



People Exploring Low Energy Homes

Ross Street, CB1 3BS

Judith, Jon, Asher and Reuben – Judith says:

We moved here in 2002 and quite quickly made an upstairs bathroom. In 2006 we replaced the failing double-glazing units with new double-glazed sash windows and put in a condensing boiler in 2008.

We were planning to build an extension with £50k we received from Jon’s mother’s will and at the same time decided to completely insulate the house to reduce our carbon footprint.

For us reducing our environmental impact is about trying not to take more than our fair share. Before we renovated we had already undertaken a lot of measures to cut our waste – which does tend to reduce carbon footprint as well.

Around the same time I also did a Carbon Conversations course and had a Climate Friendly Homes survey, which helped us with our plans.



The main aim of the renovations was to create a bigger and more useable space. We did a big clear out of the house and realised that we could live better where we were with just a ground floor extension and better storage.

Insulating the house properly to make it cosier and reduce our Co2 emissions was very important and we also worked on making the most of the natural light, for both aesthetic reasons as well as energy usage.

Low Energy Measures

Our renovations extended the kitchen by 12sq m. We decided to use as much **reclaimed material** as possible, so the bricks were reused from the demolition. We bought 260 **reclaimed bricks**, many of which actually had to be Freecycled in the end. This is one of the features we’re most pleased about, both environmentally and aesthetically. They sit well with the rest of the house.

To accommodate the extension we had to extend the eaves, and chose to reroof the rear roof at the same time. We **reused the slates** and mixed the new ones in. We also **reused the kitchen cabinets**, two windows, internal doors, kitchen appliances, as well as the bedroom carpets and the blinds.

We did a **combination of internal, external and cavity wall insulation**. Internally we mostly used PUR (polyurethane), with **aerogel** in smaller spaces and on chimney breasts. On the rear projection external walls we used PUR covered with an **insulating render**. The extension was built conventionally with block and our **reclaimed brick**, with full fill **PUR insulation**.

Overview

Age, Type: **1912, Terrace**

Wall Type: Solid brick

Floor area: 80m², extended to 92m²

	Energy		Carbon		2 adults 2 children
	kWh/m ² /yr		kgCO ₂ /yr		
	Elec	Gas	/m ²	/person	Notes
Before	31.6	183	47.7	995	
After	22.5	72.3	23.3	537	

Key features

- Insulation: PUR aerogel and insulating render
- insulated internal blinds
- windows and doors double glazed
- wood burning stove + solar PV
- reused, reclaimed and recycled fixtures
- edible garden and dedicated bike storage
- lighting: LED & CFL, recycled and low carbon shades
- water: aerating taps, ‘pulse eco’ shower head, dual flush toilet, water butts
- floors: reclaimed wood, cork tiles, UK wool carpet
- condensing boiler



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We were unsure about whether there was insulation (or even a damp proof course!) below the kitchen floor, so as there was a step down into the kitchen we decided just to build it up to the level of the living room, installing PUR insulation underneath.

The front rooms have a **suspended floor from reclaimed beams** cut into boards, and insulation underneath (also PUR). When we had our 'after' thermal imaging, there were still some cold spots from draughts between some of the boards (despite the PUR underneath) so we've got a product to seal those gaps.

The back garden and front yard are planted with (mostly perennial) **fruit and vegetables** in raised beds, narrow borders and containers. We created a well-ventilated covered 'shed' with a plastic roof to store wood, wheelie bins, gardening bits, bicycles and our **wall mounted airer** for drying laundry. We don't have a lot of space for composting, so we got a **hot composter**, with which we're still experimenting.

Professional Contacts

Architectural design: Julie Barnes, 01223 894039

Structural Engineer: Charles Tallack, www.charlestallack.co.uk, 01223 833555

Builder: Green Hat Construction, www.greenhat.co.uk

Floor fitters: Florstor, www.florstor.co.uk

Products

Insulation

Wall Reform II external insulation (incorporating Kingspan)

Magnaline Superslim (Aerogel) from www.enviroformsolutions.com

Conventional PUR

Windows and doors

Front and French doors, bathroom window: ID Products www.id-products.co.uk

Double-glazed sash windows (reused): Cambridge Joinery www.cambridgejoinery.co.uk

Lighting

Glass staircase partition: Go-glass www.goglass.co.uk

Lights: GU10 LED spot track and LED strip, QVS Electrical www.qvsdirect.com

Recycled light shades: Blue Marmalade www.shop.bluemarmalade.co.uk



Switch dimmable CFL bulbs: Varilight www.varilight.co.uk/lighting/cflswitch.html

Heating and ventilation

Woodburner: Cambridge Woodburning Stoves www.woodwarmstoves.co.uk

Condensing boiler: Vaillant Ecotec 831

Heat recovery unit: Xpelair

Floors

Reclaimed wood floor, GreenHat Construction, www.greenhat.co.uk

Kitchen Cork Floor, www.corkfloor.co.uk

Bathroom natural rubber floor: Dalnatural by Dalsouple U-Fit Flooring www.ufitflooring.com

Carpets: Reused (cleaned by David Ellis david@ellis68.fsnet.co.uk)

New carpet and underlay: Wools of Cumbria Carpets www.wocc.co.uk

Recycled content

Wall tiles: Johnson Tiles, www.johnson-tiles.com

Kitchen worksurface: UrbnRok, GlassEco www.glasseco.co.uk

Water

Toilet: Grohe dual flush concealed cistern, Andrew James Bathrooms, www.andrewjamesbathrooms.com

Shower: Pulseco shower head and slimline water butts, Nigel's Eco Store, www.nigelsecostore.com

Fixtures and fittings

Blinds: Duette thermal blinds, Pippa's Blinds www.pippasblinds.com

Cycle storage: Rounded A rack, www.cycle-works.com

Airer: Brabantia wallfix

Solar PV: midsummerenergy.co.uk