

## 257 South Farm Rd, Worthing BN14 7TN

### Overview

Owner: Janet Cranch

Type: terraced

Age: 1930

Beds: 3

Walls: brick

Area: 100 m2

Residents: 1 adult

### Key Features

Condensing boiler

Double Glazing

Food cultivation

Grey water recycling

Solar PV (2.3kWp)

Underfloor heating

Underfloor insulation

Woodburning stove

### Introduction and approach

Janet has very bravely embarked on a major programme to overhaul her house, much of which she is doing herself. It's a big task but, as a pensioner, she is determined to reduce outgoings as much as she possibly can and create a **well-insulated** envelope for her home.

Janet has lifted her lounge floorboards and insulated under them herself and also insulated the loft up to the top of the joists and then had it boarded out. Her new conservatory has insulated cavities and she is insulating beneath the underfloor heating, which is yet to be installed.

She's had new **high performance double glazing** fitted throughout and two wood-burners installed, on which she cooks and keeps her kettle ticking over. The **PV array** on the roof helps keep electricity costs down and Janet recycles all her grey water, which helps to keep water bills low.



Much of the work is in a state of flux but Janet already has a warm, cheap to run home with minimal carbon emissions.

### Energy efficiency measures

#### Heating and hot water

The boiler is a non condensing Potterton, which has been retained because it functions well and gas consumption is only 5000kWh, which would not justify the cost of changing to a condensing one. However, it is worth investigating whether a free change could be made under the Affordable Warmth ECO scheme.

Janet sets the thermostat to a modest 17oC, which, coupled with the discipline of not heating unused rooms, helps keep consumption so low. Heating only needs to run for one hour in the morning and seldom in the evening to maintain a comfortable temperature. Since the conservatory was fitted the house is a lot warmer.

In the lounge heating is boosted by a second larger wood-burner and in the rear sitting

room, a compact wood-burning stove. Janet does not buy firewood, but gathers it from nearby building jobs, plus friends and neighbours.

Because of the free electricity from PV, Janet no longer heats water with gas, but instead uses an immersion heater or kettle for hot water, when the sun is shining.

### Insulation

**Walls** – although there are cavities, the ties are failing and need remedial work before they can be filled. This is a low priority as this is a terraced house, with a conservatory at the rear, so the external wall area is modest. The new conservatory has thermalite cavity block walls filled with rockwool.

**Double Glazing** all windows have been upgraded to new, high performance double glazing. The new conservatory at the west facing rear also has similar glazing. This was fitted by Worthing Double Glazing Repairs, who have done rather a poor job, unfortunately, and many problems remain unresolved.

**Loft** – the loft is boarded over the 100mm ceiling joists, with rockwool in between, installed by Janet. Further insulation could only be fitted by raising the floor, which in this case is not considered practical.

**Floor** – Janet has lifted the floor in the lounge and fitted 150mm of rockwool insulation between the joists herself, which rests on chicken wire stapled to the underside. She has also laid 800 mm of celotex in the conservatory floor, which will be screeded over, when underfloor heating pipes are fitted.

### Renewables and Low carbon technology

**Solar PV** – 2.3 kWp of panels are sited on the west facing rear pitch of the house roof. These generate over 2000 kWh pa and receive the higher rate of FIT.

**Woodburning stoves** – A 4kW Villager Athlone stove and a Evergreen Hawthorn 7kW stove, both fitted by local HETAS installer Marc Chapman. The Villager has a flat top that is used for cooking casseroles and boiling kettles.

### Electricity

LED lighting throughout most of the house.

As much use is made of free solar PV electricity as possible, particularly for water heating. Some boiled water is saved in flasks for use when the sun is not shining.

### Carbon emissions

**Energy Use:** Electricity 1400 kWh pa, Gas 5300 kWh pa, PV 2000 kWh pa.

**Net CO2 emissions:** Total 1.0 tonnes (82% less than average UK dwelling), 9.8 kg/m<sup>2</sup> (85% less than UK average).

### Other sustainable Measures/ Lifestyle decisions

**Water conservation** – sink water downstairs and bathwater upstairs is used to fill the WC cisterns.

**Food cultivation** – Janet is a keen gardener and grows a wide range of fruit and vegetables, both in her back garden and an allotment.

**Recycling** – as much use is made of recycled materials as possible, including a built in oven that a neighbour was throwing away.

### Lessons learned

Underfloor insulation was delayed on discovering extensive woodworm, which has been treated using water based chemicals, which were as environmentally friendly as possible.

In addition, she found that previous builders had dumped many sacks of rubble between the joists, which she has painstakingly removed to re-establish ventilation..

Some contractors quoting for PV, heat pumps and cavity wall insulation have quoted outrageous prices. Luckily Janet was wary and obtained competitive quotes

