

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 75m². 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 and an example of **unobtrusive retrofitting of low-energy measures to an ordinary period house**.

Electricity generation, storage and use

I had **6 PV solar panels installed (8.3m²)** in Mar 2010, with a rating of 1.29kw_p. 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, plus the electricity saving, and my panels have long ago 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 for a short time 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.

My mains electricity usage was already small, not only through these measures but also due to my having replaced all lightbulbs with **LED lighting**, which resulted in dramatic savings.

Then in 2021 I had an **air source heat pump** installed (Vaillant Arotherm Plus 5KW ASHP) by [A Greener Alternative](#), which has replaced my boiler for hot water/ heating. So my gas bills are now minimal though of course my electricity ones are up, but with an overall decrease in kilowatt-hours (the vital test of how much energy you're using). See separate factsheet on air source heat pumps. Low noise, often no need to replace radiators, heating and hot water as good as before.

Well over half of my energy bills are the standing charge.

Windows

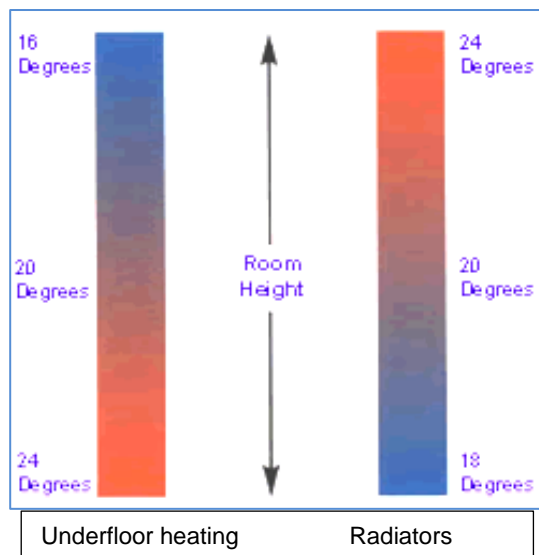


The non-period windows are double-glazed; all the original sash windows have been rehung and fitted with draught-strip, and the front door is draught-stripped. All the windows also have acrylic secondary glazing using very easy, cheap and unobtrusive **magnetic-strip secondary glazing** (see separate 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'.

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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 to install but is extremely efficient and heats the space where you are rather than (as with radiators) the ceiling!



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) 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** on the ground floor, 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

