

LEED New cons.(US) – 92 cred.

Site 4 -6 (of 12)

Water 6 (of 10)
Energy 15 (of 30)
Materials 4-6 (of 14)
Indoor 10-18 (of 19)
Innovation 1-3 (of 7)

Certified - Gold



Summary of Key Performance Indicators (KPI)

A	Primary Energy of Non Renewable Energy Sources		[kWh/m ² _{GFA}]	13
B	Final Energy / Primary Energy of Renewable Energy Sources		[kWh/m ² _{GFA}]	66
C	Total Energy, (A+B) annual data	<input checked="" type="checkbox"/> predicted <input type="checkbox"/> monitored	[kWh/m ² _{GFA}]	79
D	CO2 Emissions (CO2 equivalent)		[kg/m ² _{GFA}]	2
E	Potable Water Demand/Consumption, annual data	l/pers <input type="checkbox"/>	[l/m ² _{GFA}]	630
F	Construction Cost, price level 2007		[EUR/m ² _{GFA}]	1100
G	Operating Costs, annual, price level 2007		[EUR/m ² _{GFA}]	15