SAP Input

Address: Plot 1, Spa Lane, Hinckley
Located in: England
Region: Midlands
UPRN:
Date of assessment: 05 February 2014
Date of certificate: 07 February 2014
Assessment type: New dwelling design stage
Transaction type: New dwelling
Tenure type: Unknown
Related party disclosure: No related party
Thermal Mass Parameter: Indicative Value Medium
Dwelling designed to use less than 125 litres per Person per day: True

Dwelling type: House
Detachment: Detached
Year Completed: 2014

Floor Location:	Floor area:	Storey height:
Floor 0	89.83 m²	2.6 m
Floor 1	82.44 m²	2.3 m

Living area: 22.23 m² (fraction 0.129)
Front of dwelling faces: South

Name:	Source:	Type:	Glazing:	Argon:	Frame:
Front	Manufacturer	Windows	low-E, En = 0.05, soft coat	Yes	PVC-U
Rear	Manufacturer	Windows	low-E, En = 0.05, soft coat	Yes	PVC-U
Side	Manufacturer	Windows	low-E, En = 0.05, soft coat	Yes	PVC-U
Rear Dormers	Manufacturer	Windows	low-E, En = 0.05, soft coat	Yes	PVC-U

Name:	Gap:	Frame Factor:	g-value:	U-value:	Area:	No. of Openings:
Front	16mm or more	0.7	0.63	1.4	13.98	1
Rear	16mm or more	0.7	0.63	1.4	12.6	1
Side	16mm or more	0.7	0.63	1.4	0.66	1
Rear Dormers	16mm or more	0.7	0.63	1.4	5.67	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
Front		Ext Cavity Wall	South	0	0
Rear		Ext Cavity Wall	North	0	0
Side		Ext Cavity Wall	East	0	0
Rear Dormers		Timber Wall	North	0	0

Overshading: Average or unknown

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
Ext Cavity Wall	153.41	27.24	126.17	0.24	0	False	N/A
Sheltered Block Wall	16.77	0	16.77	0.16	0.33	False	N/A
Timber Wall	32.45	5.67	26.78	0.16	0	False	N/A
Roof Ins at Joists	100.61	0	100.61	0.11	0		N/A
Roof Ins at Rafters	12.45	0	12.45	0.16	0		N/A
Ground Floor	89.83			0.16			N/A
Exposed Floor	5.46			0.14			N/A
Sheltered Floor	16.1			0.14			N/A

SAP Input

Internal Elements
Party Elements

Thermal bridges:	User-defined y-value y =0.08 Reference: ACD's
Pressure test:	Yes (As designed)
Ventilation:	Natural ventilation (extract fans)
Number of chimneys:	0
Number of open flues:	0
Number of fans:	5
Number of sides sheltered:	2
Pressure test:	3.5
Main heating system:	Central heating systems with radiators or underfloor heating Gas boilers and oil boilers Fuel: mains gas Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 92.0% (SEDBUK2009) Regular condensing with automatic ignition Fuel Burning Type: Unknown Systems with radiators Pump in heat space: Yes Enhanced Load Compensator Delayed start
Main heating Control:	Time and temperature zone control Control code: 2110 Boiler interlock: Yes
Secondary Main heating system:	Room heaters Solid fuel room heaters Fuel: wood logs Info Source: Manufacturer Declaration Manufacturer's data Efficiency: 85.0% Stove (pellet fired)
Secondary Main heating Control:	Room thermostats only Control code: 2604
Secondary heating system:	None
Water heating:	From main heating system Water code: 901 Fuel :mains gas Hot water cylinder Cylinder volume: 210 litres

SAP Input

Cylinder insulation: Measured loss, 1.6kWh/day
Primary pipework insulation: True
Cylinderstat: True
Cylinder in heated space: True
Flue Gas Heat Recovery System:
Database (rev 353, product index 060003)
Brand name: Ravenheat
Model: EnergyCatcher
Model qualifier: A0-1
Solar panel: False

