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Successfully implementing plus energy on housing estates

Involving residents and sensitively regulating building technology

The future belongs to buildings that will produce more energy than they consume over the course of the year. This concept is known as energy-plus construction. A newly-built housing estate in Landshut, Bavaria, has been erected in accordance with this standard and then accompanied by scientific studies. The BINE Projektinfo brochure "Energy-plus concept tested on housing estate" (01/2016) presents the first results of the monitoring, the survey of residents and operational optimisation of the building technology.

The housing estate consists of 180 dwellings distributed over 13 single-family homes and semi-detached houses and eight apartment buildings. As well as very well insulated building shells, the planners also used innovative building technology in order to meet the energy-plus standard. The heat supply is taken, depending on the building size, from a heating network with a combined heat and power plant and a buffer storage facility with a capacity of 10,000 litres, or ground source heat pumps combined with underfloor heating. The buildings have ventilation systems with heat recovery. The roofs are for a large part fitted with photovoltaic plants and the electricity surpluses not required on site is fed into the grid. During the monitoring phase, the scientists studied resident behaviour in terms of the way they used the innovative technology, and determined attitudes towards energy saving. They also offered an online platform to visualise consumption values.

One result of the studies is that the residents regard saving electricity as being more important than saving heat. Furthermore, it could be ascertained that the rebound effect is a major influence over energy consumption. This means that new, energy-efficient systems cannot fully exploit the savings effects that are technically possible because the users use them more frequently or for longer periods due to their obvious efficiency than the technology to which they have been

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accustomed to date. The accompanying scientific studies and optimisation of operations were conducted jointly by the Munich University of Applied Sciences and Dresden Technical University.

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 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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