Energy Statement

Site *Wombwell Lane Barnsley*

Domestic
Energy
Solutions

Energy Statement

An Energy statement has been produced for the site at Wombwell lane, Barnsley

Proposed development of 16 dwellings at Wombwell Lane, Barnsley



We have produced sap calculations for the 3 House types to achieve the 15% reduction in carbon emissions incorporating renewable energy technologies looking at ways that may be more feasible and more cost effective.

The most cost effective way to achieve 15% reduction in carbon emissions is to look at upgrading the fabric efficiency first then adding alternate renewable technologies.

Domestic Energy Solutions
Tel: 07809724312
Email: Domesticenergysoultions@sky.com

Energy Statement

Site *Wombwell Lane Barnsley*

Domestic
Energy
Solutions

Energy Statement

The following scenarios will reduce the carbon footprint of the dwellings by 15%.

There are three different house types.
Type A

Plot & Scenario	**Ways to achieve 15% reduction**	**Actual reduction %**
Type A Fabric & WWHR	Increase the fabric efficiency of the building by increasing the insulation in the walls and roof and increasing the U value of the windows Fit a Waste Water heat recovery system in the bathroom. A solar panel for the hot water system is required	15.73
PV	10m2 Photovoltaic Unit	16.52
ASHP (Air source heat pump)	Main heating system to be an Air source heat pump	18.03

Domestic Energy Solutions
Tel: 07809724312
Email: Domesticenergysoultions@sky.com

Energy Statement

Site *Wombwell Lane Barnsley*

Domestic
Energy
Solutions

Energy Statement

Plot & Scenario	**Ways to achieve 15% reduction**	**Actual reduction %**
Type B Fabric & WWHR	Increase the fabric efficiency of the building by increasing the insulation in the walls and roof and increasing the U value of the windows Fit a Waste Water heat recovery system in the bathroom. A solar panel for the hot water system is required	15.08
PV	10m2 Photovoltaic Unit	15.39
ASHP (Air source heat pump)	Main heating system to be an Air source heat pump	17.47

Domestic Energy Solutions
Tel: 07809724312
Email: Domesticenergysoultions@sky.com

Energy Statement

Site *Wombwell Lane Barnsley*

Domestic
Energy
Solutions

Energy Statement

Plot & Scenario	**Ways to achieve 15% reduction**	**Actual reduction %**
Type C Fabric & WWHR	Increase the fabric efficiency of the building by increasing the insulation in the walls and roof and increasing the U value of the windows Fit a Waste Water heat recovery system in the bathroom. A solar panel for the hot water system is required	15.18
PV	10m2 Photovoltaic Unit	15.29
ASHP (Air source heat pump)	Main heating system to be an Air source heat pump	15.26

In summary there are numerous ways of achieving the 15% reduction in carbon emissions, it may not be feasible to use Pholtovoltaic panels due to the cost and orientation of some of the dwellings.

The most feasible and cost effective way would be to upgrade the fabric efficiency by increasing the main elements insulation and making the building more air tight. Fitting a waste water heat recovery unit in the dwellings helps achieve the 15% and is also incorporating renewable technology into the development.

Enclosed are the Sap calculations with each scenario for the 3 different house types.

Domestic Energy Solutions
Tel: 07809724312
Email: Domesticenergysoultions@sky.com

Summary Information

Property Reference: Wombwell Lane
Survey Reference: Type A PV
Property: Wombwell Lane, Barnsley

Issued on Date: 10.Jul.2015
Prop Type Ref:

SAP Rating: 88 B **CO2 Emissions (t/year):** 1.18 **DER:** 13.68 Pass **TER:** 16.39 **Percentage DER<TER:** 16.52 %
Environmental: 89 B **General Requirements Compliance:** Pass **DFEE:** 46.94 Pass **TFEE:** 50.15 **Percentage DFEE<TFEE:** 6.40 %

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

Surveyor: Nicky Bowen, Tel: 01924380873 Surveyor ID: D719-0001
Address: Springfield Avenue, Wakefield, West Yorkshire, wf3 3fl
Client:

Software Version: Elmhurst Energy Systems SAP2012 Calculator (Design System) version 3.01r13
SAP version: SAP 2012, Regs Region: England (Part L1A 2013), Calculation Type: New Dwelling As Designed

SUMMARY FOR INPUT DATA FOR New Build (As Designed)

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

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	18.70	43.60	2.37
1st Storey:	18.70	43.60	2.63
2nd Storey:	17.60	29.30	2.50

7.0 Living Area 23.30

8.0 Thermal Mass Parameter Simple calculation - Medium

9.0 External Walls

Description	Construction	U-Value	Kappa	Gross Area	Nett Area
External Wall	Other	0.19		124.00	108.49
Walls in roof	Timber framed wall (one layer of plasterboard)	0.25		10.90	10.90

9.1 Party walls

Description	Construction	Kappa	Area
Party Wall	Plasterboard on dabs mounted on cement render on both sides, AAC blocks, cavity		69.80

10.0 External Roofs

Description	Construction	U-Value	Kappa	Gross Area	Nett Area
External Roof	Plasterboard, insulated at ceiling level	0.13		32.10	32.10
External Roof Pitch	Plasterboard, insulated slope	0.16		11.20	10.70

11.0 HeatLoss Floors

Description	Construction	U-Value	Kappa	Area
Heat Loss Floor	Slab on ground, screed over insulation	0.14		43.60

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	Solar Trans	Frame Type	Frame Factor	U value
New Windows	Manufacturer	Window	Double Low-E Soft 0.05			0.63		0.70	1.30
Main Door	Manufacturer	Half Glazed Door	Double Low-E Soft 0.05			0.63		0.70	1.00
Roof light	Manufacturer	Roof Window	Double Low-E Soft 0.05			0.63		0.70	1.40

13.0 Openings

© Elmhurst Energy Systems Limited Registered Office Unit 16, St Johns Business Park, Lutterworth, Leicestershire LE17 4HB

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width	Height	Count	Area	Curtain Closed
Front elevation	Window	[1] External Wall	South West	None	0.00					3.62	
Main Door	Half Glazed Door	[1] External Wall	South West							1.92	
Rear elevation	Window	[1] External Wall	North East	None	0.00					8.33	
Side elevation	Window	[1] External Wall	North West	None	0.00					1.64	
Front ele	Roof Window	[2] External Roof Pitch	South West	None						0.50	

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	E2 Other lintels (including other steel lintels)	11.14	0.300	Yes
Table K1 - Approved	E3 Sill	10.23	0.040	Yes
Table K1 - Approved	E4 Jamb	35.10	0.050	Yes
Table K1 - Approved	E5 Ground floor (normal)	18.70	0.160	Yes
Table K1 - Approved	E6 Intermediate floor within a dwelling	36.30	0.070	Yes
Table K1 - Approved	E11 Eaves (insulation at rafter level)	13.70	0.040	No
Table K1 - Approved	E12 Gable (insulation at ceiling level)	3.80	0.240	No
Table K1 - Approved	E13 Gable (insulation at rafter level)	3.00	0.040	No
Table K1 - Approved	E16 Corner (normal)	15.00	0.090	Yes
Table K1 - Approved	E18 Party wall between dwellings	15.00	0.060	Yes

