

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.



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 two year old.

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 cut ourselves off of gas when this was installed.

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 4 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**.

Overview

Age, Type: **1950's, Semi-detached**,

Wall type, Floor area: **Cavity, 88 sq m**

Project timescale: **5 yrs**

Cost of whole project, inc. measures: **£35,000**

Energy usage – 3 adults, 1 child

After: **11 kWh** per sq m pa electricity (2011)
3500 kg logs pa (2011)
200 kg wood chip briquettes pa (2011)

Before: **25 kWh** per sq m pa electricity (2006)
2 kWh per sq m pa gas (2006)

Key features

- + insulation: cavity walls, loft, bath, water tank
- + air-sealed windows, doors, letterbox
- + curtains: triple-layered, thermal lined (black-out)
- + windows and external doors: double-glazed
- + heat recovery ventilation
- + solar thermal hot water system
- + wood-burning stove
- + solar photovoltaic (PV) system: funded by friend
- + sedum green roof (shed)
- + water: spray taps, toilet cistern 'hippo', water butts
- + lighting: low energy (house), solar (shed)
- + fridge: terracotta evaporation, non-electric
- + grow our own: fruit, nuts, vegetables
- + biodiversity: wild flower garden

People Exploring Low Energy Homes

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

We don't run a fridge but now use a non-electric fridge, a '**terracotta evaporation fridge**'

Outside we have a **sedum green roof** on one of the woodsheds. Another shed has a **clear roof for extra growing space**, and a **solar-powered light**. 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 three years ago, we didn't replace our car when it failed the MOT. We do use hire cars and taxis, but our feet, bikes, buses, boats and trains for most of our travelling.

Last year 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. This year we also installed **double glazing in most of our windows**.

Savings

Home energy use: reduced by **60% from initial use**. Or **68% less than the national average**.

CO₂ emissions: reduced by **60%** and 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 CO₂ 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 annum.

Future Plans

As for the future we want to create **our next five year plan**. Possible ventures include: an **earth oven**; a **waterless toilet**; a **bike shed**; **improving ventilation in the winter**, now that we have so few drafts; **remaking our garden room with straw bales**; installing a **massive rain water tank** that feeds our hot and cold washing machine.

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

Our next step is to work with others to help them reducing their carbon footprints.



A Sustainable Future

A sustainable future requires every section of society to be involved. A local community working together with broadly the same aims will help **create a future in which we can have confidence**.

We are beginning to make Nuttings Road a more **Sustainable Street**. We have already developed better connections with neighbours and we're looking forward to helping them develop their own **low energy homes and sustainable lifestyles**.

Professional Contacts

Solar thermal system and wood-burning stove: Jonathan Cooke of Dragon Contracts www.dragonbc.co.uk - highly recommended

Solar photovoltaic (PV) system: Midsummer Energy www.midsummerenergy.co.uk - highly recommended

Products and Costs

Insulation: Thermafleece, from Earth and Reed, Needham Market www.earth-and-reed.co.uk

Green materials: NCT paints, Earth and Reed

Wood-burning stove: 9 Kw Woodwarm System, Metal Developments www.woodwarmstoves.co.uk

Solar thermal system: Gasokol www.gasokol.co.uk £2,900

Solar PV system: 1.85 kWp Romag panels www.romag.co.uk £9,500

Windows & external doors: wood-framed, double-glazed, from Everest www.everest.co.uk (£10,000)

Architectural salvage: Cambridge Woodworks www.cambridgewoodworks.org.uk £70