

People Exploring Low Energy Homes

Melbourne Place, CB1 1EQ

David and Tina – David says:

We have lived in our home for 40 years and it was in need of renovation. Tina wanted to change the design to maximise ground floor living and allow in more sunlight, while I saw it as my last chance to make it **future proof** – in other words as **low energy as possible for a listed house**.

As an architect by training, low energy issues have been a long term concern. For example, in the '70's I designed and built a house with a **whole-house heat recovery system** – it was highly unusual in those days and it's still working well.

As well as more sunlight, we wanted a kitchen with a view (not buried in the basement) and easy access to the garden – that was important because Tina is a keen gardener and we love making use of it.



This required significant internal **remodelling** and also a **new sunspace** on the south side, as part of both the re-organised living spaces and the **energy-efficiency** upgrade.

Low Energy Measures

To start with, the 'envelope' of the house was improved - with **insulated plasterboard** added internally to the solid exterior walls (**loft insulation** had been added earlier). Extra-thin replacement **double-glazing** for the sash windows was installed by a local joiner, together with draught stripping.

The **underfloor heating** runs off an **air-source heat pump**, and this is topped up in winter by a wood-burner. The sunspace gets **passive solar gain** – and I have installed **heat-saving insulated internal blinds** beneath the sloping roof glazing.

The house has **rainwater harvesting** – two 500L tanks in the basement supply the **low-flush toilets**, and **aerating shower heads** are fitted.

We use **energy efficient appliances** including an **induction hob** and '**A**' rated fridge freezer.

There are lots of 6W **LED GU10 recessed lamps** (and spotlights) and compact fluorescents, a **letterbox draught excluder**, and **radiator foil** where needed (in the basement).

It was important to consider the sustainability of the materials – so the project **re-used bricks**, and **FSC timber** as much as possible. The flashing is done with a **lead substitute material**.

Floors are either **wood** (ash) or **travertine tiles**.

Overview

Age, Type: **1840, Victorian listed, Terraced**

Wall type, Floor area: **Solid brick, 149 sq m**

Project timescale: **3 yrs, ongoing**

Cost of measures: to come

Energy usage – 2 adults

Figures to come

Key features

- + insulation: exterior walls internally, loft, floors
- + insulated internal blinds
- + windows: double-glazing throughout, inc. sash
- + air-sealed: windows, doors, letterbox
- + air source heat pump
- + underfloor heating
- + passive solar gain: south facing windows
- + rainwater harvesting for toilets, clothes washing
- + high efficiency appliances, induction hob
- + radiators: thermostatic valves, reflective panels
- + lighting: LED lamps
- + water: aerating taps, low flush toilets, inc. washlet
- + floors: wood, tiles
- + re-used bricks, FSC timber, lead substitute flashing

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Future plans

We have installed **insulated plasterboard**, extended the **underfloor heating** upstairs to the bedroom floor, and renovated the bathroom, including a **Japanese Toto Washlet toilet** that drastically reduces the need for toilet paper.

For the future we plan to invest in **solar thermal hot water** and **solar photovoltaic panels**.

Professional Contacts

Architectural design: David Crowther

Structural Engineer: Philip Cooper
philip.cooper@carltd.com

Builder: John Curran Building Co Ltd
info@johncurran.co.uk 07889 8151846

Electrician: Geoff Peters Electrical
www.geoffpeterselectrical.co.uk

Plumber: Mark Popper at Entire Group Ltd
www.entiregroup.co.uk

Heating services (ASHP & u/floor heating):
Jack Elam Services www.jack-elam.co.uk

Joiner: Oliver Heywood
Oliverheywood@btinternet.com 0771 7833436

Products

Insulation

Insulated plasterboard (external walls): Gyproc Thermaline Plus 27mm www.british-gypsum.com

Insulating plaster (basement): Wall Reform
www.walltransform.co.uk

Letterbox flap: Ecoflap www.theletterplate.com

Damp-proofing system (basement): Newton Newlath 2000 www.newton-membranes.co.uk

Fire resistant board (basement & cellar ceilings):
Euroform Versapanel www.euroform.co.uk

WBlind: SHY "Zip" system insulated roof blind
www.shy.co.uk

Windows and doors

Timber sliding doors: Drewexim www.drewexim.pl

Roof light: Fakro www.fakro.co.uk

Sash window glazing: Slimlite thin double-glazing units (10.4mm total) www.slimliteglass.co.uk

Light

Basement skirting heating: Thermaskirt
www.thermaskirt.com

Ceiling track lighting: "Nada" 240v track with GU10 spotlights & 6W LED lamps: QVS www.qvsdirect.com



Heat

Air Source Heat Pump: for underfloor heating and domestic hot water, Daikin Altherma 'Split Inverter'
www.daikinheating.co.uk

Woodburner: Scan inset room heater www.scan.dk

Floors

New floor: Hanson Jetfloor www.hanson.com/uk

Inverted prestressed conc T-beams with expanded polystyrene blocks as permanent shuttering for structural screed.

Solid wood: Junckers 20.5mm single plank Ash boards
www.junckers.co.uk

Stone tiles: Travertine, Fired Earth www.fireearth.com

Paint

Doors & windows (gloss): Auro www.auro.co.uk

External stone & brickwork: Keim breathable paint
www.keimpaints.co.uk

Internal plasterwork: B&Q Low-VOC Ivory emulsion

Water

Rainwater tank/pump supplier (and much advice): Neil at www.rainwater-harvesting.biz 0871 200 2082

Attic header tank: for low water toilet cisterns and washing machine www.rainharvesting.co.uk

Toto Washlet GL toilet: Toto Europe
www.gb.toto.com 0207 831 7544

Shower head: Nordic Eco shower
www.nordicecoshower.co.uk