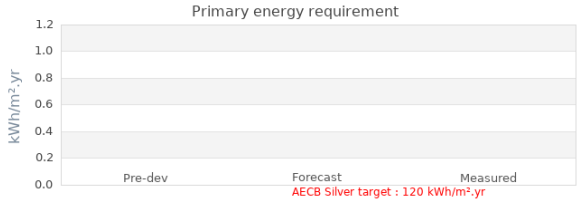
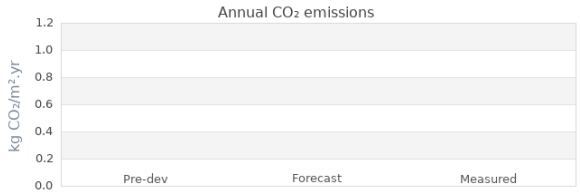
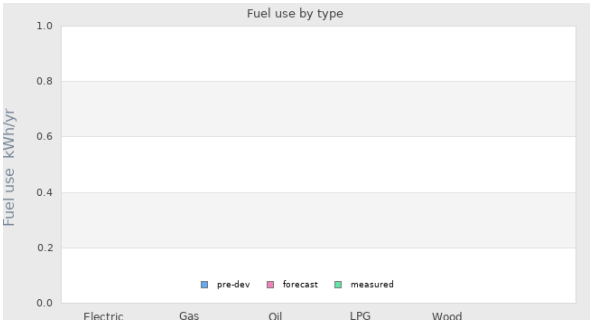
https://www.lowenergybuildings.org.uk/

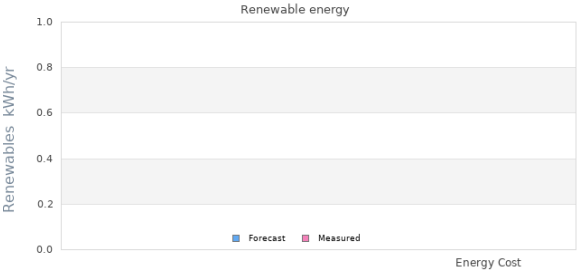
Project name Loudon Buildings, Godinton Estate

Project summary Conversion of a modern concrete framed straw barn into low energy 4 bedroom house, approved under Class Q permitted development.









Project Description

Projected build start date	23 May 2016
Projected date of occupation	27 Feb 2017
Project stage	Under construction
Project location	Ashford, Kent, England
Energy target	AECB Silver
Build type	Refurbishment
Building sector	Private Residential
Property type	Detached
Existing external wall construction	Other
Existing external wall additional information	Concrete portal frame with timber frame infil
Existing party wall construction	
Floor area	216 m²

Floor area calculation method	PHPP

Project team

Organisation	Conker Conservation Ltd
Project lead	Paul Mallion
Client	Godinton House Preservation Trust
Architect	Conker Conservation Ltd
Mechanical & electrical consultant(s)	BET Ltd
Energy consultant(s)	Conker Conservation Ltd
Structural engineer	SC Green Ltd
Quantity surveyor	
Other consultant	
Contractor	Eco-Librium Solutions Ltd

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			
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	17 Jan 2017	1.21

Annual space heat demand (kWh/m².yr)

	Pre-development	forecast	measured
Space heat demand	-	-	23

Whole house energy calculation method	
Other energy calculation method	
Predicted annual heating load	-
Other energy target(s)	

Building services

Occupancy	Rental property for up to 6 persons
Space heating	4kW wood stove in lounge. Electric heating element in MVHR. 2no 300W infra red heater panels in bedrooms which are furthest from stove.
Hot water	Solar thermal 30 no evacuated tubes, 2 no immersion elements back up, one on programmer, one on run-back timer
Ventilation	Paul Novus 450 with linda steel ducting
Controls	Programmer.
Cooking	Induction hob
Lighting	LED or CFL
Appliances	
Renewables	Evacuated solar thermal, 30 Tubes

Strategy for minimising thermal bridges	Designed carefully to avoid risks caused by existing concrete portal frame

Building construction

Storeys	1
Volume	713m³
Thermal fabric area	739m²
Roof description	400 I joists and cellulose fibre
Roof U-value	0.10W/m² K
Walls description	300 I joists plus 52 woodfibre
Walls U-value	0.13W/m² K
Party walls description	
Party walls U-value	
Floor description	400mm I joists, cellulose fibre
Floor U-value	0.11W/m² K
Glazed doors description	Timber framed outward opening
Glazed doors U-value	1.11W/m² K installed
Opaque doors description	Wood panel with insulated core
Opaque doors U-value	0.90W/m² K uninstalled
Windows description	Timber framed outward opening
Windows U-value	0.95W/m² K installed
Windows energy transmittance (G-value)	0.52%
Windows light transmittance	
Rooflights description	Triple glazed with thermally insulated flashings
Rooflights light transmittance	
Rooflights U-value	1.41W/m² K installed

Project images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