PREDICTED ENERGY ASSESSMENT

Design SAP
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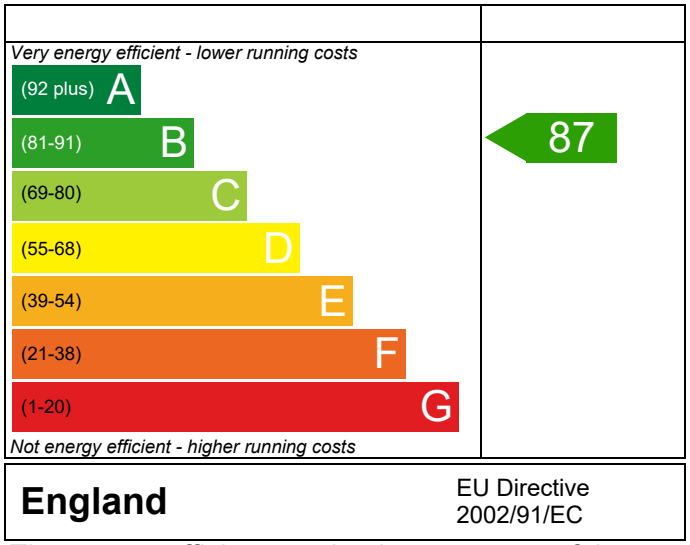
Plot 48

Dwelling type:	House, End-Terrace
Date of assessment:	07/09/2020
Produced by:	Abacus Energy (UK) Ltd
Total floor area:	84.34 m²
DRRN:	9290-8075-1021

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.

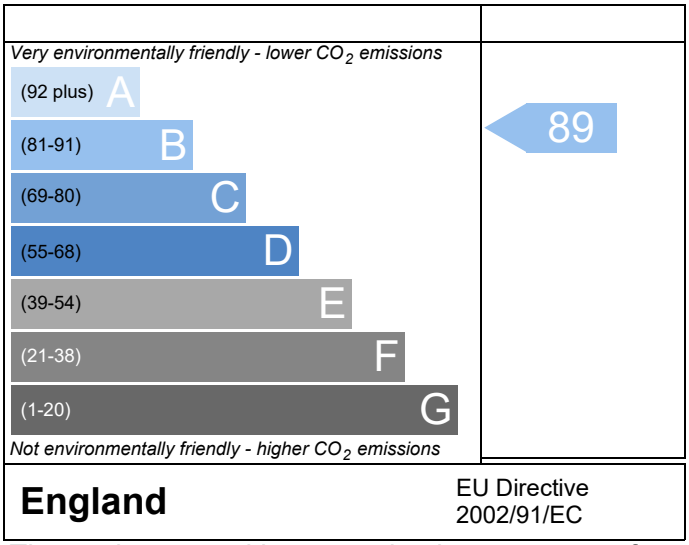
Energy Efficiency Rating



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.

This report has been produced by an accredited Elmhurst member whose work is subject to quality assurance audits. The data used to produce the report has been verified by the Elmhurst members' portal.

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QUALITY PROMISE ACCREDITED MEMBER

Regs Region: England
Elmhurst Energy Systems SAP2012 Calculator (Design System) version 4.12r02

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

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Property Reference	SAP 0645 Plot 48	**Issued on Date**	07/09/2020
Assessment Reference	Rev C	**Prop Type Ref**	Block L
Property	Plot 48		

SAP Rating	87 B	**DER**	14.74	**TER**	18.28
Environmental	89 B	**% DER<TER**	19.36		
CO_2 Emissions (t/year)	0.93	**DFEE**	42.78	**TFEE**	52.18
General Requirements Compliance	Pass	**% DFEE<TFEE**	18.00		

Assessor Details	Mr. Tobias Whiting, Abacus Energy (UK) Ltd, Tel: 01329 313079, tobiaswhiting26@gmail.com	**Assessor ID**	E477-0001
Client	Foreman Homes, FORE		

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)	18.28	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	14.74	$kgCO_2/m^2$	Pass
	-3.54 (-19.4%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	52.18	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	42.78	$kWh/m^2/yr$	
	-9.4 (-18.0%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.24 (max. 0.30)	0.24 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Floor	0.11 (max. 0.25)	0.11 (max. 0.70)	Pass
Roof	0.10 (max. 0.20)	0.10 (max. 0.35)	Pass
Openings	1.19 (max. 2.00)	1.20 (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	5.00 (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 Worcester Greenstar 36CDi Compact ErP Combi boiler Efficiency: 89.8% SEDBUK2009 Minimum: 88.0%		Pass
Secondary heating system	None		

5 Cylinder insulation

Hot water storage	No cylinder		

6 Controls

Space heating controls	Programmer, room thermostat and TRVs		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

Not applicable

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (Southern England)	Slight		Pass

Based on:

Overshading	Average		
Windows facing North East Windows facing South West Windows facing North West	3.67 m², No overhang 7.40 m², No overhang 1.32 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		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	5.00 (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	0.10	W/m²K
Floor U-value	0.11	W/m²K
Door U-value	1.10	W/m²K
Thermal bridging y-value	0.038	W/m²K
Photovoltaic array	0.60	kW

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	£4,000 - £6,000	£31	B 88	B 91	Recommended
Photovoltaic			0	0	Already installed
Wind turbine			0	0	Not applicable
Totals	**£4,000 - £6,000**	**£31**	**B 88**	**B 91**	

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