

# A visit to bere:architects' Camden Passivhaus

*Two year period of building performance monitoring begins*



This week Footprint paid a visit to London's first certified Passivhaus, the Camden Passivhaus by [bere:architects](#). The event was organised by the [Good Homes Alliance](#) and there were approximately 30 attendees, including architects, house builders, and materials suppliers.

Building facts:

- Ground floor slab: 380mm wood fibre insulation
- Walls: 280mm mineral wool with 100mm wood fibre insulation
- Flat roof: 280mm polyurethane with 120mm mineral wool insulation
- Sloping roof: 380mm mineral wool insulation
- Terrace: 130mm polyurethane insulation
- Heat recovery and ventilation: PAUL Thermos 200DC
- Annual heat demand: 13kWh/m<sup>2</sup>/yr
- Primary energy demand: 90kWh/m<sup>2</sup>/yr
- Total CO<sub>2</sub> emissions: 10.2kg/m<sup>2</sup>/yr (excluding appliances)
- Air test result: 0.4 ach/hr @ 50pa
- Planning permission granted: end of 2008
- Started on site: September 2009
- Passivhaus certification received: April 2010, see the previous post on [Footprint](#).

The event began with a tour of the property given by architect Sarah Lewis of bere:architects.



*The bike shed wall to the front of the house with the extract for the MVHR unit.*



*Upstairs open plan living space.*



*The kitchen dining space with north-west facing windows for daylighting.*



*The kitchen space.*



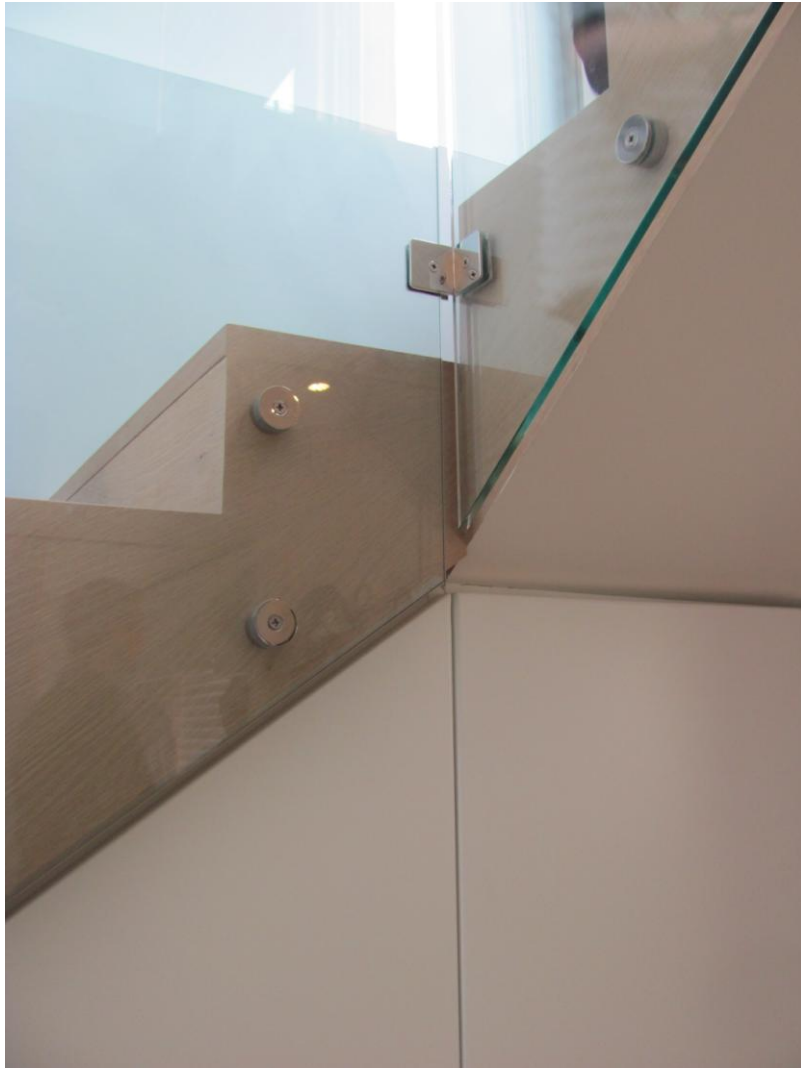
*External blinds work automatically on a solar control to provide shading and prevent overheating.*



*When not in use the blinds are concealed neatly.*



*The external first floor terrace to the front of the property.*



*Glass balustrades on the staircase.*



*The property's two bedrooms are located on the ground floor. The master bedroom looks out onto the small garden to the front.*



*Ivy screening provides privacy. Rainwater is collected and stored in a tank below the lawn.*





Sarah showed us the recently changed filters for the MVHR unit. It was easy to see the amount of particulates being stopped from entering the house and this filter had only been in the unit for 6 months. Seeing this is enough to convince me of the benefits of MVHR!



