

PROJECT DATA

Project partners

HAMBURG ENERGIE, Finanzbehörde - Immobilienmanagement (Revenue Authority - Real Estate Management Hamburg), Freie und Hansestadt Hamburg - Behörde für Stadtentwicklung und Umwelt (Free and Hanseatic City of Hamburg - Ministry for Urban Development and the Environment) / Bezirksamt Hamburg-Mitte (Hamburg Central District Authority), Geschichtswerkstatt Wilhelmsburg & Hafen (Wilhelmsburg & Port History Workshop)

The realisation of the concept is co-financed with Fundings from the European Fund of Regional Development (EFRD).

Project costs

24 million euros for the redevelopment and extension of the building, energy engineering and heat grid

Project area

Floor area: 57 x 57 m, height: 42 m

Total output

Heat to 3,000 households plus power to 1,000 households, CO₂ reduction of approximately 95%

Project management

ReGe Hamburg Projektrealisierungsgesellschaft mbH

Architects

Hegger Hegger Schleiff HHS Planer + Architekten AG, Kassel

Structural design

Ing.-Büro Prof. Bartram und Partner, Ottersberg-Fischerhude

Energy concept

Averdung Ingenieurgesellschaft mbH, Hamburg

Building services engineering

IHS Intelligent House Solutions, Hamburg

Landscape architects

EGL, Hamburg

Time Scale

- 2007-2009: Conceptual phase
2010: Building survey and making building secure
March 2011: Start of refurbishment works and removal of rubble from interior
September 2011: Facade refurbishment
Spring 2012: Start of construction of energy plant and solar panel roof
Late 2012: Heat supply start
2013: Completion

Energy Bunker - transformation into an eco power plant

- Electricity production
- Heat generation

Supplying up to 3,000 housing units with heating and approximately 1,000 housing units with electricity, whereby a CO₂ reduction of 95 percent is achieved, which represents 6,000 tonnes of CO₂ per year.



- A rooftop solar thermal unit generates heat from the sun.
- A photovoltaik system on the south-facing facade produces electricity.
- A biogas CHP plant produces electricity and heat.
- A woodchip heating system generates heat.
- Waste heat from an industrial plant nearby is fed into a storage "bunker" and fed into the heating grid.
- A peak load power plant ensures a steady supply of heat by covering load peaks.
- A heat storage unit "bunkers" surplus heat, reacts to periods of peak demand and maintains supply.

INTERNATIONAL BUILDING EXHIBITION IBA HAMBURG

In the heart of the city of Hamburg the IBA seeks answers to the most urgent questions posed by contemporary urban planning. Wilhelmsburg, Europe's largest inhabited river island, Veddel and Harburg's inland port are the venues for the IBA's 60 or so projects, due to be completed from 2013 onwards. A stone's throw from Hamburg's inner city we give fresh impetus to urban design; socially, technically and culturally. We are building for and with local residents. We are creating housing and construct a new city within the city. We are taking a stand for more education and greater interpersonal communication, and we are working on new ideas for protecting the climate and the environment.

One City - Three Key Themes

- K** Cosmopolis: How can we ensure that every resident benefits from Hamburg's cultural diversity? By creating 'New Opportunities for the City'.
- M** Metrozones: How can Hamburg find new uses for Hamburg's inner-city margins? By finding 'New Spaces for the City'.
- S** Cities and Climate Change: How can Hamburg become energy independent and protect the climate? By demanding 'New Energies for the City'.



You can access additional information with a QR Code Reader.



