

Europe-China Eco-Cities Link
中欧低碳生态城市合作项目

Case Study Germany

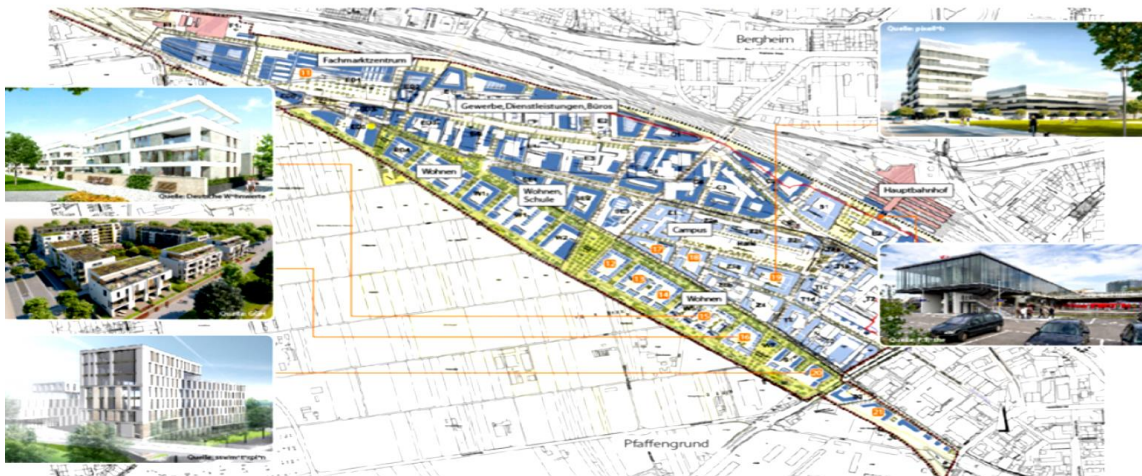
Germany → Heidelberg: Bahnstadt –Passivhaus districtⁱ

June 2018

Principal author
Florian Steinberg
With contributions by Stefan Werner
Edited by Kosta Math y

Draft Version 2.1

Development Plan Passivhaus District Bahnstadt, Heidelberg



Source: http://heidelberg-bahnstadt.de/files/documents/bahnstadt_plan_800px.pdf



CASE STUDIES

Case 13 Germany → Heidelberg: Bahnstadt – Passivhaus districtⁱⁱ

Problem to resolve: global Warming, Poor economic competitiveness of medium sized cities, Urban Sprawl

Means: Active and passive building construction, Conversion of brown field land (Urban Renewal)



Secondary Tool: Comprehensive Low-Impact Development. Place Branding, Integrated Water and Drainage Concept

Case 1 Heidelberg, Germany: Bahnstadt - Germany's biggest Passivhaus districtⁱⁱⁱ

Description:

Bahnstadt is one of Germany's largest urban development projects and its Biggest Passivhaus district. Covering a total area of 116 hectares, the new district is larger than Heidelberg's Altstadt (Old Town). It offers a mixture of living space, science, industry and culture. On its campus, it combines optimal conditions for science and business on its campus. The project assumes a pioneering role in environmentally sustainable urban development and is based on the passive house standard.

Bahnstadt's central location on the site of the former shunting and freight yard is particularly appealing since modern living space is as scarce as space for science and research in Heidelberg's city centre. Following the concept of sustainable urban development, Bahnstadt adds value to a recognised European centre of science and has added value to Heidelberg's existing strengths with its closely-knit living space, and areas for work and cultural activities – all in the same neighbourhood.## It is this diversity that sets cities like Heidelberg apart and which provides the contemporary drivers to push it forward. Heidelberg-Bahnstadt:

- offers living space: attractive and environmentally sophisticated real estate affording a high quality of life for all generations and respective situations. From crèches, a primary school, cultural facilities through to businesses – all on your doorstep.
- creates a huge number of jobs: as a high-quality business location for commercial and service companies in future-proof buildings built to passive house standards.
- ensures a perfect environment for research and science on its campus: it offers space for future industries such as life sciences, biotechnology, information and communication technology, not to mention energy and environmental sciences as well as other science-related companies.

Passivhaus District Bahnstadt in Heidelberg, Germany



Source: <http://heidelberg-bahnstadt.de/en/portrait-bahnstadt>

Gateway building to Bahnstadt, Heidelberg, Germany



Source: http://heidelberg-bahnstadt.de/files/documents/hd_imagebroschure_2015_englisch_web_0.pdf

Sustainable energy concept. Bahnstadt sets the course for handling environmental resources responsibly with an energy concept that is unique within Germany. The residents as well as the companies located there will make a sustainable contribution to climate protection and also save energy costs. Pioneering development of the entire district based on the passive house standard promises not only ultra-low energy consumption but also a 20 percent reduction in CO₂ emissions by 2015. The medium-term aim is to supply Bahnstadt entirely from renewable energy sources.