Electricity tariff:	standard tariff
In Smoke Control Area:	Unknown
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Low rise urban / suburban
EPC language:	English
Wind turbine:	No
Photovoltaics:	None
Assess Zero Carbon Home:	No

Regulations Compliance Report

Approved Document L1A 2010 edition assessed by Stroma FSAP 2009 program, Version: 1.5.0.63
Printed on 07 February 2014 at 10:40:01

Assessed By: Luke Wilson (STRO007302) **Building Type:** Detached House

NEW DWELLING DESIGN STAGE

Site Reference : New Project **Plot Reference:** Plot 1, Spa Lane, Hinckley

Address : Plot 1, Spa Lane, Hinckley

Name:
Address :

This report covers items included within the SAP calculations.
It is not a complete report of regulations compliance.

Fuel for main heating system: Natural gas		
Fuel factor: 1.00 (natural gas)		
Target Carbon Dioxide Emission Rate (TER)	16.88 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	13.66 kg/m²	OK

Element	Average	Highest	
External wall	0.22 (max. 0.30)	0.24 (max. 0.70)	OK
Floor	0.16 (max. 0.25)	0.16 (max. 0.70)	OK
Roof	0.12 (max. 0.20)	0.16 (max. 0.35)	OK
Openings	1.40 (max. 2.00)	1.40 (max. 3.30)	OK

Air permeability at 50 pascals	3.50	
Maximum	10.0	OK

Main Heating system:	Boiler system with radiators or underfloor - mains gas Data from manufacturer Efficiency 92.0 % SEDBUK2009 Minimum 88.0 %	OK
Main heating system 2:	Room heaters - wood logs Efficiency 85.0 Minimum 85.0 %	OK
Secondary heating system:	None	
Hot water Storage:	Nominal cylinder loss: 1.60 kWh/day Permitted by DBSCG: 2.30 kWh/day	
Primary pipework insulated:	Yes	OK
Space heating controls	Time and temperature zone control	OK
Space heating controls 2:	Room thermostats only	OK
Hot water controls:	Cylinderstat	OK
	Independent timer for DHW	OK
Boiler interlock:	Yes	OK

Regulations Compliance Report

Percentage of fixed lights with low-energy fittings	100.0%	
Minimum	75.0%	OK

Not applicable

Overheating risk (Midlands):	Not significant	OK

Based on:

Overshading:	Average or unknown
Windows facing: South	13.98m², Overhang twice as wide as window, ratio NaN
Windows facing: North	12.6m², Overhang twice as wide as window, ratio NaN
Windows facing: East	0.66m², Overhang twice as wide as window, ratio NaN
Windows facing: North	5.67m², Overhang twice as wide as window, ratio NaN
Ventilation rate:	4.00
Blinds/curtains:	shutter closed 100% of daylight hours

Air permeablility	3.5 m³/m²h
Windows U-value	1.4 W/m²K
Roofs U-value	0.11 W/m²K
External Walls U-value	0.15 W/m²K
l-value	0.16 W/
ors U-va	0.16 W/ K
ors U-valu	0.14 W/ K

SAP 2009 Overheating Assessment

Calculated by Stroma FSAP 2009 program, produced and printed on 07 February 2014

Dwelling type:	Detached House
Located in:	England
Region:	Midlands
Cross ventilation possible:	Yes
Number of storeys:	2
Front of dwelling faces:	South
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Indicative Value Medium
Night ventilation:	False
Blinds, curtains, shutters:	
Ventilation rate during hot weather (ach):	4 (Windows open half the time)

Summer ventilation heat loss coefficient:	558.58	**(P1)**
Transmission heat loss coefficient:	145.4	
Summer heat loss coefficient:	703.95	**(P2)**

Orientation:	**Ratio:**	**Z_overhangs:**
South (Front)	0	1
North (Rear)	0	1
East (Side)	0	1
North (Rear Dormers)	0	1

