CASE STUDY

325 Upper Shoreham Road Shoreham-by-Sea BN43 5NB

eco open houses
ecoopenhouses.org

Overview

Owners: Anne and Ian Page

Type: 1930's semi

Beds: 3

Walls: Cavity walls, insulated in 1970's

Area: 1,300 square feet

Residents: 2 adults

Key Features

Air source heat pump

Electric vehicle

Lifestyle choices

Other Features

Wildlife friendly garden

Water saving features

Electric awning

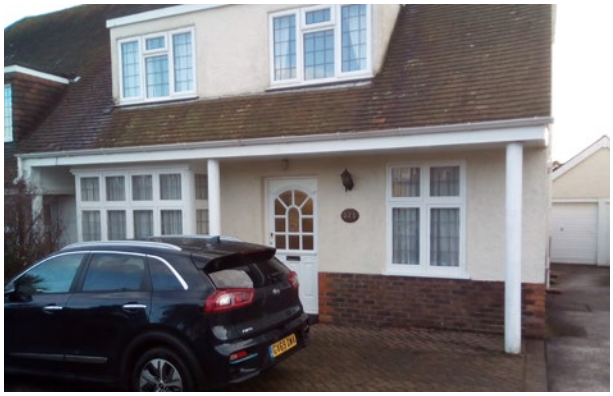
Thermaskirt heating

Smart metering

Introduction and approach

Anne and Ian's home is a really thoughtful, well considered work in progress. Their goal is to become a carbon neutral household. In order to achieve that, they made the decision to have an air source heat pump installed to provide central heating and hot water to basins/bath (shower is electric). This is a recent installation, so they are still on their initial journey with this. However, it has added a new element to their lives – they now utilise smart metering in various parts of the house and, as such, are much more conscious of how much fuel they are using. Also, by adding an electric awning on the south face of their house, it has enabled them to do away with air conditioning in summer in that part of the house.

Anne and Ian very wisely chose to take advantage of the Renewable Heat Incentive to help them save money and make their project more achievable. They have carefully planned the order in which to get things done to gain maximum advantage of this, so that's why insulation is next on the list (not first). Before



starting their journey, their energy rating was F and after the impressive heat pump installation, it has already gone to B. The insulation will then take it to A!

Do come and chat to them and take a look at the various features inside and outside that have already made a big difference. They really have done their homework and they are a mine of information.

Energy efficiency measures

Anne and Ian research everything very thoroughly and created a project plan that gave them best value for money as well as energy efficiency and the promise of becoming carbon neutral, utilising the Renewable heat Incentive.

The gas boiler broke down and, rather than just replacing it, this prompted their journey into air source heat pumps. This has enabled them to do away completely with gas, and therefore be able to become more self-sufficient energy-wise. The basic installation took 6 days to install.

They have an 11.2kW Mitsubishi Ecodan Ultra Quiet model - and it really is quiet (45 decibels at one metre) – one of the issues with them is that they can be noisy, so Anne and Ian chose the quietest one as it's just under their kitchen window.

Thermaskirt heating – this is in the kitchen and you would never even be aware that behind the replacement skirting are integral hot water pipes carrying hot water and a little thermostat on them as well! It's connected to the wet central heating system. In the other rooms there are larger than usual radiators that one has to use with this system, but they don't look out of place as the rooms are all of a generous size.

There's a 210 litre cylinder in the loft, which came ready plumbed, where all the hot water created by the air source heat pump is stored. This has a high temperature boost every few weeks to ensure no legionella is present in the tank.

LED lighting throughout.

Large capacity low energy washing machine means that bigger washes can be all done in the same wash cycle, thus saving water and energy.

No tumble dryer, they hang washing out or use the heat upstairs to line dry. The heater in the airing cupboard runs off the central heating system.

Triple A fridge freezer.

Electricity usage is monitored throughout the house using smart meters, so Anne and Ian know exactly how much they are using. They also independently monitor the electricity consumption of the heat pump, along with its thermal output, on a minute by minute basis, using advanced air source heat pump metering.

Along with gradually working their way through the house, replacing all the glazing with double glazing, (approx. 70% complete), loft insulation is the next project as well as new roof tiling. This will complete the exercise of completely upgrading the house to attain an energy rating of A. If they had done this first, then they would not have gained as much financially from the Renewable Heat Incentive.

Electric car

Anne and Ian have a Kia eNiro 100% electric car. They are waiting for a 32amp type 2 EV charging point to be installed – this should be available to see by the time of this event.

Fully charged, their car will do 280 miles. As their electric energy supplier is 100% renewable, they are therefore running their car on renewable energy.

Garden

Wildlife, bird and bee friendly garden – Anne has deliberately planted the garden with pollinator friendly plants and also native species. There is a raised vegetable bed, Anne grows her own plants from seed and composts everything she can. There are 2 water butts, which enable her to avoid using mains water unless there is a drought.

The air source heat pump is on the back patio and the electric awning completely shades this area when fully extended.

Lifestyle

Anne and Ian are working towards a zero-waste lifestyle and to become a harmful chemical free household. They use hand-made bar soap made by a friend. They use energy and plastic saving refills and buy local, wherever possible.

They subscribe to an organic veg box system and have a doorstep milk delivery in glass, re-usable bottles.

They walk or use public transport whenever they can.

They have disinvested from fossil fuels and recycle clothing or buy sustainably produced clothes as Anne doesn't believe in supporting the fast fashion industry.

Anne considers herself to be a climate activist and is an avid letter writer!

Lessons learned

Renewable energy is a bit more expensive, but they feel that it's important to support this vital industry.

Next steps

Loft insulation

Complete double glazing

Install solar thermal (this will allow them to turn off the air source heat pump. In the summer the bathroom dual fuel heated towel rail will be switched to electric only. The tank in the loft already has fixings for solar thermal so at least that bit is done.

Professional team and technical info

Air source heat pump installation

A Greener Alternative Ltd, Hangar 4, Shoreham Airport, Shoreham-by-Sea, BN43 5FF
www.agreeneralternative.co.uk

Thoroughly recommended by Anne and Ian for their technical expertise, knowledge and experience, as well as the fact that they are able to sign the job off themselves, not every installation company can do that.

New water main utilising trenchless excavation installed by In the Pipeline Ltd

Very efficient company, able to sign off their own work.

Electric consumer unit needed to be upgraded to provide extra circuits for the heat pump and car charger and the main fuse uprated to 100 amp

to cope with the extra power going through the property.

Renewable Heat Incentive

https://www.ofgem.gov.uk/environmental-programmes/domestic-rhi

An EPC Survey and certificate is an essential requirement for receiving the Renewable Heat Incentive (RHI) payments from the Government, which will be paid over several years and this will help offset part of the capital cost of installing the Air Source Heat Pump system. For Anne and Ian, this could represent up to 50% of the cost.