



ECO-buildings  
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# *Massive wood buildings and passive house technology in Välle Broar*

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MD

# Välle broar – the wooden city

- 392 dwellings, 1 pre-school
- Energy use 30-40 % lower than the national regulation
- 90% of the energy supply from renewable energy sources
- Integrated building process from town plan to construction and maintenance



# Portvakten North



**69 apartments** in 3 buildings 5662 m<sup>2</sup> (BTA)

Isolation, heat recovery, individual metering



Results so far:  
**Heating/ DHW:**  
**75 kWh/m<sup>2</sup>/yr**  
(target 95)

Electricity (building)  
**15 kWh/m<sup>2</sup>/yr**  
(target 20)

# Biskopshagen



88 apartments in 18 buildings, 1 pre-school

Insulation, heat recovery, individual metering

Results so far:

**Heating/ DHW 80 kWh/m<sup>2</sup>/yr**  
(target 85)

Electricity (building)

**15 kWh/m<sup>2</sup>/yr** (target 20)



# Limnologen



134 apartments in 4 buildings

Wooden shell, largest wooden project in Sweden, weather protection, individual metering, information pavillon, research projects

# ***Massive Wood Buildings***

## ***eight storeys with passive house technology***



VÄLLE BROAR

VÄXJÖ



VINNOVA

# Portvakten South



FASAD MOT SÖDER SKALA -1:200-

FASAD MOT VÄSTER SKALA -1:200-



REV A 2007-11-29

**bsv** arkitektur & interiör  
 arkitektur och  
 interiör  
 PORTVAKTEN SÖDER/ HYRESBOST/ BYGGLOV  
 1  
 NOT: 2007/11-29

- **Passive houses**
- **64 apartments in 2 buildings**
- **Eight storeys, massive wooden design**
- **No ord. heating system**
- **Low CO<sub>2</sub> in production, carbon sink**