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South (Front)	1	0.9	1	0.9	**(P8)**
North (Rear)	1	0.9	1	0.9	**(P8)**
East (Side)	1	0.9	1	0.9	**(P8)**
North (Rear Dormers)	1	0.9	1	0.9	**(P8)**

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South (Front)	0.9 x	13.98	106.3	0.63	0.7	0.9	530.82	
North (Rear)	0.9 x	12.6	79.85	0.63	0.7	0.9	359.39	
East (Side)	0.9 x	0.66	112.4	0.63	0.7	0.9	26.5	
North (Rear Dormers)	0.9 x	5.67	79.85	0.63	0.7	0.9	161.73	
						Total	1078.45	**(P3/P4)**

	June	**July**	**August**	
Internal gains	661.6	635.79	645.95	
Total summer gains	1800.81	1714.24	1606.6	**(P5)**
Summer gain/loss ratio	2.56	2.44	2.28	**(P6)**
Mean summer external temperature (Midlands)	14.9	17.2	17.1	
Thermal mass temperature increment	0.25	0.25	0.25	
Threshold temperature	17.71	19.89	19.63	**(P7)**
Likelihood of high internal temperature	**Not significant**	**Not significant**	**Not significant**	

SAP 2009 Overheating Assessment

Assessment of likelihood of high internal temperature: Not significant

Code for Sustainable Homes Report

Assessor Name: Luke Wilson **Assessor Number:** STRO007302
Property Address: Plot 1, Spa Lane, Hinckley

	kg/m²/year
TER	16.88
DER	13.66

The following code calculations are taken from the Code for Sustainable Homes Technical Guide (Nov 10)

Total Energy Type CO2 Emissions for Codes Levels 1 - 5

	%	kg/m²/year	
DER from SAP 2009 DER Worksheet		13.66	*(ZC1)*
TER		16.88	
Residual CO2 emissions offset from biofuel CHP		0	*(ZC5)*
CO2 emissions offset from additional allowable electricty generation		0	*(ZC7)*
Total CO2 emissions offset from SAP Section 16 allowances		0	
DER accounting for SAP Section 16 allowances		13.66	
% improvement DER/TER	19.1		

Total Energy Type CO2 Emissions for Codes Levels 6

	kg/m²/year	
DER accounting for SAP Section 16 allowances	13.66	*(ZC1)*
CO2 emissions from appliances, equation (L14)	11.78	*(ZC2)*
CO2 emissions from cooking, equation (L16)	1.1	*(ZC3)*
Net CO2 emissions	26.5	*(ZC8)*

Result:

Credits awarded for Ene 1 = 2.3

Code Level = 3

DEVELOPMENT SERVICES
19 FEB 2014
RECEIVED

Fabric energy Efficiency: 55.59
Credits awarded for Ene 2 = 3.9

Reduction in CO2 Emissions

	%	kg/m²/year	
Standard Case CO2 emissions		30.24	
Standard DER		17.35	
Actual Case CO2 emissions		28.33	
Actual DER		15.44	
Reduction in CO2 emissions	6.32		

Credits awarded for Ene 7 = 0

Technologies eligible to contribute to achieving the requirements of this issue must produce energy from renewable sources and meet all other ancillary requirements as defined by Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC.

The following requirements must also be met:

- Where not provided by accredited external renewables there must be a direct supply of energy produced to the dwelling under assessment.
- Where covered by the Microgeneration Certification Scheme (MCS), technologies under 50kWe or 300kWth must be certified.
- Combined Heat and Power (CHP) schemes above 50kWe must be certified under the CHPQA standard.
- All technologies must be accounted for by SAP.

CHP schemes fuelled by mains gas are eligible to contribute to performance against this issue. Where these schemes are above 50kWe they must be certified under the CHPQA.
It is the responsibly of the Accredited OCDEA and Code Assessor to ensure all technologies use in the calculation are appropriate before awarding credits.