



Energy renovation *options*

Renovating the existing housing stock is an opportunity which could yield great benefits for the economy, the building industry, home owners and the carbon emissions of the nation. An investment in this area will reduce the carbon emissions and therefore the Kyoto fines which were implemented in 2008 and will be enforced until 2012. Ireland is already accumulating these fines so there is no time to lose. With carbon fines projected to average €30 per tonne in the first Kyoto period and with most houses generating about eight to ten tonnes of CO₂ per year, any investment in the energy efficiency of the housing stock will aid the avoidance of these fines.

A fifty per cent reduction in emissions per house would generate savings of €120 to €150 per annum per house in Kyoto fines. Calculated over 25 years, this money could be the basis for further financing the Home Energy Saving grant scheme to encourage investments in energy efficiency in more of the existing housing stock.

“SHIFTING THE RESOURCES AND EMPLOYMENT OF THE INDUSTRY TO THE EXISTING HOUSING STOCK WILL STIMULATE THE MARKET AND PRODUCE PLENTY OF TAX REVENUE FOR THE GOVERNMENT AND REDUCE THE LIVE REGISTER.”

As the Building Energy Ratings (BER) scheme starts to influence house values in the market, there is an opportunity for banks and mortgage companies to offer “green loans” for individuals who invest in energy efficiency. The green loans could be repaid with the savings on energy bills which could be about €750 per annum for an average house. The combination of the new Home Energy Saving (HES) grant scheme and green loans should be sufficient to influence home owners to look at how they can reduce their energy use. All this coincides with

the downturn in the new housing sector of the building industry. Shifting the resources and employment of the industry to the existing housing stock will stimulate the market, produce tax revenue for the government and reduce the live register.

There has been encouraging research completed in this area of retrofitting and now is the time for action. Durkan Ecofix has already carried out internal pilot retrofitting research and development projects in the greater Dublin market. Jay Stuart, Technical Director of Durkan Ecofix, said “We have engaged a number of suppliers with high quality sustainable products that significantly reduce the housing energy requirements, and therefore costs, by up to 70 per cent. We also ensure the most comfortable and healthy living environment possible for each of our clients”.

He added, “Because each home is individual, we can tailor a range of products to best meet each client’s budget and energy reduction requirements. We then install the products as a single

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service delivered by a professional team, and we provide excellent after-sales service and support”

Stuart is aware of the fact that service can be a key differentiator, “Durkan Ecofix not only offers the most sustainable products on the market but we also stand over our promise to deliver the most professional service. With retro-fitting we are working in people's homes and are mindful of that. We have trained all of our technicians to work with exceptional care, and to the highest possible standards, so that the project progresses as smoothly as possible.”

The dramatic savings of up to 70 per cent on fuel bills is achieved by insulating attics, walls and floors, by installing new high



Pictured above is the most efficient gas boiler system available in Europe.

Jay Stuart talks us through three packages of options designed to suit different houses and budgets:

Package 1

- ▶ Install an electricity monitor to display real time patterns and records of electricity use. Research shows the feedback information provided enables the consumer to adjust their behaviour to reduce electricity consumption on average by 15 per cent, at a cost of roughly €115.
- ▶ Install low energy light bulbs. Energy efficient CFL bulbs will soon be closer in cost to incandescent bulbs due to the tax on incandescent bulbs. CFL technology will reduce energy use for lighting by 80 per cent and their life cycle shows them to be a better investment by far. A study of the cost of doing this, compared to the cost of building a power station to provide the energy for incandescent domestic lighting would provide a strong case for implementing this as a better investment, at a cost of about €150 per house.

This package costs €500 and results in a twenty per cent reduction in electricity usage.

Package 2

- ▶ Install a new high efficiency condensing combination boiler with a flue heat recovery device and recycle redundant copper hot water cylinder. This will provide a good heating control system when coupled with thermostatic radiator valves and zoned control. Insulate the attic to a depth of 300mm with mineral wool. This is easy to do in most attics where the insulation, if there is any, is laid on the ceiling. You only need to do this once to exceed the minimum standards and anticipate energy costs for the next thirty years. This will cost upwards of €1,000. Install a chimney damper. About ten per cent of your heat goes up the chimney. An openable chimney damper can be installed externally very simply and costs just €300. Draught-proof the window and door openings. Depending on conditions this can be done with material costs of €200.

Savings potential: Thirty to forty per cent heating energy plus two to three tonnes CO₂ per year. This package costs €7,000 to install, plus the HESS Grant of €950.

Package 3

- ▶ Insulate the walls: either inject the cavity walls with full fill insulation if a cavity is available, or add insulated plasterboard internally or insulate externally.
- ▶ Insulate the floor: insulate joisted floor to depth of joists and make airtight or add insulated chipboard subflooring to ground floor if concrete.
- ▶ Make the house airtight: use proprietary airtight tapes to seal all window and door frames to adjacent plaster finish. Cover tapes with insulated plasterboard into reveals. Spray specialist insulation in zones where floor joists meet external walls to make this difficult area airtight and insulated.
- ▶ Install designed ventilation system with heat recovery. This can be a mechanical heat recovery ventilation system or a passive system such as Dwell-Vent.

The cost of this package is dependent on the house, with HES grants varying from €500 to €4,000. Energy savings of up to 70 per cent plus savings of five tonnes of Co₂ emissions per year can be expected. Package 3 includes the Package 2 specification.



Duncan Stewart, Jay Stuart and Patrick Durkan.

efficiency boilers, heating system controls and improving the airtightness and ventilation of the house. Stuart believes that all retrofit energy saving needs can be broken down into an easy five-step process. "Firstly, we will provide a free assessment to identify areas that can be improved. We then make a return visit with our findings and advise on the most suitable Ecofix package. When the package is agreed we will deal with the HES grants on our client's behalf. We will then carry out the retrofitting works agreed and will provide a before and after BER cert to quantify the results achieved through the retrofit".

The housing stock varies enormously in terms of its age, construction and energy performance, therefore the measures to improve their performance will vary in detail. However, there are common measures which would apply to all housing and according to Stuart, a number of packages (detailed on the previous page) are available depending on the

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owner's choice and the grant made available.

In Stuart's opinion it is Durkan Ecofix's one-stop shop approach that gives them a competitive advantage. "It means our clients need only deal with one company for all of their insulation requirements. Therefore, the homeowner doesn't need to get involved in scheduling a number of providers, which can be a stressful process. In addition our highly skilled technicians are trained to work in a clean and tidy fashion".

With the introduction of the HES scheme, grants are now

available for attic insulation, high efficiency boilers, heat controls and wall insulation, ranging from €500 to €4,000, and according to Stuart, "there has never been a better time to insulate your home".

In conclusion, Stuart explains his goals when retrofitting a house; "It is essential to take a holistic approach to each home. Adding more insulation to a home without considering condensation, mould, air tightness and ventilation is potentially hazardous. This is why EcoFix will always evaluate each home and recommend appropriate measures for healthy, more comfortable homes."

Jay Stuart is a highly respected architect with thirty years experience. He has recently completed an EU research project on energy efficient retrofits for Irish housing and he is well known in the building industry for his work in sustainable design.

Web: www.durkanecofix.ie

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