Predicted Energy Assessment

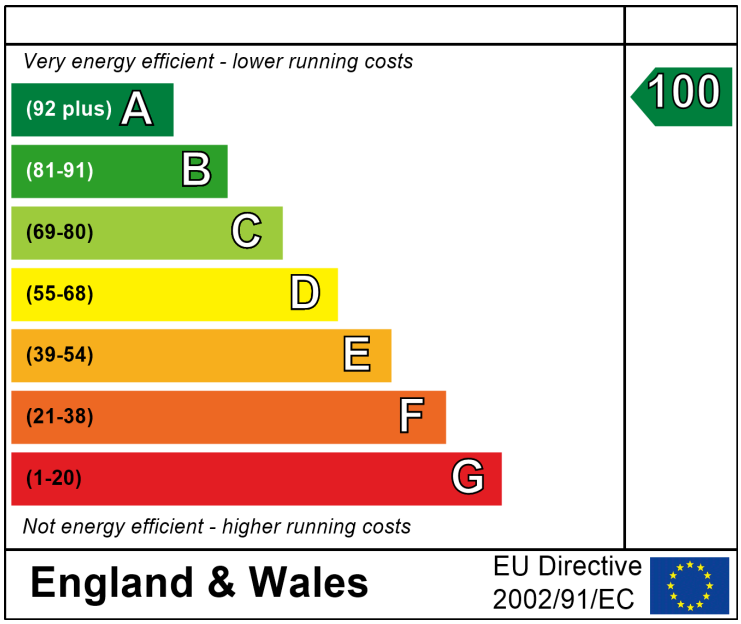
Woodlands
Bentley Lane
Ormskirk
Lancashire
L40 3SN

Dwelling type: Detached House
Date of assessment: 19 February 2021
Produced by: Ella Carey
Total floor area: 390.13 m²

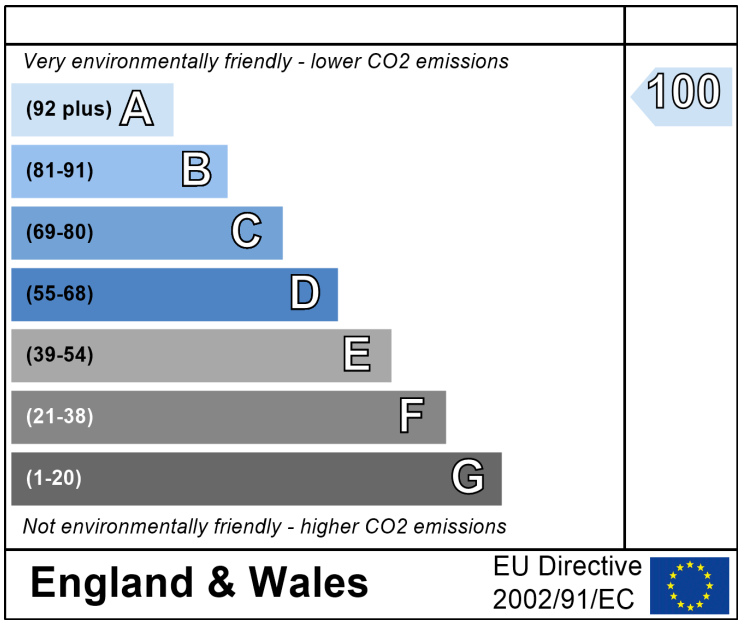
This is a Predicted Energy Assessment for a property which is not yet complete. It includes a predicted energy rating which might not represent the final energy rating of the property on completion. Once the property is completed, an Energy Performance Certificate is required providing information about the energy performance of the completed property.

Energy performance has been assessed using the SAP 2012 methodology and is rated in terms of the energy use per square metre of floor area, energy efficiency based on fuel costs and environmental impact based on carbon dioxide (CO2) emissions.

Energy Efficiency Rating



Environmental Impact (CO_2) 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.

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.

