

## Victorian Cottage, CO6 4JD

**Will Hitchcock –**

He says:

The building is my family home and is made up of 2 Victorian cottages (c.1890) knocked into 1 residential dwelling. It is located in the conservation area of Nayland, has 4 bedrooms, a garden room, medium sized garden and a large garage. The building construction is of 9" red brick with grey slate roof.

A solar PV system giving a peak output of 2.7KW has been installed at a total cost of £13,500. It will generate approximately 60% of our annual electricity and provide an income of around £900/year. We received a grant and an interest free loan from Suffolk's 'Greener Homes DIY' scheme, to assist with its funding.

An evacuated tube solar hot water system was installed 4 years ago and produces around 60% of our hot water. It allows us to switch the boiler off between the months of April and September. We also get a HotROC credit from Good Energy. The cost of this was £3,500 after grants.

About 6 years ago we installed a double sided wood burner between the sitting and dining rooms. It means that once lit and up to temperature, it takes over the house heating by simply tripping the boiler thermostat and then warming the house through convection. It cost £2000, including chimney lining and installation. We have a fairly good supply of logs from the local area.

### Low Energy Measures

As the house is of solid brick construction, we have dry lined all the upstairs bedrooms and landing to help reduce heat loss and reduce damp from condensation.



Initially we removed the plaster and used baton, Celotex, membrane and plaster board, but this is an expensive and invasive technique. On the remaining 2 bedrooms, we used Celotex backed plaster board stuck directly against the existing plastered walls. Although this was quicker and cheaper, it is not such an effective solution and there is a noticeable difference between the rooms. To prevent too much conduction of the radiator heat through to the outside, we have fitted radiator reflectors to all the downstairs (non dry lined walls) radiators. It is estimated that they can reduce conduction by up to 40%, but I can not validate whether this is the case due to too many other factors at play.

### Key features

- Solar PV system
- Solar Hot Water System
- Double sided Wood Burner
- Low Energy Lighting
- Dry Lining
- Radiator Reflectors
- Loft Insulation
- Windows
- Ventilation

### Overview

**Age, Type:** c. 1890, Domestic

**Cost of measures:** £19,000



Rather than wait for old incandescent light bulbs to blow before replacing them with their low energy equivalents, we replaced every light bulb in the house over a period of a few weeks with a mixture of compact fluorescents and LEDs. This has significantly reduced our electricity consumption.

Our loft area is tight, partially vaulted and difficult to access. In addition to 27cm of loft insulation, I have also had the entire roof, under the felt and between the rafters, sprayed with Icynene foam spray by [www.prizespraying.com](http://www.prizespraying.com). We have also stuck a 100mm block of Celotex to the back of the loft hatch.

About 15 years ago when the building was refurbished, PVC windows were installed. Although great for insulation and draft reduction, these windows did not feature trickle vents. The lack of ventilations (especially in the bedrooms) has prompted me to fit trickle vents to these rooms. The bedrooms which face west suffer in the summer from solar heat gain, so we have installed Solar window film to reduce this effect. The solar film also claims to reduce heat loss from the inside.

To increase levels of ventilation and to help cooling during the summer evenings I have fitted a whole house air extract system to the upstairs rooms. As we are located in a conservation area, I have always checked with Babergh District Council before progressing with any of the solar projects. Only notification was required for the solar hot water system, but planning permission was sought for the solar PV system.

For both solar systems, we received grants from the Low Carbon Buildings programme as well as Babergh District Council. We also received a £4000 interest free loan from Suffolk's 'Greener Homes DIY' scheme.

If you have any specific questions about this case study, these can be directed to the building owner via the website:

[www.greensuffolk.org/sgbn](http://www.greensuffolk.org/sgbn)

Making these changes to our home has been just part of a wider shift to living a more sustainable life. Through the use of low energy solutions, together with simple behaviour change, we have reduced the household electricity consumption by over 30%. We have also significantly changed the way we shop to reduce wastage and focus on local and seasonal produce. We have taken on an allotment in addition to the small veggie patch we already had in the garden. My primary vehicle for work is an electric motor bike (Vectrix), which costs less than 15p for my return trip.

### Evaluation

As these solutions were implemented over a period of 6+ years, it is difficult to see which has had the biggest impact. From my own unscientific assessment, the loft insulation and dry lining has made a huge difference to the amount of heating required for the house.

The solar hot water system has more than met my expectations and the solar PV system, so far, is producing more than I expected for the period it has been running.

### Future additions

I am currently exploring the idea of adding another wood burner with back boiler linked to the hot water and radiator system.

### Professional Contacts

A local supplier called **EcoWarm** was used for the solar hot water system, and **Evo Energy** from Nottingham was used for the solar PV system. All the other work has been done by myself (with the help of a local builder).

❖ **Ecowarm**

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❖ **Evo Energy**

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