



Lodge Court
Ickleford

Sustainability Statement

July 2025

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Document Control Sheet	
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1 Executive Summary

NRG Consulting have been commissioned to undertake a Sustainability Statement on a proposed development at **Land South West and Adj to Lodge Court, Turnpike Lane, Ickleford, Hertfordshire**

The description of development for the approved planning application (ref: 23/02650/FP) is:

Erection of eight dwellings comprising of 3 pairs of semidetached dwellings (6 x 3-bed) and two detached 4-bed dwellings including integral garages (plots 1 and 8) with a new access spur from the Lodge Court, on-site parking, landscaping. (Amended description only)

This document has been produced to discharge **Planning Condition 20** that states

Prior to the first occupation of the first dwelling a scheme of sustainability measures for all the dwellings is to be submitted to, and approved in writing by, the Local Planning Authority and implemented on site.

The following measures have been implemented across the scheme

Energy Efficiency

- U-Value targets set to maximise fabric efficiency and reduce energy demand.
- High-efficiency double-glazing will be installed.
- Natural Ventilation is proposed.

Renewable Energy

Air Source Heat Pumps
PV

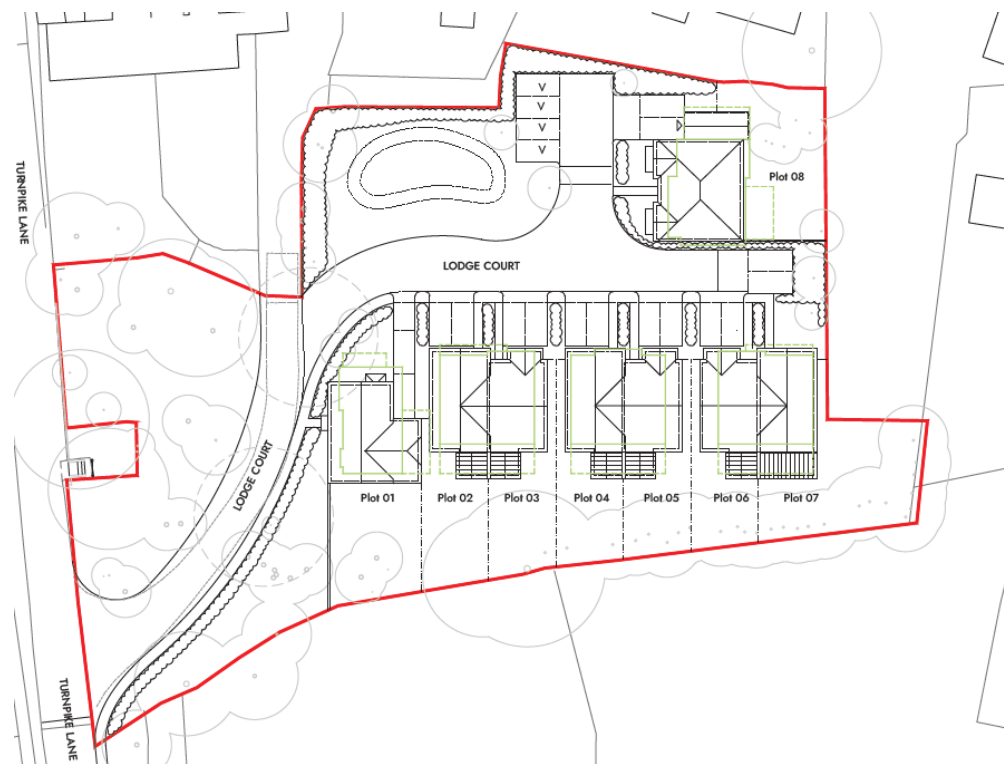


Figure: Indicative Site Layout

2 Energy – Residential

2.1 Energy Calculations – SAP

Full SAP calculations have been undertaken by an accredited On-Construction Domestic Energy Assessor (OCDEA) under Part L 2021. The scheme exceeds Part L requirements.

The baseline CO₂ emissions covered by Part L 2021 of the Building Regulations are expressed as the Target Emission Rate (TER) and the proposed actual emissions are the Dwelling Emission Rate (DER). These use the unit of measurement of kilograms of CO₂ per square-metre per annum (kg/CO₂/m²).

This covers regulated carbon emissions from:

- Heating
- Hot Water
- Lighting
- Auxiliary (Pumps and Fans)

2.2 Passive Design Measures

Passive measures utilised in the concept and development of the design include:

- Through good design, air infiltration will be minimised.
- The orientation and the site layout has been designed to reduce energy demand.
- A high-performance glazing system to reduce heat demand and increase solar gains.

2.3 Low NO_x Boilers

As best-practice guidance ASHPs are now proposed in-lieu of gas boilers. One of the primary reasons for this is these have associated NO_x emissions of 0.

Element	Part L1 (2021) Limiting U-Values	Proposed U-Values (W/m ² K)
<i>Walls</i>		
External Wall	0.26 W/m ² K	0.15-0.17 W/m ² K
Party Wall	0.2 W/m ² K	0 W/m ² K
<i>Floors</i>		
Ground Floor	0.18 W/m ² K	0.11 W/m ² K
<i>Roof</i>		
Main Roof Pitched	0.16 W/m ² K	0.09 W/m ² K
Insulated Slope	0.16 W/m ² K	0.16 W/m ² K
<i>Openings</i>		
Windows	1.6 W/m ² K	1.4 W/m ² K
Front Door	1.6 W/m ² K	1 W/m ² K
<i>Air Permeability</i>		
3 m ³ /(hm ²) @50Pa		
<i>Thermal Bridging</i>		
<i>Calculated and Provided by Timber Frame Manufacturer</i>		
Table: Proposed Fabric Specification		

2.4 Active Design

The development will incorporate efficient building services to limit carbon emissions, including a zero-NO_x heating system and the following measures:

Element	Proposed Details
Ventilation	System 3 - dMEV
Heating	Air Source Heat Pumps
Heating Controls	Time and Temperature Zone Controls
Heat Emitters	Underfloor and Radiators
Hot Water	Hot Water Cylinder (from ASHP)
Cooling	No
Smart Metering	Yes
Table: Proposed Mechanical and Electrical Specification	

The scheme will also aim to implement demand-side response measures to energy management. This particularly focuses on the installation of smart meters in each residential unit. These devices provide real-time information on energy usage and enable residents to understand and control their consumption patterns. By offering detailed insights into when and where energy is used, households can adjust their behaviour, minimising peak energy demand. This helps to alleviate strain on the energy grid during peak times. Certain incentives are also currently being offered by energy providers to not use power in peak hours reducing energy bills.

2.5 Lighting

In-line with exceeding Part L minimum requirements, all residential light fittings will be Light Emitting Diodes (LEDs) with a luminous efficiency per circuit watt of at least 95 lumens/Watt.

2.6 Overheating

The scheme has been designed to avoid overheating with the early stages of the cooling hierarchy prioritised. The following are major factors in mitigating potential risk:

- Individual heating is proposed thus no communal heat distribution to factor in.
- Windows will be openable for the purpose of overheating management.

Cooling Hierarchy	Measures Undertaken
<i>Reduce the amount of heat entering the building through orientation, shading, high albedo materials, fenestration, insulation and the provision of green infrastructure</i>	High albedo materials will be prioritised where possible.
	Insulation levels in-line with Part L.
<i>Minimise internal heat generation through energy efficient design</i>	Individual heating so no communal heat distribution.
	LED lighting will reduce internal heat gains.
<i>Manage the heat within the building through exposed internal thermal mass and high ceilings</i>	Level of exposed thermal mass has been maximised where possible, but it is likely that studwork will be used for internal partitions.
	Floor to ceiling height complies with space standards
<i>Provide Passive Ventilation</i>	Openable Windows are proposed to all dwellings which will allow for nighttime purge ventilation.
	Dwellings benefit from cross-ventilation
<i>Provide Mechanical Ventilation</i>	None.

3 Renewable Energy

Renewable Energy is typically defined as:

“Energy derived from a source that is continually replenished, such as wind, wave, solar, hydroelectric and energy from plant material, but not fossil fuels or nuclear energy. Although not strictly renewable, geothermal energy is generally included.”

As per Renewable Energy Directive (2018/2001/EU) aerothermal and hydrothermal technologies are also officially included within the definition.

Based on recent legislation including the *Clean Air Act* and *The Future Homes and Buildings Standards: 2023 consultation* as well as the location of the scheme, the following technologies have been discounted and are not discussed further:

- Wind Turbines
- Hydropower / Wave Technology
- Biogas / Biofuel / Biomass
- Hydrogen
- Hybrid Heat Pumps (Gas and Electric)

The feasibility of remaining renewable and low carbon technologies has been undertaken based on the following parameters:

1. Practicality of installation of the technology
2. Energy demand profile for the project
3. Environmental impact & land use
4. Economic feasibility and overall payback (including available financial incentives)
5. Planning and regulatory issues i.e. conservation and heritage areas and aspects
6. Noise & aesthetic considerations

It should be noted that due to decarbonisation and the decrease in carbon factor for electricity, factors such as energy security and lowering running costs are deemed equal or more important to that of the offset of CO₂.

Photovoltaic Panels (PV)



The main benefit of PV has evolved in recent times from financial (Feed-In-Tariff era) to CO₂ offset (Part 2013) to currently providing a tangible saving on energy bills with a correctly sized and installed system. System costs are lower in 2025 due to inflation and shipping costs receding, a domestic directly inverted system of 5kWp has a payback of around 5-7 years.

PV is best suited to large houses with a sufficient baseline energy demand in summer months that would then use the generated electricity within the dwelling. While there is a Smart Export Guarantee for kWh exported to the grid, it is significantly lower when compared to the cost of a kWh of electricity.

The technology does benefits from having no noise implications, creates no additional land-use and when correctly specified on an appropriate roof, has very limited aesthetic impact.

Solar Hot Water



Solar Hot Water can provide free hot water to a dwelling, mainly during the summer months thus it requires a high hot water demand to be at its most effective and offer a sufficient payback. However, when the dwelling is heated by a renewable source like an ASHP, this reduces the renewable energy generated due to an overlap in provision.

To avoid high pipework heat losses, it is recommended that pipe runs are as small as possible so usually the technology is recommended for houses and top floor dwellings only. The system also requires either a dedicated hot water cylinder or a dual-cylinder. In apartments where space is at a premium and an electric combi boiler is specified, this additional equipment would take up valuable storage space.

Ground Source Heat Pumps



Ground Source Heat Pumps (GSHP) differ from Air Source Heat Pumps in that they draw their heat from the ground rather than the air. This allows for both a more consistent temperature and higher efficiency given that in the winter months, the ground is warmer than the air. This allows the running costs of the system to be lower, although maintenance costs are higher.

To install a GSHP, you either need to install a ground-loop (*slinky*) system or to have deep boreholes installed during the piling phase of the scheme. The introduction of boreholes comes at significant capital cost, especially for schemes where raft or strip foundations are proposed so unless a significant amount of land is available then this can make the capital cost prohibitive. GSHPs are more suited to very large dwellings, having a higher kW output than air source heat pumps and dwellings in a more secluded and detached location, with the external units noisier and less aesthetic than air source. Based on the development proposals here, other technologies are preferred.

Air Source Heat Pumps

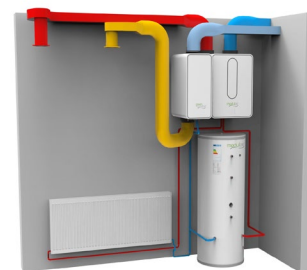


Air Source Heat Pumps (ASHP) for domestic use are a fast-maturing technology and heat pumps are the primary policy driver for the commitment to meet net-zero by 2050. It is a renewable technology that produces circa 3 units of electricity for each unit consumed from the National Grid (300% efficiency / a coefficient of performance (COP) of 3). With the continued decarbonisation of the grid, associated carbon emissions with the system are projected to

continually decrease in the near to medium term.

Domestic ASHP models have advanced in recent years, being integrated with smart technology features like app control, IoT integration and voice assistant compatibility. Noise levels have dropped to where they can be below the level where planning permission is required (permitted development) and their aesthetic has softened. They can also work at higher efficiency at lower temperatures than a decade ago, especially when paired with underfloor heating. While efficiency at freezing temperatures is still an issue, this has been improving slowly over the past decade. However, with nowhere to site the external units and higher capital and running costs, ASHPs are deemed infeasible here and not in-line with the approved design.

Hot Water Heat Pumps / Exhaust Air Heat Pumps



Hot Water Heat Pumps (HWHP) are essentially hot water cylinders integrated with a small heat pump to raise the efficiency of the system above the 1 of a standard electric cylinder. This provides domestic hot water at efficiencies above that of an ASHP (as the pump is dedicated for the Hot Water) when it comes to hot water generation.

As they do not provide any contribution towards heating, they are best suited for projects where there is both limited external space, a higher hot water than heating demand and also where a bath has been installed making them ideal for 1 or 2 bedroom apartments. They are not best suited to larger houses or dwellings with multiple bathrooms due to the size of the cylinder (litres) and the output (kW) of the heat pump.

Exhaust Air Heat Pumps (EAHP) are similar but provide heating, hot water and ventilation in a large all-internal unit. However, these are suited to Passivhaus style developments or small apartments as the units have a very low heat output (<2kW) so if not, need to be supplemented with electric panel heaters. They also have noise considerations and ease-of-maintenance is unknown as a new technology in England.

Table: Renewable Energy Feasibility

Renewable Energy Grants

For new-build developments within England, there are no grants available for the installation of renewable technologies. Previous schemes such as the Feed-In-Tariff (FiT) and Renewable Heat Incentive (RHI) are now closed to new applications. The only scheme available is the Smart Export Guarantee for PV systems, administered through utility companies where a small payment for exported energy is paid.

Feasibility Conclusion

ASHPs are the most most feasible technology for the scheme, offering a high level of carbon savings, coupled with PV to make use of the available roof area.

3.1 PV Panels

It is proposed that PV will be installed. This is to maximise on-site renewable energy generation and to reduce reliance on the National Grid as well as have the benefits of:

- A PV system can generate a significant amount of electricity, estimated at around 900 – 1,000 kWh annually (based on average UK solar irradiance). This can offset a large portion of the running costs for the houses and based on current UK energy prices (December 2024 price cap) would be circa £250 per year per kWp.
- Residents can take advantage of the Smart Export Guarantee (SEG) for kWh of energy generated that is not used on-site. Under the SEG, a monetary payment is earned per kWh by exporting surplus solar energy generated back to the grid, especially during the summer months where-by there will be high generation and low demand.
- Installing a PV system actively contributes to the UK's renewable energy targets and reduces its carbon footprint, helping to combat climate change in-line with the UK's commitment to reach net-zero emissions by 2050.