- Passive house standard as a universal construction method
- District heating supply which will be covered in the medium term by way of renewable energies
- Intelligent control of power consumption via smart metering

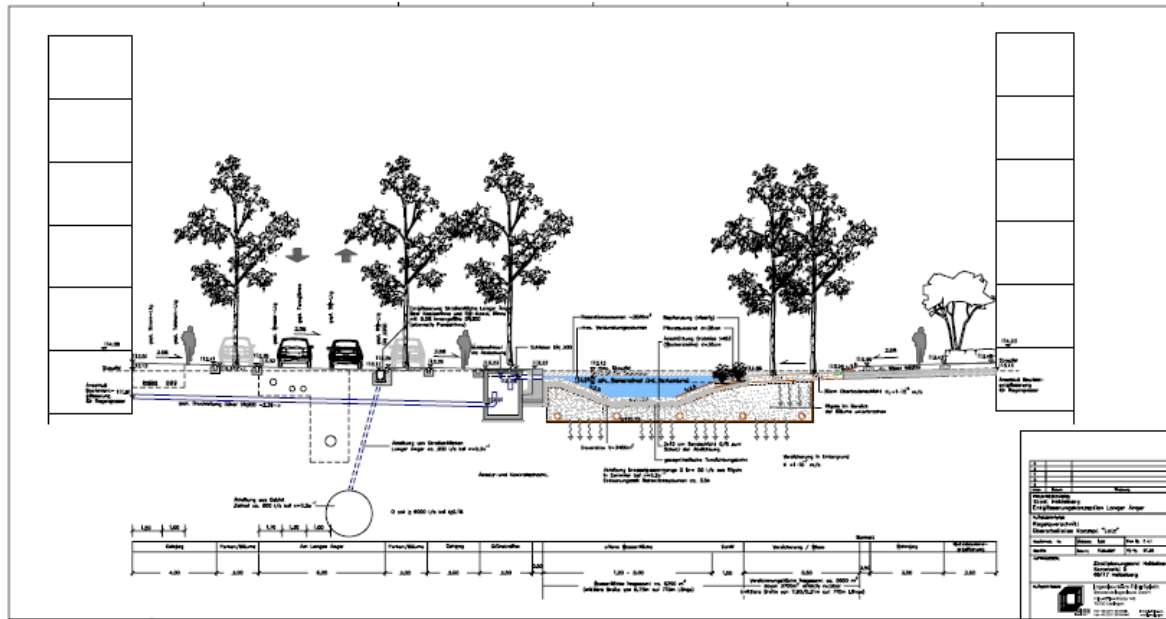
Heidelberg-Bahnstadt in figures.

In comparison: Bahnstadt is roughly the same size as Hamburg's Hafencity. The investment volume of all public and private construction projects in the area is estimated to amount to around two billion euros. Demand was so high that in 2012, plans for the second construction phase were brought forward by two years.

- Total area: 116 hectares
- Area for which Entwicklungsgesellschaft Heidelberg (EGH) is responsible: 60 hectares, of which:
 - for residential: 9 hectares
 - for industry/commerce: 16.5 hectares
 - for campus: 4.5 hectares
 - for open landscape: 16 hectares
 - social infrastructure: 3 hectares
 - road network: 11 hectares
 - public facilities: 2 day nurseries, 1 primary school, 1 community centre, 3 playgrounds

- The urban density is planned to become relatively high, for German standards: Floor area ratios (FAR) are 1.2 - 3.0 in residential areas. But more elevated in commercial and institutional areas, 2.0 – 3.0.^{iv}

Section of rain water management and flood control plan, Bahnstadt, Heidelberg



Source: file:///F:/backup/d/China/EC%20Link%20Project%20GIZ%20IS/referencias/Green%20Buidling/Heidelberg%20Bahnstadt/heidelberg_staedtebauliche_rahmenplanung_2007.pdf

Low-Impact Development.

To ensure flood control, rain water shall be absorbed from rooftops and open areas. Absorptive flood control measures are proposed which represent what in China would be called the 'sponge city' approach

Project development

PHPP software was used in the development. The design work on passive house developments utilizes the so-called Passivehaus Projektierspaket (PHPP), a digital tool which is linked into a 3D-tool Design PH, a plug in for the Sketch-up software.

Sources and Further Reading:

ⁱ Adapted from: Heidelberg's new district. <http://heidelberg-bahnstadt.de/en/portrait-bahnstadt>; and <http://heidelberg-bahnstadt.de/en/facts-and-figures>

ⁱⁱ Adapted from: Heidelberg's new district. <http://heidelberg-bahnstadt.de/en/portrait-bahnstadt>; and <http://heidelberg-bahnstadt.de/en/facts-and-figures>

ⁱⁱⁱ Adapted from: Heidelberg's new district. <http://heidelberg-bahnstadt.de/en/portrait-bahnstadt>; and <http://heidelberg-bahnstadt.de/en/facts-and-figures>

^{iv} Stadtplanungsamt Stadt Heidelberg (ed.).2007. *Städtebauliche Rahmenplanung "Bahnstadt 2007"*. Heidelberg. P. 42.

file:///F:/backup/d/China/EC%20Link%20Project%20GIZ%20IS/referencias/Green%20Buidling/Heidelberg%20Bahnstadt/heidelberg_staedtebauliche_rahmenplanung_2007.pdf