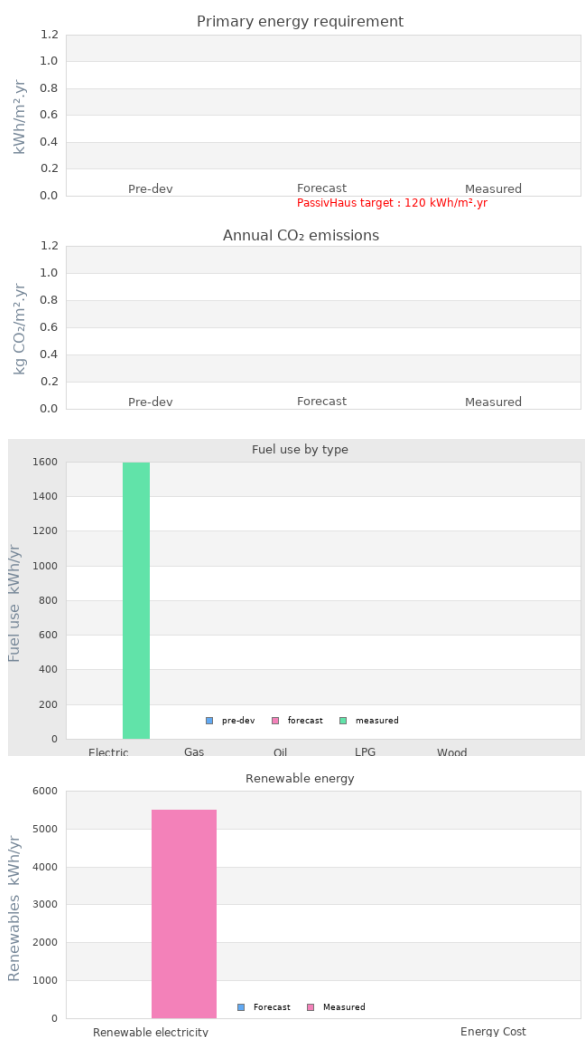


## Project name Crossway

**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 thick 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

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 &#38; 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
<b>Electric</b>			
<b>Gas</b>			
<b>Oil</b>			
<b>LPG</b>			
<b>Wood</b>			

### Primary energy requirement & CO2 emissions

	previous	forecast	measured
<b>Annual CO2 emissions</b> (kg CO2/m <sup>2</sup> .yr)	-	-	-
<b>Primary energy requirement</b> (kWh/m <sup>2</sup> .yr)	-	-	-

### Renewable energy (kWh/yr)

Renewables technology	forecast	measured
<b>Renewable electricity</b>		5500
-		
<b>Energy consumed by generation</b>		

### Airtightness ( m<sup>3</sup>/m<sup>2</sup>.hr @ 50 Pascals )

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

### Annual space heat demand ( kWh/m<sup>2</sup>.yr )

	Pre-development	forecast	measured
<b>Space heat demand</b>	-	-	14.82

Whole house energy calculation method

Other energy calculation method

Predicted annual heating load

-

Other energy target(s)

## Building services

Occupancy

Space heating

Hot water

Ventilation

Controls

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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/m<sup>2</sup> K  
Party walls description  
Party walls U-value  
Floor description  
Floor U-value 0.11W/m<sup>2</sup> 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

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## Project images











