

## 34 Belle Vue Gardens, Brighton, BN2 0AA



### OVERVIEW

Type: terraced

Age: 1902

Beds: 4

Walls: cavity unfilled

Area: 140m<sup>2</sup>

Resident: 1



### FEATURES

- + Condensing boiler
- + Draught-proofing
- + Low energy lighting
- + Low energy appliances
- + Natural materials
- + Slimlite double glazing
- + Underfloor insulation
- + Woodburning stove

### Introduction

Brendan had plans to renovate his terraced Victorian house, adding a new ensuite bedroom in the roof and opening up the kitchen to receive more light: his visit to Eco Open Houses 2013 inspired him to go further. Brendan wanted to sympathetically preserve the character of his house, whilst making it a far more energy efficient and well designed space to live in.

Rather than replace the existing period windows, Brendan decided to refurbish the sashes and seals, installing new 'Slimlite' double glazing units. This has enabled the existing appearance to remain largely unaltered, whilst improving thermal efficiency and comfort.

In the interests of sustainability, natural materials and finishes have been used as far as possible, using sheep's wool insulation and floor coverings such as wool and linoleum.

### Energy efficiency measures

#### Heating and hot water

A new floor standing Worcester condensing boiler meets most heating and hot water needs. New TRVs have also been fitted to all radiators to ensure each area only receives the heat required.

Brendan is considering going one step further using the new NEST energy thermostat and monitoring system, which uses sensors throughout the house to learn patterns of energy use and adjust individual area heating to closely match building occupation. This is claimed to be able to reduce consumption by over 10%.

The alley adjacent to the kitchen has been fully glazed and is south facing, which enables it to capture solar heat in winter, whilst acting as an insulating buffer area. Hadn't this been done before the renovation?

The main through living area now has a new wood burning stove fitted, which will displace gas heating, and is supplied by a newly constructed wood store in the back garden.

### Insulation

**Walls** – The walls have unfilled cavities and were going to be insulated. However, after careful and prolonged consideration with much consultation Brendan chose not to pursue this option. One consideration was that, as this is a terraced house partly enclosed at the rear by a raised garden and conservatory, the net external wall area is relatively modest. Insulation on the rear kitchen wall to the outside of the building was also increased.

**Windows** – All windows, including those separating the house from the conservatory, have been refurbished and double glazed with Slimlite glazing inserted into the existing sashes. This has preserved the appearance and character of the house at a price competitive with conventional replacement double glazing. The Krypton/Xenon filled panes with low-e coatings are extremely thin at only 11mm overall, which enables them to fit into existing rebates. They have a u value of 2.1 W/m<sup>2</sup>K, which reduces heat loss by about 60%.

**Roof** – A new room in the roof has been created, which has been insulated heavily to minimise losses. Where possible, natural sheep's

wool has been used in the walls and eaves, but PIR foam board has also been applied where space is tight.

**Floor** - In the front room the floor had to be replaced due to woodworm and was insulated between the joists. Elsewhere, the floor has been comprehensively overboarded under the various floorings, with sealing around the skirting to minimise draughts.

**Draughtproofing** – As well as draughtproofing the floor, all doors and windows now have new draughtstrips built in.

## Renewables and Low carbon technology

**Woodburning stove** – A 5 kW Contura woodstove, with a wide glazed front to maximise radiant heat, has been fitted in the main through living room.

## Electricity

**Low energy lighting** – In the new kitchen and loft the lighting has been fully renewed with ultra low energy LED spots and strip lighting. All other lights in the house have low energy lamps.

**Appliances** – Kitchen appliances have been renewed with A rated or better.

## Carbon emissions

As work is only finishing in the summer of 2014, the effect will not be seen until the following winter. However, it is estimated energy use will fall to less than half former levels.

## Other sustainable Measures/ Lifestyle decisions

**Rainwater harvesting** – Rainwater is collected in a water butt.

**Natural materials** – Sheep’s wool insulation has been used wherever possible, the dormer is zinc clad, carpets are wool, kitchen worktops are oak, and linoleum & cork linoleum is used for flooring.

**Recycling** – reclaimed boards were used in the hall and joists cut out of the roof have been reused as the base for a greenhouse at a friend’s allotment on Whitehawk Hill near the Racecourse. Waste was sorted into group items for disposal and building materials that could be recycled or reused were also processed

## Professionals

**Architect** – Leith McKenzie, UN[LAB], Brighton. [Leith@un-lab.com](mailto:Leith@un-lab.com)

**Woodburning stove** – Contura. [contura.eu/en/English/](http://contura.eu/en/English/)