

User-led sustainable buildings

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Users' perspectives play a key role in low-energy building. Experts agree that the feedback from people living in energy efficient buildings could help to optimise their overall usability.

Those who live in low-energy buildings are not experts. But energy professionals have been aware of the importance of meeting their needs, right from conception stage. Nevertheless the most effective strategy for reducing energy and emissions remains to change the energy-consuming behaviour of users.

"Occupants account for a significant share of the total energy consumption in very low energy buildings," says Ulrich Filippi Oberegger, senior researcher in the [energy management](#) in buildings group of the Institute for Renewable Energy (EURAC) in Bolzano, Italy. "Their interaction with these kinds of buildings is more complex and influences building performance more than in conventional ones," he tells us.

This is why the EU project DIRECTION has involved the occupants of its showcase [energy efficient buildings](#) in Valladolid, Spain, and in Munich, Germany, right from the beginning. "User satisfaction and behaviour assessment is mainly

performed through surveys and face-to-face meetings," explains Filippi Oberegger, "and the results up to now have shown that both building owners and tenants benefit greatly from an intense collaboration."

Getting users' feedback may require training them. "As they are not experts in energy reduction, you have to teach them and tell them that they are part of the green solution," says Juan Ramón de las Cuevas. He is the Madrid-based R&D project manager in the energy efficiency group at Acciona, which is a European construction company constructing and managing buildings and civil infrastructures under the sustainability principles. Cuevas is also the coordinator the European project BEEM-UP, which takes an integral approach to breaking down technical, social and economic barriers through retrofitting residential buildings, via three projects in Sweden, France and the Netherlands.

Most of the occupants were happy with the changes, even though they were relocated during the retrofitting period, Cuevas points out. "Although their rents will go up a little, due to the financing of the investment, they will save more than €200 a year in [energy consumption](#) and will live in more comfortable conditions and in a better neighbourhood," insists Cuevas.

But users sometimes complain that architects and designers do not take their views into account. The conclusion of the Power House Europe report, a project led by CECODHAS Housing Europe, the European Federation for Public, Cooperative and Social Housing, suggests that social and organisational barriers also need to be addressed if nearly zero homes are to be widely developed and lived in. The amount of energy used in a building depends not only on the design specification and materials used, but also on the lifestyle of the residents and the housing management services provided.

Giving the users control of the building is important,

according to Sorcha Edwards, general secretary of CECODHAS Housing Europe, based in Brussels, Belgium. She believes it is just as key to avoid devising an over-automated building with a high long-term maintenance cost. "Our members in different countries often report that they are in front of a fantastic and high-tech building at conferences and fairs," she explains, "but it's almost like having a very high-tech machine with everything working perfectly, but not made for everyday living."

In reality getting users' feedback may prove more complex. "During building realisation or retrofiting, occupants are not necessarily known or may change. Further, they have to be willing to cooperate," says Filippi. "Energy and emissions saving is not always one of their targets. Instead, they might attach more importance to their business activities which are not always compatible with energy and emissions saving targets," he adds.

Furthermore, interacting with occupants is demanding from a management point of view. And feedback from users might also conflict with the owners' requirements. Cuevas agrees that the major challenge is to make all parties involved aware that retrofitting to achieve a [low-energy building](#) needs a high investment.

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