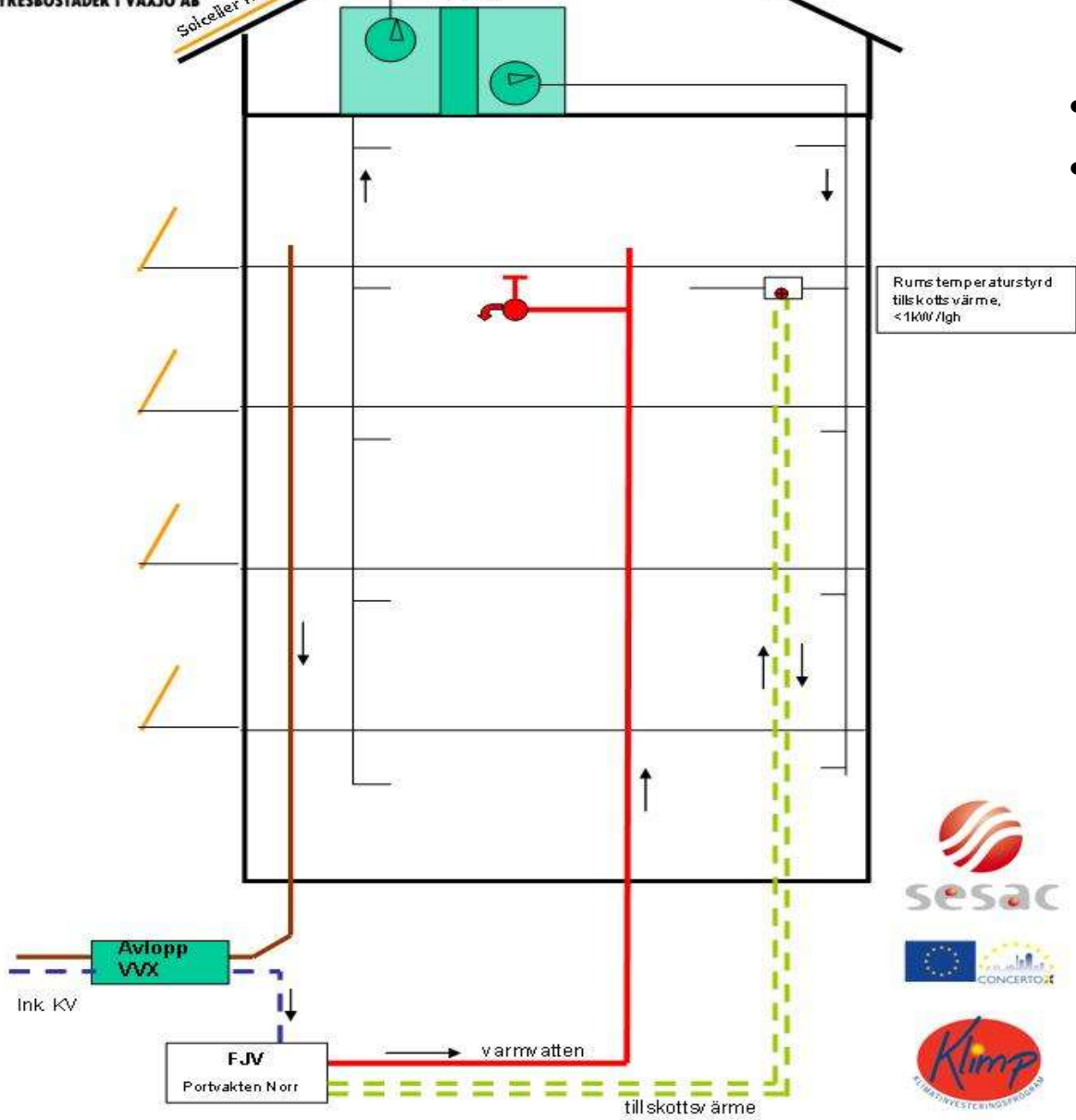
Solceller för elproduktion

VÄV  
85%

LÄGENERGIHUS –  
utan konventionellt värmesystem



Energikontor Sydost  
Energy Agency for Southeast Sweden



- **8 storey Passive house**
- **Massive wood frame**

- **Air tight**
- **Much isolation**
- **Central mech.ventilation system (85% heat recovery factor)**
- **Waste water heat recovery**
- **Ind. metering**
- **District heating (bioenergy)**
- **Photo Voltaic Plant ???**