PV System Details	
Area to be Provided	Individual Roofs
PV Proposed	0.5kWp-1.0 kWp depending on house type
Module Output	450 watts
Number of Panels	2-3 per house
Tilt of Collectors & Orientation	10 degrees (Horizontal)
Inverter Scenario	Landlord Supply
Table: Proposed PV Specification	

Figure: Indicative Roof Plan

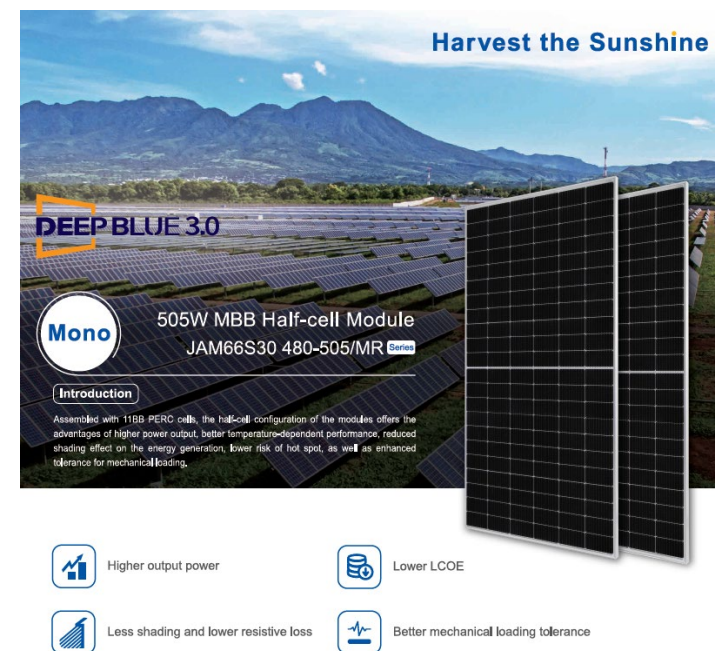


Figure: Panel datasheet (sample)

It should be noted that due to decarbonisation and the decrease in carbon factor for electricity, factors such as energy security and lowering running costs are deemed equal or more important to that of the offset of CO₂. Therefore all plots on this development are targeted with a minimum of a 'B' rated EPC to ensure residents can take advantage of lower running costs. The PV will help to off set some of the electric usage from the Air Source Heat Pump.

Unregulated Emissions (Residential)

Unregulated energy use and their carbon emissions are from systems or processes that are harder to quantify than regulated emissions which are from fixed systems.

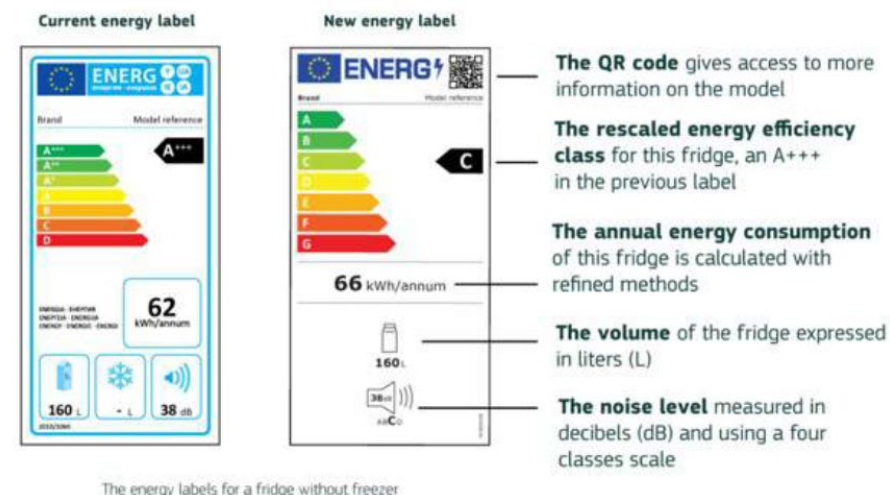
Unregulated energy is not counted within SAP for the purpose of Part L compliance. This is because the emissions from these items are variable and dependant on occupant behaviour and specification i.e. different levels of White Good provision and use and amount of small power equipment used.

For the proposed residential units, unregulated emissions consist of:

- Equipment (Small Power devices)
- Cooking
- External Lighting
- Appliances

Appliances and white goods can use significant amounts of energy in a building. This energy use becomes relatively more important in low energy buildings where passive design and low-flow fittings have reduced demand from space heating and hot water. High efficiency appliances are recommended to limit total energy consumption and minimise overheating risk from waste energy given off as heat.

In March 2021 the energy labelling ratings for appliances were updated, and are now rated simply A-G. What may have been an A+++ before might now be a B or even a C rating. Very few appliances achieve an A rating currently, as the new system leaves room for the industry to improve. Therefore, appliances should be sourced with the highest rating available (typically B or C currently).



All white goods installed in this development will adhere to the highest rating available for that particular product. Furthermore residents will be made aware of this in their ownership pack

4 Water Efficiency

The optional standard for Part G of the Building Regulations requires that all developments must incorporate water conservation to ensure a maximum internal water consumption rate of 110 litres/per person/per day (with an additional external water allowance of 5 litres).

This target is the same as the optional target included within Part G of the Building Regulations which encourages the efficient use of potable water. The specification proposed has been produced using the calculation methodology used to assess compliance against the water performance targets in Building Regulations 17.K and is based on the Government's "The Water Efficiency Calculator for new dwellings – September 2009" (withdrawn in June 2016).

The current guidance and calculation methodology can now be found within *Approved Document G - Sanitation, hot water safety and water efficiency* (2015 edition with 2016 amendments):

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/504207/BR_PDF_AD_G_2015_with_2016_amendments.pdf

The proposed specification for the scheme can be found on the right-hand side of the page. For the Dishwashers and Washing Machines, default consumption figures have been used.



The Water Efficiency Calculator for new dwellings
The Government's national calculation methodology for
assessing water efficiency in new dwellings in support of:
The Code for Sustainable Homes, May 2009 and subsequent versions
The Building Regulations 2000 (as amended)
The Building (Approved Inspector etc) Regulations 2000 (as amended)



The Building Regulations 2010

**Sanitation, hot water safety
and water efficiency**



APPROVED DOCUMENT

G1 Cold water supply
G2 Water efficiency
G3 Hot water supply and systems
G4 Sanitary conveniences and washing facilities
G5 Bathrooms
G6 Food preparation areas
Water efficiency calculator for new dwellings

Proposed Sanitaryware Specification

Element	Specification	Unit of Measurement
WC	6/3 dual flush	<i>Litres per Flush</i>
Basin Taps	5	<i>Litres per Minute</i>
Kitchen Sink Taps	9	<i>Litres per Minute</i>
Shower	8	<i>Litres per Minute</i>
Bath	155	<i>Capacity to Overflow</i>
Washing Machine	8.17	<i>Litres per Kilo (Dry)</i>
Dishwasher	1.25	<i>Litres per Place Setting</i>
Allowance for External Use	5	<i>(Litres / Person / Day)</i>
Total Consumption (Litres / Person / Day)		109.7

Table: Proposed Water Consumption (litres/person/day)

5 Sustainability Measures

5.1 Materials

When considering minimising the environmental impact of materials this requires the specification of materials with a low environmental impact across their lifetime. The BRE's Green Guide rating system focuses on the major building element build ups of the roof, external walls, internal walls, upper and ground floor and windows and rates each element from A+ to E across a range of environmental factors.

All timber products used on the project, including site as well as construction timber, will be legally harvested and traded timber. No products used in the development should be included on the CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) list.

Additionally, all timber and timber-based products will be procured from suppliers and manufacturers who can provide full Chain of Custody certification for their corresponding products.

Based on the scheme, at least 3 of the 5 main elements achieve B or above on the Green Guide Rating.

Insulation

The insulation for the scheme has been generally specified as Mineral Wool or such based variants. Benefits of such insulation is:

- Offers ever decreasing thermal conductivity with new product launches.
- Achieves an A+ rating as per the BRE Green Guide.
- All major manufacturers are ISO14001 and BES6001 compliant.
- Has zero ozone depletion potential (ODP) and global warming potential (GWP).
- Possesses BBA certification and;
- Compliant with Part B of the Building Regulations.

Healthy Homes and Low VOC finishes

As well as minimising the wider environmental impact that the materials specified have, material selection will ensure a healthy local environment and good indoor air quality.

The project will specify low VOC paints, varnishes and adhesives.

Environmental performance declarations (EPDs)

Construction material manufacturers are now producing Environmental Performance Declarations (EPDs) which show the embodied carbon associated with the lifecycle of the product, in line with the life cycle assessment ISO standards.

Construction materials will be selected based on EPD declarations as practicable.

Embodied Carbon

A substantial part of the environmental impact associated with the development will be the embodied carbon of its materials. This includes carbon emissions due to raw material extraction, as well as emissions from the manufacturing process and transportation of the material up to its arrival onsite.

Although an in-depth embodied carbon assessment has not been undertaken there are some high-level considerations that can lead to a significant reduction in embodied carbon. These are:

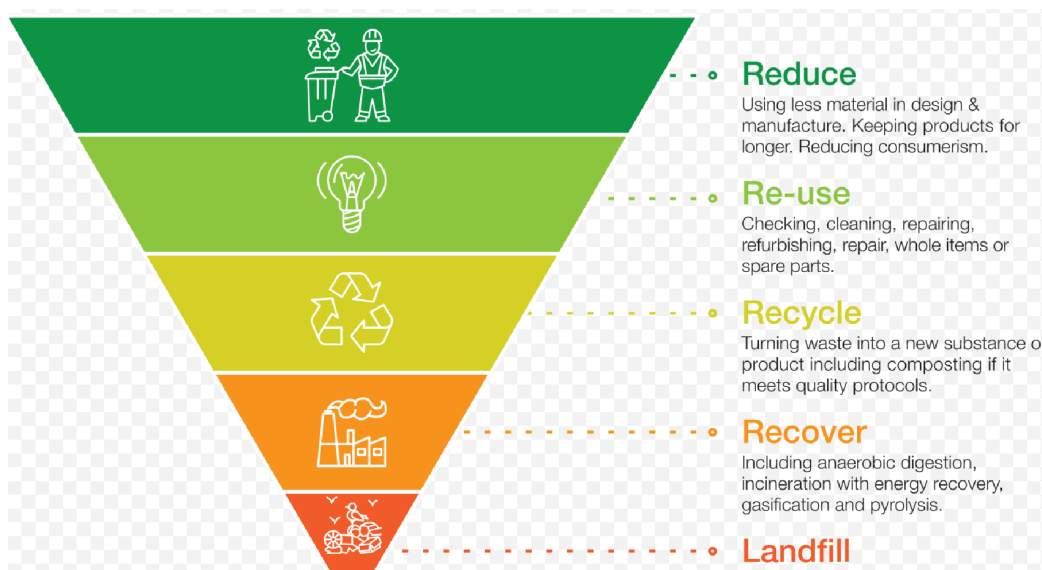
- **Concrete** – target >20% cement replacement with GGBS (Ground Granulated Blast Furnace Slag) or other low carbon alternative
- **Plasterboard** – target: BES:6001
- **Brick** – inherently have low embodied carbon compared to other cladding materials (concrete, metal, etc). Locally sourced bricks and mortar will be prioritised.

5.2 Construction Waste Management

A Site Waste Management Plan (SWMP) will be implemented during construction which will aim to reduce waste generation and target a diversion rate from landfill of up to 95% for non-hazardous construction waste.

Opportunities will be investigated to minimise and reduce waste generation in line with the Waste and Resources Action Programme (WRAP) “Halving Waste to Landfill” initiative by:

- Procuring from with material suppliers to reduce the amount of packaging
- Implementing a ‘just in time’ material delivery system to avoid materials being stockpiled, which increases the risk of their damage and disposal as waste;
- Prioritising preassembled and prefabricated construction materials.
- Paying attention to material quantity requirements to avoid over ordering
- Segregating waste at source where practical;



5.3 Transport

The scheme is within a short bus ride to Hitchin town centre and railway station. The surrounding area is well-served by local bus routes and the site is also well-connected to the A1 via the A505.

Cycle Storage

Cycle storage will be provided to each property. These will be secure, weatherproof and easily accessible.

Electric Car Charging Points

Each property will be fitted with an electric vehicle charging point.

This will be in line with Part S of the Building Regulations for the infrastructure for the charging of electric vehicles.

The technical requirements for the EVCPs are as below:

- Be designed and installed as described in BS EN 61851.*
- Have a minimum nominal rated output of 7kW.*
- Be fitted with a universal socket (also known as an untethered electric vehicle charge point).*
- Be fitted with an indicator to show the equipment's charging status that uses lights, or a visual display.*
- Be a minimum of a Mode 3 specialised system for electric vehicle charging running from a dedicated circuit, or equivalent, as defined in BS EN IEC 61851-1.*
- The requirements of BS 7671.*
- The requirements in the IET's Code of Practice: Electric Vehicle Charging Equipment Installation.*

6 Conclusion

A sustainability assessment has been undertaken on the proposed scheme at **Land South West and Adj to Lodge Court, Turnpike Lane, Ickleford, Hertfordshire** to provide a high-level sustainability overview and to provide specific details on the energy efficient measures for the scheme.

Following a review of the scheme proposals and information available to date, the following measures are planned to be integrated into the development:

Energy

- Thermal insulation specified to achieve low U-Values
- LED Lighting with high luminous efficacy (lm/W) will be provided to all fittings.
- Mechanical extract ventilation will be provided with openable windows
- Air Permeability target of 3 m³/(hm²) @50Pa.
- The scheme has been designed to minimise overheating risk.

Renewable Technologies

- Solar PV will be installed.
- Air Source Heat Pumps will be installed

Sustainability

- Water Efficiency will be as per the optional requirement of the Building Regulations.
- Sustainable materials will be prioritised.
- Trees and landscaping will be planted to enhance biodiversity.
- Electric Car Charging facilities
- Cycle storage will be provided.

Overall

As per the measures highlighted and proposed throughout this report, the scheme aims to be a highly-sustainable and low-carbon development that complies with and exceeds the requirements of the Local Authority and as such **Planning Condition 20** can be discharged.

