

10 Stonecroft, Tanyard Lane Steyping, BN44 3RR

Overview

Owner: Dave Tester

Type: Terraced

Age: 1933

Beds: 3

Walls: brick cavity

Area: 90 m²

Residents: 1 adult

Features

Cavity wall insulation (at rear extension)

Condensing boiler

Double Glazing

Low energy appliances

Low energy lighting

Solar PV (kWp)

Underfloor heating

Underfloor insulation

Introduction and approach

This house was bought in October 2013, as part of a plan to scale down to a lower cost, more environmentally sustainable home.

Work began almost straightaway and is now coming to an end, with a beautiful spacious extension having been built to very high levels of insulation, with underfloor heating and ultra low energy lighting and appliances.

Dave's experience in working with Solar PV has enabled him to choose a highly efficient and compact 3.2 kW system, which is cleverly configured to maximise output.

Yet the sustainable principles go beyond the building as Dave is a highly trained Vegan chef and hopes to run cookery courses in his new state of the art kitchen, similar to those he ran in San Francisco. As he says, 'if people would stop eating animal protein it would solve a lot of the climate problems overnight'.



Energy efficiency measures

Heating and hot water

Dave has installed a new condensing system boiler and Megaflow insulated tank in the loft. The PV panels have been configured to deliver surplus electricity to the tank for water heating.

In the new rear addition, underfloor heating has been laid throughout and the intention is to do the rest of the ground floor as soon as the new area is habitable.

Insulation

Walls – the walls have cavities and will eventually be filled. The new extension has modern cavities filled with 100mm rockwool.

Windows – Existing Double glazing at the front is recent and very good. New double glazing has been added at the rear to complete the whole house.

Roof – The loft already had 270mm of fibreglass insulation, installed with subsidies two years ago. Because loft storage is needed, Dave has bought a system involving triangular legs, which attach to the existing joists, so that a flat deck can be laid above the insulation.

This was spotted during visit to the annual Ecobuild exhibition in London last year.

The roof of the new extension has been insulated with 150mm of Celotex, taking it above current building regs.

Floor – the extension floor is also superinsulated with 130mm Celotex PIR insulation underneath the screed. The perimeter of the screed has a raised edging of 8mm foam to isolate the heated screed from the walls, preventing bridging.

Renewables and low carbon technology

Solar PV – Dave used to work for a PV installer and was very careful in choosing his installation. On the south facing pitch South Downs Solar have fitted 10 x 320W (3.2kWp) high efficiency Sunpower panels, to maximise output from the limited area. The installation also has Solar Edge technology, which monitors panels individually, enabling performance to be continuously checked.

Electricity

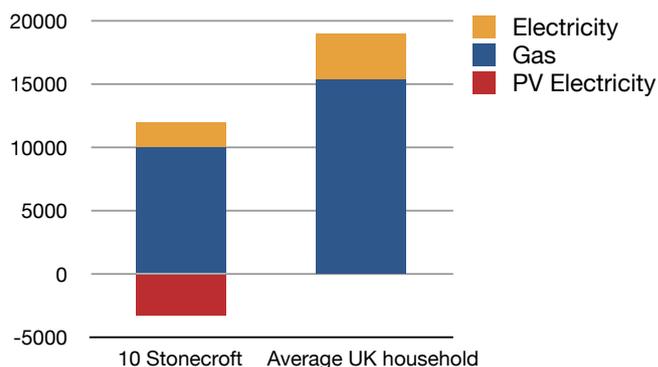
Lighting – Dave is a member of Costco in Purley, which sells a limited range of quality LED lamps, at competitive prices. Lighting in the house is now very low energy. In the new extension he has gone for surface mounted fitting, so as to avoid cutting into the roof insulation and compromising its effect.

Appliances – After a lot of market research, the lowest energy appliances has been chosen wherever possible.

Carbon emissions

As this house is still being renovated, its eventual consumption and energy needs are not yet known. However, the very high specification of heating system and insulation, coupled with solar PV, means that carbon emissions should be an impressive 70% or more below the norm.

Energy and generation (kWh)



Other sustainable measures/ lifestyle decisions

Food cultivation – Dave spent his childhood working with his father on the family's four allotments. His previous house in Hove had little outside space, so he is looking forward to having raised beds and producing his own food again.

He trained at the Natural Gourmet Institute in New York and previously ran a cookery school in San Francisco. He hopes to establish a new one in Steyning using his ample new kitchen area.

He is a committed vegan and firmly believes that the production of animal protein is the biggest contributor to global warming. Meat protein production requires high fossil fuel input and is wasteful and inefficient in the conversion of so much grain and water into so little food.

Lessons learned

The idea was to scale down to a smaller, cheaper house, but renovation costs have spiralled, particularly when it was decided to make the extension much bigger.

Professionals

Solar PV – www.southdownssolar.co.uk/

