



## Crossway Passivhaus

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**Location:** Staplehurst, Kent

**Completion Status:** Completed February 2009

**Occupancy:** Occupied since February 2009

**Architect:** Richard Hawkes

**Consultant:** Scott Wilson & Cambridge University; Newform Energy; Ian Theoboldt; Mark Saich

**Contractor:** Ecolibrium Solutions

**Client:** Mr & Mrs Hawkes

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**Crossway demonstrates beyond any doubt that designing a Passivhaus need not inhibit an architect's creative expression.**

*"The efficient parabolic form and its scary thinness stick two fingers up at the laws of the Universe and suggest that big heavy things like buildings can float. It's one of the great illusions of architecture, pulled off here with utter bravado"*

Kevin McCloud – Grand Designs

Externally Crossway is finished in a palette of local clay and timber. These local natural materials instil this iconic structure with a strong Sense of Place. The arch supports a native wild-flower meadow roof in over 100 tons of soil yet is only 120mm thick and spans 20m and is 9m high. The vault is exposed internally, soaring as though somehow defying gravity. Its thermal mass provides thermal resilience and the clay's hygroscopic properties help maintain a healthy internal environment. Various waste materials have been cleverly incorporated into the construction helping to ensure that the environmental impact of the building is minimised.

Over 4 years of monitoring in collaboration with University of Cambridge has shown Crossway's Primary Energy consumption to be 54.59kWh/m<sup>2</sup>/annum with a heating load of 14.82kWh/m<sup>2</sup>/annum. Crossway is a living, breathing research project which is continuing to help test and develop new techniques and technologies. It's also a healthy and inspiring family home! In addition to the usual Passivhaus technologies, a look 'under the bonnet' of this project reveals some pioneering credentials including; an

experimentalPhase Change Thermal store linked to the UK's first PV-T system, PCM thermal mass board, extensive building physics & resource monitoring, vacuum insulation, voltage optimisation and even appliances sourced by nothaving built in obsolescence.

*“The house is flooded with daylight, the spaces are breathtaking, the air quality isfabulous and I love feeling so connected to the outside landscape. Crossway is betterthan my wildest dreams and costs minus £400 a year to run! Who wouldn't love that!”*

Sophie Hawkes

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