

# Chesterton Rd - CB4 1DA

Architectural retrofit of Victorian house for light, comfort and energy efficiency

## Meet your hosts, Nicola and Arthur:

'We moved into our three-storey Victorian house in 1997. It's an excellent location and a good size and shape for us. However we rapidly discovered it was cold and draughty and cost a fortune to heat.

Ten years later, having replaced all the windows with modern glazing and also the lounge and dining room fireplaces, the coldest part of the house was the enormous old shopfront window.

It wasn't practical, or particularly desirable, to keep it, so we commissioned an architect to design something more cosy.'

## Insulation

In 2009 we replaced the shopfront with a modern two-storey bay window with a glass dormer added above. We have since insulated the 'envelope' of the house with wall, floor and loft insulation. Internal wall insulation is now installed in the new bay window and dining room, rear sitting room, bedrooms and bathroom. There's external wall insulation around the kitchen, including the roof.

## Glazing

We installed new roof windows for daylighting and a lightpipe to help light the back of the library. The house is double-glazed throughout

## Heating/energy

The renovation included adding two new shower rooms. A new condensing boiler was fitted with weather compensating controls. Solar thermal panels provide hot water and solar PV an electricity supply. Heat recovery ventilation is installed in the renovated rooms

## Performance

Our house is now warmer and uses considerably less energy – and will hopefully retain its value better than it would have done.



[www.openecohomes.org](http://www.openecohomes.org)

Chesterton Rd, CB4 1DA – 2017

Open Eco Homes is a Cambridge Carbon Footprint project. Charity number 1127376



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## Products and Costs

### Insulation

**Internal & external wall, loft and ground floor insulation:** Celotex [www.celotex.co.uk](http://www.celotex.co.uk)

**Other floors insulation:** Rockwool [www.rockwool.co.uk](http://www.rockwool.co.uk)

**Insulated shutters:** Custom-made for bay window by Richard Dixon [www.rwdbuilders.com](http://www.rwdbuilders.com)

### Windows

**Dormer and bay windows:** Custom-made by Beaufort Secure Design [www.blyweertbeaufort.com](http://www.blyweertbeaufort.com)

**Glass:** Dormer, bay, and new shower room window with integral venetian blind N & C glass [www.nandcglaz.co.uk](http://www.nandcglaz.co.uk)

**Roof and kitchen:** Velux [www.velux.co.uk](http://www.velux.co.uk)

**Lightpipe:** Monodraught SunPipe [www.monodraught.com](http://www.monodraught.com)

### Lighting

In the library – EXERGI LEDs [www.exergi.co.uk](http://www.exergi.co.uk)

### Heating

**Heat recovery system:** ADM Systems [www.admsystems.co.uk](http://www.admsystems.co.uk)

**Condensing boiler:** Vaillant Ecotec-plus 624

**Solar thermal hot water tubes:** Thermomax, Solarworks [www.solarworks.co.uk](http://www.solarworks.co.uk)

**Solar PV system:** 1.665 kW system £7,900 9 x Powerglaz 185W solar panels and 3 Mastervolt Soladin Inverters - Midsummer Energy [www.midsummerenergy.co.uk](http://www.midsummerenergy.co.uk)

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**Property age & type:** 1896, Victorian detached

**Wall type:** Solid brick

**Floor area:** 230 m<sup>2</sup>

**Cost of retrofit:** £250k

**Occupants:** 2 adults

	Energy kWh/m <sup>2</sup> /yr		Carbon kgCO <sub>2</sub> /yr	
	Elec	Gas	/m <sup>2</sup>	/person
Before	17.4	141	33.7	3879
After	15	65.5	18.7	2154

## Key features

### Insulation

- Internal and external walls, floors, roof
- Insulated internal shutters

### Glazing

- Double-glazing

### Heating/energy

- Solar thermal
- Solar PV
- Heat recovery ventilation

### Lighting

- Roof windows
- Light pipe

## Key Contacts

**Architect:** AC Architects Cambridge Ltd  
[www.acarchitects.com](http://www.acarchitects.com)

**Builder:** Richard Dixon & Son  
[www.rdbuilders.com](http://www.rdbuilders.com)