18.0 Pressure Testing	Yes
Designed q50	5.00
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	14
Total number of L.E.L. fittings	14
Percentage of L.E.L. fittings	100.00
External	
External lights fitted	No
Light and motion sensors	
23.0 Electricity Tariff	Standard
24.0 Heating Systems	
Main Heating 1	Database
Description	

© Elmhurst Energy Systems Limited Registered Office Unit 16, St Johns Business Park, Lutterworth, Leicestershire LE17 4HB

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.	17143
Fuel Type	Mains gas
Main Heating	BGW
TestMethod	
SAP Code	104
Efficiency (Split Efficiences) %	
Efficiency (Split Efficiences) %	
In Winter	89.9
In Summer	87.3
Model Name	
Manufacturer	
Controls	CBI Time and temperature zone control
PCDF Controls	0
Delayed Start Stat	No
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	Pump in heated space
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	

© Elmhurst Energy Systems Limited Registered Office Unit 16, St Johns Business Park, Lutterworth, Leicestershire LE17 4HB

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: One Dwelling
- Apportioned KWh/Year

PV Cells kW Peak	Orientation	Elevation	Overshading
1.40	North East	30°	Modest

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	£36	B 89	B 90

© Elmhurst Energy Systems Limited Registered Office Unit 16, St Johns Business Park, Lutterworth, Leicestershire LE17 4HB

Summary Information

Property Reference: Wombwell Lane
Survey Reference: Type B PV
Property: Wombwell Lane, Barnsley

Issued on Date: 10.Jul.2015
Prop Type Ref:

SAP Rating: 88 B **CO2 Emissions (t/year):** 1.24 **DER:** 13.59 Pass **TER:** 16.06 **Percentage DER<TER:** 15.39 %
Environmental: 89 B **General Requirements Compliance:** Pass **DFEE:** 46.82 Pass **TFEE:** 49.79 **Percentage DFEE<TFEE:** 5.96 %

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

Surveyor: Nicky Bowen, Tel: 01924380873 Surveyor ID: D719-0001
Address: Springfield Avenue, Wakefield, West Yorkshire, wf3 3fl
Client:

Software Version: Elmhurst Energy Systems SAP2012 Calculator (Design System) version 3.01r13
SAP version: SAP 2012, Regs Region: England (Part L1A 2013), Calculation Type: New Dwelling As Designed

SUMMARY FOR INPUT DATA FOR New Build (As Designed)

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

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	18.70	43.60	2.37
1st Storey:	18.70	43.60	2.63
2nd Storey:	18.70	35.30	2.63

7.0 Living Area 23.30

8.0 Thermal Mass Parameter Simple calculation - Medium

9.0 External Walls

Description	Construction	U-Value	Kappa	Gross Area	Nett Area
External Wall	Other	0.19		124.00	107.13
Walls in roof	Timber framed wall (one layer of plasterboard)	0.25		8.70	8.70

9.1 Party walls

Description	Construction	Kappa	Area
Party Wall	Plasterboard on dabs mounted on cement render on both sides, AAC blocks, cavity		69.80

10.0 External Roofs

Description	Construction	U-Value	Kappa	Gross Area	Nett Area
External Roof	Plasterboard, insulated at ceiling level	0.13		37.50	37.50
External Roof Pitch	Plasterboard, insulated slope	0.16		11.00	11.00

11.0 HeatLoss Floors

Description	Construction	U-Value	Kappa	Area
Heat Loss Floor	Slab on ground, screed over insulation	0.14		43.60

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	Solar Trans	Frame Type	Frame Factor	U value
New Windows	Manufacturer	Window	Double Low-E Soft 0.05			0.63		0.70	1.30
Main Door	Manufacturer	Half Glazed Door	Double Low-E Soft 0.05			0.63		0.70	1.00
Roof light	Manufacturer	Roof Window	Double Low-E Soft 0.05			0.63		0.70	1.40

13.0 Openings

© Elmhurst Energy Systems Limited Registered Office Unit 16, St Johns Business Park, Lutterworth, Leicestershire LE17 4HB

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width	Height	Count	Area	Curtain Closed
Front elevation	Window	[1] External Wall	South West	None	0.00					4.98	
Main Door	Half Glazed Door	[1] External Wall	South West							1.92	
Rear elevation	Window	[1] External Wall	North East	None	0.00					8.33	
Side elevation	Window	[1] External Wall	North West	None	0.00					1.64	

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	E2 Other lintels (including other steel lintels)	12.28	0.300	Yes
Table K1 - Approved	E3 Sill	11.36	0.040	Yes
Table K1 - Approved	E4 Jamb	37.50	0.050	Yes
Table K1 - Approved	E5 Ground floor (normal)	18.70	0.160	Yes
Table K1 - Approved	E6 Intermediate floor within a dwelling	37.40	0.070	Yes
Table K1 - Approved	E11 Eaves (insulation at rafter level)	15.80	0.040	No
Table K1 - Approved	E12 Gable (insulation at ceiling level)	6.10	0.240	No
Table K1 - Approved	E16 Corner (normal)	15.26	0.090	Yes
Table K1 - Approved	E18 Party wall between dwellings	15.26	0.060	Yes

18.0 Pressure Testing: Yes
- Designed q50: 5.00
- 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: 14
  - Total number of L.E.L. fittings: 14
  - Percentage of L.E.L. fittings: 100.00
- External
  - External lights fitted: No
  - Light and motion sensors

23.0 Electricity Tariff: Standard

24.0 Heating Systems
- Main Heating 1: Database
  - Description
  - Percentage of Heat: 100 %
- Main Heating 2: None
  - Description

© Elmhurst Energy Systems Limited Registered Office Unit 16, St Johns Business Park, Lutterworth, Leicestershire LE17 4HB

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.	17143
Fuel Type	Mains gas
Main Heating	BGW
TestMethod	
SAP Code	104
Efficiency (Split Efficiences) %	
Efficiency (Split Efficiences) %	
In Winter	89.9
In Summer	87.3
Model Name	
Manufacturer	
Controls	CBI Time and temperature zone control
PCDF Controls	0
Delayed Start Stat	No
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	Pump in heated space
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	

© Elmhurst Energy Systems Limited Registered Office Unit 16, St Johns Business Park, Lutterworth, Leicestershire LE17 4HB

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 One Dwelling
Apportioned KWh/Year