Soft Landings is being used which enables the buildings designers and suppliers to keep in contact with the client and user of the building. This helps to fine tune the building but also to help the users understand the best way to use their home. This poster on the door of the utility room was produced as a user guide for the house.

After the tour of the house presentations were given on various subjects, aimed at disseminating the lessons being learnt from this project.

Dan Gibbons, director at bere:architects gave a brief overview of the work of the office and their journey into passivhaus design. This began with the Focus House in 2006, which he described as a 'low energy experiment towards passivhaus'.



*The Focus House*

From the Focus House he went on to speak about their projects in Windsor; Smoothfield Farm. This was the first building the practice designed using PHPP, but it still did not gain passivhaus certification.

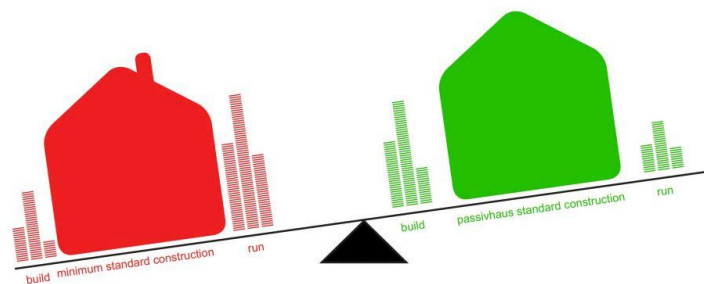
Dan then went on to describe the practice's work at Ebbw Vale, where they have designed two bedroom and three bedroom passivhaus experimental homes aimed at the mass market. The homes have also achieved Code for Sustainable Homes Level four, see the previous Footprint post, [here](#). These homes were designed to showcase Welsh industry and products, constructed using a frame made from Welsh spruce. One of the main challenges was finding passivhaus certified windows manufactured in Wales. But they managed to liaise with Welsh window manufactures and produced a passivhaus window from Welsh products in Wales. The two bedroom house has a Welsh lime render finish and the three bedroom house is clad in local larch.



*The two Ebbw Vale houses side by side.*

Dan's presentation was followed by a short talk by Sarah Lewis on the Camden Passivhaus.

Nick Newman of bere:architects then gave a brief overview of carbon compliance standards in relation to building with passivhaus. Using some catchy imagery he took us through the reasons why passivhaus and low carbon solutions often cost more, and how these methods compared with standard methods of construction.



Last to speak was Sam Stamp, from [UCL](#). The Camden Passivhaus recently received [TSB](#) funding as part of their [Building Performance Evaluation Programme](#), which funds the monitoring of the property for the next two years. Sam outlined the monitoring the house will receive.

Short term monitoring will included:

- Infra red surveys looking at the fabric losses of the building.
- Heat flux sensors will be used to measure the actual u-value of different building elements. This will give a comparison between designed and actual building performance.
- A co-heating test has already been carried out. This was aimed at finding out how much heat the building was losing. It showed the building had a heat loss coefficient of 35W/k which is much better than the predicted value of 64W/K. This test will be carried out again during the two year period to test for any discrepancies in the data.

- Infiltration losses have been tested through CO2 tracer tests and also through pressurisation.

Monitoring in use will include:

- Monitoring of energy usage within the property by sub-metering and the use of wireless data loggers.
- Weather will be monitored by an onsite weather station to see how the house fares in different weather conditions and what impact this has on the energy usage.
- Indoor air quality will be monitored.
- The occupants of the house will be interviewed at regular intervals throughout the monitoring period.
- The solar thermal collector will be monitored and the data received will be matched against supply and demand.
- The MVHR is being carefully monitored. They have installed temperature probes at the intake, the supply, the exhaust, and the extract.



*One of the Eltek dataloggers located within the master bedroom.*

The monitoring systems are being provided by [Elteck](#), who were able to give us a live demonstration of how the system worked. The system provides a real time display of the many elements being monitored within the house. The readings and data can be accessed remotely via the internet, and any of those involved in the design, construction and research of the building can log on using a unique code. All the data is easily readable and can be downloaded periodically.



*The real time display of how energy is being used within the house.*

It was particularly interesting to hear about how this project is to be monitored and especially great to see the actual systems in place. I look forward to seeing what comes out of the monitoring period.

The presentations given at the event can be found online, [here](#).

The Camden Passivhaus is on the AJ buildings library, [here](#).

by Laura Mark, AJ sustainability intern

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