

50 Southampton St, Brighton BN2 9UT



Introduction and approach

Dani and Allie moved to Southampton Street in 1994. They have made a number of improvements designed to cut energy use including a new condensing boiler, deep loft insulation and part double glazing. They have been involved in, and motivated by, the excellent community based campaigns for reducing carbon emissions mounted by Hanover 10:10 and Hanover Action for Sustainable Living (HASL) and have a deep commitment to sustainable living.

Although they had wanted to externally insulate the walls for some time, this proved daunting due to cost and planning processes. However, the Green Deal assessment process has shown this to be achievable, coupled with Energy Company Obligation (ECO) grant assistance, and the front and rear have successfully been completed. This style of insulation is highly effective, not only in reducing losses, but also in increasing building comfort, by enabling the walls to act positively to store rather than lose heat.

OVERVIEW

Age: 1860
Type: Mid-terrace
Beds: 3
Floors: 3
Walls: Solid rendered
Area: 126 m ²
Residents: 2 adults 2 children

Energy and CO₂ performance

As the work has only recently been completed, it is not yet possible to measure the impact of energy saving measures on consumption and CO₂ emissions. However it is estimated that these should be around 50% lower than an average UK dwelling.

Energy efficiency measures

Heating and hot water

Heating and hot water is provided by a very efficient condensing boiler and the building has good heating controls, in the form of room thermostat, thermostatic radiator valves (TRVs) and programmer. It is surprising that nearly a third of UK heating systems still lack one or more of these essential controls.

Heating is on for most of the day, as Dani and Allie home educate their children. This inevitably uses more energy than a typical house.

Insulation

When the roof was replaced the owners took the opportunity to have extensive loft insulation fitted at the recommended level of 270mm.

They also have replaced nearly all the single glazing with double glazing.

However, the major feature of the latest refurbishment is external solid wall insulation front and back, using the Wetherby system. This

FEATURES

- + Condensing boiler
- + Double glazing (part)
- + Loft insulation
- + Solid wall insulation (external, front and back)

was in the form of 100mm Kingspan Kooltherm phenolic foam batts, mechanically fixed to the wall with broad-headed plastic anchor bolts. This rigid foam layer was then skimmed with a resin based render, to act as a ground for a thick fabric mesh to be bedded. This was primed to the final wall colour and finished with a self coloured render top coat.

Because this house is part of a terrace, there was some sensitivity about how the boundaries should be finished with the neighbouring properties. However, the absence of architectural mouldings simplified the work.

The effect of external wall insulation has been to reduce the u value from 2.1 W/m²K to 0.18, cutting wall heat loss by over 90% and saving a third of heating bills.

Electricity

Dani and Allie have long used low energy lamps, primarily compact fluorescents (CFLs), which cut lighting energy and emissions by around 80%.

As and when appliances need replacing, they choose the most efficient, but try not to change too often, as they believe that retaining and repairing is more sustainable than replacement.

Lessons learned/ further improvements

When applying solid wall insulation to terraced properties, it is important to realise that the

neighbours must be consulted about how the boundaries will be finished, ideally subject to a party wall agreement. Ideally at some time in the future, consideration should be given to insulating internally the front basement wall, which remains a cold point. This could not be done at the same time as the other works, as the internal disruption would have been unfair on the children, one of whom was coming up to GCSEs.

Some costs of the energy efficiency measures

Please note that these do not include a Green Deal Assessment or project management of the works

External solid wall insulation	7,645
Draught proof loft hatch	419
Draught proof external doors	469
Heating controls: new thermostat	217
Heating controls: new TRVS	607
Total	9,357

Professional team on behalf of The Green Building Partnership

Project Management

Earthwise Construction:
www.earthwiseconstruction.org

Contract Management

The Green Building Partnership
www.greenbuildingpartnership.co.uk

Design

Cityzen: www.cityzendesign.co.uk

Solid wall insulation

Beaumont Facades:
www.beaumontfacades.co.uk

Carpentry

Bright Green Homes:
www.brightgreenhomes.co.uk

Electrics & plumbing

Woodmans: www.woodmans.net

Materials

Wetherby insulation system:
www.wbs-ltd.co.uk

Insulation board: Kingspan
Kooltherm Phenolic
www.kingspaninsulation.co.uk

Eco Open Houses is an annual collaborative project between Low Carbon Trust, Brighton Permaculture Trust and Brighton & Hove City Council. Eco Open Houses 2015 is being run is part of the national Green Open Homes network established with funding from the Department of Energy and Climate Change (DECC) and is now maintained and managed by the Centre for Sustainable Energy (CSE). This years event is part funded by Brighton & Hove City Council.