

People Exploring Low Energy Homes

Richmond Road, CB4 3PT

Martin and Anama – Martin says:

When we bought the house in 1995, the house wasn't dilapidated, but it clearly needed a lot of redecoration. It soon became obvious that it wasn't comfortable to live in - it was cold and draughty.

We also have considerable concerns about global warming, and the need to reduce our carbon footprint.

Houses built to modern building regulations are very efficient, but there is a massive stock of houses in the UK that need bringing up to more modern standards - and if we don't do it, who will?

Having said that, we have to some degree compromised on energy efficiency for increased comfort.



Overview

Age, Type: **1896, Victorian, End terrace**

Wall type, Floor area: **Solid brick, 120 sq m**

Project timescale: **6 yrs, on-going**

Cost of measures: **difficult to say, spent over time**

Energy usage – 2 adults

After: (But before impact of bathroom insulation)
32 kWh per sq m pa electricity (2011)
99 kWh per sq m pa gas (2011)
1 tonne pa wood 'liberated' from skips

Before: **43 kWh** per sq m pa electricity (2007)
191 kWh per sq m pa gas (2007)

Key features

- + key principle: to insulate and air-seal throughout
- + exterior walls insulated internally
- + bathroom walls super-insulated internally
- + cat-run air-sealed, doors at either end
- + air-sealed: windows, doors, floors, everywhere
- + windows: double-glazed & triple-glazed, air-sealed
- + condensing boiler: new, high spec, efficient
- + wood burner
- + sedum roof: garden shed
- + dual low flush toilet, aerating taps
- + walls at rear: lime mortar, lime-wash

Low Energy Measures

We started by fitting a **wood burner**, and replacing most of the windows with new, **air-sealed, double glazed units**. We had to replace the roof above the bathroom, so we **insulated between the rafters with sheep's wool**. The same year we also built an oak-clad shed with a **green sedum roof**.

In the kitchen: **new kitchen door** and a **triple glazed German window**, we **air-sealed the wall** and repaired the pointing, installed an **efficient boiler** and new kitchen units. There's a **custom built air-sealed cat run** under the sink with a **cat run through the wall and a cat flap at each end**. We also **double glazed the kitchen window**.

In 2009 we replaced the square-edge pine floorboards on the ground floor with tongue and grooved oak, and **insulated with PIR foam** underneath. **Air-sealing round the edges was critical**. The old boards have become a solid fence.

In 2010 we removed the plastic exterior paint from the walls at the back of the house, **re-pointed with lime mortar**, to enable the wall to shed rain, and **repainted with lime-wash** to enable it to breathe, thus allowing any absorbed moisture to evaporate.

In 2011 we gutted the bathroom, **insulated throughout with 100mm wood fibre**, and high-spec **Aerogel**, and a mixture of left-over **wood fibre and sheep's wool** on the ceiling.

Background task: **draught-proofing, and air sealing throughout**.



Future Plans

The next major task is a complete rebuild of the kitchen/pantry area, with sustainability in mind.

We hope to dry line the existing walls either with Pavadentro again, or with Gutex, and replace the pantry with a high spec wood frame construction.

In the next five years we will probably have to reroof the loft extension, and when we do so, we will take the opportunity to increase the insulation levels.

If the opportunity arises, we will insulate the end of terrace wall.

Professional Contacts

Builder: Edgley Builders and Joinery
www.edgleybuilder-ely.co.uk 01638 590665
(Built the sash windows, and did much of the building work.)

Plumber: Gareth Ives 01223 841030
(no website: he doesn't need to advertise)

Bathroom Fitters: Cambridge Bathrooms and Wetrooms www.cbwr.co.uk 01223 969039
(Coped well with our requirements, and made useful suggestions.)

Products and Costs

Insulation

Pavadentro Wood Fibre insulation: Greensteps www.greensteps.co.uk including the lime plaster £1,650

Thermablok Aerogel: www.thermablok.co.uk for 3.5m x 1.5m x 10mm, £240

Air-seal draught proofing: AWS Trading www.awstrading.co.uk (We've bought lots of stuff from here over the years. It *really* makes a difference.)

Wool insulation: Thermafleecce, I can't remember where we got it, or how much we paid.

Insulation Fixings: The search term you are looking for is 'Dämmstoffdübel'. Buying them direct from Germany was *much* cheaper than buying here.

Windows, doors, back wall

Windows: air-sealed, double glazed units, custom made for about £1000 each. One window is triple glazed, German built.

Back Door: Russell Timber Technology www.russelltimbertech.co.uk for insulated door with argon filled glazing, £1700

Paint stripper: Strippers Paint Removers www.stripperspaintremovers.com (this is the first hit I got for 'strippers Sudbury')

Lime putty, lime wash: Anglia Lime www.anglialime.com (same people as the paint stripper).