

Case Study X

Case 4 France → Paris: Vertical Forest (Houses)

June 2018

Principal author

Florian Steinberg

With contributions by Stefan Werner

Edited by Kosta Math  y

Draft Version

Vauban: Energy-efficient Passive Buildings



<http://www.vauban.de>2.1



CASE STUDIES

Case 12 Germany Freiburg: Vauban Eco Quarter

Problem to resolve: Global Warming, Waste of non renewable resources

Means: Active and Passive Building with Renewable Energy; Integrated site planning



Secondary Tool: Electric Micro Grid New tramway line, Parking Restrictions, Filtered Permeability

Location: Freiburg, Germany: Eco-District Vauban

Vauban is a new neighbourhood, planned for 5,000 inhabitants and 600 jobs. It is high density as per German standards with a density of 1,497 pers/sqkm. It is located 4 km south of the town center of Freiburg. It was conceived as a sustainable "model" district on the site of a former French military base, and is named after Sebastian Le Prestre de Vauban, the 17th century French Marshal who built fortifications in Freiburg while the region was under French rule. Development of the Vauban eco-district began in the mid-1990s.

Buildings.

All houses are built to a low energy consumption standard, with 100 units designed with Passivhaus ultra-low energy building standards. Other buildings are heated by a combined heat and power station burning wood chips, while many of the buildings have solar collectors or photovoltaic cells. Perhaps the most outstanding example of solar architecture is the Solar Settlement in Vauban, a PlusEnergy community of 50 dwelling units. It is the first housing community world-wide in which all the homes produce a positive energy balance. The solar energy surplus is then sold back into the city's grid for a profit on every home.

Vauban: Solar Architecture



Foto: (©) H.D.Rose http://www.hr-rose.de/?thema=green_city_vauban&country=kurz_kommentiert

Vauban: Energy-('active')Plus Houses



[https://de.wikipedia.org/wiki/Vauban_\(Freiburg_im_Breisgau\)](https://de.wikipedia.org/wiki/Vauban_(Freiburg_im_Breisgau))

Urban Plan

The circulation planning for the eco-district shows a departure from the traditional grid and the adoption of a more complex combination grid: There are three types of circulation modes: roads (in red), local streets (in orange) and pedestrian bicycle paths (in green). The preference for walking and cycling can be partly attributed to the layout of the district. Building on previous experience, the plan departs from the simple inherited grid, and creates a network which incorporates the principle of “filtered permeability”. It means that the network geometry favours the active modes of transport and, selectively, “filters out” the car. This is accomplished by reducing the number of streets that run through the neighbourhood. Instead, most local streets are crescents and cul-de-sacs (see drawing). While they are discontinuous for cars, they connect to a network of pedestrian and bike paths which permeate the entire neighbourhood. In addition, these paths go through or by open spaces adding to the enjoyment of the trip. The logic of filtering a mode of transport is fully expressed in a new comprehensive model for laying out neighbourhoods and districts – called the “fused grid”.

Good Insulation Materials Contribute to Energy- Efficiency of Buildings and Low Heating Needs



www.vauban.de

Vauban: Energy-efficient Passive Buildings



<https://siedlungen.eu/db/nachhaltiger-modellstadtteil-vauban>

Lessons learnt.

Vauban´s experience shows that

- (i) strategies for urban transformation are based on individual sector strategies. These are becoming part of the overall strategy to mitigate climate change;
- (ii) there is a local planning autonomy to decide on and adopt certain policies; and
- (iii) the local population plays an important role in implementing innovation

Further Reading:

An Ecological Life Report from Freiburg. 2013. In: *Green*. #3. Beijing. pp. 134- 143; Green City Office (ed.). 2010. *Vauban Quartier Freiburg – A Guided Tour, The vision of a sustainable district becomes reality*, FWTM Management and Marketing for the City of Freiburg, Freiburg; Pouille, J. 2015. Die Stadt von morgen – vielleicht, in: *Stadtbauwelt* 206, Vol. 106. pp. 55-59; Hall, P. 2014. Freiburg: The City that did it all, in: Hall, P. 2014. *Good Cities, better lives: How Europe Discovered the Lost Art of Urbanism*. Routledge. London, pp. 248-276.