

Wille Cottages were built in 1898, a small brick terrace on the edge of the Lewes Conservation Area. I moved in in April 2010 after major structural and renovation work; the house now has two bedrooms and an open-plan ground floor including a small conservatory extension replacing a plastic corrugated roof; the total floor area is around 75m<sup>2</sup>. My aim was to create a sturdy house that would require little short-term maintenance and would keep energy use down, while retaining its general character. These and further improvements have resulted in a carbon-neutral property; my house is listed on [SuperHomes](#) as an example of **unobtrusive retrofitting of low-energy measures to an ordinary period house**.

### Electricity generation and storage

I had **6 PV solar panels installed (8.3m<sup>2</sup>)** in Mar 2010, with a rating of 1.29kwp. The estimated annual output was 1089kw/h, but I'm **consistently achieving c.20% over that**. I benefited from the Feed-In Tariff of the time, and my panels have now paid back and more. In Dec 2014 I had a **Victron EcoMulti Hub-4 lithium storage battery system** (2300kWh storage, 3kVA inverter, 24 volts, 70-amp charger) installed, which allows me to operate on solar panel power at night and during a mains electricity outage. It tops up from the grid if I run down the batteries (e.g. if I use a lot of power outside sunshine hours in winter) but the system switches seamlessly. It's maintained by [Sunstore](#) of Worthing; more details on the EcoMulti are available on [Victron Energy](#).

My mains electricity usage is now small, not only through these measures but also due to my replacing of all lightbulbs with **LED lighting** (see separate factsheet), which resulted in dramatic savings well covering the cost of the switch. Don't hesitate to do this!

### Windows

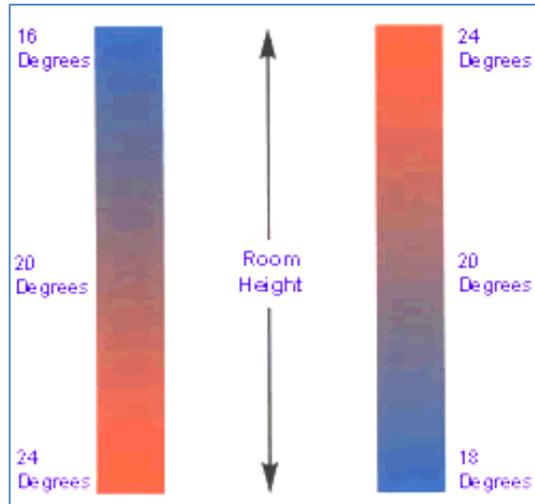


The non-period windows are double-glazed; all the original sash windows have been rehung and fitted with draught-strip, and the front door is draught-stripped. All the windows also have acrylic secondary glazing using very easy, cheap and unobtrusive **magnetic-strip secondary glazing** (see separate factsheet), which reduces heating bills, stops draughts and condensation, blocks noise ..... 100% worthwhile! Do see the [video](#) that I and two colleagues have made about this: search on YouTube for 'Eco Lewes'.

PTO....

### Heating/hot water

I've recently had an **air source heat pump** installed (Vaillant Arotherm Plus 5KW ASHP) by **A Greener Alternative** – a major project which has replaced my boiler for hot water/ heating. I have **underfloor heating** in the sitting-room, as a new concrete floor was installed as part of the structural alterations and it was a simple matter to add the underfloor tubing. It was expensive but is really efficient and heats the space where you are rather than (as with radiators) the ceiling! (Underfloor heating on L, radiators on R in the diagram above)



### Insulation

During the house renovations, the builders added insulation behind all the floors, walls and ceilings that they were working on; in the attic there is rockwool plus **Warmcel** (made from recycled newspapers). There's **thermal plasterboard** and **sheep-wool insulation** in the back part of the house. The front of the house has a **cavity wall**, and this was insulated using polystyrene beads. I have **Sempatherm reflective panels** behind all the radiators. In my chimneys I have **chimney sheep** ([www.chimneysheep.co.uk](http://www.chimneysheep.co.uk)) to reduce heat loss when the fire isn't lit.

### Other eco measures

- ❖ **Isolation switches** on items which otherwise stay on standby, and on appliances such as extractor fans and cooker electrics which otherwise kick in needlessly
- ❖ **Cork laminate flooring** in the kitchen and wool carpets with recycled felt underlay

- ❖ In the attic I have a **sun-tube**, which is a small highly-reflective tube in the roof which lights up the attic just as well as a skylight, with much less of a 'footprint' on the roof
- ❖ Recommended for windowless rooms anywhere – it can go for several metres through the house
- ❖ I have water-butts, compost bins, and sustainable decking in the back courtyard for good water runoff; and a neighbour happily grows vegetables in my front garden on a **LandShare** arrangement

