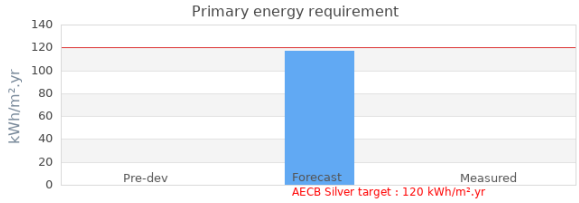
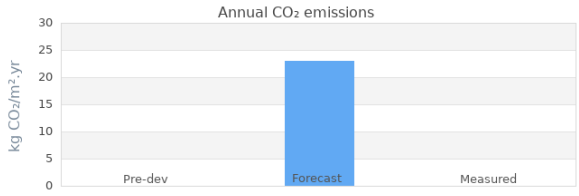
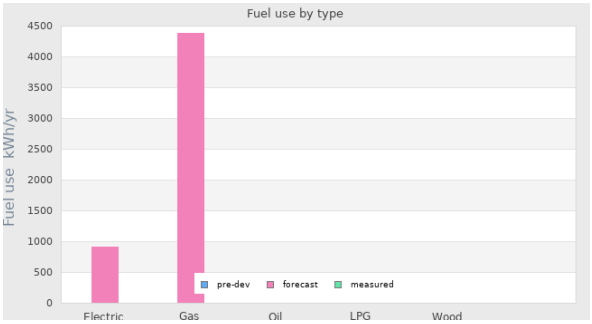
https://www.lowenergybuildings.org.uk/

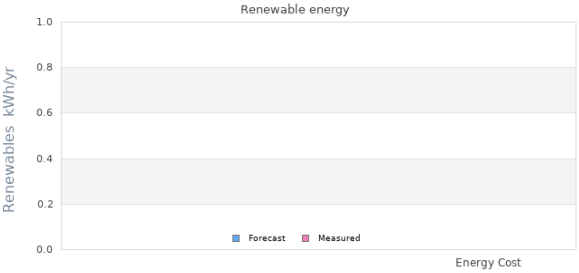
Project name Kings School Meadows - House type S2A

Project summary Plot 20 is 49 Green Street is house type S2A of a new build housing estate of 21 houses.









Project Description

Projected build start date	05 May 2014
Projected date of occupation	07 Apr 2015
Project stage	Occupied
Project location	Nottingham, Nottinghamshire, England
Energy target	AECB Silver
Build type	New build
Building sector	Public Residential
Property type	Mid Terrace
Existing external wall construction	Masonry Cavity
Existing external wall additional information	100 Facing brick 200 ecobead insulated cavity 100 internal block
Existing party wall construction	Cavity party wall 2 skins 100 dense block with insulated cavity

Floor area	62.8 m²
Floor area calculation method	PHPP

Project team

Organisation	William Davis Limited
Project lead	William Davis Limited
Client	Blue Print Limited Partnership
Architect	Marsh Grochowski Architects
Mechanical & electrical consultant(s)	William Davis Limited
Energy consultant(s)	Eco Design Consultants Limited
Structural engineer	
Quantity surveyor	Pulse Associates Ltd
Other consultant	
Contractor	William Davis Limited

Design strategies

Planned occupancy	These are private sale and the occupancy is unknown.
Space heating strategy	Each unit has an individual condensing mains gas boiler to water filled radiators
Water heating strategy	Each unit has a combined condensing gas boiler, providing instant hot water.
Fuel strategy	Mains Gas as primary heating source, and mains electricity.
Renewable energy generation strategy	No renewable electricity generation.
Passive solar strategy	All units modelled in PHPP for orientation, generally windows sized sensibly.
Space cooling strategy	Opening windows, plus some cooling via MVHR in summer bypass mode.
Daylighting strategy	No particular strategy given.
Ventilation strategy	Mechanical ventilation with heat recovery for background ventilation, opening windows for purge ventilation, and summer cooling.
Airtightness strategy	Ensuring properly detailed junctions and site supervision and on site inspection with signed check list sheet. Airtightness membrane to roof, with airtightness tapes to joints.
Strategy for minimising thermal bridges	Some thermal bridge analysis undertaken, Continuous insulation maintained whenever possible, with an on site inspection and check list sheet to ensure compliance. Junctions assessed include: foundations and internal load bearing walls at ground.

Modelling strategy	Passive House Planning Package used to model energy strategy.
Insulation strategy	Wall U value = 0.15 W/mK. Roof U value =0.09w/mK. Floor U value = 0.13W/mK
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		910.6	
Gas		4383.44	
Oil			
LPG			
Wood			

Primary energy requirement & CO2 emissions

	previous	forecast	measured
Annual CO2 emissions (kg CO2/m².yr)	-	23	-
Primary energy requirement (kWh/m².yr)	-	117	-

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	16 Jan 2015	2.48

Annual space heat demand (kWh/m².yr)

	Pre-development	forecast	measured
Space heat demand	-	39	-

Whole house energy calculation method	PHPP
Other energy calculation method	
Predicted heating load	20 W/m² (demand)

Other energy target(s)	

Building services

Occupancy	Designed maximum occupancy of 8 persons.
Space heating	Mains gas condensing Combi Boiler
Hot water	Domestic hot water by Combi boiler
Ventilation	MVhr system 4 ventilation system Itho Advance SAP 87% efficiency
Controls	Room thermostats
Cooking	Gas
Lighting	Compact Fluorescent lighting through out
Appliances	unknown
Renewables	No installation
Strategy for minimising thermal bridges	Details designed and check on site with in progress site photos and site sign off check list to confirm the work is carried out as designed.

Building construction

Storeys	2
Volume	157m³
Thermal fabric area	14064m²
Roof description	10 Degree Mono pitch cold roof construction - insulated at ceiling joist level with 450mm mineral wool
Roof U-value	0.89W/m² K
Walls description	Masonry cavity wall brick facing to outer leaf 200mm Eco Bead cavity insulation 100mm Block inner wall - 13mm wet plaster internal finish
Walls U-value	0.15W/m² K
Party walls description	Masonry cavity party wall with thermal closer pieces each end of wall to avoid thermal chimneys to Building Regulation
Party walls U-value	
Floor description	Ventilated block and beam floor with 150mm insulation and 45mm screed topping
Floor U-value	0.14W/m² K
Glazed doors description	High Performance timber Door
Glazed doors U-value	1.20W/m² K installed
Opaque doors description	High performance timber door
Opaque doors U-value	1.90W/m² K installed
Windows description	High performance timber windows
Windows U-value	1.20W/m² K installed

Windows energy transmittance (G-value)	50%
Windows light transmittance	
Rooflights description	
Rooflights light transmittance	
Rooflights U-value	

Project images