Software supplies analysis for IBA projects

The Hamburg International Building Exhibition (IBA) intends to make Wilhelmsburg island in the Elbe CO2-neutral by 2050. The long period, however, makes it difficult to make forecasts. By the end of 2014, researchers therefore want to find out the efficiency of the new building technology with the help of software, whereby the focus is on IBA projects such as the BIQ Algae House and the Energy Bunker.

With the “plot pilot” software, the Institute of Building Services and Energy Design (IGS) at TU Braunschweig is for the very first time completely monitoring the energy for the IBA buildings via an internet browser. The IBA is also the testing ground for the new software. “Some of the buildings such as the algae facade or the Softhouse have both a pilot and flagship character, so that it’s interesting for us to monitor their energy generation and consumption,” explains Jennifer König, a research assistant at IGS and head of the IBA research project. By the end of 2014, the research team wants to use the software to investigate the efficiency of the new building technologies and to discover whether the IBA planners are on the right path. In addition, surveys will be conducted to determine how planners, investors and residents are getting to grips with the buildings in practice.

Testing ground with model character

“The next few years will see a national conversion to renewable energies with intelligent electricity grids and comprehensive building refurbishments,” says Jennifer König. “Whereas other cities will have to integrate this into their daily business, we have the opportunity to research real buildings on the ground and to learn from our projects. The IBA is the ideal testing ground for this and could become a model.” Almost all the IBA projects – which number 60 altogether – are included in the monitoring, whereby ten will be monitored in detail. Measurements every 15 minutes will enable precise daily profiles and energy balances to be produced in which all energy generators and energy loads, such as the heating and ventilation in the buildings, are listed. The comparison between the consumption and generation will then show whether the energy balance is CO2-neutral. The energy generators at grid level – the Energy Bunker (BINE reported), Energy Hill and the
Integrated Energy Network Wilhelmsburg Central – are also being closely investigated. A substantial part of the project also includes the refurbished existing buildings in the district: the buildings’ consumption will be measured here monthly or annually.

**User behaviour as a success factor**

Jennifer König knows that the users have a considerable influence on the success of the project: “A rethink will be necessary if we’re to achieve the goal by 2050. We must ensure that the residents undergo a learning curve.” Until now, saving energy has only been a marginal issue in the disadvantaged urban district of Wilhelmsburg. Psychologists and sociologists at the HafenCity University (HCU) Hamburg are currently investigating the development of the energy consumption in the district and are checking how the refurbishment projects are being received, including the slight price increases. By the latest at the conclusion of the project at the end of 2014 it will become clear whether the IBA was right with its innovative energy systems and which forecasts will arise for future construction projects.

In addition to the IGS, the IBA Hamburg, HCU, Energieforschungszentrum Niedersachsen, the Vattenfall energy supply company and Hamburg Energie are involved in the joint project.

(ad/fr)