Regulations Compliance Report

Approved Document L1A, 2013 Edition, England assessed by Stroma FSAP 2012 program, Version: 1.0.5.25
Printed on 26 February 2021 at 12:57:02

Project Information:

Assessed By: Ella Carey (STRO035627) **Building Type:** Detached House

Dwelling Details:

NEW DWELLING DESIGN STAGE Total Floor Area: 390.13m²

Site Reference : Woodlands **Plot Reference:** Woodlands DESIGN 2

Address : Woodlands, Bentley Lane, Ormskirk, Lancashire, L40 3SN

Client Details:

Name: Tony & Rebecca Glen

Address : Woodlands, Bentley Lane, Ormskirk, Lancashire, L40 3SN

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

1a TER and DER

Fuel for main heating system: Electricity
Fuel factor: 1.55 (electricity)

Target Carbon Dioxide Emission Rate (TER)	25.5 kg/m²	
Dwelling Carbon Dioxide Emission Rate (DER)	0.44 kg/m²	**OK**

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	76.6 kWh/m²	
Dwelling Fabric Energy Efficiency (DFEE)	42.9 kWh/m²	
		OK

2 Fabric U-values

Element	Average	Highest	
External wall	0.09 (max. 0.30)	0.09 (max. 0.70)	**OK**
Floor	0.09 (max. 0.25)	0.09 (max. 0.70)	**OK**
Roof	0.11 (max. 0.20)	0.11 (max. 0.35)	**OK**
Openings	0.75 (max. 2.00)	0.75 (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	1.00 (design value)	
Maximum	10.0	**OK**

4 Heating efficiency

Main Heating system:
Heat pumps with radiators or underfloor heating - electric
NIBE F2040-8

Secondary heating system: None

5 Cylinder insulation

Hot water Storage:	Measured cylinder loss: 2.14 kWh/day	
	Permitted by DBSCG: 2.86 kWh/day	**OK**
Primary pipework insulated:	Yes	**OK**

Regulations Compliance Report

6 Controls

Space heating controls	TTZC by plumbing and electrical services	OK
Hot water controls:	Cylinderstat	OK
	Independent timer for DHW	OK
Boiler interlock:	Yes	OK

7 Low energy lights

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

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power:	0.83	
Maximum	1.5	OK
MVHR efficiency:	88%	
Minimum	70%	OK

9 Summertime temperature

Overheating risk (West Pennines):	Not significant	OK

Based on:

Overshading:	Average or unknown
Windows facing: South East	14.64m²
Windows facing: South West	14.38m²
Windows facing: North West	30.56m²
Windows facing: North East	17.57m²
Windows facing: South East	2.23m²
Roof windows facing: Horizontal	8.94m²
Ventilation rate:	4.00

10 Key features

Air permeablility	1.0 m³/m²h
Windows U-value	0.75 W/m²K
Doors U-value	0.75 W/m²K
Roofs U-value	0.11 W/m²K
External Walls U-value	0.09 W/m²K
Floors U-value	0.09 W/m²K
Photovoltaic array	

SAP 2012 Overheating Assessment

Calculated by Stroma FSAP 2012 program, produced and printed on 26 February 2021

Property Details: Woodlands DESIGN 2

Dwelling type:	Detached House
Located in:	England
Region:	West Pennines
Cross ventilation possible:	Yes
Number of storeys:	2
Front of dwelling faces:	South East
Overshading:	Average or unknown
Overhangs:	None
Thermal mass parameter:	Calculated 132.68
Night ventilation:	False
Blinds, curtains, shutters:	
Ventilation rate during hot weather (ach):	4 (Windows open half the time)

Overheating Details:

Summer ventilation heat loss coefficient:	1494.77	**(P1)**
Transmission heat loss coefficient:	209	
Summer heat loss coefficient:	1703.77	**(P2)**

Overhangs:

Orientation:	**Ratio:**	**Z_overhangs:**
South East (South East)	0	1
South West (South West)	0	1
North West (North West)	0	1
North East (North East)	0	1
South East (Front door)	0	1
Horizontal (Roof windows)	0	1

