M: 07809 8

Lincs Air Testing Ltd

Helping reduce Co2

SAP Calculations

Client:

Project: Plot 1 & 2, Campbell Close
Grantham

Contact: Simon Nind
Lincs Air Testing
simon@lincsairtesting.co.uk

energy rating made easy

Lincs Air Testing Ltd
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Burton Waters
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LN1 2WP

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Building Regulation Compliance

Property Reference: 001668
Survey Reference: 002
Property: Plot 1 & 2, Campbell Close, Grantham

Issued on Date: 26.Jan.2016
Prop Type Ref:

SAP Rating:	84 B	**CO2 Emissions (t/year):**	1.60	**DER:**	16.57 Pass	**TER:**	16.70	**Percentage DER<TER:**	0.75 %
Environmental:	86 B	**General Requirements Compliance:**	Pass	**DFEE:**	49.70 Pass	**TFEE:**	49.71	**Percentage DFEE<TFEE:**	0.02 %

CfSH Results **Version:** **ENE1 Credits:** N/A **ENE2 Credits:** N/A **ENE7 Credits:** N/A **CfSH Level:** N/A

Surveyor: Simon Nind, Tel: 01522 878192 Surveyor ID: 6133-0002
Address: Burton Waters, Lincoln, Lincolnshire, LN1 2WP
Client:

Software Version: Elmhurst Energy Systems SAP2012 Calculator (Design System) version 3.03r13
SAP version: SAP 2012, Regs Region: England (Part L1A 2013), Calculation Type: New Build (As Designed)

SUMMARY FOR INPUT DATA FOR New Build (As Designed)

1a TER and DER

Fuel for main heating:	Mains gas	
Fuel factor:	1.00 (mains gas)	
Target Carbon Dioxide Emission Rate (TER)	16.70 kg/m^2	
Dwelling Carbon Dioxide Emission Rate (DER)	16.57 kg/m^2	OK

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	49.71 kWh/m^2	
Dwelling Fabric Energy Efficiency (DFEE)	49.70 kWh/m^2	OK

2 Fabric U-values

Element	Average	Highest	
External wall	0.26 (max. 0.30)	0.26 (max. 0.70)	OK
Party wall	0.00 (max. 0.20)	-	OK
Floor	0.18 (max. 0.25)	0.18 (max. 0.70)	OK
Roof	0.10 (max. 0.20)	0.10 (max. 0.35)	OK
Openings	1.40 (max. 2.00)	1.40 (max. 3.30)	OK

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals:	5.50 (design value)	
Maximum	10.0	OK

4 Heating efficiency

Main heating system:	Boiler system with radiators or underfloor - Mains gas Data from database Ideal Logic Combi ES 35 Combi boiler Efficiency: 88.9% SEDBUK2009 Minimum: 88.0%	OK
Secondary heating system:	None	

5 Cylinder insulation

Hot water storage	No cylinder	

6 Controls

Space heating controls:	Time and temperature zone control	OK
Hot water controls:	No cylinder	
Boiler interlock	Yes	OK

7 Low energy lights

Percentage of fixed lights with low-energy fittings:	100%	
Minimum	75%	OK

8 Mechanical ventilation

Not applicable

9 Summertime temperature

Overheating risk (East Pennines):	Not significant	OK
Based On:		
Overshading:	Average	
Windows facing North:	7.62 m^2, No overhang	
Windows facing South:	9.12 m^2, No overhang	
Air change rate:	8.00 ach	
Blinds/curtains:	None	