PV Cells kW Peak	Orientation	Elevation	Overshading
1.40	North East	30°	Modest

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	£36	B 89	B 90

© Elmhurst Energy Systems Limited Registered Office Unit 16, St Johns Business Park, Lutterworth, Leicestershire LE17 4HB

Summary Information

Property Reference: Wombwell Lane
Survey Reference: Type C PV
Property: Wombwell Lane, Barnsley

Issued on Date: 10.Jul.2015
Prop Type Ref:

SAP Rating: 87 B **CO2 Emissions (t/year):** 1.43 **DER:** 15.51 Pass **TER:** 18.31 **Percentage DER<TER:** 15.29 %
Environmental: 87 B **General Requirements Compliance:** Pass **DFEE:** 60.06 Pass **TFEE:** 62.39 **Percentage DFEE<TFEE:** 3.74 %

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

Surveyor: Nicky Bowen, Tel: 01924380873 Surveyor ID: D719-0001
Address: Springfield Avenue, Wakefield, West Yorkshire, wf3 3fl
Client:

Software Version: Elmhurst Energy Systems SAP2012 Calculator (Design System) version 3.01r13
SAP version: SAP 2012, Regs Region: England (Part L1A 2013), Calculation Type: New Dwelling As Designed

SUMMARY FOR INPUT DATA FOR New Build (As Designed)

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

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	29.70	32.50	2.37
1st Storey:	29.70	49.40	2.63
2nd Storey:	27.50	39.80	2.63

7.0 Living Area 15.50

8.0 Thermal Mass Parameter Simple calculation - Medium

9.0 External Walls

Description	Construction	U-Value	Kappa	Gross Area	Nett Area
External Wall	Other	0.19		194.40	174.49
Walls in roof	Timber framed wall (one layer of plasterboard)	0.25		10.00	10.00
Garage wall	Other	0.25		19.90	19.90

10.0 External Roofs

Description	Construction	U-Value	Kappa	Gross Area	Nett Area
External Roof	Plasterboard, insulated at ceiling level	0.13		38.50	38.50
External Roof Pitch	Plasterboard, insulated slope	0.16		10.80	10.80

11.0 HeatLoss Floors

Description	Construction	U-Value	Kappa	Area
Heat Loss Floor	Slab on ground, screed over insulation	0.16		43.60
Floor above garage	Timber exposed floor, insulation between joists	0.19		15.30

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	Solar Trans	Frame Type	Frame Factor	U value
New Windows	Manufacturer	Window	Double Low-E Soft 0.05			0.63		0.70	1.30
Main Door	Manufacturer	Half Glazed Door	Double Low-E Soft 0.05			0.63		0.70	1.00
Roof light	Manufacturer	Roof Window	Double Low-E Soft 0.05			0.63		0.70	1.40

13.0 Openings

© Elmhurst Energy Systems Limited Registered Office Unit 16, St Johns Business Park, Lutterworth, Leicestershire LE17 4HB

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width	Height	Count	Area	Curtain Closed
Front elevation	Window	[1] External Wall	South West	None	0.00					3.55	
Main Door	Half Glazed Door	[1] External Wall	South West							1.92	
Rear elevation	Window	[1] External Wall	North East	None	0.00					10.43	
Side elevation	Window	[1] External Wall	North West	None	0.00					3.19	
Side ele	Window	[1] External Wall	South East	None	0.00					0.82	

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	E2 Other lintels (including other steel lintels)	13.64	0.300	Yes
Table K1 - Approved	E3 Sill	12.72	0.040	Yes
Table K1 - Approved	E4 Jamb	41.70	0.050	Yes
Table K1 - Approved	E5 Ground floor (normal)	29.70	0.160	Yes
Table K1 - Approved	E6 Intermediate floor within a dwelling	57.20	0.070	Yes
Table K1 - Approved	E11 Eaves (insulation at rafter level)	18.60	0.040	No
Table K1 - Approved	E12 Gable (insulation at ceiling level)	7.60	0.240	No
Table K1 - Approved	E13 Gable (insulation at rafter level)	6.00	0.040	No
Table K1 - Approved	E16 Corner (normal)	15.26	0.090	Yes
Table K1 - Approved	E18 Party wall between dwellings	15.26	0.060	Yes

18.0 Pressure Testing: Yes
- Designed q50: 5.00
- 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: 14
  - Total number of L.E.L. fittings: 14
  - Percentage of L.E.L. fittings: 100.00
- External
  - External lights fitted: No
  - Light and motion sensors

23.0 Electricity Tariff: Standard

24.0 Heating Systems
- Main Heating 1: Database
  - Description
  - Percentage of Heat: 100 %

© Elmhurst Energy Systems Limited Registered Office Unit 16, St Johns Business Park, Lutterworth, Leicestershire LE17 4HB

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.	17143
Fuel Type	Mains gas
Main Heating	BGW
TestMethod	
SAP Code	104
Efficiency (Split Efficiences) %	
Efficiency (Split Efficiences) %	
In Winter	89.9
In Summer	87.3
Model Name	
Manufacturer	
Controls	CBI Time and temperature zone control
PCDF Controls	0
Delayed Start Stat	No
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	Pump in heated space
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	

© Elmhurst Energy Systems Limited Registered Office Unit 16, St Johns Business Park, Lutterworth, Leicestershire LE17 4HB

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 One Dwelling
Apportioned KWh/Year

PV Cells kW Peak	Orientation	Elevation	Overshading
1.82	North East	30°	Modest

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	£36	B 88	B 88

© Elmhurst Energy Systems Limited Registered Office Unit 16, St Johns Business Park, Lutterworth, Leicestershire LE17 4HB

Summary Information

Property Reference: Wombwell Lane
Survey Reference: Type A ASHP
Property: Wombwell Lane, Barnsley

Issued on Date: 10.Jul.2015
Prop Type Ref:

SAP Rating: 82 B **CO2 Emissions (t/year):** 1.76 **DER:** 19.21 Pass **TER:** 23.44 **Percentage DER<TER:** 18.03 %
Environmental: 84 B **General Requirements Compliance:** Pass **DFEE:** 46.94 Pass **TFEE:** 50.15 **Percentage DFEE<TFEE:** 6.40 %

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

Surveyor: Nicky Bowen, Tel: 01924380873 Surveyor ID: D719-0001
Address: Springfield Avenue, Wakefield, West Yorkshire, wf3 3fl
Client:

Software Version: Elmhurst Energy Systems SAP2012 Calculator (Design System) version 3.01r13
SAP version: SAP 2012, Regs Region: England (Part L1A 2013), Calculation Type: New Dwelling As Designed

SUMMARY FOR INPUT DATA FOR New Build (As Designed)

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

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	18.70	43.60	2.37
1st Storey:	18.70	43.60	2.63
2nd Storey:	17.60	29.30	2.50

