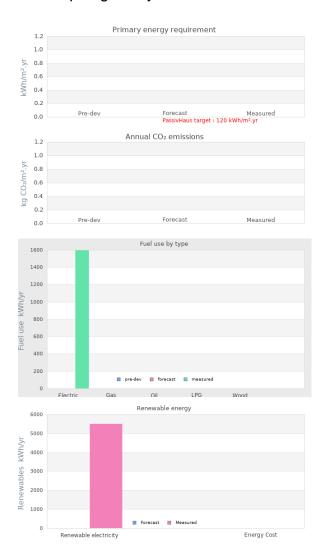


https://www.lowenergybuildings.org.uk/

#### Project name Crossway

**Project summary** The Crossway Passivhaus is a breathtaking, ambitious and pioneering sustainable family home set within rural Kent countryside. Nestled beneath a soaring 9m high, 20m wide yet only 120mm think terracotta arch crafted from clay dug and handmade within 4 miles of the site is a highly insulated timber frame orientated to maximise passive solar gain and daylighting. Externally the building is complimented by a palette of local clay and timber. These natural materials instil this iconic structure with a strong sense of place. The arched roof supports a native wild-flower meadow roof in 300mm of clay subsoil excavated from the foundations. The interior incorporates an array of natural products and finishes. Crossway is a living, breathing research project which is continuing to help test and develop new sustainable techniques and technologies. Its also a healthy and inspiring family home!



### **Project Description**

Projected build start date

r rejected band clart date	
Projected date of occupation	01 Feb 2009
Project stage	Occupied
Project location	Staplehurst, Kent, England
Energy target	PassivHaus
Build type	New build

Building sector	Private Residential
Property type	Detached
Existing external wall construction	Other
Existing external wall additional information	Timbrel vaulted arch & timber frame
Existing party wall construction	
Floor area	255 m <sup>2</sup>
Floor area calculation method	PHPP
Building certification	Passivhaus certified

## **Project team**

Organisation	Hawkes Architecture
Project lead	Richard Hawkes
Client	Mr & Mrs Hawkes
Architect	Richard Hawkes
Mechanical & electrical consultant(s)	Scott Wilson & Cambridge University
Energy consultant(s)	Anthony Morgan Newform Energy
Structural engineer	
Quantity surveyor	
Other consultant	
Contractor	Ecolibrium Solutions

# **Design strategies**

Planned occupancy
Space heating strategy
Water heating strategy
Fuel strategy
Renewable energy generation strategy
Passive solar strategy
Space cooling strategy
Daylighting strategy
Ventilation strategy
Airtightness strategy
Strategy for minimising thermal bridges
Modelling strategy
Insulation strategy
Other relevant retrofit strategies
Other information (constraints or opportunities influencing project design or outcomes)

## **Energy use**

#### Fuel use by type (kWh/yr)

Fuel	previous	forecast	measured
Electri			
С			
Gas			
Oil			
LPG			
Wood			

#### Primary energy requirement & CO2 emissions

	previous	forecast	measured
Annual CO2 emissions (kg CO2/m².yr)	-	-	-
Primary energy requirement (kWh/m².yr)	-	-	-

#### Renewable energy (kWh/yr)

Renewables technology	forecast	measured
Renewable electricity		5500
-		
Energy consumed by generation		

### Airtightness ( m³/m².hr @ 50 Pascals )

	Date of test	Test result
Pre-development airtightness	-	-
Final airtightness	-	0.72

### Annual space heat demand ( kWh/m².yr)

	Pre-development	forecast	measured
Space heat demand	-	-	14.82

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Other energy calculation method

Predicted annual heating load

Other energy target(s)

## **Building services**

Occupancy

Space heating

Hot water

Ventilation

Controls

Cooking	
Lighting	
Appliances	
Renewables	
Strategy for minimising thermal bridges	

# **Building construction**

Storeys				
Volume				
Thermal fabric area				
Roof description				
Roof U-value	0.12W/m <sup>2</sup> K			
Walls description				
Walls U-value	0.12W/m² K			
Party walls description				
Party walls U-value				
Floor description				
Floor U-value	0.11W/m² K			
Glazed doors description				
Glazed doors U-value	0.70W/m <sup>2</sup> K installed			
Opaque doors description				
Opaque doors U-value				
Windows description				
Windows U-value	0.70W/m <sup>2</sup> K installed			
Windows energy transmittance (G-value)				
Windows light transmittance				
Rooflights description				
Rooflights light transmittance				
Rooflights U-value				

# **Project images**