10 Key features

Party wall U-value	0.00 W/m^2K
Roof U-value	0.10 W/m^2K

Predicted Energy Assessment

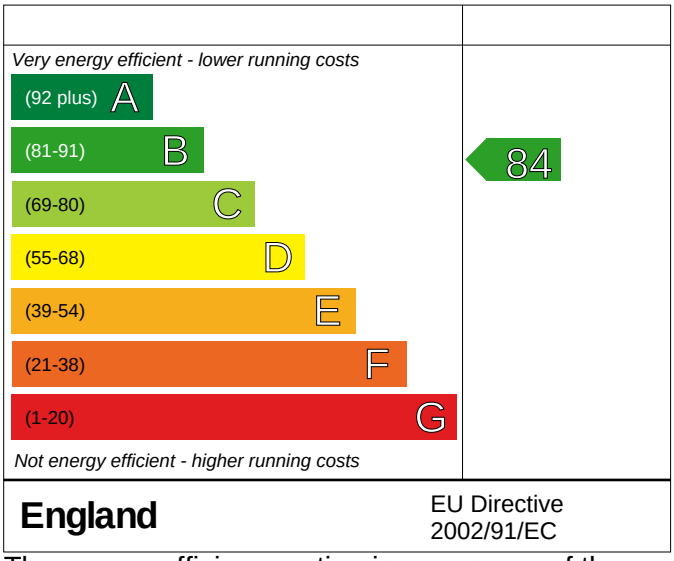
Plot 1 & 2, Campbell Close,
Grantham

Dwelling type:	House, Semi-Detached
Date of assessment:	26.Jan.2016
Produced by:	Lincs Air Testing
Total floor area:	104.16 m^2

This document is a Predicted Energy Assessment for properties marketed when they are incomplete. It includes a predicted energy rating which might not represent the final energy rating of the property on completion. Once the property is completed, this rating will be updated and an official Energy Performance Certificate will be created for the property. This will include more detailed information about the energy performance of the completed property.

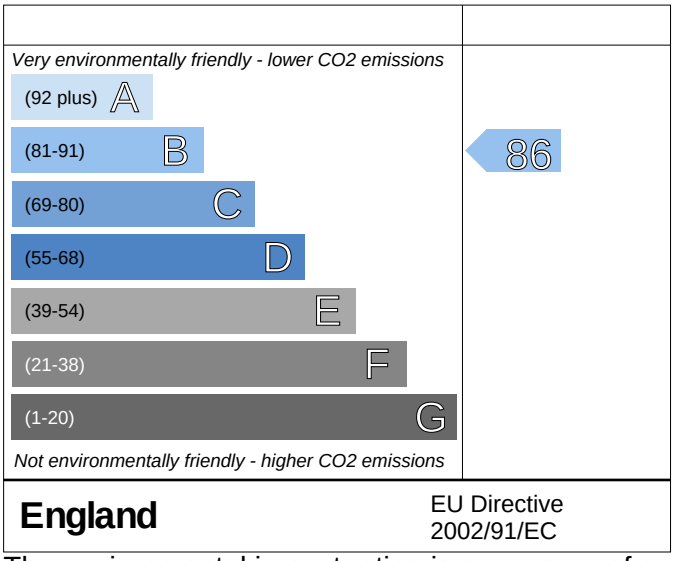
The energy performance has been assessed using the Government approved SAP2012 methodology and is rated in terms of the energy use per square meter of floor area; the energy efficiency is based on fuel costs and the environmental impact is based on carbon dioxide (CO2) emissions.

Energy Efficiency Rating



The energy efficiency rating is a measure of the overall efficiency of a home. The higher the rating the more energy efficient the home is and the lower the fuel bills are likely to be.

Environmental Impact (CO2) Rating



The environmental impact rating is a measure of a home's impact on the environment in terms of carbon dioxide (CO2) emissions. The higher the rating the less impact it has on the environment.

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SURVEY NOTES

Property Reference: 001668
Survey Reference: 002

Issued on Date: 26.Jan.2016
Prop Type Ref:

Property: Plot 1 & 2, Campbell Close, Grantham

SAP Rating:	84 B	**CO2 Emissions (t/year):**	1.60	**DER:**	16.57 Pass	**TER:**	16.70	**Percentage DER<TER:**	0.75 %
Environmental:	86 B	**General Requirements Compliance:**	Pass	**DFEE:**	49.70 Pass	**TFEE:**	49.71	**Percentage DFEE<TFEE:**	0.02 %

CfSH Results **Version:** **ENE1 Credits:** N/A **ENE2 Credits:** N/A **ENE7 Credits:** N/A **CfSH Level:** N/A

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Summary Information

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Survey Reference: 002

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SUMMARY FOR INPUT DATA FOR New Build (As Designed)

Orientation	North
1.0 Property Type	House, Semi-Detached
2.0 Number of Storeys	2
3.0 Date Built	2015
3.0 Property Age Band	
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	20.80	52.08	2.40
1st Storey:	20.80	52.08	2.60

