Nightingale Avenue, CB1 8SG

Anne Cooper and Simon Ruffle – Anne says:

We moved into our house in 1991. It was built as a detached three-bedroom family house in 1958. The underlying construction is uninsulated Fletton brick cavity walls (both skins) with a traditional cut timber concrete pantile roof and solid floors.

I’ve been interested in low energy design since training as an architect in the 1970’s. As I see it, a well designed house is warm and draught-free. The first thing to look at is the insulation followed by the heating and hot water systems. These should be as good and as sophisticated as it is practical to achieve. I also believe in flexibility.

As well as solar thermal and photovoltaic (PV), we have an open fire, providing options should the gas or electricity be cut off.

I was brought up in Yorkshire, in a culture of self-sufficiency. My parents always grew their own fruit and vegetables. We have an allotment, and we grow a large part of what we eat.

Lifestyle is a big motivator for me, as well as a desire to be warm and comfortable.

Low Energy Measures

The first things to go were the empty cavities, which were rapidly and very successfully filled with Rockwool. Next, the old boiler was replaced by a condensing boiler and energy-efficient controls.

Since then the house has been extended and altered on a number of occasions. The flat roofed extensions have been demolished and the house is now a five-bedroom, three-bathroom property.

The two side extensions and the rebuilt front bay and draught lobby have insulated solid floors (100mm of Celotex). The first extension was brick and block with cavity fill and internal insulated lining. The most recent extension is timber frame with Celotex insulation between and underlining the studs, achieving a U value of better than 0.2.

The roofs of the extensions are insulated with Celotex between and under the rafters. The main roof has Tri-Iso multi-foil insulation under the main rafters and Rockwool between the ceiling joists. The internal Fletton walls are lined with Celotex insulation when redecorating rooms.
When carrying out the most recent extension, the heating and hot water system was replaced with a new Vaillant condensing boiler, energy-efficient ‘weather compensator’ control, solar thermal panels, under floor heating and an unvented solar hot water cylinder.

A rainwater harvesting system was installed to provide water to the washing machine and three of the four toilets in the house, along with the outside tap and a vegetable-washing tap in the utility room.

Two of the toilets are Swedish Ifo low flush units. Reclaimed floor tiles were used in the kitchen, extension and patio. Other floor coverings are rubber, cork and wool carpet.

There is both under cover and outdoor clothes drying facilities and 4 heat recovery extract fans play an important role in the clothes drying strategy. A or A+ rated goods are bought when replacing white goods and there are low energy bulbs or LEDs in almost all light fittings.

Getting natural light into the house is also a priority and there is a bespoke light tube over the landing. And finally roof lights located above the staircase and in most of the bedrooms provide natural ventilation combined with security.

Most recently a 1.88kW array of PV cells has been installed on the South-West roof slope and the household lifestyle is being adapted to suit the daytime energy production.

**Professional Contacts**

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

Builder: Andrew Whitmore & Son
[whitmoreandson@ntlworld.com](mailto:whitmoreandson@ntlworld.com)

Solar thermal plates installation: Solarworks
[www.solarworks.co.uk](http://www.solarworks.co.uk)

Solar photovoltaic (PV) cells installation: Midsummer Energy
[www.midsummerenergy.co.uk](http://www.midsummerenergy.co.uk)

**Products**

**Insulation**

Cavity wall: Rockwool (done in 1991)
[www.rockwool.co.uk](http://www.rockwool.co.uk)

Loft: Tri-Iso and Rockwool
[www.triiso.co.uk](http://www.triiso.co.uk)

Flat roof, underfloor insulation in new extension: Celotex
[www.celotex.co.uk](http://www.celotex.co.uk)

**Lighting**

Windows: purpose-made hardwood double glazed low E argon fill. The most recently installed windows have a special seal too.

Roof lights: Velux
[www.velux.co.uk](http://www.velux.co.uk)

**Heating**

Heat recovery system, Humidistat controlled: Johnson and Starkey or Silavent
[www.vailliant.co.uk](http://www.vailliant.co.uk)

Condensing boiler and heating controls: Vaillant
[www.vailliant.co.uk](http://www.vailliant.co.uk)

Solar thermal hot water system: Evacuated tubes, Thermomax
[www.thermomax.com](http://www.thermomax.com)

Solar photovoltaic (PV) system: 1.88kW array,
[www.midsummerenergy.co.uk](http://www.midsummerenergy.co.uk)

**Water conservation**

Low flush toilets: Ifo
[www.ifosanitar.com](http://www.ifosanitar.com)

Rainwater Harvesting