

People Exploring Low Energy Homes

## Nuttings Road, CB1 3HU

**Suzie and Iain** – Suzie says:

*'When looking for our first home, we wanted it to be south facing, with a big garden. A big lounge for socialising, was also an important factor. In 2006 we moved into a home with aluminium framed double-glazed windows, minimal insulation and an old gas fire with boiler.'*

*'We are both very passionate about the environment and love that our home is now an expression of this. We sometimes put our ideology before our finances or convenience but are happy about this.'*

*'Now our utility bills are only £30 a month, yet our home is warm and snug, with a close connection between the house, garden and seasons.'*



### Overview

**Age:** 1950s **Type:** Semi-detached  
**Wall type:** Cavity **Floor area:** 88 m<sup>2</sup>  
**Project timescale:** 9 years  
**No of occupants:** 3 adults, 1 child  
**Cost of project:** £45,000

	Energy kWh/m <sup>2</sup> /yr		Carbon kgCO <sub>2</sub> /yr	
	Elec	Gas	/m <sup>2</sup>	/person
Before	25kWh	2kWh	14.0	308
After	11 kWh	none	6.7	148

3500kg logs and 200kg wood chip briquettes pa – zero-rated for carbon

### Insulation

Cavity wall insulation  
Loft insulation  
Insulated water tank  
Insulation under bath  
Triple-layered, thermal-lined blackout curtains

### Glazing

Windows and external doors double-glazed

### Heating/energy

Woodburning stove  
Solar PV system  
Non-electric terracotta evaporation fridge  
Low energy lighting (house)  
Solar lighting (shed)

### Water

Spray taps, toilet cistern 'hippo', water butts

### Other

Sedum roof on shed  
Fruit and vegetable growing

### Low Energy Measures

As soon as we moved in we switched to Good Energy, who only provide 100% renewable energy.

We drew up a five-year plan. The major work so far has been installing the hot water and heating system - adding solar thermal hot water and a 9 kW wood-burning stove which supplies hot water for taps and central heating. We had ourselves cut off gas when this was installed. We are constantly improving our firewood processing making the most of all the wood and the 'waste', as well as improving storage.

At the same time, we installed a highly insulated Akvaterm hot water tank, designed to be heated by wood, the sun, or electricity if we are desperate.

We had the cavity walls insulated, and we did the loft insulation ourselves with 150 mm of British sheep's wool, on top of the 150mm of yellow itchy insulation already in situ. We also insulated under the bath (re-using coats and pillows) - so now we can have a good long soak in the bath because the water stays warm for ages!

Accessible pipes are insulated with grey foam coats, or Kingspan Tarec. We have a thermally-lined curtain which reduces the size of the sitting room in winter, making the stove more effective and the room more cosy. The fireplace is rendered with lime.

Our water use includes 5 water butts for the garden. And to reduce our mains water use we have a 'water hippo' in the toilet and a spray tap in the kitchen.

Other DIY measures include low-energy and LED lighting, draught-proofing and secondary glazing. The kitchen ceiling is painted white to reflect light.

We don't run a fridge but made a non-electric fridge, a 'terracotta evaporation fridge'

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Outside we have a sedum green roof on one of the woodsheds. Another shed has a clear roof for extra growing space. In the garden we grow some of our own fruit, nuts and some vegetables. We have built our own hurdle fencing from local coppice.

The last time we flew was 10 years ago. We successfully share a car with a local friend. We try to use feet, bikes, buses, boats and trains for most of our travelling. Last year we made our bikes more accessible and secure.

A friend invested in a solar photovoltaic (PV) system for our roof. When they have recouped their costs from the Feed-in-Tariff, we will get any future profits. Our electricity usage is a third of the national average so we are producing more electricity than we will use throughout the year. Last year we insulated and double glazed our extension.

We mainly use eco paint and minimal eco-cleaning products. We have only bought five new items of furniture or white goods, the rest was second hand. This has helped create a low toxin environment for us, our lodger and our six year old.

### Performance

Home energy use was reduced by 60% - and to 68% less than the national average.

CO<sub>2</sub> emissions were reduced by 60% , currently approximately 0.44 tonnes a year (from 1.05 tonnes). Because our electricity comes from Good Energy, which is 100% renewable, in theory our CO<sub>2</sub> emissions from home energy use are zero.

We have shown the reduction as if we were using the standard electricity mix. Overall we only expect to use 1100 of the 1500 kWh electricity that our solar array produces per year.

### Future Plans

As for the future we want to create our next five year plan. Possible ventures include: hurdle fencing; a waterless toilet; new efficient cooker; and cork flooring.

We get excited about these possible developments and would like other people's input - we love sharing our successes, mistakes and ideas.



### Professional Contacts

Solar thermal system and wood-burning stove: Jonathan Cooke of [Dragon Contracts](#)

Solar photovoltaic (PV) system: [Midsummer Energy](#)

### Products and Costs

**Insulation:** [Thermafleece](#), from [Earth and Reed](#), Needham Market

**Green materials:** NCT Paints, [Earth and Reed](#)

**Wood-burning stove:** 9 Kw [Woodwarm](#) System, Metal Developments

**Solar thermal system:** [Gasokol](#) £2,900

**Solar PV system:** 1.85 kWp [Romag](#) panels £9,500

**Windows & external doors:** Wood-framed, double-glazed, from a company not recommended (£10,000)

**Architectural salvage:** [Cambridge Woodworks](#) £70

**Extension Improvements:** Double-glazing [Polarglaze](#) and [Green Hat Construction](#)