7.0 Living Area 18.72

8.0 Thermal Mass Parameter Simple calculation - Low

9.0 External Walls

Description	Construction	U-Value	Kappa	Gross Area	Nett Area
External Wall 1	Other	0.26		104.00	83.48

9.1 Party walls

Description	Construction	Kappa	Area
Party Wall 1	Other		42.00

10.0 External Roofs

Description	Construction	U-Value	Kappa	Gross Area	Nett Area
External Roof 1	Plasterboard, insulated at ceiling level	0.10		52.08	52.08

11.0 HeatLoss Floors

Description	Construction	U-Value	Kappa	Area
Heat Loss Floor 1	Slab on ground, screed over insulation	0.18		52.08

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	Solar Trans	Frame Type	Frame Factor	U value
front door	Manufacturer	Half Glazed Door	Double Low-E Soft 0.1			0.63		0.70	1.40
windows	Manufacturer	Window	Double Low-E Soft 0.05			0.63		0.70	1.40

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width	Height	Count	Area	Curtain Closed
Front door	Half Glazed Door	[1] External Wall 1	North							1.89	
Front windows	Window	[1] External Wall 1	North	None	0.00					7.62	
Rear windows	Window	[1] External Wall 1	South	None	0.00					9.12	
Side Door	Half Glazed Door	[1] External Wall 1	East							1.89	

14.0 Conservatory None
15.0 Draught Proofing 100

16.0 Draught Lobby: No

17.0 Thermal Bridging: Calculate Bridges

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E5 Ground floor (normal)	20.80	0.160	Yes
Table K1 - Approved	E6 Intermediate floor within a dwelling	20.80	0.070	Yes
Table K1 - Approved	E16 Corner (normal)	10.00	0.090	Yes
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	Yes
Table K1 - Approved	E2 Other lintels (including other steel lintels)	14.00	0.300	No
Table K1 - Approved	E3 Sill	12.00	0.040	No
Table K1 - Approved	E4 Jamb	31.80	0.050	No
Table K1 - Approved	E10 Eaves (insulation at ceiling level)	12.40	0.060	No
Table K1 - Approved	E12 Gable (insulation at ceiling level)	8.40	0.240	No
Table K1 - Default	P1 Party wall - Ground floor	8.40	0.160	No
Table K1 - Default	P2 Party wall - Intermediate floor within a dwelling	8.40	0.000	No
Table K1 - Default	P4 Party wall - Roof (insulation at ceiling level)	8.40	0.240	No

18.0 Pressure Testing: Yes
- Designed q50: 5.50
- Property Tested ?
- As Built q50
- Same As Designed ?

19.0 Mechanical Ventilation
- Mechanical Ventilation System Present: No
- Approved Installation
- Windows open in hot weather: Windows fully open
- Cross ventilation possible: Yes
- Night Ventilation: Yes
- Air change rate: 8.00
- Mechanical Ventilation data Type
- Type
- MV Reference Number
- Configuration
- MVHR Duct Insulated
- Manufacturer SFP
- Duct Type
- MVHR Efficiency
- Wet Rooms
- Brand, Model

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				4
Number of passive vents				0
Number of flueless gas fires				0

21.0 Cooling System: No

22.0 Lighting
- Internal
  - Total number of light fittings: 18
  - Total number of L.E.L. fittings: 18
  - Percentage of L.E.L. fittings: 100.00
- External
  - External lights fitted: Yes
  - Light and motion sensors: Yes

23.0 Electricity Tariff: 7 Hour Off Peak

24.0 Heating Systems
- Main Heating 1: Database
  - Description
  - Percentage of Heat: 100 %
- Main Heating 2: None
  - Description
  - Percentage of Heat: %
- Community Heating
- Secondary Heating: None
- Water Heating: Main Heating 1
- Flue Gas Heat Recovery System: No
- Waste Water Heat Recovery: No

