

Case Study

GB Case 2 - Germany: Energy-Efficient Green Building Programme

Most Sustainable Office Building, Bussumse Watertoren, The Netherlands



Source: <http://www.greendiary.com/sustainable-office-buildings-world.html>



Problem to resolve: GLOBAL WARMING

Means: Reduction of CO2 Emmission in the production, operation and final disposal of buildings



TOOL 1: Passive Building design

Description:

Building Energy Savings. In Germany, 42% of national energy consumption is through buildings. A large portion of Germany's building stock is old. The ongoing building retrofit program is covering about 1% annually. Since energy costs are high building owners are motivated to retrofit and improve the energy performance of their buildings. However, families with low-incomes find the retrofit costs difficult to handle, even despite subsidies and financial help. The government's targets are to reduce by 40% the housing related emissions by year 2020. By year 2050 this should have increased to 50%. Due to improved building insulation, the heat demand should also have gone down by 20% in 2020, and by 50% in 2050. The German government is providing financial assistance to home owners through bank loans of the German Development Bank (KfW) (see below). In 2010, minimum energy standards were issued. It is expected that in May 2015 these will be overhauled by new guidelines for new buildings and for buildings to be retrofitted. The Passivhaus seems the preferred standard, but its technology has not yet been converted into a national standard. →Tool GB 1

Governement Subsidies:

From direct subsidies to tax reductions. . For many years, The German government has provided subsidies on the investment of insulation, energy-efficient heating systems, solar power infrastructure, etc. This has had the effect of firmly bringing green building technologies to the mainstream of the market, it has been a major expense which the government may not be able to sustain or expand. Since 2014, the German government's direct subsidies have been reduced to a small(er) investment subsidy, linked to the German Development Bank (KfW)'s credit schemes for new built housing or for energy retrofits.¹ At the political level the discussions have questioned whether this will be conducive for Germany to achieve the targets of the European Union Energy Efficiency Directive for 2020. In Germany, 40% of all is being energy consumed in buildings. Thus, the performance of greenhouse gas (GHG) emission reductions of 40% by 2020, and of 80-95% by 2050 depends substantially on the contributions and achievements of the green building sector. The German Development Bank (KfW) does tie its financial support to home owners to strict energy performance measurements at the design stage, and after completion. This is being applied both to new construction and to retrofit or renewal of existing older buildings. By 2016 it is expected that new green building regulations will be issued which will determine new quality standards.² →Tool GB 1

Green Mortgages: It is expected that the banking sector will also become interested in supporting green buildings through "green mortgages" which use an energy performance

certificate as a proxy for a green certification. This would reward homeowners and property developers who create greener buildings because the bank will loan them more money and provide better terms. Thus, when a mortgage is being calculated and amortization rates for the payback of the mortgage are being calculated, one should be able to receive better terms because the energy savings could actually lower the credit risk and increase the ability to pay.

Illustrations showing passive energy houses in Europe

Solar House, Denmark



Source: <http://www.greendiary.com/best-sustainably-creative-home-designs.html>

Passive House, Germany



<http://www.cephus.de/>

Green building materials. Having more eco-friendly homes is not just about the way in which people live inside them. It is also about what technology is used for its construction, or within the home itself. There are some great technological advances that really make a difference for eco-friendly homes. More often than not the solar panels you encounter will be hot water panels. These heat the water directly around the system and then pump it into your hot water tank for use. There is a large range of housing insulation available that can dramatically reduce the heating bill but also your carbon footprint. Switch existing light bulbs for energy saving LED ones, can also contribute to important savings. They are still more expensive than regular bulbs but they last much longer and will save you money in the space of a relatively short time. →Tool GB 3, →Tool GB 1, →Tool GB 2

Timber Housing in Vienna, Austria



Source: Stefan Lehmann

Vienna Timber Housing Storing 2,400 tons of CO₂ in Construction System

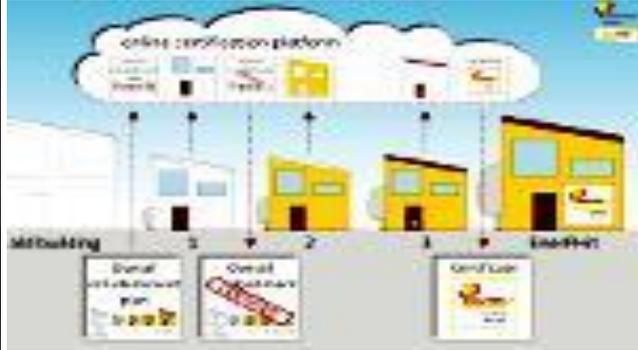


Source: Stefan Lehmann

Solar Architecture in the Vauban Suburb, Freiburg, Germany³



Step-by-step building refurbishment⁴



Beddington Zero Energy Development (BedZED), London, UK



Source: www.yahoo - 'zero energy buildings'

Greening of facades and roofs. Paris, France for CO₂ absorption



Source: Florian Steinberg

Credentials:

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References

¹ Germany is expected to decide soon on its National Action Plan for Energy Efficiency (Nationalen Aktionsplan Energieeffizienz [NAPE]). <https://www.dialog-energie-zukunft.de/energie%c2%adefizienz-nape/>

² <https://www.kfw.de/inlandsfoerderung/Privatpersonen/Neubau/Das-KfW-Effizienzhaus/>

³ Source: <http://www.solarsiedlung.de/default.asp?id=26>

⁴ developed under EU funded [EuroPHit, for promotion of Passivhaus retrofits](#). Source: www.passiv.de/en/01_passivehouseinstitute/01_passivehouseinstitute.htm