7.0 Living Area 23.30

8.0 Thermal Mass Parameter Simple calculation - Medium

9.0 External Walls

Description	Construction	U-Value	Kappa	Gross Area	Nett Area
External Wall	Other	0.19		124.00	108.49
Walls in roof	Timber framed wall (one layer of plasterboard)	0.25		10.90	10.90

9.1 Party walls

Description	Construction	Kappa	Area
Party Wall	Plasterboard on dabs mounted on cement render on both sides, AAC blocks, cavity		69.80

10.0 External Roofs

Description	Construction	U-Value	Kappa	Gross Area	Nett Area
External Roof	Plasterboard, insulated at ceiling level	0.13		32.10	32.10
External Roof Pitch	Plasterboard, insulated slope	0.16		11.20	10.70

11.0 HeatLoss Floors

Description	Construction	U-Value	Kappa	Area
Heat Loss Floor	Slab on ground, screed over insulation	0.14		43.60

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	Solar Trans	Frame Type	Frame Factor	U value
New Windows	Manufacturer	Window	Double Low-E Soft 0.05			0.63		0.70	1.30
Main Door	Manufacturer	Half Glazed Door	Double Low-E Soft 0.05			0.63		0.70	1.00
Roof light	Manufacturer	Roof Window	Double Low-E Soft 0.05			0.63		0.70	1.40

13.0 Openings

© Elmhurst Energy Systems Limited Registered Office Unit 16, St Johns Business Park, Lutterworth, Leicestershire LE17 4HB

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width	Height	Count	Area	Curtain Closed
Front elevation	Window	[1] External Wall	South West	None	0.00					3.62	
Main Door	Half Glazed Door	[1] External Wall	South West							1.92	
Rear elevation	Window	[1] External Wall	North East	None	0.00					8.33	
Side elevation	Window	[1] External Wall	North West	None	0.00					1.64	
Front ele	Roof Window	[2] External Roof Pitch	South West	None						0.50	

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	E2 Other lintels (including other steel lintels)	11.14	0.300	Yes
Table K1 - Approved	E3 Sill	10.23	0.040	Yes
Table K1 - Approved	E4 Jamb	35.10	0.050	Yes
Table K1 - Approved	E5 Ground floor (normal)	18.70	0.160	Yes
Table K1 - Approved	E6 Intermediate floor within a dwelling	36.30	0.070	Yes
Table K1 - Approved	E11 Eaves (insulation at rafter level)	13.70	0.040	No
Table K1 - Approved	E12 Gable (insulation at ceiling level)	3.80	0.240	No
Table K1 - Approved	E13 Gable (insulation at rafter level)	3.00	0.040	No
Table K1 - Approved	E16 Corner (normal)	15.00	0.090	Yes
Table K1 - Approved	E18 Party wall between dwellings	15.00	0.060	Yes

18.0 Pressure Testing	Yes
Designed q50	5.00
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	14
Total number of L.E.L. fittings	14
Percentage of L.E.L. fittings	100.00
External	
External lights fitted	No
Light and motion sensors	
23.0 Electricity Tariff	Standard
24.0 Heating Systems	
Main Heating 1	SAP table
Description	

© Elmhurst Energy Systems Limited Registered Office Unit 16, St Johns Business Park, Lutterworth, Leicestershire LE17 4HB

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 Instantaneous System 1	No
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No

25.0 Main Heating 1

Database Ref. No.	
Fuel Type	
Main Heating	PET
TestMethod	
SAP Code	224
Efficiency (SAP Table) %	175.1
Efficiency (SAP Table) %	
In Winter	
In Summer	
Model Name	
Manufacturer	
Controls	CHD Time and temperature zone control
PCDF Controls	0
Delayed Start Stat	
Sap Code	2207
Burner Control	
Boiler Compensator	
HETAS approved System	
Oil Pump Inside	
FI Case	
FI Water	
Flue Type	
Smoke Control Area	
Fan Assisted Flue	
Is MHS Pumped	Pump in heated space
Heat Emitter	Radiators
Underfloor Heating	
Flow Temperature	
Electric CPSU Temperature	
Combi boiler type	
Combi keep hot type	
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	No
Immersion Only Heating Hot Water	

© Elmhurst Energy Systems Limited Registered Office Unit 16, St Johns Business Park, Lutterworth, Leicestershire LE17 4HB

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	£67	B 84	B 86
Solar photovoltaic panels, 2.5 kWp	£5,000 - £8,000	£275	A 92	A 93

© Elmhurst Energy Systems Limited Registered Office Unit 16, St Johns Business Park, Lutterworth, Leicestershire LE17 4HB

Summary Information

Property Reference: Wombwell Lane
Survey Reference: Type B ASHP
Property: Wombwell Lane, Barnsley

Issued on Date: 10.Jul.2015
Prop Type Ref:

SAP Rating: 82 B **CO2 Emissions (t/year):** 1.83 **DER:** 18.97 Pass **TER:** 22.99 **Percentage DER<TER:** 17.47 %
Environmental: 84 B **General Requirements Compliance:** Pass **DFEE:** 46.82 Pass **TFEE:** 49.79 **Percentage DFEE<TFEE:** 5.96 %

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

Surveyor: Nicky Bowen, Tel: 01924380873 Surveyor ID: D719-0001
Address: Springfield Avenue, Wakefield, West Yorkshire, wf3 3fl
Client:

Software Version: Elmhurst Energy Systems SAP2012 Calculator (Design System) version 3.01r13
SAP version: SAP 2012, Regs Region: England (Part L1A 2013), Calculation Type: New Dwelling As Designed

SUMMARY FOR INPUT DATA FOR New Build (As Designed)

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

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	18.70	43.60	2.37
1st Storey:	18.70	43.60	2.63
2nd Storey:	18.70	35.30	2.63

7.0 Living Area 23.30

8.0 Thermal Mass Parameter Simple calculation - Medium

9.0 External Walls

Description	Construction	U-Value	Kappa	Gross Area	Nett Area
External Wall	Other	0.19		124.00	107.13
Walls in roof	Timber framed wall (one layer of plasterboard)	0.25		8.70	8.70

9.1 Party walls

Description	Construction	Kappa	Area
Party Wall	Plasterboard on dabs mounted on cement render on both sides, AAC blocks, cavity		69.80

10.0 External Roofs

Description	Construction	U-Value	Kappa	Gross Area	Nett Area
External Roof	Plasterboard, insulated at ceiling level	0.13		37.50	37.50
External Roof Pitch	Plasterboard, insulated slope	0.16		11.00	11.00

11.0 HeatLoss Floors

Description	Construction	U-Value	Kappa	Area
Heat Loss Floor	Slab on ground, screed over insulation	0.14		43.60

