

Banish retrofit blues with one-stop shop and better living

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In Catania, Sicily, located in the shadow of Europe's most active volcano Mount Etna, homes must be retro-fitted for energy efficiency as well as seismic events like earthquakes. Credit: Herbert Aust via Pixabay

Retrofitting housing to be more energy efficient and provide equitable benefits for all is essential to make Europe carbon neutral. The job is challenging and complex and some people have trust barriers to

overcome.

The [high costs](#) and disruption involved in most energy-efficiency retrofitting projects put many people off—no matter if the work would reduce their energy bills in the long run.

And even homeowners with the money and motivation to get the work done face an uphill struggle learning about the most appropriate technologies and finding suitable contractors.

Vienna has come up with an answer. As countries, cities and regions all around Europe plan for a future of weather extremes, Austria's capital has set up a one-stop shop to take some of the stress out of retrofits and home renovations.

Wedding planners

'We are like wedding planners,' said Stephan Hartmann, coordinator of a project called [RenoBooster](#) set up with the City of Vienna.

As with weddings, most people organise a building retrofit just once in their lives and find it a big, complex and expensive undertaking, he said.

The one-stop shop is called Hauskunft, a name that combines the German words for house (Haus) and information (Auskunft).

Hauskunft has been in high demand since opening its doors in October 2020, attracting on average 1 000 clients per year.

In the light of Russia's full-scale invasion of Ukraine this year which disrupted Europe's oil and natural-gas supplies, the number of new customers has shot up to more than 300 per month, said Hartmann.

Hauskunft offers free consultations with architects and energy experts. The goal is to help homeowners assess heating systems, costs, energy savings, insulation options and other improvements such as a new elevator or balcony.

Funding advice

Homeowners also receive help with costs for feasibility studies, site visits, energy-performance calculations and advice on funding sources.

The RenoBooster project has also helped create an association of private businesses that can carry out the retrofits.

There is room for demand to grow. The City of Vienna has about 55 kinds of homeowner subsidies and some are going untapped.

'We have more money than people are applying for, maybe because of the standards they have to fulfill, or the complexity of subsidies,' said Hartmann, who is also head of unit in the city's Department for Technical Urban Renewal.

Vienna aims to be climate-neutral by 2040. This will be no easy task, not least because it includes phasing out gas—a major source of heating and hot water for residents.

Gas boilers

'We have about 600 000 gas boilers which need to be changed to other [heating systems](#) within the next 18 years,' said Hartmann.

He points out that this means about 40 000 [housing units](#) will need to be retrofitted each year in the 2030s.

Businesses that install heating and hot water systems will need to change fast to meet the market demand. Most are experts in gas systems and must train staff in the new technologies.

'Change is happening,' Hartmann said. 'Whether it will be fast enough to meet the 2040 targets I cannot tell, but I hope it will.'

Meanwhile, in Italy, more than 1 000 kilometres to the south, the last major earthquake to strike Catania, on the east coast of Sicily, killed most of its population and required the city to be entirely rebuilt.

That was in 1693, but earthquake planning is as important today as ever. With [climate change](#) in mind, retrofitting structures to make them resistant to earthquake damage is seeking to perform a dual role without displacing people from their homes.

Homes must be retro-fitted for energy efficiency as well as [seismic events](#) like earthquakes. This deep retrofitting must be financially feasible and provide social benefits.

Fault line

Catania lies on a major fault line, which means a major tremor can be expected there every century. In other words, given that the last major earthquake was over 300 years ago, the next one is long overdue.

The city's buildings also get damaged by smaller, more frequent, tremors caused by Mount Etna, Europe's most active volcano in whose shadow Catania lies.

'Structural engineers are very worried because they know the next big one could happen any time,' said Laura Saija, associate professor of urban and regional planning at the University of Catania.

Retrofits are an important opportunity to improve overall living conditions in deprived neighbourhoods, she said.

Prof Saija works with a project called [e-SAFE](#) that has developed 'game-changing' technology that can be used both to protect buildings from tremors and make them consume less energy.

The e-SAFE technology relies on insulation panels used in energy retrofits and strengthens them with timber. The panels are attached to the outside of homes using seismic energy dissipators, which absorb most of the shock of an earthquake.

Seismic retrofit

The e-SAFE researchers hope the technology will also be used in other earthquake-prone European countries, including Greece and Romania. 'It would make sense for seismic countries to really aggressively use this,' said Prof Saija.

The eSafe research is devising a way of bringing an efficient, seismic retrofit to the market to make it more widely available.

The system has been designed for people on low incomes. Besides being cheaper and faster to install than many seismic retrofits, the e-SAFE panels can—crucially—be put in place without people having to move out of their homes.

Many retrofits require the abodes to be vacant for several weeks while the work is carried out. This is often a major barrier for residents, particularly those on low incomes who may have no other place to stay.

e-SAFE is testing the technology in a public-housing building in a deprived area in Catania.

Before the work began, however, the team encountered an unexpected barrier.

Trust barrier

Local residents had no trust in the public-housing agency that is responsible for the maintenance of the building and is a partner in the project.

The project's initial meeting with residents was the first time many people had seen a representative of the public agency in 20 years, said Prof Saija.

'It takes time to build trust in strangers that come and say "We're going to renovate your building."

The building is in poor condition and the neighbourhood also lacks fundamental services such as reliable rubbish collection, she said.

'It's basic stuff which makes the conversation about seismic preparedness so hard,' said Proj Saija. 'The smell of trash from the street kills people's ability to think about a potential earthquake.'

Retrofit opportunity

Residents in the building are starting to believe that the project could improve their lives.

Their trust has been gained by involving them in a range of project decisions including choosing the finishing materials and colours, picking the location of ventilation machines and agreeing on the extent of the retrofit.

'At the end of the day, whether and how the building is retrofitted is their choice,' said Prof Saija.

Retrofitting Europe

Retrofitting housing to make it carbon neutral is an essential part of the European Green Deal. It will create jobs and improve the quality of life for millions of ordinary people. Follow the links below to learn more

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