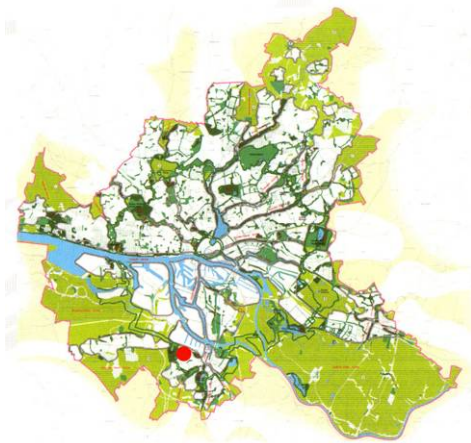


# Solar building exhibition



**location:** Hamburg-Heimfeld, Germany  
**dates:** 2002-2005  
**type:** new residential area on former military site

**use:** residential

**size:** 1,5 hectares, 85 dwellings

**people:** 250 inhabitants

**actors:** ZEBAU GmbH Hamburg  
 City Council for town development Hamburg  
 Technical University of Hamburg-Harburg  
 Low-Energy Institute, Detmold

**goals:** KfW-40 (low-energy) standard and passive-house standard with a primary-energy use < 40 kWh/m<sup>2</sup>a  
 Heating only with regenerative energy  
 Additional use of solar energy

energy use	KWh/m <sup>2</sup>
heating, goal	30
heating, achieved	30
heating, best	15
systems	
district heating	x
combined heat & power	
solar panels	x
solar cells	x
biomass and refuse	x
wind power	
natural ventilation	
forced vent.w/heat recovery	x
non-renewable energy	
individual metering	

**construction**  
 KfW-40 (low-energy) standard  
 passive-house standard  
 elimination of thermal bridges  
 air-tight buildings

**amenities**  
 primary school, children's day-care centre, university, hospital, public transportation, city centre with cafes, shops, restaurants in walking distance

**special projects**  
 district heating  
 solar heating  
 solar cells  
 partly barrier free for elderly people  
 public meeting areas

**site ecology**  
 rain water collection  
 waste separation



**process and history**

For the solar building exhibition which took place in Hamburg in May 2005 a variety of energy-efficient buildings have been constructed on two city areas in the south part of Hamburg. The building site in Hamburg-Heimfeld near the centre of the district Harburg in the very south of Hamburg has a size of 1,5 hectares and was chosen as an example for the conversion of former industrial or military areas. This was in line with the



### process and history, continued

program “growing city” of the Hamburg Senate which aims to keep the growth of Hamburg within the city borders by using these conversion sites for new residential and business areas. The main goals of the exhibition were on the one hand to demonstrate that energy-saving buildings meeting the KfW-40 (low-energy) or the passive-house standard can be build and sold for competitive market prices even in areas with rather moderate housing costs. On the other hand the aim was to show the results and different techniques of modern methods of construction to a broad public so that the buildings can serve as multipliers. The different houses could be visited during the exhibition which also offered a broad variety of information concerning sustainable building through seminars and specific exhibitions.

The planning and organization started in 2002 as a part of the EU program ALTENER. The different buildings in Heimfeld have been constructed and sold by 8 investors. In 2004 the construction works in Heimfeld began and were mainly finished by the opening of the exhibition in May 2005.

### description of special project features

The organization committee demanded to meet either the KfW-40 (low-energy) or passive-house standard. Therefore the maximum primary-energy use for heating and warm water was not to exceed 40 kWh/m<sup>2</sup>a. The use of solar energy, either with solar cells or solar panels, was also an important objective. The average insulation of the different buildings meets at least the low-energy standard. One building was constructed as a passive-house.

The heating of all the buildings is based on wooden-pellets. For one cluster of three building types a district heating system has been installed. In addition some buildings have been provided with solar panels and solar cells. Due to this use of regenerative energy sources the primary-energy use of each building could be kept low.

All of the buildings are supplied with forced ventilation systems of which almost all are equipped with heat recovery techniques.

A quality assurance program was set up to ensure that the energy targets would be met. It covered a control of the energy calculations by experts from the Technical University in Hamburg-Harburg during the planning stage and a quality control by the Low-Energy Institute during construction.

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**funding**

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The organization of the solar building exhibition was partly funded by the European Union within the ALTENER program. The public owned land was sold for regular market prices to or through the investors. The City of Hamburg provided the development of the public space.

For the buildings the investors applied for the regular federal or state subsidies. On the federal part the "Kreditanstalt für Wiederaufbau" and on the local side the "Wohnungsbaukreditanstalt" supported the construction of the energy efficient buildings by a loan with low interest rates. The City Council for town development in Hamburg provided additional subsidies for energy saving measures and the installation of thermal solar energy panels.

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**results**

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At the beginning of the exhibition in May 2005 almost all of the works on the building site had been completed, so that a variety of energy saving buildings and measures could be shown to the public. The quality control during the planning and later during the building phase had ensured that the promoted standards have been reached and that the energy targets have been met. At the beginning of the solar exhibition 80 % of the dwellings had already been sold.

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**sources:** **Ausstellungskatalog zur Solar-Bauausstellung**, ZEBAU GmbH  
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[www.solar-bauausstellung.de](http://www.solar-bauausstellung.de)

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