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	Solar Trans	Frame Type	Frame Factor	U value
New Windows	Manufacturer	Window	Double Low-E Soft 0.05			0.63		0.70	1.30
Main Door	Manufacturer	Half Glazed Door	Double Low-E Soft 0.05			0.63		0.70	1.00
Roof light	Manufacturer	Roof Window	Double Low-E Soft 0.05			0.63		0.70	1.40

13.0 Openings

© Elmhurst Energy Systems Limited Registered Office Unit 16, St Johns Business Park, Lutterworth, Leicestershire LE17 4HB

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width	Height	Count	Area	Curtain Closed
Front elevation	Window	[1] External Wall	South West	None	0.00					4.98	
Main Door	Half Glazed Door	[1] External Wall	South West							1.92	
Rear elevation	Window	[1] External Wall	North East	None	0.00					8.33	
Side elevation	Window	[1] External Wall	North West	None	0.00					1.64	

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	E2 Other lintels (including other steel lintels)	12.28	0.300	Yes
Table K1 - Approved	E3 Sill	11.36	0.040	Yes
Table K1 - Approved	E4 Jamb	37.50	0.050	Yes
Table K1 - Approved	E5 Ground floor (normal)	18.70	0.160	Yes
Table K1 - Approved	E6 Intermediate floor within a dwelling	37.40	0.070	Yes
Table K1 - Approved	E11 Eaves (insulation at rafter level)	15.80	0.040	No
Table K1 - Approved	E12 Gable (insulation at ceiling level)	6.10	0.240	No
Table K1 - Approved	E16 Corner (normal)	15.26	0.090	Yes
Table K1 - Approved	E18 Party wall between dwellings	15.26	0.060	Yes

18.0 Pressure Testing: Yes
- Designed q50: 5.00
- 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: 14
  - Total number of L.E.L. fittings: 14
  - Percentage of L.E.L. fittings: 100.00
- External
  - External lights fitted: No
  - Light and motion sensors

23.0 Electricity Tariff: Standard

24.0 Heating Systems
- Main Heating 1: SAP table
  - Description
  - Percentage of Heat: 100 %
- Main Heating 2: None
  - Description

© Elmhurst Energy Systems Limited Registered Office Unit 16, St Johns Business Park, Lutterworth, Leicestershire LE17 4HB

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.	
Fuel Type	
Main Heating	PET
TestMethod	
SAP Code	224
Efficiency (SAP Table) %	175.1
Efficiency (SAP Table) %	
In Winter	
In Summer	
Model Name	
Manufacturer	
Controls	CHD Time and temperature zone control
PCDF Controls	0
Delayed Start Stat	
Sap Code	2207
Burner Control	
Boiler Compensator	
HETAS approved System	
Oil Pump Inside	
FI Case	
FI Water	
Flue Type	
Smoke Control Area	
Fan Assisted Flue	
Is MHS Pumped	Pump in heated space
Heat Emitter	Radiators
Underfloor Heating	
Flow Temperature	
Electric CPSU Temperature	
Combi boiler type	
Combi keep hot type	
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	No
Immersion Only Heating Hot Water	
29.1 Flue Gas Heat Recovery System	
Database ID	
Brand Model	

© Elmhurst Energy Systems Limited Registered Office Unit 16, St Johns Business Park, Lutterworth, Leicestershire LE17 4HB

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	£67	B 84	B 86
Solar photovoltaic panels, 2.5 kWp	£5,000 - £8,000	£275	A 92	A 93

© Elmhurst Energy Systems Limited Registered Office Unit 16, St Johns Business Park, Lutterworth, Leicestershire LE17 4HB

Summary Information

Property Reference: Wombwell Lane
Survey Reference: Type C ASHP
Property: Wombwell Lane, Barnsley

Issued on Date: 10.Jul.2015
Prop Type Ref:

SAP Rating: 78 C **CO2 Emissions (t/year):** 2.22 **DER:** 22.47 Pass **TER:** 26.52 **Percentage DER<TER:** 15.26 %
Environmental: 80 C **General Requirements Compliance:** Pass **DFEE:** 60.06 Pass **TFEE:** 62.39 **Percentage DFEE<TFEE:** 3.74 %

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

Surveyor: Nicky Bowen, Tel: 01924380873 Surveyor ID: D719-0001
Address: Springfield Avenue, Wakefield, West Yorkshire, wf3 3fl
Client:

Software Version: Elmhurst Energy Systems SAP2012 Calculator (Design System) version 3.01r13
SAP version: SAP 2012, Regs Region: England (Part L1A 2013), Calculation Type: New Dwelling As Designed

SUMMARY FOR INPUT DATA FOR New Build (As Designed)

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

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	29.70	32.50	2.37
1st Storey:	29.70	49.40	2.63
2nd Storey:	27.50	39.80	2.63

7.0 Living Area	15.50
8.0 Thermal Mass Parameter	Simple calculation - Medium

9.0 External Walls

Description	Construction	U-Value	Kappa	Gross Area	Nett Area
External Wall	Other	0.19		194.40	174.49
Walls in roof	Timber framed wall (one layer of plasterboard)	0.25		10.00	10.00
Garage wall	Other	0.25		19.90	19.90

10.0 External Roofs

Description	Construction	U-Value	Kappa	Gross Area	Nett Area
External Roof	Plasterboard, insulated at ceiling level	0.13		38.50	38.50
External Roof Pitch	Plasterboard, insulated slope	0.16		10.80	10.80

11.0 HeatLoss Floors

Description	Construction	U-Value	Kappa	Area
Heat Loss Floor	Slab on ground, screed over insulation	0.16		43.60
Floor above garage	Timber exposed floor, insulation between joists	0.19		15.30

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	Solar Trans	Frame Type	Frame Factor	U value
New Windows	Manufacturer	Window	Double Low-E Soft 0.05			0.63		0.70	1.30
Main Door	Manufacturer	Half Glazed Door	Double Low-E Soft 0.05			0.63		0.70	1.00
Roof light	Manufacturer	Roof Window	Double Low-E Soft 0.05			0.63		0.70	1.40

13.0 Openings

© Elmhurst Energy Systems Limited Registered Office Unit 16, St Johns Business Park, Lutterworth, Leicestershire LE17 4HB

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width	Height	Count	Area	Curtain Closed
Front elevation	Window	[1] External Wall	South West	None	0.00					3.55	
Main Door	Half Glazed Door	[1] External Wall	South West							1.92	
Rear elevation	Window	[1] External Wall	North East	None	0.00					10.43	
Side elevation	Window	[1] External Wall	North West	None	0.00					3.19	
Side ele	Window	[1] External Wall	South East	None	0.00					0.82	

