

# First Floor Flat, 43 Ditchling Rise, Brighton BN1 4QN



## Overview

Period/ Age of house	Victorian (built 1876)
Type	First Floor Flat
Years in residence	7
No. of residents	2 adults
No of bedrooms	2
No of other rooms	3
No of floors	Split level flat
Wall type	Solid

## Features

- + Condensing boiler
- + Internal wall insulation
- + Low water use toilet
- + Low water use shower
- + Natural materials
- + Triple glazing
- + Under floor insulation

## Introduction and approach

When Abby and partner moved in to their first floor flat in 2004, it was drafty with damp in part and was hard to keep warm, especially at the rear, north-facing end of the flat. Noise from the neighbouring flats and nearby main road was also a problem.

During the refurbishment, Abby sought to make the flat warmer, quieter and healthier. Abby is asthmatic so the damp issues were a concern. Consequently natural materials that maintain the breathable quality of the original solid walls were used. Allowing the walls to 'breathe' means that moisture created inside the flat

from bathing, cooking and just breathing does not get trapped inside, but can pass through or be stored temporarily in the walls. This helps reduce mould and high humidity, creating a healthier environment.

Maintaining the breathability of the walls also means that the structure and building fabric is not prone to trapped moisture causing rot, something Heritage England consider when looking at methods of insulating older buildings.

Water efficiency and the reuse and recycling of materials and use of non polluting materials were also a priority. A desire to live in a healthy environment with good indoor air quality has resulted in materials which avoid off gassing.

## Thermal improvements

The old gas boiler was replaced with an efficient Vitodens 100W condensing boiler. Though this is a combi boiler, it was selected to be compatible with a solar thermal system, because Abby hopes to install in the future.

The back of the flat has been internally insulated, see section on materials, below. All windows at the back have been replaced with triple glazed softwood windows with hardwood cills. The smallest is from German company Gieschen, which Abby is really pleased with, and others are Viking. The triple glazing has massively reduced noise from traffic.

The bathroom at the back has been insulated with sheep's wool in the loft and under the floor. The walls have been either tiled or plastered with lime with a natural paint covering. the bathroom walls all use natural and permeable materials, including wood-fibre insulation.

The kitchen walls have been internally insulated with wood fibre insulation which has superb water vapour permeable qualities, good thermal storage capacity, which helps protect against overheating in summer and cold in winter; it is also a great noise barrier.

## Use of natural 'breathable' materials

Insulation materials are natural and not oil based. Sheep's wool (Thermafleece) has been used to insulate the bathroom ceiling, walls and under-floor, whilst the loft area above the kitchen is recycled newspaper (Warmcell) insulation.

The boards for ceiling and partition walls in the bathroom are clay boards. They are heavier and thicker than gypsum plasterboards and have outstanding thermal and vapour diffusion properties. They can regulate temperature, are able to absorb moisture, and at other times, gently release moisture again. Clay also absorbs odours and is an effective sound insulator.

The clay boards are rendered in clay plaster and wood-fibre insulated areas rendered in a lime rather than gypsum plaster. Lime plaster is made from lime putty combined with sand and fibre and vapour-permeable, useful in 'breathing wall' construction. It has quite a high level of embodied energy due to high temperatures employed in manufacture – but less than cement. Also, it requires care during installation.

The new flooring is marmoleum, a natural floor covering made of linseed oil, wood flour, rosin binders, dry pigments mixed on a natural jute backing. In the bathroom, FSC sustainable beech ply has been used for cabinets and woodwork. The work surfaces in the kitchen are bamboo: a very quick growing sustainable and durable product.

All of these materials are recyclable and are not toxic or damaging to the environment on disposal.

## Water efficiency

A water saving showerhead and a 4/6 litre dual flush toilet were installed. The water efficient showerhead also results in savings on gas use for water heating. After a water meter was voluntarily installed the water bill has reduced by over a quarter.

## Further improvements planned

Abby's future plans include; internally insulating the front of the flat; more under-floor insulation; loft insulation under roof tiles; chimney lining and wood burner; replacement of PVC windows with wooden box sash; and communal solar PV with their co-residents (taking advantage of the Feed In Tariff).

## Lessons Learnt

Not many builders know what they are doing with natural materials, so more expertise would help. Abby overcame barriers by finding out how the materials worked through lots of internet research and speaking to helpful people!

Natural materials are generally more expensive, but there can be no price put on health and quality of life. The measures have been completely worthwhile and have resulted in the back of the flat being warmer in winter, cooler in summer, very much quieter and a lovely healthy environment to be in.

## Professionals

Plumber: Amrit Pedersen Gas, Solar & Water Mobile:  
07931 747 486 Gas Safe Reg: 215275

## Materials

Lime, wood fibre insulation, clay boards:  
[www.greensteps.co.uk](http://www.greensteps.co.uk)

Windows: Gieschen [www.gieschen.de](http://www.gieschen.de)

Sheep's wool insulation: Thermafleece  
[www.ecomerchant.co.uk](http://www.ecomerchant.co.uk)

Warmcell: Brighton & Hove City Council's contracted supplier when providing subsidised loft insulation

Natural Paint:

BIOFA [www.naturaldecoratingcentre.co.uk](http://www.naturaldecoratingcentre.co.uk)

Auro [www.auro.co.uk](http://www.auro.co.uk)

Eco Open Houses is an annual collaborative project between Brighton Permaculture Trust, Low Carbon Trust and Brighton & Hove City Council. This year the event is run as part of the EcoFab 2 project and has been selected within the scope of the INTERREG IV A France (Channel) – England cross-border European cooperation programme and is co-financed by the ERDF