

Demonstration plant



Hamnhuset (The Harbor House) • Sweden's largest passive house

Hamnhuset is a newly built apartment block located in downtown Gothenburg, a stone's throw from the Göta Älv river. With its 115 rental apartments, it is Sweden's biggest apartment building constructed with passive housing technology. Passive housing uses only 25% of the energy for heating that conventional buildings use.

Construction of Hamnhuset began in 2006. It consists of two apartment buildings of four to five stories surrounding a sheltered courtyard, and contain a total of 115 rental apartments, the largest of which consist of four rooms and kitchen. The building attracted great interest from the public. The apartments were let very quickly and the tenants moved in during summer 2008. One of the apartments has been kept as a demonstration apartment.

No radiators

The buildings have been constructed to minimize cold bridges in the exterior walls. This means that the insulation is nine centimeters thicker than buildings constructed in the conventional way. Hamnhuset also has more insulation between interior concrete walls and the façade.

There are no radiators in Hamnhuset. A heat exchanger is used to warm fresh air from outside using air that is extracted from the building. On very cold days, heating is supplemented by district heating through the supply air ventilation system.

Hamnhuset uses 60 kilowatt hours per square meter and year for heating, electricity and hot water (the current Swedish building standard prescribes a maximum of 100 kilowatt hours per square meter and year.

Solar panels on the roof

Hamnhuset also has solar panels on the roof that provide half the energy needed to heat the hot water used annually.

Hamnhuset has a waste extraction plant with source separation into three different fractions. In practice, the waste extraction plant makes it unnecessary for garbage trucks to enter the area, since the waste is collected at a point just outside. In every staircase, there is a recycling room where tenants can place cardboard, plastic, glass, and batteries.

- **Environmental gains**
- Hamnhuset has 70%
- lower emissions of carbon
- dioxide compared to a
- building constructed with
- conventional technology.
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- Of the 60 kilowatt hours/m²
- and year, 18 kwh are used
- for heating, 13 for hot water,
- and 29 for electricity.
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- With a capital cost of 7%
- and an annual increase
- in energy prices of 2%
- above index, ROI is
- 0.2% higher than for a
- building constructed with
- conventional technology.
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- It is not more expensive
- to own and operate
- an energy-efficient,
- environmentally friendly,
- comfortable building. On
- the contrary. In the long
- term it is less expensive.
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Photo: Staffen Bolminger, Barry Li

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