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	E2 Other lintels (including other steel lintels)	13.64	0.300	Yes
Table K1 - Approved	E3 Sill	12.72	0.040	Yes
Table K1 - Approved	E4 Jamb	41.70	0.050	Yes
Table K1 - Approved	E5 Ground floor (normal)	29.70	0.160	Yes
Table K1 - Approved	E6 Intermediate floor within a dwelling	57.20	0.070	Yes
Table K1 - Approved	E11 Eaves (insulation at rafter level)	18.60	0.040	No
Table K1 - Approved	E12 Gable (insulation at ceiling level)	7.60	0.240	No
Table K1 - Approved	E13 Gable (insulation at rafter level)	6.00	0.040	No
Table K1 - Approved	E16 Corner (normal)	15.26	0.090	Yes
Table K1 - Approved	E18 Party wall between dwellings	15.26	0.060	Yes

18.0 Pressure Testing: Yes
- Designed q50: 5.00
- 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: 14
  - Total number of L.E.L. fittings: 14
  - Percentage of L.E.L. fittings: 100.00
- External
  - External lights fitted: No
  - Light and motion sensors

23.0 Electricity Tariff: Standard

24.0 Heating Systems
- Main Heating 1: SAP table
  - Description
  - Percentage of Heat: 100 %

© Elmhurst Energy Systems Limited Registered Office Unit 16, St Johns Business Park, Lutterworth, Leicestershire LE17 4HB

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 Instantaneous System 1	No
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No

25.0 Main Heating 1	
Database Ref. No.	
Fuel Type	
Main Heating	PET
TestMethod	
SAP Code	224
Efficiency (SAP Table) %	175.1
Efficiency (SAP Table) %	
In Winter	
In Summer	
Model Name	
Manufacturer	
Controls	CHD Time and temperature zone control
PCDF Controls	0
Delayed Start Stat	
Sap Code	2207
Burner Control	
Boiler Compensator	
HETAS approved System	
Oil Pump Inside	
FI Case	
FI Water	
Flue Type	
Smoke Control Area	
Fan Assisted Flue	
Is MHS Pumped	Pump in heated space
Heat Emitter	Radiators
Underfloor Heating	
Flow Temperature	
Electric CPSU Temperature	
Combi boiler type	
Combi keep hot type	
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	No
Immersion Only Heating Hot Water	
29.1 Flue Gas Heat Recovery System	

© Elmhurst Energy Systems Limited Registered Office Unit 16, St Johns Business Park, Lutterworth, Leicestershire LE17 4HB

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	£67	C 80	B 82
Solar photovoltaic panels, 2.5 kWp	£5,000 - £8,000	£275	B 88	B 89

© Elmhurst Energy Systems Limited Registered Office Unit 16, St Johns Business Park, Lutterworth, Leicestershire LE17 4HB

Summary Information

Property Reference: Wombwell Lane
Survey Reference: Type A WWHR
Property: Wombwell Lane, Barnsley

Issued on Date: 10.Jul.2015
Prop Type Ref:

SAP Rating: 86 B **CO2 Emissions (t/year):** 1.24 **DER:** 13.81 Pass **TER:** 16.39 **Percentage DER<TER:** 15.73 %
Environmental: 88 B **General Requirements Compliance:** Pass **DFEE:** 43.02 Pass **TFEE:** 50.15 **Percentage DFEE<TFEE:** 14.22 %

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

Surveyor: Nicky Bowen, Tel: 01924380873 Surveyor ID: D719-0001
Address: Springfield Avenue, Wakefield, West Yorkshire, wf3 3fl
Client:

Software Version: Elmhurst Energy Systems SAP2012 Calculator (Design System) version 3.01r13
SAP version: SAP 2012, Regs Region: England (Part L1A 2013), Calculation Type: New Dwelling As Designed

SUMMARY FOR INPUT DATA FOR New Build (As Designed)

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

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	18.70	43.60	2.37
1st Storey:	18.70	43.60	2.63
2nd Storey:	17.60	29.30	2.50

7.0 Living Area 23.30

8.0 Thermal Mass Parameter Simple calculation - Medium

9.0 External Walls

Description	Construction	U-Value	Kappa	Gross Area	Nett Area
External Wall	Other	0.18		124.00	108.49
Walls in roof	Timber framed wall (one layer of plasterboard)	0.19		10.90	10.90

9.1 Party walls

Description	Construction	Kappa	Area
Party Wall	Plasterboard on dabs mounted on cement render on both sides, AAC blocks, cavity		69.80

10.0 External Roofs

Description	Construction	U-Value	Kappa	Gross Area	Nett Area
External Roof	Plasterboard, insulated at ceiling level	0.09		32.10	32.10
External Roof Pitch	Plasterboard, insulated slope	0.16		11.20	10.70

11.0 HeatLoss Floors

Description	Construction	U-Value	Kappa	Area
Heat Loss Floor	Slab on ground, screed over insulation	0.14		43.60

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	Solar Trans	Frame Type	Frame Factor	U value
New Windows	Manufacturer	Window	Double Low-E Soft 0.05			0.63		0.70	1.20
Main Door	Manufacturer	Half Glazed Door	Double Low-E Soft 0.05			0.63		0.70	0.90
Roof light	Manufacturer	Roof Window	Double Low-E Soft 0.05			0.63		0.70	1.20

13.0 Openings

© Elmhurst Energy Systems Limited Registered Office Unit 16, St Johns Business Park, Lutterworth, Leicestershire LE17 4HB

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width	Height	Count	Area	Curtain Closed
Front elevation	Window	[1] External Wall	South West	None	0.00					3.62	
Main Door	Half Glazed Door	[1] External Wall	South West							1.92	
Rear elevation	Window	[1] External Wall	North East	None	0.00					8.33	
Side elevation	Window	[1] External Wall	North West	None	0.00					1.64	
Front ele	Roof Window	[2] External Roof Pitch	South West	None						0.50	

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	E2 Other lintels (including other steel lintels)	11.14	0.300	Yes
Table K1 - Approved	E3 Sill	10.23	0.040	Yes
Table K1 - Approved	E4 Jamb	35.10	0.050	Yes
Table K1 - Approved	E5 Ground floor (normal)	18.70	0.160	Yes
Table K1 - Approved	E6 Intermediate floor within a dwelling	36.30	0.070	Yes
Table K1 - Approved	E11 Eaves (insulation at rafter level)	13.70	0.040	No
Table K1 - Approved	E12 Gable (insulation at ceiling level)	3.80	0.240	No
Table K1 - Approved	E13 Gable (insulation at rafter level)	3.00	0.040	No
Table K1 - Approved	E16 Corner (normal)	15.00	0.090	Yes
Table K1 - Approved	E18 Party wall between dwellings	15.00	0.060	Yes

18.0 Pressure Testing	Yes
Designed q50	3.00
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	14
Total number of L.E.L. fittings	14
Percentage of L.E.L. fittings	100.00
External	
External lights fitted	No
Light and motion sensors	
23.0 Electricity Tariff	Standard
24.0 Heating Systems	
Main Heating 1	Database
Description	

