Extended 1920s Semi-detached
North West Road, The Reddings

GREEN OPEN HOMES 2015

NUMBER OF BEDROOMS: 3

OCCUPANTS: 1

CONSTRUCTION:

Filled cavity walls with modern cavity wall extension

KEY FEATURES:

A well insulated 1920s semi-detached house with solar PV and a lovely large garden with vegetable plots, greenhouse, beehive, wildlife pond and water soakaways

Measures installed	Carbon savings and potential benefits
Cavity wall and loft insulation	Improved thermal comfort and heat retention
Suspended floor insulation	Improved comfort and reduced draughts
Modern double glazing	Elimination of unwanted draughts
Condensing gas boiler with solar thermal cylinder	Reduced energy bills
Solar photovoltaics (2.5kWp system)	Lifestyle changes to benefit from free electricity and Feed in Tariff payments

The home & occupants

This semi-detached house in the Reddings area of Cheltenham was built in the 1920s and is of cavity wall construction. The current owner extended the house in 2012, creating a larger kitchen and dining area and additional bedroom above.

One of the key motivations for the householder in making improvements to their home and gardens was to reduce their carbon footprint.

The owner commented that the resulting savings on their bills 'have been a welcome bonus'!

View of the property and gardens

"The capital outlay for a solar PV system or cavity wall insulation is less than for a new car, and over time you will also get your money back!"

84 new EPC rating

asiantaeth ynni SevernWye energy agency

cheltenham green doors
sharing knowledge about sustainable living

What they did

Insulation and glazing improvements

Shortly after moving into the home it became apparent that there were a number of improvements that could be made that would help to keep energy bills and carbon emissions down. There was only 100mm of loft insulation, which was topped up to over 300mm by the owner. The existing glazing was very old with paper stuffed into gaps to keep the draughts out so this was all replaced with modern efficient double glazing.

The floor in the living room was a suspended floor which allowed the owner to lift the floor boards and to friction fit some insulation between the joists. This also helped in reducing unwanted draughts and improving comfort.

Cavity wall insulation was added, which was funded by an energy supplier. The owner commented that he has noticed that the insulation is doing its job because as well as a having a warmer house in winter, the living room in particular, which would overheat in the summer, now remains comfortably cool.

A new condensing gas boiler was installed shortly after the house was purchased and along with fitting modern heating controls including a programmer, room thermostat and thermostatic radiator valves, a 'solar ready' water cylinder was fitted. Should the owner choose to add a solar thermal system in the future, then the existing cylinder will be ready to accept a feed from the panels and to store the heat generated. Standard cylinders do not have this capacity, so this will save time and money, as well as preventing the waste of a cylinder that was probably working well.

Solar technologies

Having a good sized roof space that faces almost directly south meant that a solar PV system would generate onsite electricity. A 2.5kWp system was installed and the owner now finds that for most of the year, the electricity generated meets the 'baseload' of the house. Being aware of the 'free solar electricity' being generated has led the owner to adapt some of his habits and behaviour accordingly. He commented that 'it has been very easy to get into a routine to make the most of it'. Running the dishwasher and washing machine during the day and not the evening is a simple example.

April and May 2015 provided the best generation so far for the Solar PV array which regularly meets its expected peak output. As the system benefits from the governments 'Feed in Tariff' scheme, the owner expects that the initial cost of the system will be paid off within 9 years.

What difference has it all made?

The improvements that have been made so far have improved the homes Energy Performance Certificate from a band D rating of 56 up to a B rating of 84. The owner is also considering adding the solar thermal system in the future that would increase the rating even further. 'The cost of electricity is only going up' the owner commented, so he is also very interested in the development of domestic battery storage for electricity generated from his solar panels, perhaps even adding a small windmill at the bottom of the garden!

Wildlife Pond

What are Feed in Tariffs?

The Feed in Tariffs (or FITs for short) are a government incentive system whereby accredited renewable electricity systems (eg. solar PV panels or wind turbines) installed since July 2009 are eligible for per-unit payments for all power generated. Payments are guaranteed for 20 years depending on technology, are tax-free for consumers and are index-linked.

If I could offer one piece of advice it would be...

"Be aware or find out what the financial gains might be for making energy efficient improvements to your home. Going 'green' doesn't mean sacrifices! Be interested in whatever works for you"

This home is also participating in the 'open gardens' weekend. The garden highlights include a large vegetable plot, wildlife pond, a beehive and soakaways for rainwater. The garden soakaways and storage barrels mean that no rainwater goes down drains. As well as saving water that can be used on the vegetable plot and in the greenhouse, Severn Trent water also provide an annual discount on their bill as there is no drainage for them to deal with!