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## Designing buildings with a positive energy balance

Uniformly balancing net zero-energy and net energy-plus buildings

Until now most existing buildings have been pure energy consumers: the electricity comes from the power grid and the heat from a boiler, heat pump or heating network. However, buildings have a range of possibilities available to them to generate the energy they need by themselves. The new BINE Themeninfo brochure “Net Zero Energy and Net Energy Plus Buildings” (II/2015) presents the various concepts. One focus is on how the energy balance for these pioneering buildings should be calculated. The spectrum of analysed examples from practice ranges from individual buildings to whole districts.

In recent years, building concepts with balanced or positive energy and emissions balances have enjoyed increasing popularity among architects and builders. They have names like “energy-plus house”, “zero emissions house”, “efficiency house plus” or “activated-plus house”. What all these buildings have in common is that, when calculated on average across the year, they do not draw more energy from the grid than they feed into the grid from their own production. In Germany, however, there is still a lack of uniform standards and definitions for conversion factors, balance limits and for assessing the own requirement. The embodied energy, i.e. the energy required to produce the building materials and construct the buildings, should also be incorporated in the balance with a view to the entire lifecycle.

Professor Karsten Voss and Eike Musall from the University of Wuppertal are the authors of the BINE-Themeninfo brochure. From 2008 to 2013 they participated in the IEA Working Group “Towards Zero Energy Solar Buildings”. In this Working Group, experts from 18 countries discussed their experiences with such building concepts. The German contribution was made as part of the “EnOB - Research for Energy-Optimised Construction” research initiative initiated by the German Federal Ministry for Economic Affairs and Energy.

The BINE Projektinfo brochure, which can be obtained free of charge from the BINE Information Service at FIZ Karlsruhe, is available online at [www.bine.info](http://www.bine.info) or by calling +49 (0)228 92379-0. The brochure cover and an additional image can also be downloaded from the press section in this web portal.

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