

Green House Pays for Itself

With her energy efficient Green House finally complete, Catherine Cleary reflects on the process involved in turning a modest Dublin home into a house of the future.

Figure 1 – Cleary playing with her youngest son Peter in her new energy efficient family home



And then the sun came out, the solar panels made lots of lovely hot water, and they all lived happily ever after.

Like the Irish meteorological service, we've had a tough eleven months. This week the clouds parted and Disney couldn't have devised a happier ending to the story of the green build, one householder's efforts to turn a house of the past into a house of the future. I may be still surrounded by unpacked boxes, but the results are here and we have achieved what we set out to do. The green house that took almost a year from purchase to moving in is up and running. Already it feels like home, and the figures show it will cost us around a third of the energy costs of a similar sized house.

We bought an 86 year old wreck in Dublin last summer and started a renovation project to try to turn it into an energy efficient family home. The challenges would be familiar to anyone who has been through a building project.

Added to the mix were some new building methods, an element of sustainable technology and a great big concrete rainwater harvesting tank buried in a hole in the garden. Last week, the house sat its final test and came back with a hugely respectable B1 energy rating, making it one of the most energy efficient homes in the country. A house built the year the state was founded is now at least 40 per cent more efficient than most of the 500,000 houses and apartments built in the last ten years.

The addition of a photovoltaic panel or a wind turbine on the roof in a few years will get us into the A-rated bracket. For an old house this is a significant achievement. The house has gone from somewhere around the G-end of the rating scale to the top end. It proves it can be done, and that green buildings do not have to be new buildings.

The most important and straightforward element of the whole thing has been the unglamorous business of insulating everything from the ground up. The floor, roof and walls have all been insulated and sealed with thicker walls on the new extension and an extra layer of external insulation on the outside of the existing walls. Once it was possible to stop the cold air getting in, a mechanical heat recovery ventilation system was installed to keep it fresh, by exchanging stale warm air with fresh air.

The first rule of green building is insulation, then make it air-tight, then add a heat recovery ventilation system. When that is in place you add a heat source. It is easy to be dazzled and confused by all the new green technology out there – do not be. If your house is well-insulated, you can cut your energy use to a minimum and install a simple standard system that simply won't be switched on as much.

I took electricity and gas readings on a Monday morning at 9am and we spent a week living, heating, cooking and washing to discover how much this house will cost to run. In the middle of the test week, winter turned to summer over night, so we had a huge range of temperatures. On a rough calculation this house will around €900 of gas and electricity every year, a saving of some €800 annually on typical heating and running costs.

The cost of doing this build costs – that break down to €4,500 on heat recovery ventilation, €6,600 on a solar water heating system, €3,000 on the extra external insulation and around €2,000 on extra insulation in the new walls and floor. I have not factored in the costs of the triple-glazed windows, as a process of shopping around brought them in at a lower cost than standard double-glazed windows. Savings of €800 a year will represent a 5 per cent return on the money spent greening this house. The real bonus is that spending money at the start of the project when budgets are still flexible makes the most sense. It is the stuff that goes underneath the floor and behind the plasterboard that will make the difference.

Taking on a building project is daunting. Considering the energy requirements of the house before anything else, will mean a comfortable efficient house at the end of the project.

We have a green and pleasant place to live. Yesterday, I switched off the boiler and did not have to switch on the immersion; I will let the sun do its work on the solar panels to provide us with hot water. We are definitely going to take advantage of it while we can.

The people we found most helpful were those who came up with solutions rather than problems. Libel laws prevent me for naming the suppliers who treated me with a contempt reserved for once-off house renovation project managers, who happen to be women. What follows is a short roll of honour, and no special discounts were sought or received from anyone who worked on the project.

Figure 2 - The 86-year old wreck that Catherine Cleary and her husband bought in Dublin last summer has been turned into an energy efficient family home.



Architect: Jim Lawler, Melted Snow, www.meltedsnow.net

Builder: Denis McGlynn, McGlynn Construction

Energy Consultant: Patrick Daly, BESRaC, www.besrac.net

Heat Recovery Ventilation System: ProAir Systems, www.proair.ie

Kitchen and A-rated appliances: Delgrey Kitchens, www.delgrey.com

Rainwater Harvesting Tank Supplier: Molloy Precast

Solar Panel System: Alternative Energy Ireland

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