



Passive House and Building Biology New Build – ‘PHABB House’

Design company name: SE3 Design
Build company name: Urbane Eco Ltd
Consultancy: Tomas Gaertner
Project location: Coombe Dingle, Bristol
Project completion date: 2020

Project brief

The Phabb House is Urbane Eco’s flagship new build – a home that combines the ultra-low energy demands of the Passive House standard with the natural, health-first approach of Building Biology.

Passive House is a rigorous voluntary standard that dramatically reduces energy use for heating or cooling, significantly cutting carbon emissions and ecological footprint. However, it sets no material requirements. That’s why we adopted Building Biology standards - ensuring breathability, non-toxicity, and holistic indoor wellness.

By blending these approaches, the Phabb House achieves ultra-low operational energy demand alongside a living environment built from non-toxic, vapour-permeable, breathable materials. Benefits include minimal heating requirements, superior indoor air quality, avoidance of harmful off-gassing, moisture-balanced breathable walls and roof and a fundamentally health-supportive building envelope.

Sustainability features

- Passive House ensured airtightness, thermal-bridge-free detailing, highly insulated window, wall, floor and roof assemblies, and efficient Mechanical Ventilation with Heat Recovery (MVHR).
- Materials used were ecologically sound and breathable components, including wood-fibre insulation (manufactured from waste wood), lime-based breathable renders, and vapour-permeable wall membranes - consistent with both Passive House and Building Biology aims to avoid toxic off-gassing and allow moisture balancing.
- Energy performance and heating load predictions were modelled through the Passive House Planning Package (PHPP), allowing calculation of annual heating demand, peak loads, primary energy use, and overheating risk.
- Solar PV panels, Air Source Heat Pump (ASHP), battery storage

Find out more: www.urbane-eco.co.uk

Urbane Eco Ltd dedicate this project to the late **Neil May MBE** in recognition and gratitude for his work on breathability in the building fabric and the use of natural building materials which has been our inspiration and foundation.

The house is called ‘**Hawthorn House**’ in Neil’s honour. Hawthorn is also known as the May tree and there are many hawthorns growing nearby.