Instantaneous System 1
- Waste Water Heat Recovery: No

Instantaneous System 2

Waste Water Heat Recovery Storage System	No
Solar Panel	No
25.0 Main Heating 1	
Database Ref. No.	17045
Fuel Type	Mains gas
Main Heating	BGW
TestMethod	
SAP Code	104
Efficiency (Split Efficiences) %	
Efficiency (Split Efficiences) %	
In Winter	89.8
In Summer	87.3
Model Name	
Manufacturer	
Controls	CBI Time and temperature zone control
PCDF Controls	0
Delayed Start Stat	Yes
Sap Code	2110
Burner Control	
Boiler Compensator	
HETAS approved System	
Oil Pump Inside	
FI Case	
FI Water	
Flue Type	Balanced
Smoke Control Area	
Fan Assisted Flue	Yes
Is MHS Pumped	No pump
Heat Emitter	Radiators
Underfloor Heating	
Flow Temperature	
Electric CPSU Temperature	
Combi boiler type	Standard Combi
Combi keep hot type	None
Combi store type	
27.0 Community Heating	
Space Community Heating	
PCDF Index	
Distribution Loss	
Distribution Loss Value	
Controls	
SAP Code	
Water Community Heating	
PCDF Index	
Distribution Loss	
Distribution Loss Value	
Charging Linked To Heat Use	
28.0 Secondary Heating	
Description	
SHS efficiency %	
SAP Code	
HETAS Approved System	
Smoke Control Area	
Test Method	
Manufacturer	
Model Name	
29.0 Water Heating	HWP From main heating 1
Water use <= 125 litres/person/day	Yes
SAP Code	901
Immersion Heater	
Summer Immersion	
Suplementary Immersion	
Immersion Only Heating Hot Water	
29.1 Flue Gas Heat Recovery System	
Database ID	
Brand Model	
Details	
29.2 Waste Water Heat Recovery System	
Total rooms with shower and/or bath	
30.0 Hot Water Cylinder	None
Cylinder Stat	
Cylinder In Heated Space	
Independent Time Control	
Insulation Type	

Insulation Thickness
Cylinder Volume
Loss (kwh/day)
Pipes insulation
In Airing Cupboard

31.0 Solar Panel
Solar Panel Area
Area Type
Panel Type
n0, a1, a2, A/G ratio
Orientation
Elevation
Overshading
Solar Storage Volume
Pump electrically powered
Combined Cylinder

32.0 Thermal Store
Thermal Store Pipework

33.0 Photovoltaic Unit
Apportioned KWh/Year

34.0 Wind Turbines
Terrain Type Urban
Wind Turbines
Count
Apportioned Kwh/year
Rotor Diameter
Hub Height

35.0 Small-scale Hydro
Electricity Generated
Description
Apportioned kWh/Year

Recommendations
None

Further measures to achieve even higher standards

Solar water heating	£4,000 - £6,000	£34	B 85	B 87
Solar photovoltaic panels, 2.5 kWp	£5,000 - £8,000	£279	A 94	A 95

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	Junction detail	Source Type	Psi (W/mK)	Length (m)	Result	Reference
External wall	E5 Ground floor (normal)	Table K1 - Approved	0.160	20.80	3.33	
External wall	E6 Intermediate floor within a dwelling	Table K1 - Approved	0.070	20.80	1.46	
External wall	E16 Corner (normal)	Table K1 - Approved	0.090	10.00	0.90	
External wall	E18 Party wall between dwellings	Table K1 - Approved	0.060	10.00	0.60	
External wall	E2 Other lintels (including other steel lintels)	Table K1 - Approved	0.300	14.00	4.20	
External wall	E3 Sill	Table K1 - Approved	0.040	12.00	0.48	
External wall	E4 Jamb	Table K1 - Approved	0.050	31.80	1.59	
External wall	E10 Eaves (insulation at ceiling level)	Table K1 - Approved	0.060	12.40	0.74	
External wall	E12 Gable (insulation at ceiling level)	Table K1 - Approved	0.240	8.40	2.02	
Party wall	P1 Party wall - Ground floor	Table K1 - Default	0.160	8.40	1.34	
Party wall	P2 Party wall - Intermediate floor within a dwelling	Table K1 - Default	0.000	8.40	0.00	
Party wall	P4 Party wall - Roof (insulation at ceiling level)	Table K1 - Default	0.240	8.40	2.02	

Total W/mK: 18.67
Y-Value W/m2K: 0.090