European Union:
Investing in your future
European Regional Development Fund



Contact

IBA Hamburg GmbH
Am Zollhafen 12
20539 Hamburg
www.iba-hamburg.de/en
Project coordinator
Karsten Wessel
karsten.wessel@iba-hamburg.de
+49 (0)40 226 227-141
Documentation centre
Simona Weisleder
simona.weisleder@iba-hamburg.de
+49 (0)40 226 227-113

How to get there

No. 13 bus from Wilhelmsburg S-Bahn station to Veringstraße (Mitte)

INTERNATIONAL BUILDING EXHIBITION IBA HAMBURG

CITIES AND CLIMATE CHANGE

Energy Bunker

A memorial drives the district



IBA_HAMBURG Building the City Anew

Published by: IBA Hamburg, Claudia Wagner, Editing: Simona Weisleder, Design: Embassy Translation: Caroline Ahrens, Image: IBA Hamburg GmbH / Johannes Arlt, Print: Dümmeyer GmbH



Hamburg ahead

ENERGY BUNKER

STURDY AND DISTINCT

The air-raid bunker on Neuhöfer Straße was built in 1943 as a symbol of the home front's supposed ability to put up a fight. It provided shelter from Allied bombing raids for up to 30,000 people. However, its flak towers meant that it also formed part of the German war machine.



In 1947 the building's interior was blown up by the British army. Six of the building's eight storeys collapsed and the remaining structure became too unsafe for people to enter. The outer shell with up to three metres thick walls and up to four metres thick floors was all that remained relatively undamaged. For over 60 years it was inconceivable that a new use would be found for the whole building, except for some ancillary uses in parts of it.

The building was in danger of collapsing entirely, but its future as a war memorial is now secure as it is redeveloped within the scope of IBA Hamburg. The history of the building and the war-time residents of the Reiherstieg district will be documented in an exhibition space within the flak towers. 30 metres above ground level, a café shall offer unique views over Hamburg, its port and the Harburg Hills.

IBA EXCELLENCE



A unique building is created by the interplay of conservation and climate protection.



An inaccessible and dangerous ruin becomes an attraction to both residents and visitors.



The Reiherstieg district's renewable energy supply sets a benchmark for the whole of the city of Hamburg.

A MEMORIAL AND ENERGY BUNKER

The building and the solar panels that cover its roof and south front will form an Energy Bunker visible from afar and provide a key milestone towards the aim of supplying the Elbe islands with renewable energies.



By cleverly combining the energy derived from solar panels, bio-gas, wood pellets and waste heat from nearby industry, the Energy Bunker will supply most of the Reiherstieg district with heat as well as feeding renewable electricity into the grid.

When completed, the Energy Bunker will produce approximately 22,500 MWh of heat and almost 3,000 MWh of electricity. This is equal to the heat requirement of about 3,000 households as well as the electricity requirement of about 1,000 households.

Furthermore, CO₂ is reduced by 95 %, which is equal to approximately 6,600 tons of CO₂ per annum. As a neighbourhood power station the Energy Bunker is also an example of a decentralised energy policy which creates local jobs and local revenue.



OPINION

JÜRGEN WIESNER, ADVISORY COUNCIL FOR NEIGHBOURHOOD DEVELOPMENT

'As local residents we are pleased that this historically charged building is being refurbished after more than 60 years. A café and exhibition space at

30 metres above ground level and climate-friendly energy will be great gains to the Reiherstieg district.'

INTELLIGENTLY INTERLINKED TECHNOLOGY

The core of the project is a large hot water storage tank that will be installed in the former flak tower and air-raid bunker. It will provide energy to an urban area of more than 1.2 km² (120 ha) in size by integrating various environmentally-friendly heat and electricity generating plants within the Energy Bunker.

The large hot water storage tank is designed to have a total capacity of 2,000,000 litres (2,000 m³) and represents the project's central innovation. It is supplied by heat generated by a bio-methane-fuelled combined heat and power plant (CHP), a wood combustion system and a solar thermal plant as well as the waste heat produced by an industrial plant. Thanks to the tank's buffer effect, it will be possible to achieve a reduction in the thermal generating power from 11 MW to 6.5 MW and to enable economically viable use of renewable energies within the heat supply concept.

This concept is unique across the world, and can be used to compile findings about the suitability in practice of the project's control and hydraulics technologies. The project is supported by the European Regional Development Fund 2007-2013 (ERDF) - field of activity 1.3; 'Environmental Technology, Resource Efficiency, Renewable Energies'.