Solar shading:

Orientation:	**Z blinds:**	**Solar access:**	**Overhangs:**	**Z summer:**	
South East (South East)	1	0.9	1	0.9	**(P8)**
South West (South West)	1	0.9	1	0.9	**(P8)**
North West (North West)	1	0.9	1	0.9	**(P8)**
North East (North East)	1	0.9	1	0.9	**(P8)**
South East (Front door)	1	0.9	1	0.9	**(P8)**
Horizontal (Roof windows)	1	1	1	1	**(P8)**

Solar gains:

Orientation		**Area**	**Flux**	**g_**	**FF**	**Shading**	**Gains**	
South East (South East)	0.9 x	14.64	112.1	0.63	0.7	0.9	586.24	
South West (South West)	0.9 x	14.38	112.1	0.63	0.7	0.9	575.83	
North West (North West)	0.9 x	30.56	89.66	0.63	0.7	0.9	978.71	
North East (North East)	0.9 x	17.57	89.66	0.63	0.7	0.9	562.69	
South East (Front door)	0.9 x	2.23	112.1	0.63	0.7	0.9	89.3	
	1 x	8.94	186	0.63	0.7	1	659.98	
						Total	3452.74	**(P3/P4)**

Internal gains:

	June	**July**	**August**	
Internal gains	905.53	868.4	880.61	
Total summer gains	4663.9	4321.14	3757	**(P5)**

SAP 2012 Overheating Assessment

Summer gain/loss ratio	2.74	2.54	2.21	**(P6)**
Mean summer external temperature (West Pennines)	14.7	16.4	16.3	
Thermal mass temperature increment	1.07	1.07	1.07	
Threshold temperature	18.51	20.01	19.58	**(P7)**
Likelihood of high internal temperature	**Not significant**	**Not significant**	**Not significant**	

Assessment of likelihood of high internal temperature: Not significant

SAP Input

Property Details: Woodlands DESIGN 2

Address:	Woodlands, Bentley Lane, Ormskirk, Lancashire, L40 3SN
Located in:	England
Region:	West Pennines
UPRN:	
Date of assessment:	19 February 2021
Date of certificate:	26 February 2021
Assessment type:	New dwelling design stage
Transaction type:	New dwelling
Tenure type:	Owner-occupied
Related party disclosure:	No related party
Thermal Mass Parameter:	Calculated 132.68
Water use <= 125 litres/person/day:	True
PCDF Version:	472

Property description:

Dwelling type:	House
Detachment:	Detached
Year Completed:	2021

Floor Location:	Floor area:	Storey height:
Floor 0	223.09 m²	2.65 m
Floor 1	167.04 m²	3.24 m

Living area:	68.68 m² (fraction 0.176)
Front of dwelling faces:	South East

Opening types:

Name:	Source:	Type:	Glazing:	Argon:	Frame:
Garage	Manufacturer	Solid			Wood
NW Doors	Manufacturer	Solid			Wood
South East	SAP 2012	Windows	low-E, En = 0.05, soft coat	Yes	PVC-U
South West	SAP 2012	Windows	low-E, En = 0.05, soft coat	Yes	PVC-U
North West	SAP 2012	Windows	low-E, En = 0.05, soft coat	Yes	PVC-U
North East	SAP 2012	Windows	low-E, En = 0.05, soft coat	Yes	PVC-U
Front door	SAP 2012	Windows	low-E, En = 0.05, soft coat	Yes	PVC-U
Roof windows	Manufacturer	Roof Windows	low-E, En = 0.05, soft coat	Yes	PVC-U

