

People Exploring Low Energy Homes

Hills Road, CB2 8RP

Martin and Sally - Martin says:

We've lived in our 1905 Edwardian semi-detached house since 2003, and our three grown up children have 'flown the coop'. To me **heat and power** is an invaluable resource which should not be wasted or allowed to leak away. To reduce our home energy bill my approach has been **to get the 'box' well insulated before investing in any technology.**

I admit to a thrifty nature and therefore make those investments, in time or money, which give a good pay back. I can show you data on the investment and the likely % return for many improvements: those I have made, planned for and/or rejected.

To this end, I like to measure the impact of the changes I make, so I routinely track our energy use. The results have been a **27% reduction in gas** - over and above those savings from a previously installed new boiler - and a **35% fall in electricity.** At the same time there are less draughts and the **house is warm and comfortable comfortable.**



Low Energy Measures

Besides the physical changes, a key component has been **managing the use of energy**, for instance by only **heating those rooms** where we spend most time and then only **when they are occupied.**

I think of the house as made up of modules and **heat those modules that are used.** So I turn off the living room radiator before going to bed to ensure it's not heated in the morning.

Since I work from home a lot, I'm the only one here, so I wear a jumper and leave the heating off.

But I must limit my exuberance as I need to bring my family along with me in this enterprise. So at times I've relented in terms of the reductions I seek to make - if the family rebels all hope is lost!

We also sometimes have language students to stay and they don't want to pay to live in a cold house.

Not everyone may be as nerdy with all this as I am - but consider your **home energy** as a vital resource and you will find your own balance.

We installed a replacement **condensing boiler** in 2005, followed by many DIY improvements including: **300mm loft insulation** with boarding under the area used for storage; **draught proofing** of doors and windows; **thermostatic radiator valves**; **reflective panels behind radiators**; **energy saving bulbs** and - most recently - **secondary glazing** on all exterior doors and windows (this last change cost £700).

I have also installed a **low-flush toilet** and an **aerating shower**, and have **seven water butts** collecting rainwater for the garden.

Overview

Age, Type: **1905 Edwardian, Detached**

Wall type, Floor area: **Solid brick, 240 sq m**

Project timescale: **8 yrs, ongoing**

Cost of measures: **£13,000 to date**

Energy usage – 3.5 adults

After: **17 kWh** per sq m pa electricity (2011)
87 kWh per sq m pa gas (2011)

Before: **29 kWh** per sq m pa electricity (2005)
178 kWh per sq m pa gas (2005)

Key features

- + insulation: loft, walls, floors
- + draught proofing: windows, doors, letterbox
- + condensing boiler
- + secondary glazing
- + radiators: thermostatic valves, reflective panels
- + lighting: LEDs, low energy bulbs
- + solar photovoltaic (PV) system
- + water: aerating shower, low flush toilet
- + rainwater harvesting: water butts for garden
- + future plans: insulate all exterior walls

People Exploring Low Energy Homes



Renewable Energy

As I say, until recently most technological 'bling' was ruled out by poor return on investment.

However, Feed-In Tariffs (FITs) changed the picture for **Solar Photovoltaic (PV)** panels and led me to install **6 x 240W PV panels (1.44 kW)** late last year.

This was the highest number that I could get on our small south facing roof but should still give a 10% return on £7,200 invested over the 25 years of the tariffs - I look on it as a pension.

My brother lives locally and was able to install a full 4 kW on his roof and so is looking at an even more attractive pay back. I have a calculator that can help in this which I can also share with you.

Future Plans

The next major step for me will involve **external insulation** on the north-facing gable-end wall, and **internal insulation** of the front and rear of the house but I'm still steeling myself for the necessary £16,000 investment and upheaval required.

If subsidies for **external wall insulation** come in with the new **Green Deal**, then I will probably take the plunge.

So please visit me - it may just push me towards this next step!

Professional Contacts

Loft insulation: 300mm Knauf from B&Q
www.knaufinsulation.co.uk £200 plus DIY time.

Pipe insulation: B&Q, cost £10 plus DIY time.

Windows and doors secondary glazing: Materials from Abel Magnets www.magnetic-paper.com and Engineering Design and Plastics, Cherry Hinton.

Cost: £700 for all the windows in the house, £100 per door, plus do-it-yourself time.

Condensing boiler: Vailiant (2005), Green Heat
www.greenheat.uk.com (supply / install) £3000

Thermostatic radiator valves: £10-£15 per valve.

Solar PV cells: 6 x 240w panels (1.44 kW)
BritishEco www.britisheco.com (supply / install) £7200

Low-energy lighting: Various, cost £70
Bedroom LEDs cost £30 total.

Water use: Low flush loo (cost £150), and aerating shower (£200) from Total Bathrooms
www.totalbathrooms.co.uk

Draught-stripping, letterbox excluder and radiator foil: cost £10-20, plus DIY time