Appendix 1



Summary for Input Data

Property Reference	Plot 1	Issued on Date	08/07/2025
Assessment Reference	ASHP and wall at 0.15	Prop Type Ref	House Type 1
Property	Plot 1, Turnpike Lane, Ickleford, Hitchin, SG5		

SAP Rating	81 B	DER	3.72	TER	8.99
Environmental	96 A	% DER < TER			58.62
CO ₂ Emissions (t/year)	0.64	DFEE	41.10	TFEE	41.11
Compliance Check	See BREL	% DFEE < TFEE			0.02
% DPER < TPER	16.00	DPER	39.58	TPER	47.12

Assessor Details	Mr. Neil Rotheron	Assessor ID	L759-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Designed)

Orientation	Northwest	
Property Tenture	ND	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	House, Detached	
Which Floor	0	
2.0 Number of Storeys	2	
3.0 Date Built	2024	
3.0 Property Age Band	L	
4.0 Sheltered Sides	1	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Precise calculation	
Thermal Mass	78.27	kJ/m²K
7.0 Electricity Tariff	Standard	
Smart electricity meter fitted	Yes	
Smart gas meter fitted	Yes	

7.0 Measurements		Heat Loss Perimeter	Internal Floor Area	Average Storey Height
	Ground floor:	35.13 m	83.80 m ²	2.38 m
	1st Storey:	41.72 m	102.00 m ²	2.68 m

8.0 Living Area	32.32	m ²
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Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Gross Area(m ²)	Nett Area (m ²)	Shelter Res	Shelter	Openings	Area Calculation Type
External Wall 1	Timber Frame	Timber framed wall (one layer of plasterboard)	0.15	9.00	195.10	159.21	0.00	None	35.89	Enter Gross Area
Sheltered to garage	Timber Frame	Timber framed wall (one layer of plasterboard)	0.15	9.00	23.60	21.69	0.00	None	1.91	Enter Gross Area

Description	Construction	Kappa (kJ/m ² K)	Area (m ²)
Internal Wall 1	Plasterboard on timber frame	9.00	342.01

Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Gross Area(m ²)	Nett Area (m ²)	Shelter Code	Shelter Factor	Calculation Type	Openings
External Roof 1	External Plane	Plasterboard, insulated at ceiling level	0.09	9.00	98.20	98.20	None	0.00	Enter Gross Area	0.00
over porch	External Plane	Plasterboard, insulated at ceiling level	0.16	9.00	2.16	2.16	None	0.00	Enter Gross Area	0.00
Flat over bay windows	External Flat	Plasterboard, insulated flat roof	0.16	9.00	1.50	1.50	None	0.00	Enter Gross Area	0.00
sloping	External Slope	Plasterboard, insulated slope	0.16	9.00	3.85	3.85	None	0.00	Enter Gross Area	0.00

Description	Storey	Construction	Area (m ²)
Internal Ceiling 1	Lowest occupied	Plasterboard ceiling, carpeted chipboard floor	83.80

Summary for Input Data



11.0 Heat Loss Floors

Description	Type	Storey Index	Construction	U-Value (W/m²K)	Shelter Code	Shelter Factor	Kappa (kJ/m²K)	Area (m²)
Ground Floor above garage	Ground Floor - Solid	Lowest occupied	Suspended concrete floor, carpeted	0.11	None	0.00	75.00	83.80
	Exposed Floor - Timber	+1	Timber exposed floor, insulation between joists	0.21	None	0.00	20.00	20.20

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
Internal Floor 1		Plasterboard ceiling, carpeted chipboard floor	18.00	80.14

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Front Door	Manufacturer	Solid Door				0.00			1.20
Windows	Manufacturer	Window	Double Low-E Hard 0.2			0.40		0.70	1.20
Door to garage	SAP table	Door to Corridor			Air Filled	0.00		0.70	1.40

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
front door	Front Door	External Wall 1	North West	2.10	0
Front	Windows	External Wall 1	North West	12.79	0
Side	Windows	External Wall 1	South West	12.50	0
Side 1	Windows	External Wall 1	North East	7.40	0
bay side	Windows	External Wall 1	South East	1.11	0
garage to utility	Door to garage	Sheltered to garage	North East	1.91	0

14.0 Conservatory

15.0 Draught Proofing

 %

16.0 Draught Lobby

17.0 Thermal Bridging

17.1 List of Bridges

Bridge Type	Source Type	Length	Psi	Adjusted Reference:	Imported
E2 Other lintels (including other steel lintels)	Independently assessed	26.40	0.05	0.05 PSL	Yes
E3 Sill	Independently assessed	14.74	0.04	0.04 PSL	Yes
E4 Jamb	Independently assessed	54.90	0.07	0.07 PSL	Yes
E5 Ground floor (normal)	Independently assessed	35.13	0.16	0.16 PSL	No
E5 Ground floor (normal)	Independently assessed	10.14	0.16	0.16 to garage sheltered	No
E6 Intermediate floor within a dwelling	Independently assessed	45.82	0.03	0.03 PSL	No
E24 Eaves (insulation at ceiling level - inverted)	Table K1 - Default	4.17	0.15	0.15 df	No
E16 Corner (normal)	Independently assessed	28.88	0.06	0.06 PSL	No
E16 Corner (normal)	Table K1 - Default	2.38	0.18	0.18 PSL	No
E17 Corner (inverted – internal area greater than external area)	Independently assessed	7.44	-0.09	-0.09 PSL	No
E14 Flat roof	Table K1 - Default	8.50	0.16	0.16 dormers/bay	No
E10 Eaves (insulation at ceiling level)	Independently assessed	13.49	0.07	0.07 PSL	No
E12 Gable (insulation at ceiling level)	Independently assessed	22.53	0.08	0.08 PSL	No
R7 Flat ceiling (inverted)	Table K1 - Default	4.20	0.12	0.12 dormers	No
E10 Eaves (insulation at ceiling level)	Independently assessed	2.17	0.07	0.07 PSL	No
E12 Gable (insulation at ceiling level)	Table K1 - Default	1.70	0.25	0.25 porch	No
E11 Eaves (insulation at rafter level)	Independently assessed	6.00	0.04	0.04 PSL	No
E11 Eaves (insulation at rafter level)	Independently assessed	2.20	0.04	0.04 PSL	No

Y-value W/m²K

19.0 Mechanical Ventilation

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	No
Mechanical Ventilation data Type	Database
Type	Mechanical extract ventilation - decentralised
MV Reference Number	500755
Duct Type	Flexible
Wet Rooms	5
SFP from Installer Commissioning Certificate	No

19.1 Mechanical extract ventilation - Decentralised

SFP	Fan/Room Type	Count
0.15	In Room Fan Kitchen	0
0.15	In Room Fan Other Wet Room	0
0.00	In Duct Fan Kitchen	0
0.00	In Duct Fan Other Wet Room	0

Summary for Input Data

0.11 Through Wall Fan 1
Kitchen
0.14 Through Wall Fan 4
Other Wet Room

20.0 Fans, Open Fireplaces, Flues

Number of open chimneys

Number of open flues

Number of chimneys/flues attached to closed fire

Number of flues attached to solid fuel boiler

Number of flues attached to other heater

Number of blocked chimneys

Number of intermittent extract fans

Number of passive vents

Number of flueless gas fires

21.0 Fixed Cooling System

22.0 Pressure Testing

Designed AP₅₀ m³/(h.m²) @ 50 Pa

Property Tested?

Test Method

22.0 Lighting

No Fixed Lighting

Name	Efficacy	Power	Capacity	Count
Lighting 1	85.00	5.00	425.00	20

24.0 Main Heating 1

Percentage of Heat %

Database Ref. No.

Fuel Type

SAP Code

In Winter

In Summer

Model Name

Manufacturer

System Type

Controls SAP Code

Delayed Start Stat

Burner Control

HETAS approved System

Is MHS Pumped

Heating Pump Age

Heat Emitter

Underfloor Heating

Flow Temperature

Flow Temperature Value

25.0 Main Heating 2

26.0 Heat Networks

27.0 Secondary Heating

28.0 Water Heating

Water Heating

Summary for Input Data

SAP Code	901
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
Water use <= 125 litres/person/day	Yes
Summer Immersion	No
Cold Water Source	From mains
Bath Count	1
Supplementary Immersion	No
Immersion Only Heating Hot Water	No

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
main	Vented hot water system + pump	12.00		Yes	Instantaneous System 1
e1	Vented hot water system + pump	12.00		No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder

Hot Water Cylinder	
Cylinder Stat	Yes
Cylinder In Heated Space	Yes
Independent Time Control	Yes
Insulation Type	Measured Loss
Insulation Thickness Type	80 mm
Insulation Thickness	80
Cylinder Volume	300.00
Loss	2.24
Pipes insulation	Fully insulated primary pipework
In Airing Cupboard	No

L

kWh/day

31.0 Thermal Store

None

32.0 Photovoltaic Unit

One Dwelling	
Export Capable Meter?	Yes
Connected To Dwelling	Yes
Diverter	No
Battery Capacity [kWh]	0.00

PV Cells kWp	Orientation	Elevation	Overshading	FGHRS	MCS Certificate	Overshading Factor	MCS Certificate Reference	Panel Manufacturer
1.00	South West	30°	None Or Little	No	No	1.00		

34.0 Small-scale Hydro

None	
Electricity Generated	0.00
Apportioned	0.00
Connected to dwelling's electricity meter	Yes
Electricity Generation	Annual

kWh/Year

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

	Typical Cost	Typical savings per year	Ratings after improvement SAP rating	Environmental Impact
Solar water heating	£4,000 - £7,000	£104	B 82 0	A 96 0

Summary for Input Data

Property Reference	Plot 2	Issued on Date	08/07/2025
Assessment Reference	ASHP	Prop Type Ref	House Type 2+4
Property	Plot 2, Turnpike Lane, Ickleford, Hitchin, SG5		

SAP Rating	81 B	DER	3.75	TER	8.43
Environmental	96 A	% DER < TER			55.52
CO ₂ Emissions (t/year)	0.54	DFEE	34.69	TFEE	35.62
Compliance Check	See BREL	% DFEE < TFEE			2.61
% DPER < TPER	9.11	DPER	40.01	TPER	44.02

Assessor Details	Mr. Neil Rothern	Assessor ID	L759-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Designed)

Orientation	Northeast	
Property Tenture	ND	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	House, Semi-Detached	
Which Floor	0	
2.0 Number of Storeys	2	
3.0 Date Built	2024	
3.0 Property Age Band	L	
4.0 Sheltered Sides	2	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Precise calculation	
Thermal Mass	1.00	kJ/m²K
7.0 Electricity Tariff	Standard	
Smart electricity meter fitted	Yes	
Smart gas meter fitted	Yes	

7.0 Measurements		Heat Loss Perimeter	Internal Floor Area	Average Storey Height
	Ground floor:	26.31 m	75.73 m ²	2.38 m
	1st Storey:	26.31 m	78.00 m ²	2.68 m

8.0 Living Area	33.98	m ²
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Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Gross Area(m ²)	Nett Area (m ²)	Shelter Res	Shelter	Openings	Area Calculation Type
External Wall 1	Timber Frame	Timber framed wall (one layer of plasterboard)	0.15	9.00	133.12	109.32	0.00	None	23.80	Enter Gross Area

Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Area (m ²)	Shelter Res	Shelter
Party Wall 1	Filled Cavity with Edge Sealing	Double plasterboard on both sides, twin timber frame with/without sheathing board	0.00	20.00	61.37	0.00	None

Description	Construction	Kappa (kJ/m ² K)	Area (m ²)
Internal Wall 1	Plasterboard on timber frame	9.00	267.00

Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Gross Area(m ²)	Nett Area (m ²)	Shelter Code	Shelter Factor	Calculation Type	Openings
External Roof 1	External Plane Roof	Plasterboard, insulated at ceiling level	0.10	9.00	78.00	78.00	None	0.00	Enter Gross Area	0.00

Description	Storey	Construction	Area (m ²)
Internal Ceiling 1	Lowest occupied	Plasterboard ceiling, carpeted chipboard floor	75.73

Summary for Input Data



11.0 Heat Loss Floors

Description	Type	Storey Index	Construction	U-Value (W/m²K)	Shelter Code	Shelter Factor	Kappa (kJ/m²K)	Area (m²)
Ground Floor exposed	Ground Floor - Solid Timber	Lowest occupied +1	Suspended concrete floor, carpeted Timber exposed floor, insulation between joists	0.11 0.22	None None	0.00 0.00	75.00 20.00	75.73 2.20

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
Internal Floor 1		Plasterboard ceiling, carpeted chipboard floor	9.00	75.73

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Front Door	Manufacturer	Solid Door				0.00			1.20
Windows	Manufacturer	Window	Double Low-E Hard 0.2			0.72		0.70	1.20

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
front door	Front Door	External Wall 1	North East	2.10	0
Front	Windows	External Wall 1	North East	8.31	0
rear	Windows	External Wall 1	South West	9.53	0
side	Windows	External Wall 1	North West	3.86	0

14.0 Conservatory

15.0 Draught Proofing

 %

16.0 Draught Lobby

17.0 Thermal Bridging

17.1 List of Bridges

Bridge Type	Source Type	Length	Psi	Adjusted	Reference:	Imported
E5 Ground floor (normal)	Independently assessed	26.31	0.16	0.16	PSL	No
E6 Intermediate floor within a dwelling	Independently assessed	24.31	0.03	0.03	PSL	No
E16 Corner (normal)	Independently assessed	17.56	0.06	0.06	PSL	No
E17 Corner (inverted – internal area greater than external area)	Independently assessed	2.38	-0.09	-0.09	PSL	No
E10 Eaves (insulation at ceiling level)	Independently assessed	22.45	0.07	0.07	PSL	No
E12 Gable (insulation at ceiling level)	Independently assessed	3.86	0.08	0.08	PSL	No
E2 Other lintels (including other steel lintels)	Independently assessed	14.57	0.05	0.05	PSL	Yes
E3 Sill	Independently assessed	13.57	0.04	0.04	PSL	Yes
E4 Jamb	Independently assessed	34.80	0.07	0.07	PSL	Yes
E18 Party wall between dwellings	Independently assessed	10.12	0.00	0.00	acd no int ins	No
P1 Party wall - Ground floor	Table K1 - Default	12.00	0.32	0.32	df	No
P2 Party wall - Intermediate floor within a dwelling	Table K1 - Default	12.00	0.00	0.00	df	No
P4 Party wall - Roof (insulation at ceiling level)	Table K1 - Default	12.00	0.48	0.48	df	No
E20 Exposed floor (normal)	Table K1 - Default	2.00	0.32	0.32	df	No
E21 Exposed floor (inverted)	Table K1 - Default	2.70	0.32	0.32	df	No

Y-value W/m²K

19.0 Mechanical Ventilation

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	No
Mechanical Ventilation data Type	Database
Type	Mechanical extract ventilation - decentralised
MV Reference Number	500755
Duct Type	Flexible
Wet Rooms	5
SFP from Installer Commissioning Certificate	No