© Elmhurst Energy Systems Limited Registered Office Unit 16, St Johns Business Park, Lutterworth, Leicestershire LE17 4HB

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 Instantaneous System 1	Yes
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	Yes

25.0 Main Heating 1	
Database Ref. No.	17143
Fuel Type	Mains gas
Main Heating	BGW
TestMethod	
SAP Code	104
Efficiency (Split Efficiences) %	
Efficiency (Split Efficiences) %	
In Winter	89.9
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	Pump in heated space
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	

© Elmhurst Energy Systems Limited Registered Office Unit 16, St Johns Business Park, Lutterworth, Leicestershire LE17 4HB

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	1
Database ID	80073
Brand Model	RECOUP, Propipe+
Details	Year: 2012 + current Efficiency: 66 Utilisation factor: 0.975
Number of mixer showers in rooms with a bath	0
Number of mixer showers in rooms without a bath	1
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	2.00
Area Type	Gross
Panel Type	Evacuated tube
n0, a1, a2, A/G ratio	0.60, 3.00, 0.0050, 0.72
Orientation	North East
Elevation	30°
Overshading	Modest
Solar Storage Volume	210.00
Pump electrically powered	Yes
Combined Cylinder	No
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 photovoltaic panels, 2.5 kWp	£5,000 - £8,000	£275	A 95	A 96

© Elmhurst Energy Systems Limited Registered Office Unit 16, St Johns Business Park, Lutterworth, Leicestershire LE17 4HB

Summary Information

Property Reference: Wombwell Lane
Survey Reference: Type B WWHR
Property: Wombwell Lane, Barnsley

Issued on Date: 10.Jul.2015
Prop Type Ref:

SAP Rating: 87 B **CO2 Emissions (t/year):** 1.29 **DER:** 13.64 Pass **TER:** 16.06 **Percentage DER<TER:** 15.08 %
Environmental: 88 B **General Requirements Compliance:** Pass **DFEE:** 42.97 Pass **TFEE:** 49.79 **Percentage DFEE<TFEE:** 13.69 %

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

Surveyor: Nicky Bowen, Tel: 01924380873 Surveyor ID: D719-0001
Address: Springfield Avenue, Wakefield, West Yorkshire, wf3 3fl
Client:

Software Version: Elmhurst Energy Systems SAP2012 Calculator (Design System) version 3.01r13
SAP version: SAP 2012, Regs Region: England (Part L1A 2013), Calculation Type: New Dwelling As Designed

SUMMARY FOR INPUT DATA FOR New Build (As Designed)

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

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	18.70	43.60	2.37
1st Storey:	18.70	43.60	2.63
2nd Storey:	18.70	35.30	2.63

7.0 Living Area 23.30

8.0 Thermal Mass Parameter Simple calculation - Medium

9.0 External Walls

Description	Construction	U-Value	Kappa	Gross Area	Nett Area
External Wall	Other	0.18		124.00	107.13
Walls in roof	Timber framed wall (one layer of plasterboard)	0.19		8.70	8.70

9.1 Party walls

Description	Construction	Kappa	Area
Party Wall	Plasterboard on dabs mounted on cement render on both sides, AAC blocks, cavity		69.80

10.0 External Roofs

Description	Construction	U-Value	Kappa	Gross Area	Nett Area
External Roof	Plasterboard, insulated at ceiling level	0.09		37.50	37.50
External Roof Pitch	Plasterboard, insulated slope	0.16		11.00	11.00

11.0 HeatLoss Floors

Description	Construction	U-Value	Kappa	Area
Heat Loss Floor	Slab on ground, screed over insulation	0.14		43.60

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	Solar Trans	Frame Type	Frame Factor	U value
New Windows	Manufacturer	Window	Double Low-E Soft 0.05			0.63		0.70	1.20
Main Door	Manufacturer	Half Glazed Door	Double Low-E Soft 0.05			0.63		0.70	0.90
Roof light	Manufacturer	Roof Window	Double Low-E Soft 0.05			0.63		0.70	1.20

13.0 Openings

© Elmhurst Energy Systems Limited Registered Office Unit 16, St Johns Business Park, Lutterworth, Leicestershire LE17 4HB

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width	Height	Count	Area	Curtain Closed
Front elevation	Window	[1] External Wall	South West	None	0.00					4.98	
Main Door	Half Glazed Door	[1] External Wall	South West							1.92	
Rear elevation	Window	[1] External Wall	North East	None	0.00					8.33	
Side elevation	Window	[1] External Wall	North West	None	0.00					1.64	

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	E2 Other lintels (including other steel lintels)	12.28	0.300	Yes
Table K1 - Approved	E3 Sill	11.36	0.040	Yes
Table K1 - Approved	E4 Jamb	37.50	0.050	Yes
Table K1 - Approved	E5 Ground floor (normal)	18.70	0.160	Yes
Table K1 - Approved	E6 Intermediate floor within a dwelling	37.40	0.070	Yes
Table K1 - Approved	E11 Eaves (insulation at rafter level)	15.80	0.040	No
Table K1 - Approved	E12 Gable (insulation at ceiling level)	6.10	0.240	No
Table K1 - Approved	E16 Corner (normal)	15.26	0.090	Yes
Table K1 - Approved	E18 Party wall between dwellings	15.26	0.060	Yes

18.0 Pressure Testing: Yes
- Designed q50: 3.00
- 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: 14
  - Total number of L.E.L. fittings: 14
  - Percentage of L.E.L. fittings: 100.00
- External
  - External lights fitted: No
  - Light and motion sensors

23.0 Electricity Tariff: Standard

24.0 Heating Systems
- Main Heating 1: Database
  - Description
  - Percentage of Heat: 100 %
- Main Heating 2: None
  - Description

© Elmhurst Energy Systems Limited Registered Office Unit 16, St Johns Business Park, Lutterworth, Leicestershire LE17 4HB

Percentage of Heat	%
Community Heating	
Secondary Heating	None
Water Heating	Main Heating 1
Flue Gas Heat Recovery System	No
Waste Water Heat Recovery Instantaneous System 1	Yes
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	Yes

25.0 Main Heating 1	
Database Ref. No.	17143
Fuel Type	Mains gas
Main Heating	BGW
TestMethod	
SAP Code	104
Efficiency (Split Efficiences) %	
Efficiency (Split Efficiences) %	
In Winter	89.9
In Summer	87.3
Model Name	
Manufacturer	
Controls	CBI Time and temperature zone control
PCDF Controls	0
Delayed Start Stat	No
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	Pump in heated space
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	

© Elmhurst Energy Systems Limited Registered Office Unit 16, St Johns Business Park, Lutterworth, Leicestershire LE17 4HB

