

## 3

## Energy Efficiency



## PASSIVHAUS: WE HAVE OUR EYE ON ENERGY EFFICIENCY

We used the Beattie Passive system to keep running costs low and help the environment

Designing buildings so that they are energy efficient – ie. not wasting energy through draughts, leaking heat and poor insulation – can help tackle fuel poverty and insecurity, help reduce our reliance upon non-renewable resources, and help the construction industry meet the carbon reduction targets that Governments have set for them.

'Passivhaus' is one way to build energy efficiently. The Passivhaus Trust describe Passivhaus buildings as providing 'a high

level of occupant comfort while using very little energy for heating and cooling. They are built with meticulous attention to detail and rigorous design and construction according to principles developed by the Passivhaus Institute in Germany, and can be certified through an exacting quality assurance process.'

Passivhaus buildings can theoretically be built with any material and in any style.

We worked with the company Beattie





## Smart Construction

We attended a course run by Beattie's before work started. We built the structure with close attention to getting the seals and joins just right. The air tightness test showed we'd achieved this with a score of 0.16 compared to 6 in most new buildings and 3 in most passive houses. The independent tester said it was the best he'd seen in Britain!

Ewan Watt & Drew Murray of John Smart & Son, Kirkcaldy, Ltd.

### EFFICIENCY Facts & Figures

Passivhaus or Passive House developed as a standard in the 1990s, from the work of scientists Bo Adamson of Sweden and Wolfgang Feist of Germany.

Around 30,000 passive house buildings exist worldwide.

MVHR stands for Mechanical Ventilation Heat Recovery unit. It recaptures the heat energy in the stale air leaving the building.

Our (Air Tightness Test) score was 0.16.

Beattie Passive are a company based in Norfolk.

Passive and used their passive house accredited system that our architect recommended. It is a complete building system designed by Ron Beattie who describes it as "a patented construction method that provides a continuous seal around the core of a timber framed structure".

The system aims to deliver very energy efficient buildings that require 90% less energy to heat than conventional buildings. An Airflow MVHR adds to energy efficiency and ensures good air quality.

The build involved first installing our

foundations (concrete strip) then adding layers of insulation (Eco-slab) and damp proof membrane. Beattie supplied a timber cutting list and wood was bought from local timber merchant. Timber sticks were assembled in Smart's workshop (see picture overleaf) before being erected on site.

Boards (Versiliner) were fitted on either side of the sticks forming a 'cassette'. Insulation (Eco-Bead, see above) was pumped inside. Layers of membrane provided further air tightness and fire protection. A green roof and Scottish larch timber cladding provide a natural appearance.

## The Ecology Centre, naturally changing lives



The Ecology Centre, formerly known as Craigenalt Farm Ecology Centre is registered in Scotland under Company Number 188446 (Scottish Charity Number SC028174)

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