19.1 Mechanical extract ventilation - Decentralised

SFP	Fan/Room Type	Count
0.15	In Room Fan Kitchen	0
0.15	In Room Fan Other Wet Room	0
0.00	In Duct Fan Kitchen	0
0.00	In Duct Fan Other Wet Room	0
0.11	Through Wall Fan Kitchen	1
0.14	Through Wall Fan Other Wet Room	4

20.0 Fans, Open Fireplaces, Flues

Summary for Input Data

Number of open chimneys	0				
Number of open flues	0				
Number of chimneys/flues attached to closed fire	0				
Number of flues attached to solid fuel boiler	0				
Number of flues attached to other heater	0				
Number of blocked chimneys	0				
Number of intermittent extract fans	0				
Number of passive vents	0				
Number of flueless gas fires	0				

21.0 Fixed Cooling System	No				
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22.0 Pressure Testing	Yes				
Designed AP ₅₀	3.00	m³/(h.m²) @ 50 Pa			
Property Tested?	Yes				
Test Method	Blower Door				

22.0 Lighting	No				
No Fixed Lighting	No				
	Name Lighting 1	Efficacy 85.00	Power 5.00	Capacity 425.00	Count 15

24.0 Main Heating 1	Database				
Percentage of Heat	100.00 %				
Database Ref. No.	107241				
Fuel Type	Electricity				
SAP Code	0				
In Winter	0.00				
In Summer	0.00				
Model Name	CS2000AWF 4 R-S				
Manufacturer	Bosch Thermotechnology Ltd				
System Type	Heat Pump				
Controls SAP Code	2207				
Delayed Start Stat	No				
Burner Control	Modulating				
HETAS approved System	No				
Is MHS Pumped	Pump in heated space				
Heating Pump Age	2013 or later				
Heat Emitter	Radiators and Underfloor				
Underfloor Heating	Yes - Pipes in thin screed				
Flow Temperature	Enter value				
Flow Temperature Value	55.00				

25.0 Main Heating 2	None				
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26.0 Heat Networks	None				
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27.0 Secondary Heating	None				
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28.0 Water Heating	Main Heating 1				
Water Heating	Main Heating 1				
SAP Code	901				
Flue Gas Heat Recovery System	No				
Waste Water Heat Recovery Instantaneous System 1	No				

Summary for Input Data

Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Summer Immersion	No
Cold Water Source	From mains
Bath Count	1
Supplementary Immersion	No
Immersion Only Heating Hot Water	No

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
main	Vented hot water system + pump	12.00		Yes	Instantaneous System 1
e1	Vented hot water system + pump	12.00		No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder

Hot Water Cylinder:	Hot Water Cylinder	
Cylinder Stat	Yes	
Cylinder In Heated Space	Yes	
Independent Time Control	Yes	
Insulation Type	Measured Loss	
Insulation Thickness Type	80 mm	
Insulation Thickness	80	
Cylinder Volume	300.00	L
Loss	2.24	kWh/day
Pipes insulation	Fully insulated primary pipework	
In Airing Cupboard	No	

31.0 Thermal Store

None

32.0 Photovoltaic Unit

Export Capable Meter?	Yes
Connected To Dwelling	Yes
Diverter	No
Battery Capacity [kWh]	0.00

PV Cells kWp	Orientation	Elevation	Overshading	FGHRS	MCS Certificate	Overshading Factor	MCS Certificate Reference	Panel Manufacturer
0.80	South West	30°	None Or Little	No	No	1.00		

34.0 Small-scale Hydro

Electricity Generated	0.00	kWh/Year
Apportioned	0.00	
Connected to dwelling's electricity meter	Yes	
Electricity Generation	Annual	

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

	Typical Cost	Typical savings per year	Ratings after improvement SAP rating	Environmental Impact
Solar water heating	£4,000 - £7,000	£106	B 83 0 0	A 96 0 0

Summary for Input Data

Property Reference	Plot 3	Issued on Date	08/07/2025
Assessment Reference	ASHP and wall a 0.15	Prop Type Ref	House Type 3+5
Property	Plot 3, Turnpike Lane, Ickleford, Hitchin, SG5		

SAP Rating	81 B	DER	3.72	TER	8.18
Environmental	96 A	% DER < TER			54.52
CO ₂ Emissions (t/year)	0.53	DFEE	33.81	TFEE	34.39
Compliance Check	See BREL	% DFEE < TFEE			1.68
% DPER < TPER	6.92	DPER	39.74	TPER	42.69

Assessor Details	Mr. Neil Rothern	Assessor ID	L759-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Designed)

Orientation	Northeast	
Property Tenture	ND	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	House, Semi-Detached	
Which Floor	0	
2.0 Number of Storeys	2	
3.0 Date Built	2024	
3.0 Property Age Band	L	
4.0 Sheltered Sides	2	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Precise calculation	
Thermal Mass	1.00	kJ/m²K

7.0 Electricity Tariff	Standard
Smart electricity meter fitted	Yes
Smart gas meter fitted	Yes

7.0 Measurements				
	Ground floor:	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
	1st Storey:	26.31 m	75.73 m ²	2.38 m
		26.31 m	75.73 m ²	2.68 m

8.0 Living Area	33.98	m ²
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Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Gross Area(m ²)	Nett Area (m ²)	Shelter Res	Shelter	Openings	Area Calculation Type
External Wall 1	Timber Frame	Timber framed wall (one layer of plasterboard)	0.15	9.00	133.12	109.48	0.00	None	23.64	Enter Gross Area

Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Area (m ²)	Shelter Res	Shelter
Party Wall 1	Filled Cavity with Edge Sealing	Double plasterboard on both sides, twin timber frame with/without sheathing board	0.00	20.00	61.37	0.00	None

Description	Construction	Kappa (kJ/m ² K)	Area (m ²)
Internal Wall 1	Plasterboard on timber frame	9.00	267.00

Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Gross Area(m ²)	Nett Area (m ²)	Shelter Code	Shelter Factor	Calculation Type	Openings
External Roof 1	External Plane Roof	Plasterboard, insulated at ceiling level	0.10	9.00	75.73	75.73	None	0.00	Enter Gross Area	0.00

Description	Storey	Construction	Area (m ²)
Internal Ceiling 1	Lowest occupied	Plasterboard ceiling, carpeted chipboard floor	75.73

Summary for Input Data

11.0 Heat Loss Floors

Description	Type	Storey Index	Construction	U-Value (W/m²K)	Shelter Code	Shelter Factor	Kappa (kJ/m²K)	Area (m²)
Ground Floor	Ground Floor - Solid	Lowest occupied	Suspended concrete floor, carpeted	0.11	None	0.00	75.00	75.73

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
Internal Floor 1		Plasterboard ceiling, carpeted chipboard floor	9.00	75.73

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Front Door	Manufacturer	Solid Door				0.00			1.20
Windows	Manufacturer	Window	Double Low-E Hard 0.2			0.72		0.70	1.20

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
front door	Front Door	External Wall 1	North East	2.10	0
Front	Windows	External Wall 1	North East	8.16	0
rear	Windows	External Wall 1	South West	9.53	0
side	Windows	External Wall 1	South East	3.86	0

14.0 Conservatory

15.0 Draught Proofing

 %

16.0 Draught Lobby

17.0 Thermal Bridging

17.1 List of Bridges

Bridge Type	Source Type	Length	Psi	Adjusted Reference:	Imported
E5 Ground floor (normal)	Independently assessed	26.31	0.16	0.16 PSL	No
E6 Intermediate floor within a dwelling	Independently assessed	26.31	0.03	0.03 PSL	No
E16 Corner (normal)	Independently assessed	15.18	0.06	0.06 PSL	No
E17 Corner (inverted – internal area greater than external area)	Independently assessed	5.06	-0.04	-0.04 PSL	No
E10 Eaves (insulation at ceiling level)	Independently assessed	22.45	0.07	0.07 PSL	No
E12 Gable (insulation at ceiling level)	Independently assessed	3.86	0.08	0.08 PSL	No
E2 Other lintels (including other steel lintels)	Independently assessed	14.57	0.05	0.05 PSL	Yes
E3 Sill	Independently assessed	13.57	0.04	0.04 PSL	Yes
E4 Jamb	Independently assessed	34.80	0.07	0.07 PSL	Yes
E18 Party wall between dwellings	Independently assessed	10.12	0.11	0.11 PSL	No
P1 Party wall - Ground floor	Table K1 - Default	12.00	0.32	0.32 df	No
P2 Party wall - Intermediate floor within a dwelling	Table K1 - Default	12.00	0.00	0.00 df	No
P4 Party wall - Roof (insulation at ceiling level)	Table K1 - Default	12.00	0.48	0.48 df	No

Y-value W/m²K

19.0 Mechanical Ventilation

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	No
Mechanical Ventilation data Type	Database
Type	Mechanical extract ventilation - decentralised
MV Reference Number	500755
Duct Type	Flexible
Wet Rooms	5
SFP from Installer Commissioning Certificate	No

19.1 Mechanical extract ventilation - Decentralised

SFP	Fan/Room Type	Count
0.15	In Room Fan	0
	Kitchen	
0.15	In Room Fan Other	0
	Wet Room	
0.00	In Duct Fan Kitchen	0
0.00	In Duct Fan Other	0
	Wet Room	
0.11	Through Wall Fan	1
	Kitchen	
0.14	Through Wall Fan	4
	Other Wet Room	

20.0 Fans, Open Fireplaces, Flues

Number of open chimneys	0
Number of open flues	0

Summary for Input Data

Number of chimneys/flues attached to closed fire	0
Number of flues attached to solid fuel boiler	0
Number of flues attached to other heater	0
Number of blocked chimneys	0
Number of intermittent extract fans	0
Number of passive vents	0
Number of flueless gas fires	0

21.0 Fixed Cooling System	No
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22.0 Pressure Testing	Yes	
Designed AP ₅₀	3.00	m ² /(h.m ²) @ 50 Pa
Property Tested?	Yes	
Test Method	Blower Door	

22.0 Lighting	No				
No Fixed Lighting	No				
	Name	Efficacy	Power	Capacity	Count
	Lighting 1	85.00	5.00	425.00	15

24.0 Main Heating 1	Database	
Percentage of Heat	100.00	%
Database Ref. No.	107241	
Fuel Type	Electricity	
SAP Code	0	
In Winter	0.00	
In Summer	0.00	
Model Name	CS2000AWF 4 R-S	
Manufacturer	Bosch Thermotechnology Ltd	
System Type	Heat Pump	
Controls SAP Code	2207	
Delayed Start Stat	No	
Burner Control	Modulating	
HETAS approved System	No	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators and Underfloor	
Underfloor Heating	Yes - Pipes in thin screed	
Flow Temperature	Enter value	
Flow Temperature Value	55.00	

25.0 Main Heating 2	None
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26.0 Heat Networks	None
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27.0 Secondary Heating	None
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28.0 Water Heating	Main Heating 1
Water Heating	Main Heating 1
SAP Code	901
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

Summary for Input Data

Solar Panel	No
Water use <= 125 litres/person/day	Yes
Summer Immersion	No
Cold Water Source	From mains
Bath Count	1
Supplementary Immersion	No
Immersion Only Heating Hot Water	No

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
main	Vented hot water system + pump	12.00		Yes	Instantaneous System 1
e1	Vented hot water system + pump	12.00		No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder

29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder Stat	Yes	
Cylinder In Heated Space	Yes	
Independent Time Control	Yes	
Insulation Type	Measured Loss	
Insulation Thickness Type	80 mm	
Insulation Thickness	80	
Cylinder Volume	300.00	L
Loss	2.24	kWh/day
Pipes insulation	Fully insulated primary pipework	
In Airing Cupboard	No	

31.0 Thermal Store

None

32.0 Photovoltaic Unit

32.0 Photovoltaic Unit	One Dwelling
Export Capable Meter?	Yes
Connected To Dwelling	Yes
Diverter	No
Battery Capacity [kWh]	0.00

PV Cells kWp	Orientation	Elevation	Overshading	FGHRS	MCS Certificate	Overshading Factor	MCS Certificate Reference	Panel Manufacturer
0.80	South West	30°	None Or Little	No	No	1.00		

34.0 Small-scale Hydro

34.0 Small-scale Hydro	None	
Electricity Generated	0.00	
Apportioned	0.00	kWh/Year
Connected to dwelling's electricity meter	Yes	
Electricity Generation	Annual	

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

	Typical Cost	Typical savings per year	Ratings after improvement SAP rating	Environmental Impact
Solar water heating	£4,000 - £7,000	£107	B 83 0 0	A 97 0 0

Summary for Input Data

Property Reference	Plot 4	Issued on Date	08/07/2025
Assessment Reference	ASHP	Prop Type Ref	House Type 2+4
Property	Plot 4, Turnpike Lane, Ickleford, Hitchen, SG5		

SAP Rating	81 B	DER	3.78	TER	8.43
Environmental	96 A	% DER < TER			55.16
CO ₂ Emissions (t/year)	0.54	DFEE	35.34	TFEE	35.62
Compliance Check	See BREL	% DFEE < TFEE			0.78
% DPER < TPER	8.32	DPER	40.36	TPER	44.02

Assessor Details	Mr. Neil Rothern	Assessor ID	L759-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Designed)

Orientation	Northeast	
Property Tenture	ND	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	House, Semi-Detached	
Which Floor	0	
2.0 Number of Storeys	2	
3.0 Date Built	2024	
3.0 Property Age Band	L	
4.0 Sheltered Sides	2	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Precise calculation	
Thermal Mass	1.00	kJ/m²K
7.0 Electricity Tariff	Standard	
Smart electricity meter fitted	Yes	
Smart gas meter fitted	Yes	

7.0 Measurements	Ground floor:	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
	1st Storey:	26.31 m	75.73 m ²	2.38 m
		26.31 m	78.00 m ²	2.68 m

8.0 Living Area	33.98	m ²
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9.0 External Walls	Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Gross Area(m ²)	Nett Area (m ²)	Shelter Res	Shelter	Openings	Area Calculation Type
	External Wall 1	Timber Frame	Timber framed wall (one layer of plasterboard)	0.17	9.00	133.12	109.32	0.00	None	23.80	Enter Gross Area

9.1 Party Walls	Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Area (m ²)	Shelter Res	Shelter
	Party Wall 1	Filled Cavity with Edge Sealing	Double plasterboard on both sides, twin timber frame with/without sheathing board	0.00	20.00	61.37	0.00	None

