

62 Sompting Road Lancing BN15 9LD

Overview

Owners: Lydia and David Pope

Type: Detached

Age: Built 1924

Beds: 3

Walls: Solid brick

Area: 119m²

Residents: 4

Key Features

Rain garden

Powerwall, solar energy storage battery

Exterior solid wall insulation

Other Features

Condensing boiler

Solar panels

Double glazing

Food production

Heating controls

Low energy appliances

Low energy lighting

Low water goods

Under floor heating

Introduction and approach

If you want to see attainable, innovative and practical family living all under one roof, you would like visiting Lydia & David's home. Through embracing opportunities, technology and being a bit brave, they have managed to combine their desire to be planet-friendly with all the comfort and practicality of a busy, modern family lifestyle.

The rainwater garden has been designed to be an aesthetically pleasing water feature as well as a functional cistern, providing a home for fish and irrigation water for the plants in the front garden. It ensures none of the rainwater falling on the roof and hard-standings is sent to the highway drains and is enabling them to challenge the perception of how to make best use of your front garden.



They installed a solar energy battery three years ago, which stores energy directly from their nine solar panels. Battery energy storage is a game changer. Would you like to know more? Imagine never having to worry about the rising cost of your energy tariff ever again. The battery stores unused solar energy, which is then fed back into the house when the panels are unable to generate. Their solution is saving them money, allowing them to be in full control of their energy generation and use, while reducing their footprint all at the same time.

The house when bought was rendered in pebbledash, which was cracked and no longer waterproof in many places. The house had several damp spots internally and was poorly insulated. Rather than reapplying the pebbledash they took advantage of a government grant to install external solid wall insulation, which has significantly mitigated the problems and delivered a much more attractive external finish.

If you are looking for inspiration, come along.

Energy and CO2 performance

On the back of the 2016 Eco Open Houses Lydia & David were inspired by the other open homes and one particular visitor to their home, who was so enthusiastic about it all that they decided to install their own solar panels and while at it, they also installed a battery storage unit, so they could use as much of their generated energy as possible.

They installed 9 solar photovoltaic panels which can generate 2.94 kWh or 2.9 megawatts.

In the 3 years since installation, the panels have produced an average of 2.75kWh of energy per year, which is more or less what they consume. The battery itself can hold about one day's worth of energy.

Some of the energy produced always goes back to the grid so there is a small requirement to still buy grid energy, but this system has allowed them to be totally off grid for about 6 months from March until September. This combination has meant they have made considerable savings on their energy, with the remainder being paid for by the feed in tariff. For March to June 2017, their electricity bill was just 87p!

An Energy Assessment Certificate completed in 2016 before solar panels were installed rate the energy efficiency of the house as band B, up from a low D in 2014, when they bought the house.

Rain garden

Their front garden rain water system can hold up to 2 cubic meters worth of water, which is the equivalent of 8 full large water butts and is an excellent example of how you can apply SUDS (Sustainable Urban Drainage System) thinking to your home and re-thinking the need to have a paved front garden.

Their system has been designed with a pump which can be switched to help the flow of water around the garden but also so that it can overflow naturally in a controlled way. None of the water captured in this system will ever end up in the storm drains.

No mains water is ever needed to be used.

100% of the materials taken from the previously paved area were recycled in building the new garden.

The planting is focused around water tolerant plants as well as some very interesting vegetables and fruits, which over the past 2 years has included:

several strains of kale, kalettes, blueberries, fennel, sorrel, raspberries, strawberries, asparagus, physalis, yacon, potatoes, candy cane beetroot, white, black and red currants, green and red gooseberries, sprouts, pumpkin, artichokes, rhubarb, sage, rosemary, chocolate mint, spearmint, thyme, camomile, oregano, parsley, garlic, onions and spinach.

Flowers include nasturtiums, hollyhocks, alliums, nigella and phacelia. A few native wildflowers were sown by the drive to see what would establish.

Another benefit from this garden has been the increase of insects and birds helping to re-introduce biodiversity to the garden. You may even spot the resident frogs and common lizards.

Energy efficiency measures

Heating and hot water

A Baxi condensing gas boiler has been installed in the loft to replace two independent systems consisting of two small boilers and two small water heaters. The array of hot water pipes running down from the loft provide heat at the back of a new airing cupboard.

Modern radiators with TRVs have been installed, linked up to a "smart" thermostat. The bathroom has been fitted with underfloor heating.

Insulation

David and Lydia have concentrated on the super-insulated study in the converted garage, that doubles as an office. Solid wall insulation has also been completed, with new through-colour render making a dramatic difference.

The loft is also insulated and boarded. All windows are double-glazed, although some date back about 20 years.

Approximately 100mm of insulation has been installed under the floorboards.

Airtightness & ventilation

Fireplaces that had been bricked in and some without vents may have contributed to damp problems. The original vents have been re-opened to create the more natural ventilation intended by the builders. Once the real dynamic of the house is learned then it can be tweaked.

Electricity

All appliances are A-rated or above, with many power-down sockets, for the television for example. The whole house (aside from dimmable table lamps) is fitted with LED bulbs that take between 3 and 5W each.

In the utility room/ downstairs toilet, rear hall, pantry and "cloakroom" (cupboard under the stairs) the lighting is controlled by PIR triggers. These switch the light on as you open the door/ pass through (and only when light levels are low) and switches off again after a couple of minutes of inactivity.

Mains wired smoke and carbon monoxide detectors have also been fitted, so that there is never a need to worry about batteries.



Lessons learned/further improvements

It has been challenging work - a far more complex project than anticipated, with a fair number of surprises. However, they don't regret the decision to strip the house back to the bare bones and over time reconstruct instead of "making do". Some things have been slightly costlier than 'standard' using trades only for what really couldn't be a D-I-Y job has helped, but it's getting there and will be worth it.

The improvements made by the designing of the rain garden for the front, changes to the driveways so that they are permeable and not jettisoning storm water directly onto the highway, have been worthy of the effort.

Professional team:

Much of the project has been D-I-Y. David is a Chartered Landscape Architect and Lydia is formerly an architect. David's brother-in-law did the electrical work.

Plumbing: Greenfield Services
<http://www.greenfieldservices.com/>