# Construction



# 3. Demand Side Management

Decreased energy consumption in apartments



Decreased electricity consumption



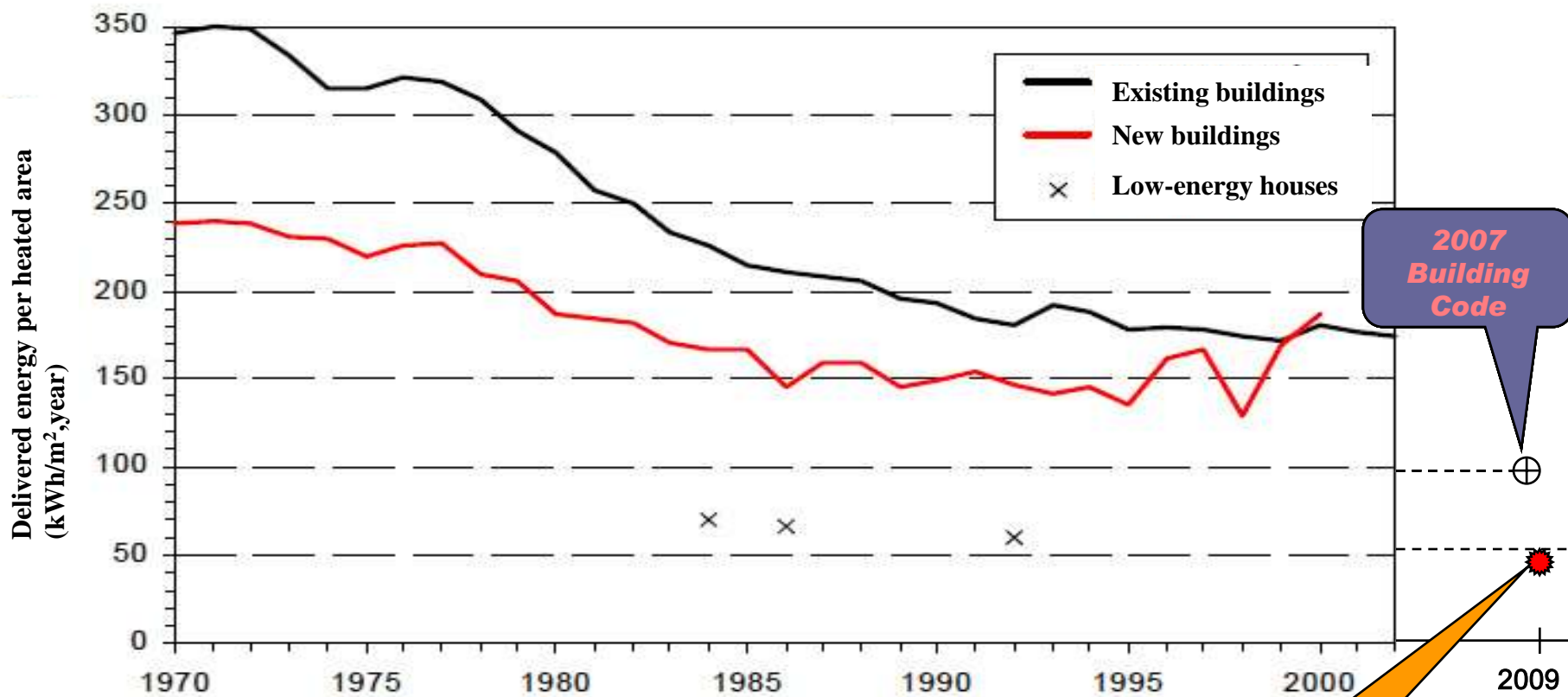


Figure 3. Energy use (delivered energy) for heating and hot water per heated area in multi-dwelling blocks between 1970 and 2009. The graph of existing buildings represents total heated area during the current year and the graph of new buildings shows the energy use when work is finished. Examples of measured values from recently built low-energy houses illustrate the distance to Berlin Building Code. (All data adjusted to average weather year)



# How is it to live in a passive house?

Quiet.....

Good ventilation

Stable indoor temperature

No cold zones (close to windows)

Low costs for energy

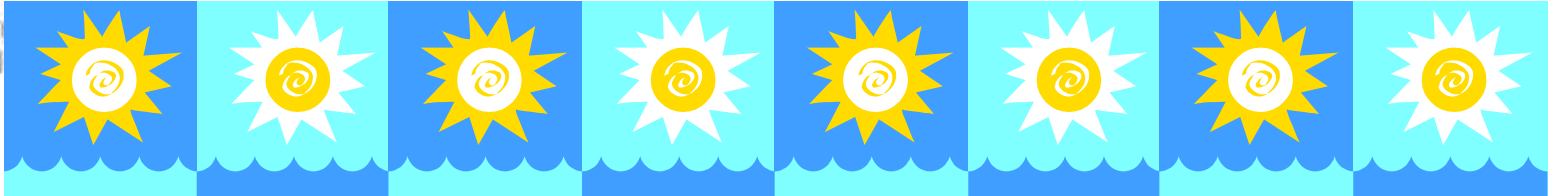
More airing

”Good for your GREEN conscience ”

# THE Key Success Points

1. Management competence
2. Competence in performance
3. Cooperation
4. Air tightness





*Thankyou for your attention!*

**Stefan Olsson**

[www.energikontorsydost.se](http://www.energikontorsydost.se)