9.2 Internal Walls	Description	Construction	Kappa (kJ/m ² K)	Area (m ²)
	Internal Wall 1	Plasterboard on timber frame	9.00	267.00

10.0 External Roofs	Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Gross Area(m ²)	Nett Area (m ²)	Shelter Code	Shelter Factor	Calculation Type	Openings
	External Roof 1	External Plane Roof	Plasterboard, insulated at ceiling level	0.10	9.00	78.00	78.00	None	0.00	Enter Gross Area	0.00

10.2 Internal Ceilings	Description	Storey	Construction	Area (m ²)
	Internal Ceiling 1	Lowest occupied	Plasterboard ceiling, carpeted chipboard floor	75.73

Summary for Input Data



11.0 Heat Loss Floors

Description	Type	Storey Index	Construction	U-Value (W/m²K)	Shelter Code	Shelter Factor	Kappa (kJ/m²K)	Area (m²)
Ground Floor exposed	Ground Floor - Solid Timber	Lowest occupied +1	Suspended concrete floor, carpeted Timber exposed floor, insulation between joists	0.11 0.22	None None	0.00 0.00	75.00 20.00	75.73 2.20

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
Internal Floor 1		Plasterboard ceiling, carpeted chipboard floor	9.00	75.73

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Front Door	Manufacturer	Solid Door				0.00			1.20
Windows	Manufacturer	Window	Double Low-E Hard 0.2			0.72		0.70	1.20

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
front door	Front Door	External Wall 1	North East	2.10	0
Front	Windows	External Wall 1	North East	8.31	0
rear	Windows	External Wall 1	South West	9.53	0
side	Windows	External Wall 1	North West	3.86	0

14.0 Conservatory

15.0 Draught Proofing

 %

16.0 Draught Lobby

17.0 Thermal Bridging

17.1 List of Bridges

Bridge Type	Source Type	Length	Psi	Adjusted	Reference:	Imported
E5 Ground floor (normal)	Independently assessed	26.31	0.16	0.16	PSL	No
E6 Intermediate floor within a dwelling	Independently assessed	24.31	0.03	0.03	PSL	No
E16 Corner (normal)	Independently assessed	17.56	0.06	0.06	PSL	No
E17 Corner (inverted – internal area greater than external area)	Independently assessed	2.38	-0.09	-0.09	PSL	No
E10 Eaves (insulation at ceiling level)	Independently assessed	22.45	0.07	0.07	PSL	No
E12 Gable (insulation at ceiling level)	Independently assessed	3.86	0.08	0.08	PSL	No
E2 Other lintels (including other steel lintels)	Independently assessed	14.57	0.05	0.05	PSL	Yes
E3 Sill	Independently assessed	13.57	0.04	0.04	PSL	Yes
E4 Jamb	Independently assessed	34.80	0.07	0.07	PSL	Yes
E18 Party wall between dwellings	Independently assessed	10.12	0.00	0.00	acd no int ins	No
P1 Party wall - Ground floor	Table K1 - Default	12.00	0.32	0.32	df	No
P2 Party wall - Intermediate floor within a dwelling	Table K1 - Default	12.00	0.00	0.00	df	No
P4 Party wall - Roof (insulation at ceiling level)	Table K1 - Default	12.00	0.48	0.48	df	No
E20 Exposed floor (normal)	Table K1 - Default	2.00	0.32	0.32	df	No
E21 Exposed floor (inverted)	Table K1 - Default	2.70	0.32	0.32	df	No

Y-value W/m²K

19.0 Mechanical Ventilation

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	No
Mechanical Ventilation data Type	Database
Type	Mechanical extract ventilation - decentralised
MV Reference Number	500755
Duct Type	Flexible
Wet Rooms	5
SFP from Installer Commissioning Certificate	No

19.1 Mechanical extract ventilation - Decentralised

SFP	Fan/Room Type	Count
0.15	In Room Fan Kitchen	0
0.15	In Room Fan Other Wet Room	0
0.00	In Duct Fan Kitchen	0
0.00	In Duct Fan Other Wet Room	0
0.11	Through Wall Fan Kitchen	1
0.14	Through Wall Fan Other Wet Room	4

20.0 Fans, Open Fireplaces, Flues

Summary for Input Data

Number of open chimneys	0				
Number of open flues	0				
Number of chimneys/flues attached to closed fire	0				
Number of flues attached to solid fuel boiler	0				
Number of flues attached to other heater	0				
Number of blocked chimneys	0				
Number of intermittent extract fans	0				
Number of passive vents	0				
Number of flueless gas fires	0				

21.0 Fixed Cooling System	No				
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22.0 Pressure Testing	Yes				
Designed AP ₅₀	3.00	m³/(h.m²) @ 50 Pa			
Property Tested?	Yes				
Test Method	Blower Door				

22.0 Lighting	No				
No Fixed Lighting	No				
	Name Lighting 1	Efficacy 85.00	Power 5.00	Capacity 425.00	Count 15

24.0 Main Heating 1	Database				
Percentage of Heat	100.00 %				
Database Ref. No.	107241				
Fuel Type	Electricity				
SAP Code	0				
In Winter	0.00				
In Summer	0.00				
Model Name	CS2000AWF 4 R-S				
Manufacturer	Bosch Thermotechnology Ltd				
System Type	Heat Pump				
Controls SAP Code	2207				
Delayed Start Stat	No				
Burner Control	Modulating				
HETAS approved System	No				
Is MHS Pumped	Pump in heated space				
Heating Pump Age	2013 or later				
Heat Emitter	Radiators and Underfloor				
Underfloor Heating	Yes - Pipes in thin screed				
Flow Temperature	Enter value				
Flow Temperature Value	55.00				

25.0 Main Heating 2	None				
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26.0 Heat Networks	None				
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27.0 Secondary Heating	None				
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28.0 Water Heating	Main Heating 1				
Water Heating	Main Heating 1				
SAP Code	901				
Flue Gas Heat Recovery System	No				
Waste Water Heat Recovery Instantaneous System 1	No				

Summary for Input Data

Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Summer Immersion	No
Cold Water Source	From mains
Bath Count	1
Supplementary Immersion	No
Immersion Only Heating Hot Water	No

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
main	Vented hot water system + pump	12.00		Yes	Instantaneous System 1
e1	Vented hot water system + pump	12.00		No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder

Hot Water Cylinder:	Hot Water Cylinder	
Cylinder Stat	Yes	
Cylinder In Heated Space	Yes	
Independent Time Control	Yes	
Insulation Type	Measured Loss	
Insulation Thickness Type	80 mm	
Insulation Thickness	80	
Cylinder Volume	300.00	L
Loss	2.24	kWh/day
Pipes insulation	Fully insulated primary pipework	
In Airing Cupboard	No	

31.0 Thermal Store

None

32.0 Photovoltaic Unit

Export Capable Meter?	Yes
Connected To Dwelling	Yes
Diverter	No
Battery Capacity [kWh]	0.00

PV Cells kWp	Orientation	Elevation	Overshading	FGHRS	MCS Certificate	Overshading Factor	MCS Certificate Reference	Panel Manufacturer
0.80	South West	30°	None Or Little	No	No	1.00		

34.0 Small-scale Hydro

Electricity Generated	0.00	kWh/Year
Apportioned	0.00	
Connected to dwelling's electricity meter	Yes	
Electricity Generation	Annual	

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

	Typical Cost	Typical savings per year	Ratings after improvement SAP rating	Environmental Impact
Solar water heating	£4,000 - £7,000	£106	B 83 0 0	A 96 0 0

Summary for Input Data

Property Reference	Plot 5	Issued on Date	08/07/2025
Assessment Reference	ASHP and wall at 0.15	Prop Type Ref	House Type 3+5
Property	Plot 5, Turnpike Lane, Ickleford, Hitchin, SG5		

SAP Rating	81 B	DER	3.91	TER	8.18
Environmental	96 A	% DER < TER			52.20
CO ₂ Emissions (t/year)	0.56	DFEE	33.39	TFEE	34.39
Compliance Check	See BREL	% DFEE < TFEE			2.91
% DPER < TPER	3.22	DPER	41.32	TPER	42.69

Assessor Details	Mr. Neil Rotheron	Assessor ID	L759-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Designed)

Orientation	Northeast	
Property Tenture	ND	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	House, Semi-Detached	
Which Floor	0	
2.0 Number of Storeys	2	
3.0 Date Built	2024	
3.0 Property Age Band	L	
4.0 Sheltered Sides	2	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Precise calculation	
Thermal Mass	1.00	kJ/m²K
7.0 Electricity Tariff	Standard	
Smart electricity meter fitted	Yes	
Smart gas meter fitted	Yes	

7.0 Measurements		Heat Loss Perimeter	Internal Floor Area	Average Storey Height
	Ground floor:	26.31 m	75.73 m ²	2.38 m
	1st Storey:	26.31 m	75.73 m ²	2.68 m

8.0 Living Area	33.98	m ²
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Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Gross Area(m ²)	Nett Area (m ²)	Shelter Res	Shelter	Openings	Area Calculation Type
External Wall 1	Timber Frame	Timber framed wall (one layer of plasterboard)	0.15	9.00	133.12	109.48	0.00	None	23.64	Enter Gross Area

Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Area (m ²)	Shelter Res	Shelter
Party Wall 1	Filled Cavity with Edge Sealing	Double plasterboard on both sides, twin timber frame with/without sheathing board	0.00	20.00	61.37	0.00	None

Description	Construction	Kappa (kJ/m ² K)	Area (m ²)
Internal Wall 1	Plasterboard on timber frame	9.00	267.00

Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Gross Area(m ²)	Nett Area (m ²)	Shelter Code	Shelter Factor	Calculation Type	Openings
External Roof 1	External Plane Roof	Plasterboard, insulated at ceiling level	0.10	9.00	75.73	75.73	None	0.00	Enter Gross Area	0.00

Description	Storey	Construction	Area (m ²)
Internal Ceiling 1	Lowest occupied	Plasterboard ceiling, carpeted chipboard floor	75.73

Summary for Input Data



11.0 Heat Loss Floors

Description	Type	Storey Index	Construction	U-Value (W/m²K)	Shelter Code	Shelter Factor	Kappa (kJ/m²K)	Area (m²)
Ground Floor	Ground Floor - Solid	Lowest occupied	Suspended concrete floor, carpeted	0.11	None	0.00	75.00	75.73

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
Internal Floor 1		Plasterboard ceiling, carpeted chipboard floor	9.00	75.73

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Front Door	Manufacturer	Solid Door				0.00			1.20
Windows	Manufacturer	Window	Double Low-E Hard 0.2			0.72		0.70	1.20

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
front door	Front Door	External Wall 1	North East	2.10	0
Front	Windows	External Wall 1	North East	8.16	0
rear	Windows	External Wall 1	South West	9.53	0
side	Windows	External Wall 1	South East	3.86	0

14.0 Conservatory

15.0 Draught Proofing

 %

16.0 Draught Lobby

17.0 Thermal Bridging

17.1 List of Bridges

Bridge Type	Source Type	Length	Psi	Adjusted Reference:	Imported
E5 Ground floor (normal)	Independently assessed	26.31	0.16	0.16 PSL	No
E6 Intermediate floor within a dwelling	Independently assessed	26.31	0.03	0.03 PSL	No
E16 Corner (normal)	Independently assessed	15.18	0.06	0.06 PSL	No
E17 Corner (inverted – internal area greater than external area)	Independently assessed	5.06	-0.09	-0.09 PSL	No
E10 Eaves (insulation at ceiling level)	Independently assessed	22.45	0.07	0.07 PSL	No
E12 Gable (insulation at ceiling level)	Independently assessed	3.86	0.08	0.08 PSL	No
E2 Other lintels (including other steel lintels)	Independently assessed	14.57	0.05	0.05 PSL	Yes
E3 Sill	Independently assessed	13.57	0.04	0.04 PSL	Yes
E4 Jamb	Independently assessed	34.80	0.07	0.07 PSL	Yes
E18 Party wall between dwellings	Independently assessed	10.12	0.00	acd no int ins	No
P1 Party wall - Ground floor	Table K1 - Default	12.00	0.32	df	No
P2 Party wall - Intermediate floor within a dwelling	Table K1 - Default	12.00	0.00	df	No
P4 Party wall - Roof (insulation at ceiling level)	Table K1 - Default	12.00	0.48	df	No

Y-value W/m²K

19.0 Mechanical Ventilation

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	No
Mechanical Ventilation data Type	Database
Type	Mechanical extract ventilation - decentralised
MV Reference Number	500755
Duct Type	Flexible
Wet Rooms	5
SFP from Installer Commissioning Certificate	No

19.1 Mechanical extract ventilation - Decentralised

SFP	Fan/Room Type	Count
0.15	In Room Fan	0
	Kitchen	
0.15	In Room Fan Other	0
	Wet Room	
0.00	In Duct Fan Kitchen	0
0.00	In Duct Fan Other	0
	Wet Room	
0.11	Through Wall Fan	1
	Kitchen	
0.14	Through Wall Fan	4
	Other Wet Room	

20.0 Fans, Open Fireplaces, Flues

Number of open chimneys	0
Number of open flues	0

Summary for Input Data

Number of chimneys/flues attached to closed fire	0
Number of flues attached to solid fuel boiler	0
Number of flues attached to other heater	0
Number of blocked chimneys	0
Number of intermittent extract fans	0
Number of passive vents	0
Number of flueless gas fires	0

21.0 Fixed Cooling System	No
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22.0 Pressure Testing	Yes	
Designed AP ₅₀	3.00	m ² /(h.m ²) @ 50 Pa
Property Tested?	Yes	
Test Method	Blower Door	

22.0 Lighting	No				
No Fixed Lighting	No				
	Name	Efficacy	Power	Capacity	Count
	Lighting 1	85.00	5.00	425.00	15

24.0 Main Heating 1	Database	
Percentage of Heat	100.00	%
Database Ref. No.	107241	
Fuel Type	Electricity	
SAP Code	0	
In Winter	0.00	
In Summer	0.00	
Model Name	CS2000AWF 4 R-S	
Manufacturer	Bosch Thermotechnology Ltd	
System Type	Heat Pump	
Controls SAP Code	2207	
Delayed Start Stat	No	
Burner Control	Modulating	
HETAS approved System	No	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators and Underfloor	
Underfloor Heating	Yes - Pipes in thin screed	
Flow Temperature	Enter value	
Flow Temperature Value	55.00	

25.0 Main Heating 2	None
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26.0 Heat Networks	None
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27.0 Secondary Heating	None
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28.0 Water Heating	Main Heating 1
Water Heating	Main Heating 1
SAP Code	901
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

