

B&Q Eco House – The 22nd Century Home

B&Q have bought a house in Bishopstoke near Southampton to refurbish into an EcoHouse fit for the next century. The finished home will run using as few resources as possible – but will also be stylish and comfortable, a One Planet Home®. (Search for 22nd Century House in Google for further information)

When the DIY giant wanted innovative solutions to significantly advance their ideas for this innovative home they turned to EnviroHomes.

Target technical brief given:

1. New loft conversion with U-values of 0.12 W/m²K on both walls and roof
2. Increase, internally to the house, insulation of the gable end wall along the very narrow (700mm wide) hall and stair well.
3. Existing un-insulated concrete ground floor to be insulated to 0.15 W/m²K without removal of the floor.
4. Supply innovative solution for the supply of hot water for both the heating and the domestic hot water.

EnviroHomes provided the following solutions

Stage One

Supply of a new completed loft conversion carried out in a day!

<http://loft-pod.co.uk/>

The LoftPOD[®] was manufactured off site in the companies Lake District factory and shipped to the house the night before the installation.

The additional bedroom for the house was completely finished inside and included: flooring, electrics, heating and lighting – with the bulbs installed in the fittings.

The roof was removed in the early morning and the LoftPOD[®] lifted in. By late in the afternoon the house had been made water tight again with only the external cladding to the external faces of the dormer to complete.



Stage Two

The gable end of the house could not be externally insulated because of an access lane right against the outside of the wall.

The solution was to use Vacuspeed Vacuum Insulation panels adhered to the internals of the wall.

These were separated by timber battens to which plaster board was screwed and then skimmed.

The original wall had a U-value of un-insulated wall was 1.6 W/m²K.

With the addition of the 20mm Vacuspeed the insulation properties of the wall were substantially increased to give a final U-value of 0.18 W/m²K.

More information on Vacupor and Vacuspeed Vacuum Insulation Panels can be found at <http://www.vacuum-panels.co.uk/vacupor@-nt.html>



Stage 3

The brief called for the kitchen floor to be insulated but with out removal of the existing, un-insulated, concrete floor. Vacuspeed was again used. 25mm panels were laid directly over the existing floor. These were temporarily protected, during the installation period, with 3mm foam either side of the panels. A 22mm chipboard floating floor was laid over of the top of the Vacuspeed. The whole installation was completed in a day. This saved, it was estimated, approximately 1½-2 weeks on the programme compared to removing the floor, insulating underneath and relaying the concrete. The final U-value of the floor was 0.16 W/m²K

Stage 4

B&Q knew they wanted to use an energy efficient method to heat the house and incorporate renewable technologies into the solution. They also wanted to release as much room in the house as possible for living and storage space. EnviroHomes solution was to supply a Home Office POD[®]. This, again, was manufactured off site in the factory and shipped to site with the LoftPOD[®]. The whole unit was craned over the house into the rear of the garden. The Home Office POD[®] comprises a fully insulated and heated garden office to the front of the building. To the rear is a small plant room which houses:

- 8kW air source heat pump
- Domestic hot water tank
- 4m² solar thermal panels on the roof of the Home Office POD[®]

The unit was connected to the house by underground insulated pipe work. A plate heat exchanger in the house gives 'water-on-demand' to the hot taps.



'The main benefit of EnviroHomes was the speed and simplicity of their solutions' said the Project Manager for B&Q.

For further information contact;-

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www.envirohomes.co.uk

www.vacuum-panels.co.uk

www.loft-pod.co.uk

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