

Construct Ireland

for a sustainable future

VILLAGE GREEN

Ireland's first eco village starts to take shape

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Site 104: Anthony & Elaine Kelly

The Kellys had always planned to build a low energy home, just not at The Village. "We wanted to build a house, we were looking for a site, and regardless of where, we were going to build a very modern energy efficient house," Anthony Kelly says.

The couple were motivated by green reasons and energy costs, but comfort was the big factor. "The first house we bought was a standard Irish construction, and it was poor," he says. "It cost a lot for oil, and even after that it was draughty."

They saw the eco-village mentioned on TV, decided to go for a look and were impressed by what they saw. Kelly says joining The Village made it easy to build green. "Everyone else is doing it, so you're not standing out too much."

The couple had been in touch with Galway-based passive timber frame specialists Scandinavian Homes about building a bunaglow on a site they were considering before. Scandinavian Homes has been supplying low energy homes - factory built in Sweden - to Ireland since 1991.

Once Kelly and his wife joined The Village, they adjusted their design to a two storey model to keep the same floor area on a tighter site, and to fit with the two storey buildings on the main street in Cloughjordan.

Though Kelly and his wife wanted a highly energy efficient home, they weren't tied to the passive concept. Scandinavian Homes doesn't get their houses certified by the Passivhaus Institut itself - it leaves that up to its clients - but the firm aims to build homes with a tiny heating demand that have little or no need for conventional heating systems.

The company says the house will have a heating demand of less than 10 watts per square metre in the coldest Irish weather - and that they can get down to 5 watts per square metre for their super-passive bungalows. The house's simple cube shape is designed to reduce its surface area and thus minimise heat loss. Company director Lars Pettersson emphasises the importance of reducing heating demand as much as possible. "Then you can use electricity for heating with a conscience," he says. "We have to be down to better than passive to do that."

The houses's timber frame wall build up features 215mm of mineral wool and a U-value of 0.16 W/m²K - a higher specification than the figure of 0.175 stipulated in SEI's guidelines for building passive houses in Ireland. The roof features 700mm of cellulose - Pettersson says this will eventually compress to about 600mm - and has a U-value of 0.1 W/m²K. The attic hatch is also insulated to give it a U-value

of 0.4 W/m²K.

The ground floor is insulated with 280mm of expanded polystyrene (EPS), with 135mm of EPS insulating around the perimeter of the foundation. The house's windows are triple-glazed, and the thick 14mm and 15mm cavities are argon-filled with a double low-e coating and warm-edge technology.

An REC Temovex 400 HRV unit ventilates the house, and four Pex pipes in the foundation are used to distribute heat from the biomass district heating system if needed. The house boasts an air-tightness of 0.56 air changes per hour (ACH), inside the Passivhaus standard of 0.6 ACH.

Anthony, Elaine and their two kids moved in shortly after Construct Ireland visited the house in December last year. He says the house heats up easily inside when there's just a bit of sunshine, and that even basic activities like cooking can heat it up quickly. "It's amazing, we're very impressed with it at the moment."

Builder John Connolly worked as part of the team that completed the house. For Connolly, building passive makes sense. "Take an average house. If you'd be looking at spending €5,000 on a heating system, if you spend €5,000 on insulation you can nearly do away with the heating system." >



(clockwise from top left) The house's simple cube shape is designed to reduce the surface area and minimise heat loss; an automatic floor sander smooths the solid timber floors; a heat recovery unit ventilates the house; the house's timber windows are triple-glazed and argon-filled with a low-e coating