Summary for Input Data

Solar Panel	No
Water use <= 125 litres/person/day	Yes
Summer Immersion	No
Cold Water Source	From mains
Bath Count	1
Supplementary Immersion	No
Immersion Only Heating Hot Water	No

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
main	Vented hot water system + pump	12.00		Yes	Instantaneous System 1
e1	Vented hot water system + pump	12.00		No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder

29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder Stat	Yes	
Cylinder In Heated Space	Yes	
Independent Time Control	Yes	
Insulation Type	Measured Loss	
Insulation Thickness Type	80 mm	
Insulation Thickness	80	
Cylinder Volume	300.00	L
Loss	2.24	kWh/day
Pipes insulation	Fully insulated primary pipework	
In Airing Cupboard	No	

31.0 Thermal Store

None

32.0 Photovoltaic Unit

32.0 Photovoltaic Unit	One Dwelling
Export Capable Meter?	Yes
Connected To Dwelling	Yes
Diverter	No
Battery Capacity [kWh]	0.00

PV Cells kWp	Orientation	Elevation	Overshading	FGHRS	MCS Certificate	Overshading Factor	MCS Certificate Reference	Panel Manufacturer
0.50	South West	30°	None Or Little	No	No	1.00		

34.0 Small-scale Hydro

34.0 Small-scale Hydro	None	
Electricity Generated	0.00	
Apportioned	0.00	kWh/Year
Connected to dwelling's electricity meter	Yes	
Electricity Generation	Annual	

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

	Typical Cost	Typical savings per year	Ratings after improvement SAP rating	Environmental Impact
Solar water heating	£4,000 - £7,000	£108	B 82 0 0	A 96 0 0

Summary for Input Data

Property Reference	Plot 6	Issued on Date	08/07/2025
Assessment Reference	ASHP	Prop Type Ref	House Type 3+5
Property	Plot 6, Turnpike Lane, Ickleford, Hitchen, SG5		

SAP Rating	81 B	DER	3.85	TER	8.33
Environmental	96 A	% DER < TER			53.78
CO ₂ Emissions (t/year)	0.55	DFEE	34.80	TFEE	35.08
Compliance Check	See BREL	% DFEE < TFEE			0.77
% DPER < TPER	5.76	DPER	40.98	TPER	43.48

Assessor Details	Mr. Neil Rothern	Assessor ID	L759-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Designed)

Orientation	Northeast	
Property Tenture	ND	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	House, Semi-Detached	
Which Floor	0	
2.0 Number of Storeys	2	
3.0 Date Built	2024	
3.0 Property Age Band	L	
4.0 Sheltered Sides	2	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Precise calculation	
Thermal Mass	1.00	kJ/m²K
7.0 Electricity Tariff	Standard	
Smart electricity meter fitted	Yes	
Smart gas meter fitted	Yes	

7.0 Measurements	Ground floor:	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
	1st Storey:	26.31 m	75.73 m ²	2.38 m
		26.31 m	75.73 m ²	2.68 m

8.0 Living Area	33.98	m ²
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9.0 External Walls	Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Gross Area(m ²)	Nett Area (m ²)	Shelter Res	Shelter	Openings	Area Calculation Type
	External Wall 1	Timber Frame	Timber framed wall (one layer of plasterboard)	0.17	9.00	133.12	109.48	0.00	None	23.64	Enter Gross Area

9.1 Party Walls	Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Area (m ²)	Shelter Res	Shelter
	Party Wall 1	Filled Cavity with Edge Sealing	Double plasterboard on both sides, twin timber frame with/without sheathing board	0.00	20.00	61.37	0.00	None

9.2 Internal Walls	Description	Construction	Kappa (kJ/m ² K)	Area (m ²)
	Internal Wall 1	Plasterboard on timber frame	9.00	267.00

10.0 External Roofs	Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Gross Area(m ²)	Nett Area (m ²)	Shelter Code	Shelter Factor	Calculation Type	Openings
	External Roof 1	External Plane Roof	Plasterboard, insulated at ceiling level	0.10	9.00	75.73	75.73	None	0.00	Enter Gross Area	0.00

10.2 Internal Ceilings	Description	Storey	Construction	Area (m ²)
	Internal Ceiling 1	Lowest occupied	Plasterboard ceiling, carpeted chipboard floor	75.73

Summary for Input Data

11.0 Heat Loss Floors

Description	Type	Storey Index	Construction	U-Value (W/m²K)	Shelter Code	Shelter Factor	Kappa (kJ/m²K)	Area (m²)
Ground Floor	Ground Floor - Solid	Lowest occupied	Suspended concrete floor, carpeted	0.11	None	0.00	75.00	75.73

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
Internal Floor 1		Plasterboard ceiling, carpeted chipboard floor	9.00	75.73

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Front Door	Manufacturer	Solid Door				0.00			1.20
Windows	Manufacturer	Window	Double Low-E Hard 0.2			0.72		0.70	1.20

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
front door	Front Door	External Wall 1	North East	2.10	0
Front	Windows	External Wall 1	North East	8.16	0
rear	Windows	External Wall 1	South West	9.53	0
side	Windows	External Wall 1	North West	3.86	0

14.0 Conservatory

15.0 Draught Proofing

 %

16.0 Draught Lobby

17.0 Thermal Bridging

17.1 List of Bridges

Bridge Type	Source Type	Length	Psi	Adjusted Reference:	Imported
E5 Ground floor (normal)	Independently assessed	26.31	0.16	0.16 PSL	No
E6 Intermediate floor within a dwelling	Independently assessed	26.31	0.03	0.03 PSL	No
E16 Corner (normal)	Independently assessed	15.18	0.06	0.06 PSL	No
E17 Corner (inverted – internal area greater than external area)	Independently assessed	5.06	-0.09	-0.09 PSL	No
E10 Eaves (insulation at ceiling level)	Independently assessed	22.45	0.07	0.07 PSL	No
E12 Gable (insulation at ceiling level)	Independently assessed	3.86	0.08	0.08 PSL	No
E2 Other lintels (including other steel lintels)	Independently assessed	14.57	0.05	0.05 PSL	Yes
E3 Sill	Independently assessed	13.57	0.04	0.04 PSL	Yes
E4 Jamb	Independently assessed	34.80	0.07	0.07 PSL	Yes
E18 Party wall between dwellings	Independently assessed	10.12	0.00	acd no int ins	No
P1 Party wall - Ground floor	Table K1 - Default	12.00	0.32	df	No
P2 Party wall - Intermediate floor within a dwelling	Table K1 - Default	12.00	0.00	df	No
P4 Party wall - Roof (insulation at ceiling level)	Table K1 - Default	12.00	0.48	df	No

Y-value W/m²K

19.0 Mechanical Ventilation

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	No
Mechanical Ventilation data Type	Database
Type	Mechanical extract ventilation - decentralised
MV Reference Number	500755
Duct Type	Flexible
Wet Rooms	6
SFP from Installer Commissioning Certificate	No

19.1 Mechanical extract ventilation - Decentralised

SFP	Fan/Room Type	Count
0.15	In Room Fan	0
	Kitchen	
0.15	In Room Fan Other	0
	Wet Room	
0.00	In Duct Fan Kitchen	0
0.00	In Duct Fan Other	0
	Wet Room	
0.11	Through Wall Fan	1
	Kitchen	
0.14	Through Wall Fan	5
	Other Wet Room	

20.0 Fans, Open Fireplaces, Flues

Number of open chimneys	0
Number of open flues	0

Summary for Input Data

Number of chimneys/flues attached to closed fire	0
Number of flues attached to solid fuel boiler	0
Number of flues attached to other heater	0
Number of blocked chimneys	0
Number of intermittent extract fans	0
Number of passive vents	0
Number of flueless gas fires	0

21.0 Fixed Cooling System	No
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22.0 Pressure Testing	Yes	
Designed AP ₅₀	3.00	m ² /(h.m ²) @ 50 Pa
Property Tested?	Yes	
Test Method	Blower Door	

22.0 Lighting	No				
No Fixed Lighting	No				
	Name	Efficacy	Power	Capacity	Count
	Lighting 1	85.00	5.00	425.00	15

24.0 Main Heating 1	Database	
Percentage of Heat	100.00	%
Database Ref. No.	107241	
Fuel Type	Electricity	
SAP Code	0	
In Winter	0.00	
In Summer	0.00	
Model Name	CS2000AWF 4 R-S	
Manufacturer	Bosch Thermotechnology Ltd	
System Type	Heat Pump	
Controls SAP Code	2207	
Delayed Start Stat	No	
Burner Control	Modulating	
HETAS approved System	No	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators and Underfloor	
Underfloor Heating	Yes - Pipes in thin screed	
Flow Temperature	Enter value	
Flow Temperature Value	55.00	

25.0 Main Heating 2	None
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26.0 Heat Networks	None
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27.0 Secondary Heating	None
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28.0 Water Heating	Main Heating 1
Water Heating	Main Heating 1
SAP Code	901
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

Summary for Input Data

Solar Panel	No
Water use <= 125 litres/person/day	Yes
Summer Immersion	No
Cold Water Source	From mains
Bath Count	1
Supplementary Immersion	No
Immersion Only Heating Hot Water	No

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
main	Vented hot water system + pump	12.00		Yes	Instantaneous System 1
e1	Vented hot water system + pump	12.00		No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder

29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder Stat	Yes	
Cylinder In Heated Space	Yes	
Independent Time Control	Yes	
Insulation Type	Measured Loss	
Insulation Thickness Type	80 mm	
Insulation Thickness	80	
Cylinder Volume	300.00	L
Loss	2.24	kWh/day
Pipes insulation	Fully insulated primary pipework	
In Airing Cupboard	No	

31.0 Thermal Store

None

32.0 Photovoltaic Unit

32.0 Photovoltaic Unit	One Dwelling
Export Capable Meter?	Yes
Connected To Dwelling	Yes
Diverter	No
Battery Capacity [kWh]	0.00

PV Cells kWp	Orientation	Elevation	Overshading	FGHRS	MCS Certificate	Overshading Factor	MCS Certificate Reference	Panel Manufacturer
0.70	South West	30°	None Or Little	No	No	1.00		

34.0 Small-scale Hydro

34.0 Small-scale Hydro	None	
Electricity Generated	0.00	
Apportioned	0.00	kWh/Year
Connected to dwelling's electricity meter	Yes	
Electricity Generation	Annual	

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

	Typical Cost	Typical savings per year	Ratings after improvement SAP rating	Environmental Impact
Solar water heating	£4,000 - £7,000	£107	B 82 0 0	A 96 0 0

Summary for Input Data

Property Reference	Plot 7	Issued on Date	08/07/2025
Assessment Reference	ASHP	Prop Type Ref	House Type 2+4
Property	Plot 7, Turnpike Lane, Ickleford, Hitchen, SG5		

SAP Rating	81 B	DER	3.83	TER	8.55
Environmental	96 A	% DER < TER			55.20
CO ₂ Emissions (t/year)	0.55	DFEE	35.53	TFEE	35.95
Compliance Check	See BREL	% DFEE < TFEE			1.16
% DPER < TPER	8.78	DPER	40.84	TPER	44.77

Assessor Details	Mr. Neil Rothern	Assessor ID	L759-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Designed)

Orientation	Northeast	
Property Tenture	ND	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	House, Semi-Detached	
Which Floor	0	
2.0 Number of Storeys	2	
3.0 Date Built	2024	
3.0 Property Age Band	L	
4.0 Sheltered Sides	1	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Precise calculation	
Thermal Mass	1.00	kJ/m²K
7.0 Electricity Tariff	Standard	
Smart electricity meter fitted	Yes	
Smart gas meter fitted	Yes	

7.0 Measurements	Ground floor:	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
	1st Storey:	26.31 m	75.73 m ²	2.38 m
		26.31 m	78.00 m ²	2.68 m

8.0 Living Area	33.98	m ²
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9.0 External Walls	Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Gross Area(m ²)	Nett Area (m ²)	Shelter Res	Shelter	Openings	Area Calculation Type
	External Wall 1	Timber Frame	Timber framed wall (one layer of plasterboard)	0.17	9.00	133.12	113.00	0.00	None	20.12	Enter Gross Area

9.1 Party Walls	Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Area (m ²)	Shelter Res	Shelter
	Party Wall 1	Filled Cavity with Edge Sealing	Double plasterboard on both sides, twin timber frame with/without sheathing board	0.00	20.00	61.37	0.00	None

9.2 Internal Walls	Description	Construction	Kappa (kJ/m ² K)	Area (m ²)
	Internal Wall 1	Plasterboard on timber frame	9.00	267.00

10.0 External Roofs	Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Gross Area(m ²)	Nett Area (m ²)	Shelter Code	Shelter Factor	Calculation Type	Openings
	External Roof 1	External Plane Roof	Plasterboard, insulated at ceiling level	0.10	9.00	78.00	78.00	None	0.00	Enter Gross Area	0.00

10.2 Internal Ceilings	Description	Storey	Construction	Area (m ²)
	Internal Ceiling 1	Lowest occupied	Plasterboard ceiling, carpeted chipboard floor	75.73

Summary for Input Data



11.0 Heat Loss Floors

Description	Type	Storey Index	Construction	U-Value (W/m²K)	Shelter Code	Shelter Factor	Kappa (kJ/m²K)	Area (m²)
Ground Floor exposed	Ground Floor - Solid Timber	Lowest occupied +1	Suspended concrete floor, carpeted Timber exposed floor, insulation between joists	0.11 0.22	None None	0.00 0.00	75.00 20.00	75.73 2.20

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
Internal Floor 1		Plasterboard ceiling, carpeted chipboard floor	9.00	75.73

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Front Door	Manufacturer	Solid Door				0.00			1.20
Windows	Manufacturer	Window	Double Low-E Hard 0.2			0.72		0.70	1.20

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
front door	Front Door	External Wall 1	North East	2.10	0
Front	Windows	External Wall 1	North East	8.31	0
rear	Windows	External Wall 1	South West	5.85	0
side	Windows	External Wall 1	North West	3.86	0

