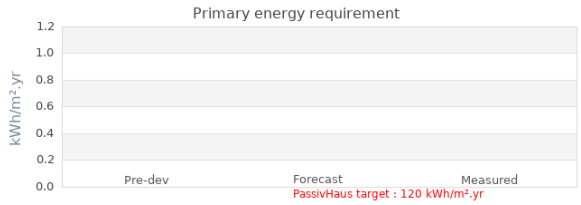
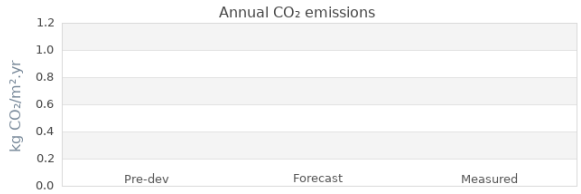
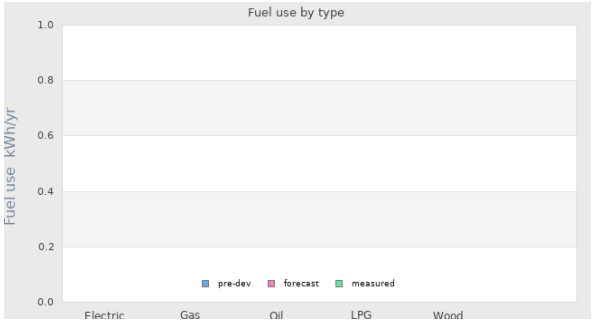
https://www.lowenergybuildings.org.uk/

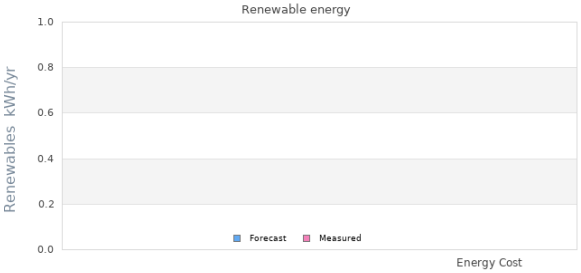
Project name Stoneworks Garth

Project summary 15 Stoneworks Garth is a compact 4 bedroom Passivhaus of timber frame construction. It is designed to reflect local Cumbrian farmhouse style but has a contemporary feel. To the south, large floor to ceiling windows catch the sun, with shading provided by a brise soleil. On the roof 4kw of solar PV panels provide electricity. Space heating and hot water is provided by an air source heat pump connected to several radiators. A small wood-burning stove gives further heating options.









Project Description

Projected build start date	28 Aug 2014
Projected date of occupation	18 May 2015
Project stage	Occupied
Project location	Crosby Ravensworth, Cumbria, England
Energy target	PassivHaus
Build type	New build
Building sector	Private Residential
Property type	Detached
Existing external wall construction	

Existing external wall additional information	
Existing party wall construction	
Floor area	134.7 m²
Floor area calculation method	PHPP
Building certification	Passivhaus certified

Project team

Organisation	
Project lead	
Client	Cheryl Hitchcock & Dudley Thompson
Architect	Andrew Yeats, Eco Arc Passive House Architects
Mechanical & electrical consultant(s)	Alan Clarke
Energy consultant(s)	
Structural engineer	Tweddell and Slater (below ground) Eden Insulation (above ground)
Quantity surveyor	
Other consultant	
Contractor	

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
Electric			

Fuel	previous	forecast	measured
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
-		
-		
Energy consumed by generation		

Airtightness (m³/m².hr @ 50 Pascals)

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

Annual space heat demand (kWh/m².yr)

	Pre-development	forecast	measured
Space heat demand	-	-	-

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	
Cooking	
Lighting	
Appliances	

Renewables
Strategy for minimising thermal bridges

Building construction

Storeys
Volume
Thermal fabric area
Roof description
Roof U-value
Walls description
Walls U-value
Party walls description
Party walls U-value
Floor description
Floor U-value
Glazed doors description
Glazed doors U-value
Opaque doors description
Opaque doors U-value
Windows description
Windows U-value
Windows energy transmittance (G-value)
Windows light transmittance
Rooflights description
Rooflights light transmittance
Rooflights U-value

Project images