

# Eco House - David Learmonth

Around 2007, the development envelope around us changed, placing the paddock that we owned adjacent to our house within the new boundary. This prompted interest from developers but, instead of selling, we decided to take on our own project to build a house that better fitted our future needs and had lower running costs.

We had tackled three renovations over the years which gave us the confidence that we could manage a new build project, creating an energy-efficient home for our retirement.

We particularly wanted to create a zero carbon house and to move away from fossil fuels such as gas or oil for our heating and hot water.

The house we built, called Porter's, uses Passivhaus design principles to achieve minimal carbon emissions and running costs. [www.passivhaus.org.uk](http://www.passivhaus.org.uk)

In a Passivhaus, thermal comfort and economy is achieved through the use of passive measures such as:

- good levels of insulation with minimal thermal bridges
- passive solar gains and internal heat sources
- excellent level of airtightness
- good indoor air quality, provided by a whole house mechanical ventilation system with highly efficient heat recovery.

As of September 2016, Porter's has become a formally certified Passivhaus.

The house uses heat from the sun for most of the year and heat from a log burner for the rest. In the summer, there is no need for heating and the solar thermal panels provide all the hot water we require. When we get into winter the log burner is the heating source. As the energy heats the water there is little chance of the house overheating.

This has worked well; when necessary, we light the log burning stove/boiler for 2-4 hours some 96 days a year – about a quarter of the year. The wood is free (and the cutting and splitting keep me fit!)

The zero carbon claim? This has not really been wholly achieved, as we can't quite generate enough electricity to export more than we use. It would need more than the 4kWp PV system allowed to do this. One could argue that it is zero carbon if we use a renewable (e.g. Ecotricity) or nuclear (e.g. EDF) electricity supplier. The bills are very satisfactory, though - £450 bill against £900 Feed-in-Tariff received.

The house is light, warm and dry – a shirt-sleeve environment – and one can walk around in bare feet as the floor is at the same temperature.

Having become a Passivhaus, we've been encouraged to join the Open House Days the PH Institut are promoting. We'll be opening our house on the afternoons of November 11-13th.

## Porter's

A Passivhaus in Felsted

