



People Exploring Low Energy Homes

Chesterton Road, CB4 1DA

Ann and Ian – Ann says:

I joined Transition Cambridge because of an interest in sustainable food issues, and through Transition heard about the Carbon Conversations course. Following the course, we arranged a climate friendly homes survey, and a thermal imaging camera survey of our house to see what we could do to make it more energy efficient, and save on emissions and fuel bills.

Our detached house was built in 1908, and consequently has solid brick walls. The windows are double glazed, but fitted many years ago, so do not insulate as effectively as modern systems. We are fortunate, however, to have secondary glazing in all the north facing rooms; this was installed when Chesterton Road was the main route through Cambridge, and was put in for noise protection initially, but now definitely helps to keep the house warmer.



Last year we undertook an extension project, to replace an old garage and conservatory, and complete the house as it was intended when built.

Low Energy Measures

First we replaced the central heating, installing a new **condensing boiler**, replacing the single pipe feed and return with a **dual pipe system** and **radiators fitted with thermostatic valves**. We then fitted **reflective foil** at the back of all the radiators on outside walls.

Next we installed a **wood burning stove** in the dining room, and replaced the plastic roofed lean-to at the back of the kitchen with a small **double glazed conservatory**.

In the new extension, the windows are **double glazed with A-rated glass**, **insulation is built in to the walls and roof** to meet current building regulations (0.28 w/m2k in the external walls, and 0.16 w/m2k in the roof), the suspended beam ground floor has **under floor heating** and a **wood burning stove**. The extension also gave us a south facing roof, so we decided to install **solar panels** for water heating. As the system was fitted as part of the build, it has a low visual impact.

At the same time, the heating in the house was zoned. We now **have 4 separate heating zones**, giving us better control, and more effective heating. Rainwater from the new extension also goes to a **soak-away** in the garden, in line with current building regulations. In the future we're hoping to create soak-aways for all the rainwater drainage, and install some rainwater harvesting.

Overview

Age, Type: **1908, Detached**

Walls, Floor area: **Solid brick, 190 sq m**

Project timescale: **10 yrs**

Cost of measures: **£125,000**

Energy usage – 2 adults

After: Not yet available

Before: **28 kWh** per sq m pa electricity
118 kWh per sq m pa gas

Key features

+ windows: double glazing, with some secondary glazing and 'A' rated windows in new extension

+ zoned heating system

+ suspended floor with under floor heating

+ wood burning stoves

+ solar water heating

+ insulation in walls and roof

+ insulating wall paper

+ water: soak-away in garden

+ condensing boiler with dual pipe system



Following the building work, we have redecorated the hall, and put **insulating paper** on the outside wall, and are installing **secondary glazing** on the landing window.

We have not yet had time to make any comparisons with energy costs before and after the building works, but we'll be monitoring closely over the coming year!

Future Plans

1. To create soak-aways for all the rainwater drainage, and install some rainwater harvesting
2. To redesign the garden using permaculture principles
3. Extend internal insulation on external walls

Professional Contacts

Architect: JK Architecture

www.jkarchitecturelimited.co.uk

Plumber: Hutt industrial Engineering, 12 High Ditch Road, Fen Ditton, Cambridge, CB5 8TE, 01223 292295

Builder: CD Hood Ltd

www.cdhood.co.uk, 01353 658403

Products and Costs

Solar panels and hot water cylinder: £6,600,
www.vaillant.co.uk/

Wood burning stove: Hase Akaba Wood Burning Stove from Anglia Fireplaces, www.fireplaces.co.uk

Insulating wallpaper: Saarpur Red label (£8.19 a roll + £12.95 for adhesive) www.gowallpaper.co.uk