14.0 Conservatory

15.0 Draught Proofing

 %

16.0 Draught Lobby

17.0 Thermal Bridging

17.1 List of Bridges

Bridge Type	Source Type	Length	Psi	Adjusted	Reference:	Imported
E5 Ground floor (normal)	Independently assessed	26.31	0.16	0.16	PSL	No
E6 Intermediate floor within a dwelling	Independently assessed	24.31	0.03	0.03	PSL	No
E16 Corner (normal)	Independently assessed	17.56	0.06	0.06	PSL	No
E17 Corner (inverted – internal area greater than external area)	Independently assessed	2.38	-0.09	-0.09	PSL	No
E10 Eaves (insulation at ceiling level)	Independently assessed	22.45	0.07	0.07	PSL	No
E12 Gable (insulation at ceiling level)	Independently assessed	3.86	0.08	0.08	PSL	No
E2 Other lintels (including other steel lintels)	Independently assessed	14.57	0.05	0.05	PSL	Yes
E3 Sill	Independently assessed	13.57	0.04	0.04	PSL	Yes
E4 Jamb	Independently assessed	34.80	0.07	0.07	PSL	Yes
E18 Party wall between dwellings	Independently assessed	10.12	0.00	0.00	acd no int ins	No
P1 Party wall - Ground floor	Table K1 - Default	12.00	0.32	0.32	df	No
P2 Party wall - Intermediate floor within a dwelling	Table K1 - Default	12.00	0.00	0.00	df	No
P4 Party wall - Roof (insulation at ceiling level)	Table K1 - Default	12.00	0.48	0.48	df	No
E20 Exposed floor (normal)	Table K1 - Default	2.00	0.32	0.32	df	No
E21 Exposed floor (inverted)	Table K1 - Default	2.70	0.32	0.32	df	No

Y-value W/m²K

19.0 Mechanical Ventilation

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	No
Mechanical Ventilation data Type	Database
Type	Mechanical extract ventilation - decentralised
MV Reference Number	500755
Duct Type	Flexible
Wet Rooms	5
SFP from Installer Commissioning Certificate	No

19.1 Mechanical extract ventilation - Decentralised

SFP	Fan/Room Type	Count
0.15	In Room Fan Kitchen	0
0.15	In Room Fan Other Wet Room	0
0.00	In Duct Fan Kitchen	0
0.00	In Duct Fan Other Wet Room	0
0.11	Through Wall Fan Kitchen	1
0.14	Through Wall Fan Other Wet Room	4

20.0 Fans, Open Fireplaces, Flues

Summary for Input Data

Number of open chimneys	0				
Number of open flues	0				
Number of chimneys/flues attached to closed fire	0				
Number of flues attached to solid fuel boiler	0				
Number of flues attached to other heater	0				
Number of blocked chimneys	0				
Number of intermittent extract fans	0				
Number of passive vents	0				
Number of flueless gas fires	0				

21.0 Fixed Cooling System	No				
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22.0 Pressure Testing	Yes				
Designed AP ₅₀	3.00	m³/(h.m²) @ 50 Pa			
Property Tested?	Yes				
Test Method	Blower Door				

22.0 Lighting	No				
No Fixed Lighting	No				
	Name Lighting 1	Efficacy 85.00	Power 5.00	Capacity 425.00	Count 15

24.0 Main Heating 1	Database				
Percentage of Heat	100.00 %				
Database Ref. No.	107241				
Fuel Type	Electricity				
SAP Code	0				
In Winter	0.00				
In Summer	0.00				
Model Name	CS2000AWF 4 R-S				
Manufacturer	Bosch Thermotechnology Ltd				
System Type	Heat Pump				
Controls SAP Code	2207				
Delayed Start Stat	No				
Burner Control	Modulating				
HETAS approved System	No				
Is MHS Pumped	Pump in heated space				
Heating Pump Age	2013 or later				
Heat Emitter	Radiators and Underfloor				
Underfloor Heating	Yes - Pipes in thin screed				
Flow Temperature	Enter value				
Flow Temperature Value	55.00				

25.0 Main Heating 2	None				
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26.0 Heat Networks	None				
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27.0 Secondary Heating	None				
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28.0 Water Heating	Main Heating 1				
Water Heating	Main Heating 1				
SAP Code	901				
Flue Gas Heat Recovery System	No				
Waste Water Heat Recovery Instantaneous System 1	No				

Summary for Input Data

Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Summer Immersion	No
Cold Water Source	From mains
Bath Count	1
Supplementary Immersion	No
Immersion Only Heating Hot Water	No

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
main	Vented hot water system + pump	12.00		Yes	Instantaneous System 1
e1	Vented hot water system + pump	12.00		No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder Stat	Yes	
Cylinder In Heated Space	Yes	
Independent Time Control	Yes	
Insulation Type	Measured Loss	
Insulation Thickness Type	80 mm	
Insulation Thickness	80	
Cylinder Volume	300.00	L
Loss	2.24	kWh/day
Pipes insulation	Fully insulated primary pipework	
In Airing Cupboard	No	

31.0 Thermal Store

None

32.0 Photovoltaic Unit

One Dwelling	One Dwelling
Export Capable Meter?	Yes
Connected To Dwelling	Yes
Diverter	No
Battery Capacity [kWh]	0.00

PV Cells kWp	Orientation	Elevation	Overshading	FGHRS	MCS Certificate	Overshading Factor	MCS Certificate Reference	Panel Manufacturer
0.80	South East	30°	None Or Little	No	No	1.00		

34.0 Small-scale Hydro

Electricity Generated	0.00	kWh/Year
Apportioned	0.00	
Connected to dwelling's electricity meter	Yes	
Electricity Generation	Annual	

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

	Typical Cost	Typical savings per year	Ratings after improvement SAP rating	Environmental Impact
Solar water heating	£4,000 - £7,000	£106	B 82 0 0	A 96 0 0

Summary for Input Data



Property Reference	Plot 8	Issued on Date	08/07/2025
Assessment Reference	ASHP	Prop Type Ref	House Type 8
Property	Plot 8, Turnpike Lane, Ickleford, Hitchen, SG5		

SAP Rating	81 B	DER	3.58	TER	7.73
Environmental	96 A	% DER < TER			53.69
CO ₂ Emissions (t/year)	0.73	DFEE	36.65	TFEE	37.95
Compliance Check	See BREL	% DFEE < TFEE			3.41
% DPER < TPER	8.28	DPER	37.49	TPER	40.87

Assessor Details	Mr. Neil Rothern	Assessor ID	L759-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Designed)

Orientation	Northwest	
Property Tenture	ND	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	House, Detached	
Which Floor	0	
2.0 Number of Storeys	2	
3.0 Date Built	2024	
3.0 Property Age Band	L	
4.0 Sheltered Sides	1	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Precise calculation	
Thermal Mass	1.00	kJ/m²K
7.0 Electricity Tariff	Standard	
Smart electricity meter fitted	Yes	
Smart gas meter fitted	Yes	

7.0 Measurements	Ground floor:	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
	1st Storey:	40.00 m	110.00 m ²	2.38 m
		42.00 m	105.00 m ²	2.68 m

8.0 Living Area	47.34	m ²
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9.0 External Walls	Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Gross Area(m ²)	Nett Area (m ²)	Shelter Res	Shelter	Openings	Area Calculation Type
	External Wall 1	Timber Frame	Timber framed wall (one layer of plasterboard)	0.17	9.00	207.76	174.67	0.00	None	33.09	Enter Gross Area
	Sheltered to garage	Timber Frame	Timber framed wall (one layer of plasterboard)	0.17	9.00	16.66	14.75	0.00	None	1.91	Enter Gross Area

9.2 Internal Walls	Description	Construction	Kappa (kJ/m ² K)	Area (m ²)
	Internal Wall 1	Plasterboard on timber frame	9.00	383.67

10.0 External Roofs	Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Gross Area(m ²)	Nett Area (m ²)	Shelter Code	Shelter Factor	Calculation Type	Openings
	External Roof 1	External Plane Roof	Plasterboard, insulated at ceiling level	0.11	9.00	105.00	105.00	None	0.00	Enter Gross Area	0.00
	Flat over bay	External Flat Roof	Plasterboard, insulated flat roof	0.16	9.00	5.00	5.00	None	0.00	Enter Gross Area	0.00

10.2 Internal Ceilings	Description	Storey	Construction	Area (m ²)
	Internal Ceiling 1	Lowest occupied	Plasterboard ceiling, carpeted chipboard floor	105.00

11.0 Heat Loss Floors	Description	Type	Storey Index	Construction	U-Value (W/m ² K)	Shelter Code	Shelter Factor	Kappa (kJ/m ² K)	Area (m ²)
	Ground Floor	Ground Floor - Solid	Lowest occupied	Suspended concrete floor, carpeted	0.11	None	0.00	75.00	110.00

Summary for Input Data



11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
Internal Floor 1		Plasterboard ceiling, carpeted chipboard floor	9.00	105.00

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Front Door	Manufacturer	Solid Door				0.00			1.20
Windows	Manufacturer	Window	Double Low-E Hard 0.2			0.72		0.70	1.20
Door to garage	SAP table	Door to Corridor			Air Filled	0.00		0.70	1.40

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
front door	Front Door	External Wall 1	North West	2.10	0
Front	Front Door	External Wall 1	North West	9.45	0
garage to utility	Door to garage	Sheltered to garage	North East	1.91	0
rear	Windows	External Wall 1	South East	12.79	0
side	Windows	External Wall 1	North East	3.62	0
side 1	Windows	External Wall 1	South West	5.14	0

14.0 Conservatory

15.0 Draught Proofing

 %

16.0 Draught Lobby

17.0 Thermal Bridging

17.1 List of Bridges

Bridge Type	Source Type	Length	Psi	Adjusted Reference:	Imported
E5 Ground floor (normal)	Independently assessed	40.00	0.16	0.16 PSL	No
E5 Ground floor (normal)	Independently assessed	6.75	0.22	0.22 to garage SHELTERED	No
E6 Intermediate floor within a dwelling	Independently assessed	35.23	0.03	0.03 PSL	No
E16 Corner (normal)	Independently assessed	27.98	0.06	0.06 PSL	No
E16 Corner (normal)	Table K1 - Default	2.38	0.18	0.18 to garage	No
E17 Corner (inverted – internal area greater than external area)	Independently assessed	10.12	-0.09	-0.09 PSL	No
E14 Flat roof	Table K1 - Default	7.86	0.16	0.16 dormers/bay	No
E10 Eaves (insulation at ceiling level)	Independently assessed	26.18	0.07	0.07 PSL	No
E11 Eaves (insulation at rafter level)	Gov Approved Scheme	16.00	0.04	0.04 PSL	No
E2 Other lintels (including other steel lintels)	Independently assessed	22.12	0.05	0.05 PSL	Yes
E3 Sill	Independently assessed	14.27	0.04	0.04 PSL	Yes
E4 Jamb	Independently assessed	57.30	0.07	0.07 PSL	Yes
E6 Intermediate floor within a dwelling	Table K1 - Default	6.77	0.14	0.14 PSL	No

Y-value W/m²K

19.0 Mechanical Ventilation

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	No
Mechanical Ventilation data Type	Database
Type	Mechanical extract ventilation - decentralised
MV Reference Number	500755
Duct Type	Flexible
Wet Rooms	6
SFP from Installer Commissioning Certificate	No

19.1 Mechanical extract ventilation - Decentralised

SFP	Fan/Room Type	Count
0.15	In Room Fan	0
	Kitchen	
0.15	In Room Fan Other	0
	Wet Room	
0.00	In Duct Fan Kitchen	0
0.00	In Duct Fan Other	0
	Wet Room	
0.11	Through Wall Fan	1
	Kitchen	
0.14	Through Wall Fan	5
	Other Wet Room	

20.0 Fans, Open Fireplaces, Flues

Number of open chimneys	0
Number of open flues	0
Number of chimneys/flues attached to closed fire	0

Summary for Input Data

Number of flues attached to solid fuel boiler	0
Number of flues attached to other heater	0
Number of blocked chimneys	0
Number of intermittent extract fans	0
Number of passive vents	0
Number of flueless gas fires	0

21.0 Fixed Cooling System	No
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22.0 Pressure Testing	Yes	
Designed AP ₅₀	3.00	m ³ /(h.m ²) @ 50 Pa
Property Tested?	Yes	
Test Method	Blower Door	

22.0 Lighting	No				
No Fixed Lighting	No				
	Name	Efficacy	Power	Capacity	Count
	Lighting 1	85.00	5.00	425.00	20

24.0 Main Heating 1	Database	
Percentage of Heat	100.00	%
Database Ref. No.	107241	
Fuel Type	Electricity	
SAP Code	0	
In Winter	0.00	
In Summer	0.00	
Model Name	CS2000AWF 4 R-S	
Manufacturer	Bosch Thermotechnology Ltd	
System Type	Heat Pump	
Controls SAP Code	2207	
Delayed Start Stat	No	
Burner Control	Modulating	
HETAS approved System	No	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators and Underfloor	
Underfloor Heating	Yes - Pipes in thin screed	
Flow Temperature	Enter value	
Flow Temperature Value	55.00	

25.0 Main Heating 2	None
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26.0 Heat Networks	None
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27.0 Secondary Heating	None
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28.0 Water Heating	Main Heating 1
Water Heating	Main Heating 1
SAP Code	901
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

Summary for Input Data

Water use <= 125 litres/person/day	Yes
Summer Immersion	No
Cold Water Source	From mains
Bath Count	1
Supplementary Immersion	No
Immersion Only Heating Hot Water	No

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
main	Vented hot water system + pump	12.00		Yes	Instantaneous System 1
e1	Vented hot water system + pump	12.00		No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder

Hot Water Cylinder	
Cylinder Stat	Yes
Cylinder In Heated Space	Yes
Independent Time Control	Yes
Insulation Type	Measured Loss
Insulation Thickness Type	80 mm
Insulation Thickness	80
Cylinder Volume	300.00
Loss	2.24
Pipes insulation	Fully insulated primary pipework
In Airing Cupboard	No

31.0 Thermal Store

32.0 Photovoltaic Unit

One Dwelling	
Export Capable Meter?	Yes
Connected To Dwelling	Yes
Diverter	No
Battery Capacity [kWh]	0.00

PV Cells kWp	Orientation	Elevation	Overshading	FGHRS	MCS Certificate	Overshading Factor	MCS Certificate Reference	Panel Manufacturer
0.50	South East	30°	None Or Little	No	No	1.00		

34.0 Small-scale Hydro

None	
Electricity Generated	0.00
Apportioned	0.00
Connected to dwelling's electricity meter	Yes
Electricity Generation	Annual

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

	Typical Cost	Typical savings per year	Ratings after improvement	Environmental Impact
Solar water heating	£4,000 - £7,000	£106	SAP rating B 82	A 96
			0	0
			0	0