Details	
29.2 Waste Water Heat Recovery System	
Total rooms with shower and/or bath	1
Database ID	80073
Brand Model	RECOUP, Propipe+
Details	Year: 2012 + current Efficiency: 66 Utilisation factor: 0.975
Number of mixer showers in rooms with a bath	0
Number of mixer showers in rooms without a bath	1
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	2.00
Area Type	Aperture
Panel Type	Evacuated tube
n0, a1, a2, A/G ratio	0.60, 3.00, 0.0050, 0.72
Orientation	North East
Elevation	30°
Overshading	Modest
Solar Storage Volume	210.00
Pump electrically powered	Yes
Combined Cylinder	No
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 photovoltaic panels, 2.5 kWp	£5,000 - £8,000	£275	A 95	A 96

© Elmhurst Energy Systems Limited Registered Office Unit 16, St Johns Business Park, Lutterworth, Leicestershire LE17 4HB

Summary Information

Property Reference: Wombwell Lane
Survey Reference: Type C WWHR
Property: Wombwell Lane, Barnsley

Issued on Date: 10.Jul.2015
Prop Type Ref:

SAP Rating: 85 B **CO2 Emissions (t/year):** 1.49 **DER:** 15.53 Pass **TER:** 18.31 **Percentage DER<TER:** 15.18 %
Environmental: 87 B **General Requirements Compliance:** Pass **DFEE:** 54.09 Pass **TFEE:** 62.39 **Percentage DFEE<TFEE:** 13.30 %

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

Surveyor: Nicky Bowen, Tel: 01924380873 Surveyor ID: D719-0001
Address: Springfield Avenue, Wakefield, West Yorkshire, wf3 3fl
Client:

Software Version: Elmhurst Energy Systems SAP2012 Calculator (Design System) version 3.01r13
SAP version: SAP 2012, Regs Region: England (Part L1A 2013), Calculation Type: New Dwelling As Designed

SUMMARY FOR INPUT DATA FOR New Build (As Designed)

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

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	29.70	32.50	2.37
1st Storey:	29.70	49.40	2.63
2nd Storey:	27.50	39.80	2.63

7.0 Living Area 15.50

8.0 Thermal Mass Parameter Simple calculation - Medium

9.0 External Walls

Description	Construction	U-Value	Kappa	Gross Area	Nett Area
External Wall	Other	0.17		194.40	174.49
Walls in roof	Timber framed wall (one layer of plasterboard)	0.19		10.00	10.00
Garage wall	Other	0.19		19.90	19.90

10.0 External Roofs

Description	Construction	U-Value	Kappa	Gross Area	Nett Area
External Roof	Plasterboard, insulated at ceiling level	0.09		38.50	38.50
External Roof Pitch	Plasterboard, insulated slope	0.14		10.80	10.80

11.0 HeatLoss Floors

Description	Construction	U-Value	Kappa	Area
Heat Loss Floor	Slab on ground, screed over insulation	0.14		43.60
Floor above garage	Timber exposed floor, insulation between joists	0.19		15.30

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	Solar Trans	Frame Type	Frame Factor	U value
New Windows	Manufacturer	Window	Double Low-E Soft 0.05			0.63		0.70	1.20
Main Door	Manufacturer	Half Glazed Door	Double Low-E Soft 0.05			0.63		0.70	0.90
Roof light	Manufacturer	Roof Window	Double Low-E Soft 0.05			0.63		0.70	1.20

13.0 Openings

© Elmhurst Energy Systems Limited Registered Office Unit 16, St Johns Business Park, Lutterworth, Leicestershire LE17 4HB

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width	Height	Count	Area	Curtain Closed
Front elevation	Window	[1] External Wall	South West	None	0.00					3.55	
Main Door	Half Glazed Door	[1] External Wall	South West							1.92	
Rear elevation	Window	[1] External Wall	North East	None	0.00					10.43	
Side elevation	Window	[1] External Wall	North West	None	0.00					3.19	
Side ele	Window	[1] External Wall	South East	None	0.00					0.82	

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	E2 Other lintels (including other steel lintels)	13.64	0.300	Yes
Table K1 - Approved	E3 Sill	12.72	0.040	Yes
Table K1 - Approved	E4 Jamb	41.70	0.050	Yes
Table K1 - Approved	E5 Ground floor (normal)	29.70	0.160	Yes
Table K1 - Approved	E6 Intermediate floor within a dwelling	57.20	0.070	Yes
Table K1 - Approved	E11 Eaves (insulation at rafter level)	18.60	0.040	No
Table K1 - Approved	E12 Gable (insulation at ceiling level)	7.60	0.240	No
Table K1 - Approved	E13 Gable (insulation at rafter level)	6.00	0.040	No
Table K1 - Approved	E16 Corner (normal)	15.26	0.090	Yes
Table K1 - Approved	E18 Party wall between dwellings	15.26	0.060	Yes

18.0 Pressure Testing: Yes
- Designed q50: 3.00
- 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: 14
  - Total number of L.E.L. fittings: 14
  - Percentage of L.E.L. fittings: 100.00
- External
  - External lights fitted: No
  - Light and motion sensors

23.0 Electricity Tariff: Standard

24.0 Heating Systems
- Main Heating 1: Database
  - Description
  - Percentage of Heat: 100 %

© Elmhurst Energy Systems Limited Registered Office Unit 16, St Johns Business Park, Lutterworth, Leicestershire LE17 4HB

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	Yes
Instantaneous System 1	
Waste Water Heat Recovery	No
Instantaneous System 2	
Waste Water Heat Recovery Storage System	No
Solar Panel	Yes

25.0 Main Heating 1	
Database Ref. No.	17143
Fuel Type	Mains gas
Main Heating	BGW
TestMethod	
SAP Code	104
Efficiency (Split Efficiences) %	
Efficiency (Split Efficiences) %	
In Winter	89.9
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	Pump in heated space
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	

© Elmhurst Energy Systems Limited Registered Office Unit 16, St Johns Business Park, Lutterworth, Leicestershire LE17 4HB

Database ID	
Brand Model	
Details	
29.2 Waste Water Heat Recovery System	
Total rooms with shower and/or bath	1
Database ID	80073
Brand Model	RECOUP, Propipe+
Details	Year: 2012 + current Efficiency: 66 Utilisation factor: 0.975
Number of mixer showers in rooms with a bath	0
Number of mixer showers in rooms without a bath	1
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	3.00
Area Type	Aperture
Panel Type	Evacuated tube
n0, a1, a2, A/G ratio	0.60, 3.00, 0.0050, 0.72
Orientation	North East
Elevation	30°
Overshading	Modest
Solar Storage Volume	210.00
Pump electrically powered	Yes
Combined Cylinder	No
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 photovoltaic panels, 2.5 kWp	£5,000 - £8,000	£275	A 93	A 94

© Elmhurst Energy Systems Limited Registered Office Unit 16, St Johns Business Park, Lutterworth, Leicestershire LE17 4HB