

60 Barons Down

Opening Times

[Saturday 15th October](#) [1]

[Saturday 22nd October](#) [2]

Details

Address: 60 Barons Down, Lewes, BN7 1ET

Type: Terraced

Built: 1960s

Beds: 3

Walls: timber framed

Area: 88 m2

Residents: 2 adults and 2 children

EPC rating: 92 - A

Eco Features

Gas condensing boiler

Timber frame

Passive solar gain

Airtightness

Double glazing

Perimeter floor insulation

Solar PV (3kWp south facing)

LED lighting

Low energy appliances

Natural materials

Summary

This house was in a very rundown state when architects Magali and Ian McKay bought it in September 2011 as a 'doer-upper'. The idea was to blitz the building work over three months, to allow the couple and their two small children to move in as soon as possible.

One of the motivations for buying was the very intelligent layout, which had remained largely unchanged since the Barons Down Estate was built in the 1960s, as a pioneering project demonstrating the merits of quickly erected timber framed dwellings. These PRP designed buildings followed the Parker Morris standards for ample built in storage and followed on from Eric Lyons' earlier timber framed Span housing.

The priority for the refurbishment was to retain the useful layout and storage, whilst upgrading the virtually non-existent insulation and providing a modern kitchen. This involved stripping the upper ceilings to spray insulation between the ceiling joists and stripping the timber framed walls to insert sheep's wool insulation, whilst battening out to increase depth, thereby allowing room for services such as modern heating.

In effect the existing timber framing gave a home for insulation and made the eco refurbishment far easier than it would have been for a solid wall dwelling.

For a relatively modest build cost of £70,000, a smart modern home has been created, with extraordinarily low carbon emissions. The south facing glazed screen wall enables excellent solar gain and the effective and well detailed insulation means gas bills are only £27/month and electricity is £23/month. As the roof mounted solar PV is now producing an income of over £600 pa, the house is close to being both carbon neutral and energy cost neutral.

Winners of the Architect Journal's 2013 Retrofit Award.

Energy efficiency measures

Heating and hot water

Space heating and hot water is provided by an efficient condensing combi boiler, but the building is so well efficient that the boiler only runs for two hours per day during the peak winter months and far less, if at all, during spring and autumn. In particular, the south facing glazed screen wall allows excellent solar gain during the winter, without the problem of excess heat in summer.

The building has a breathable airtight construction and ventilation is maintained using the fans in the kitchen and bathrooms, the latter triggered by humidity sensors, and opening a window occasionally. Although clothes are dried on a rack indoors in winter, there is no problem with condensation or excess humidity, so more elaborate ventilation has not proved necessary.

Insulation

The roof was insulated by 150mm of high density sprayed foam between the joists and onto the underside of the roof decking. A ventilated space below eliminates risk of condensation and is separated from the room below with a breathable vapour barrier. This achieved an excellent u value of 0.14 W/m²K.

Walls are timber framed and filled with sheep's wool insulation and cross battened to create a service void which was also filled with sheep's wool, giving a combined thickness of 150mm, to deliver the very low u value of 0.18W/m²K.

It would have been unrealistic to drill up the slab floor to insulate it and limited ceiling heights did not allow for overlay. Instead, an effective compromise was designed, involving channelling the slab along the perimeter and inserting 50mm of solid insulation. As most heat is lost from the perimeter, this tackled the bulk of floor losses. An overlay of 8mm natural cork gave further insulation, whilst producing a practical and child friendly surface.

The existing uPVC double glazing is built to good standards, with a 16mm airgap, and was considered good enough to retain. Eventually, it would be nice to restore the facades to the original 1960s look, with slimmer timber framing and perhaps higher performance glazing.

Renewables and Low carbon technology

A south facing 3kWp Solar PV array on the flat roof provides much more electricity than the house consumes, helping drive the house close to carbon neutral.

Electricity

Low energy LED lighting has been installed throughout, augmented by excellent natural lighting. Megaman 7W LEDs were chosen, as these have recessed elements, which eliminates glare and very closely resembles the warm feel of Halogens, but with 80% less consumption.

The house has A+ or A+++ low energy appliances throughout.

Other Sustainable Measures

Natural Materials

Timber is used extensively, in the building frame, helping to store carbon and also reduce embodied energy. Natural materials have been used where possible, particularly cork flooring and sheeps wool insulation.

Water conservation

Water conserving fittings are used throughout to conserve water and minimise use.

Lessons learned

By carefully separating insulation and energy conservation from general building work, the bulk of the project benefitted from the reduced rate VAT of 5%.

Perimeter wall insulation has proved particularly effective and was far less disruptive than it would have been to drill up and relay the floor with insulation underneath.

Professionals

Design: BBM Sustainable Design, Cooksbridge: www.bbm-architects.co.uk [3]

Main contractor: C.J.Gowing and Sons: www.cjgowing.co.uk [4]

Cork flooring: Siesta Cork Tiles, Croydon: www.siestacorktiles.co.uk [5]

LED lighting: Megaman: www.megamanuk.com/products/led-lamps [6]

Gallery

[7] [8] [9]

Links:

[1] <http://lewesecoopenhouses.org.uk/booking#60BaronsDown15th>

[2] <http://lewesecoopenhouses.org.uk/booking#60BaronsDown22nd>

[3] <http://www.bbm-architects.co.uk>

[4] <http://www.cjgowing.co.uk>

[5] <http://www.siestacorktiles.co.uk>

[6] <http://www.megamanuk.com/products/led-lamps>

[7] <http://lewesecoopenhouses.org.uk/sites/lewesecoopenhouses.org.uk/files/images/60baronskit.jpg>

[8]

<http://lewesecoopenhouses.org.uk/sites/lewesecoopenhouses.org.uk/files/images/60baronskitbreakfast.jpg>

[9] <http://lewesecoopenhouses.org.uk/sites/lewesecoopenhouses.org.uk/files/images/60baronslounge.jpg>