PREDICTED ENERGY ASSESSMENT

AES Sustainability Consultants

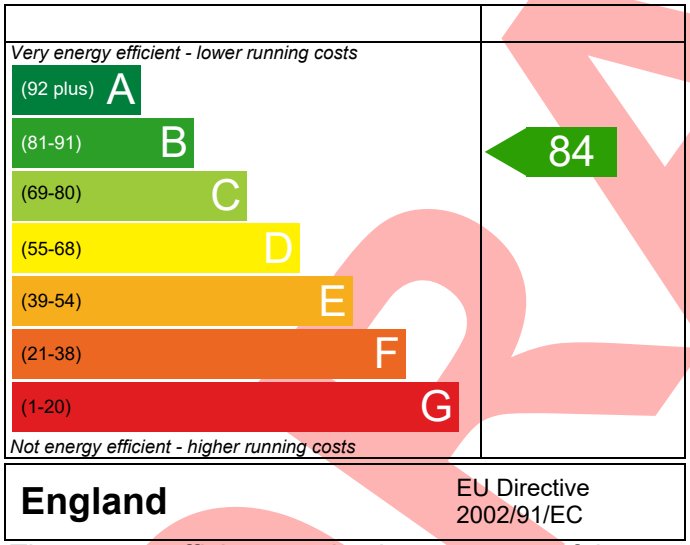
004, 4 Bed,
K,B,WC,U,ES

Dwelling type:	House, Detached
Date of assessment:	31/01/2022
Produced by:	Henry Knight
Total floor area:	130.74 m²

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 (CO_2) emissions.

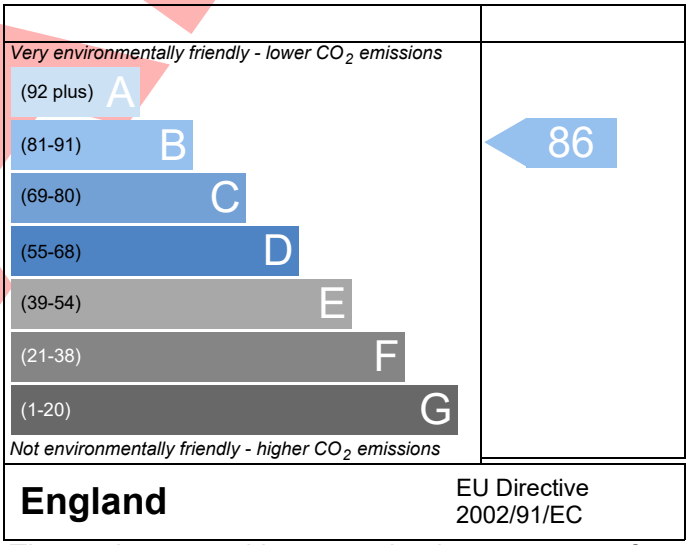
Energy Efficiency Rating



England EU Directive 2002/91/EC

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 (CO_2) Rating



England EU Directive 2002/91/EC

The environmental impact rating is a measure of a home's impact on the environment in terms of carbon dioxide (CO_2) emissions. The higher the rating the less impact it has on the environment.

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BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Designed)

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Property Reference	U528-0001-6140-004	**Issued on Date**	31/01/2022
Assessment Reference	004	**Prop Type Ref**	404(H) Det (OP)
Property	004, 4 Bed, K,B,WC,U,ES		

SAP Rating	84 B	**DER**	15.95	**TER**	16.75
Environmental	86 B	**% DER<TER**	4.79		
CO_2 Emissions (t/year)	1.79	**DFEE**	45.80	**TFEE**	56.25
General Requirements Compliance	Pass	**% DFEE<TFEE**	18.58		

Assessor Details	Mr. Henry Knight, Henry Knight, Tel: 01173183565, Henry.knight@aessc.co.uk	**Assessor ID**	U528-0001
Client	C G Fry & Son Ltd		

SUMARY FOR INPUT DATA FOR New Build (As Designed)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Mains gas		
Fuel factor	1.00 (mains gas)		
Target Carbon Dioxide Emission Rate (TER)	16.75	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	15.95	$kgCO_2/m^2$	Pass
	-0.80 (-4.8%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	56.25	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	45.80	$kWh/m^2/yr$	
	-10.5 (-18.7%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.19 (max. 0.30)	0.19 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Floor	0.14 (max. 0.25)	0.14 (max. 0.70)	Pass
Roof	0.11 (max. 0.20)	0.11 (max. 0.35)	Pass
Openings	1.42 (max. 2.00)	1.60 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	5.01 (design value)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

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Main heating system	Boiler system with radiators or underfloor - Mains gas Data from database Vaillant ecoTEC exclusive 843 VUW 436/5-7 (H-GB) Combi boiler Efficiency: 89.6% SEDBUK2009 Minimum: 88.0%		Pass
Secondary heating system	Room heaters - electric Panel, convector or radiant heaters		

5 Cylinder insulation

Hot water storage	No cylinder		

6 Controls

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

7 Low energy lights

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

8 Mechanical ventilation

Continuous extract system (decentralised)			
Specific fan power	0.1700 0.1800		
Maximum	0.7		Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (Severn Valley)	Slight	Pass

Based on:

Overshading	Average	
Windows facing North East Windows facing South East Windows facing North West	0.38 m², No overhang 11.37 m², No overhang 9.39 m², No overhang	
Air change rate	4.00 ach	
Blinds/curtains	None	

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
		W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	5.01 (design value)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

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10 Key features

Party wall U-value	0.00	W/m²K
Roof U-value	0.11	W/m²K
Thermal bridging y-value	0.028	W/m²K
Secondary heating (electricity)	N/A	

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RECOMMENDATIONS

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	Typical cost	Typical savings per year	Energy efficiency	Environmental impact	Result
Low energy lights			0	0	Already installed
Solar water heating			B 85	B 87	SAP increase too small
Photovoltaic	£3,500 - £5,500	£349	A 92	A 92	Recommended
Wind turbine			0	0	Not applicable
Totals	**£3,500 - £5,500**	**£349**	**A 92**	**A 92**	

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