Name:	**Gap:**	**Frame Factor:**	**g-value:**	**U-value:**	**Area:**	**No. of Openings:**
Garage	mm	0.7	0	0.75	6.05	1
NW Doors	mm	0.7	0	0.75	4.94	1
South East	12mm	0.7	0.63	0.75	14.64	1
South West	12mm	0.7	0.63	0.75	14.38	1
North West	12mm	0.7	0.63	0.75	30.56	1
North East	12mm	0.7	0.63	0.75	17.57	1
Front door	12mm	0.7	0.63	0.75	2.23	1
Roof windows	12mm	0.7	0.63	0.75	8.94	1

Name:	Type-Name:	Location:	Orient:	Width:	Height:
Garage		External Wall	South East	0	0
NW Doors		External Wall	North West	0	0
South East		External Wall	South East	0	0
South West		External Wall	South West	0	0
North West		External Wall	North West	0	0
North East		External Wall	North East	0	0
Front door		External Wall	South East	0	0
Roof windows		Flat Roof	Horizontal	0.001	0

SAP Input

Overshading: Average or unknown

Opaque Elements:

Type:	Gross area:	Openings:	Net area:	U-value:	Ru value:	Curtain wall:	Kappa:
External Elements							
External Wall	399.78	90.37	309.41	0.09	0	False	60
Flat Roof	223.09	8.94	214.15	0.11	0		9
External Floor	223.09			0.09			110
Internal Elements							
Thermal Mass	747.9						9
Party Elements							

Thermal bridges:

Thermal bridges: User-defined (individual PSI-values) Y-Value = 0.0768

	Length	Psi-value		
[Approved]	52.67	0.3	E2	Other lintels (including other steel lintels)
[Approved]	27.85	0.04	E3	Sill
[Approved]	110.31	0.05	E4	Jamb
[Approved]	69.66	0.16	E5	Ground floor (normal)
[Approved]	43.03	0.07	E6	Intermediate floor within a dwelling
	19.99	0	E8	Balcony within a dwelling, wall insulation continuous
	126.75	0.1	E15	Flat roof with parapet
[Approved]	61.77	0.09	E16	Corner (normal)
[Approved]	39.48	-0.09	E17	Corner (inverted internal area greater than external area)
	48.71	0.24	E24	Eaves (insulation at ceiling level - inverted)
	4.19	0.08	R1	Head
	4.19	0.06	R2	Sill
	17.78	0.08	R3	Jamb

Ventilation:

Pressure test: Yes (As designed)

Ventilation: Balanced with heat recovery
Number of wet rooms: Kitchen + 1
Ductwork: Insulation, rigid
Approved Installation Scheme: True

Number of chimneys: 0
Number of open flues: 0
Number of fans: 0
Number of passive stacks: 0
Number of sides sheltered: 0
Pressure test: 1

Main heating system:

Main heating system: Heat pumps with radiators or underfloor heating
Electric heat pumps
Fuel: Electricity
Info Source: Boiler Database
Database: (rev 472, product index 102023, SEDBUK 361%):
Brand name: NIBE
Model: F2040-8
Model qualifier: Underfloor
(provides DHW all year)
Underfloor heating, pipes in insulated timber floor
Central heating pump : 2013 or later
Design flow temperature: Unknown
Unknown

SAP Input

	Boiler interlock: Yes MCS Installation Certificate
Main heating Control:	
Main heating Control:	Time and temperature zone control by suitable arrangement of plumbing and electrical services Control code: 2207
Secondary heating system:	
Secondary heating system:	None
Water heating:	
Water heating:	From main heating system Water code: 901 Fuel :Electricity Hot water cylinder Cylinder volume: 300 litres Cylinder insulation: Measured loss, 2.14kWh/day Primary pipework insulation: True Cylinderstat: True Cylinder in heated space: True Solar panel: False
Others:	
Electricity tariff:	Standard Tariff
In Smoke Control Area:	Yes
Conservatory:	No conservatory
Low energy lights:	100%
Terrain type:	Rural
EPC language:	English
Wind turbine:	No
Photovoltaics:	Photovoltaic 1 Installed Peak power: 8 Tilt of collector: Horizontal Overshading: None or very little Collector Orientation: South
Assess Zero Carbon Home:	Yes