Appendix 2



Predicted Energy Assessment



Plot 1, Turnpike Lane, Ickleford , Hitchin, SG5

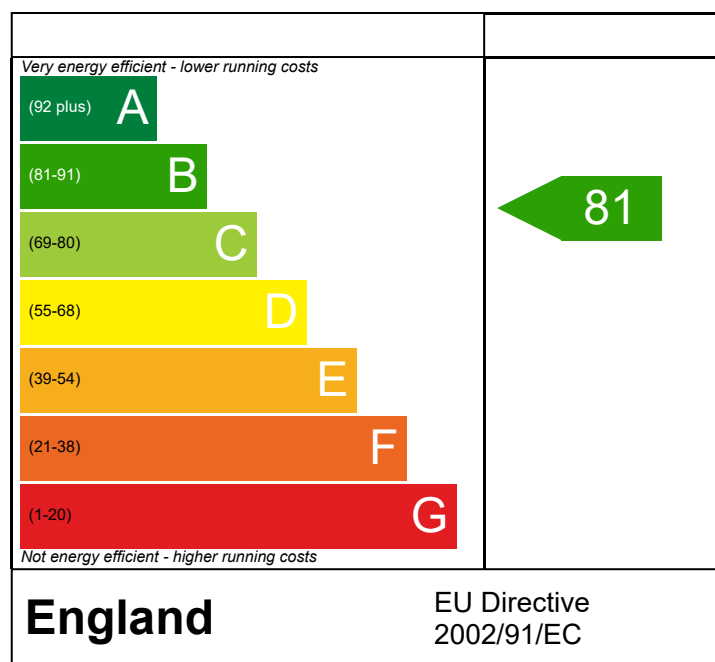
Dwelling type:
Date of assessment:
Produced by:
Total floor area:
DRRN:

House, Detached
08/07/2025
Neil Rothern
185.8 m²
3874-2504-0450

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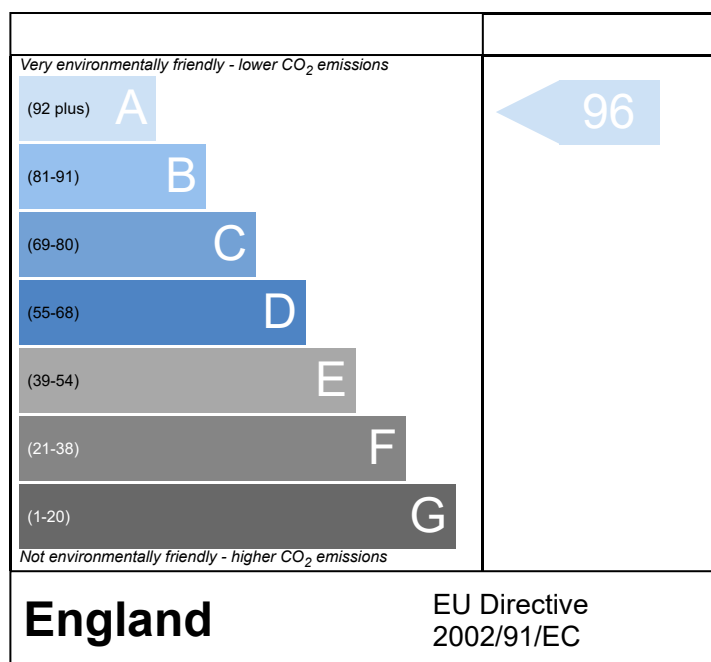
The energy performance has been assessed using the Government approved SAP 10 methodology and is rated in terms of the energy use per square meter of floor area; the energy efficiency is based on fuel costs and the environmental impact is based on carbon dioxide (CO₂) emissions.

Energy Efficiency Rating



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

Environmental Impact (CO₂) Rating



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

Predicted Energy Assessment



Plot 2, Turnpike Lane, Ickleford , Hitchin, SG5

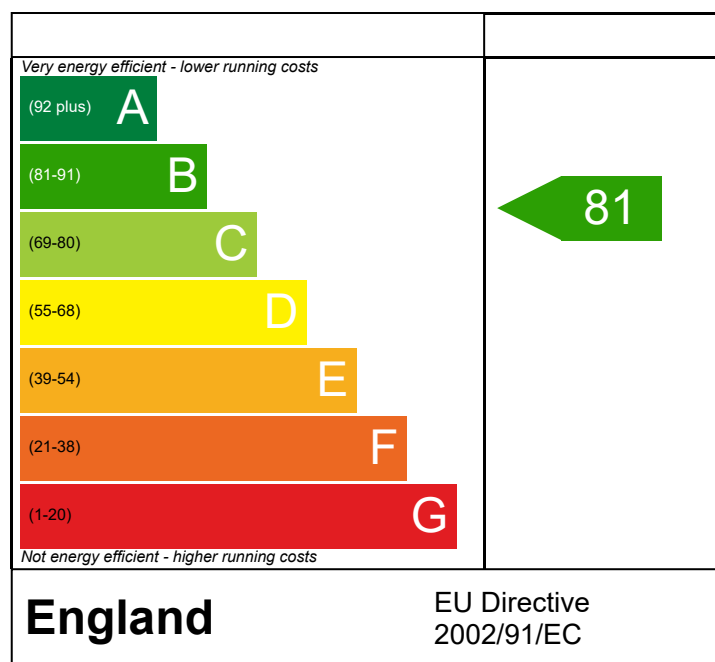
Dwelling type:
Date of assessment:
Produced by:
Total floor area:
DRRN:

House, Semi-Detached
08/07/2025
Neil Rothern
153.73 m²
7062-0464-5043

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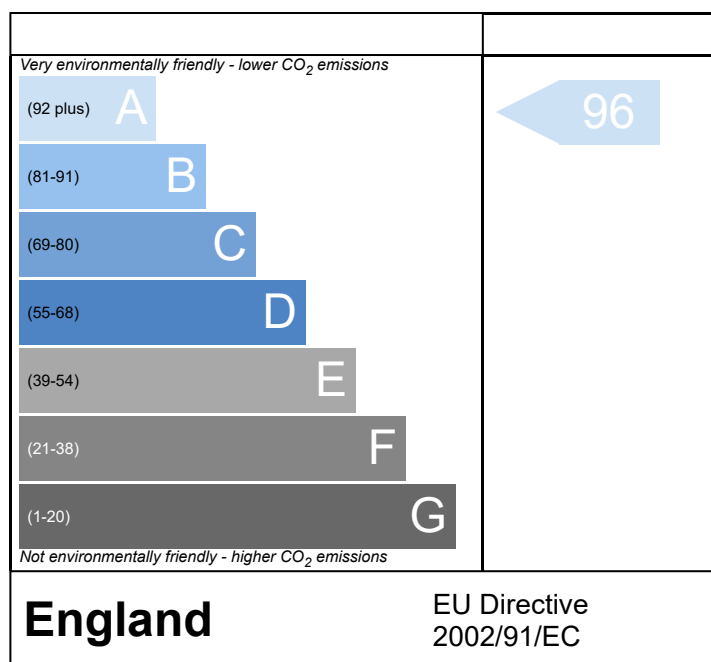
The energy performance has been assessed using the Government approved SAP 10 methodology and is rated in terms of the energy use per square meter of floor area; the energy efficiency is based on fuel costs and the environmental impact is based on carbon dioxide (CO₂) emissions.

Energy Efficiency Rating



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Environmental Impact (CO₂) Rating



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Predicted Energy Assessment



Plot 3, Turnpike Lane, Ickleford , Hitchen, SG5

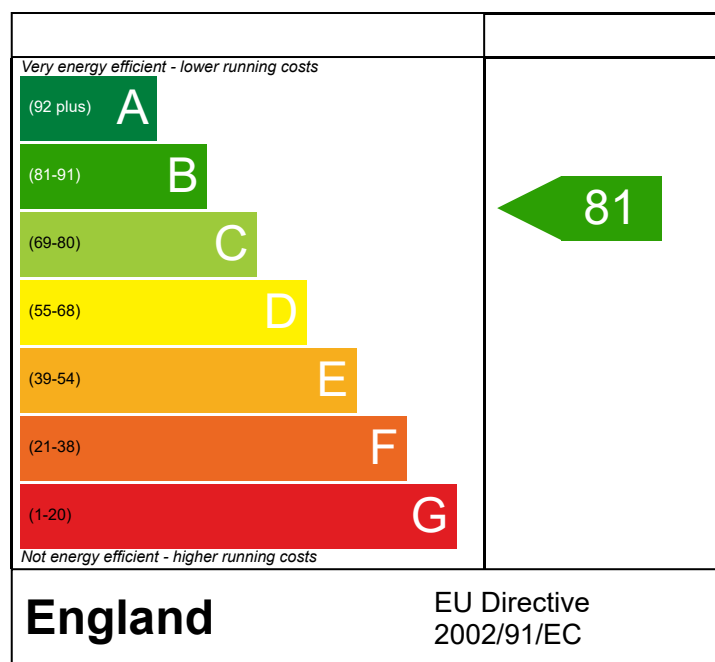
Dwelling type:
Date of assessment:
Produced by:
Total floor area:
DRRN:

House, Semi-Detached
08/07/2025
Neil Rothern
151.46 m²
9434-2704-0854

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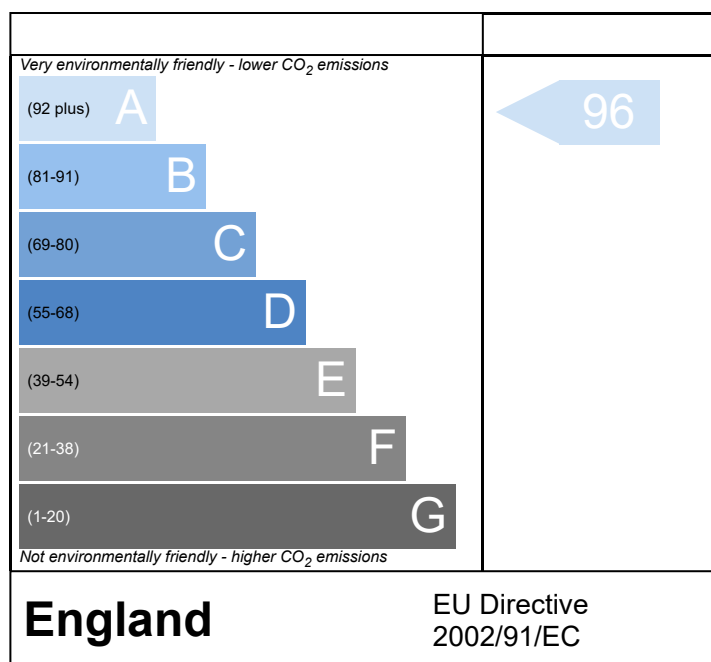
The energy performance has been assessed using the Government approved SAP 10 methodology and is rated in terms of the energy use per square meter of floor area; the energy efficiency is based on fuel costs and the environmental impact is based on carbon dioxide (CO₂) emissions.

Energy Efficiency Rating



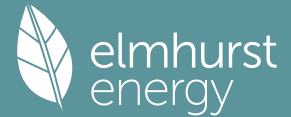
The energy efficiency rating is a measure of the overall efficiency of a home. The higher the rating the more energy efficient the home is and the lower the fuel bills are likely to be.

Environmental Impact (CO₂) Rating



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

Predicted Energy Assessment



Plot 4, Turnpike Lane, Ickleford , Hitchin, SG5

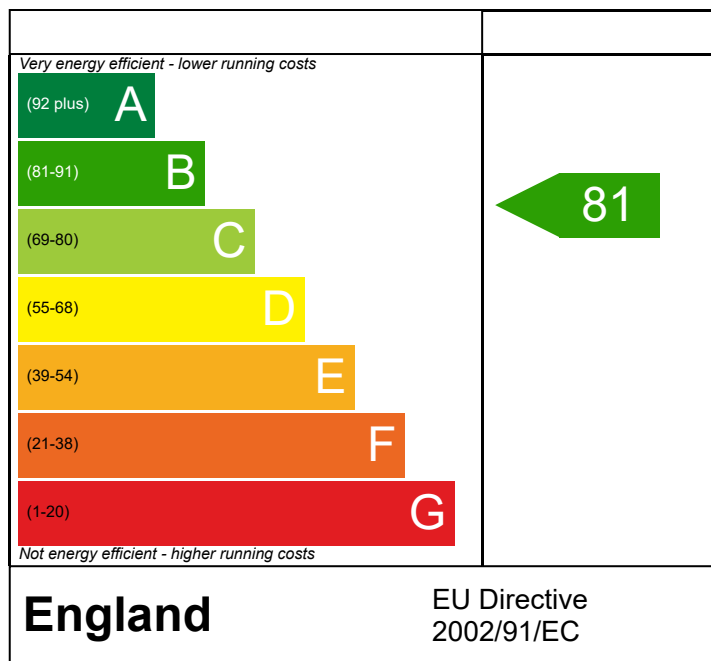
Dwelling type:
Date of assessment:
Produced by:
Total floor area:
DRRN:

House, Semi-Detached
08/07/2025
Neil Rothern
153.73 m²
3484-2604-0354

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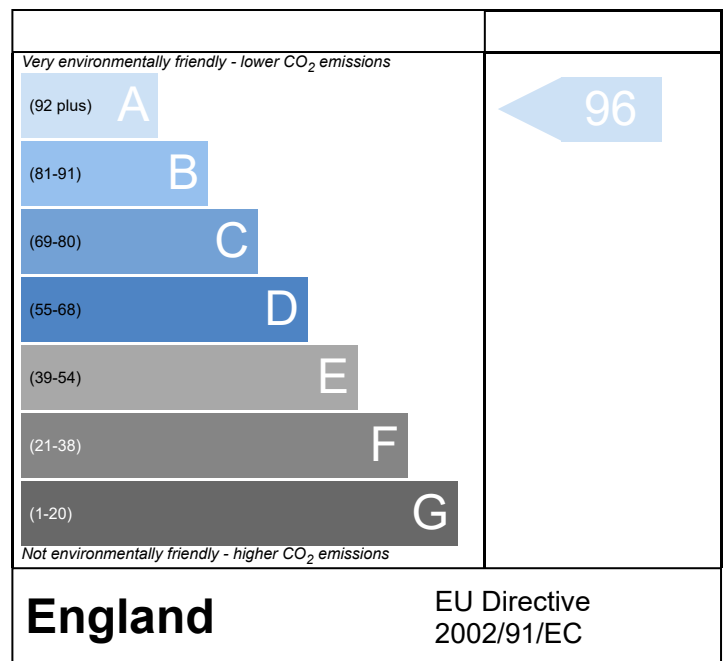
The energy performance has been assessed using the Government approved SAP 10 methodology and is rated in terms of the energy use per square meter of floor area; the energy efficiency is based on fuel costs and the environmental impact is based on carbon dioxide (CO₂) emissions.

Energy Efficiency Rating



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Environmental Impact (CO₂) Rating



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Predicted Energy Assessment



Plot 5, Turnpike Lane, Ickleford , Hitchin, SG5

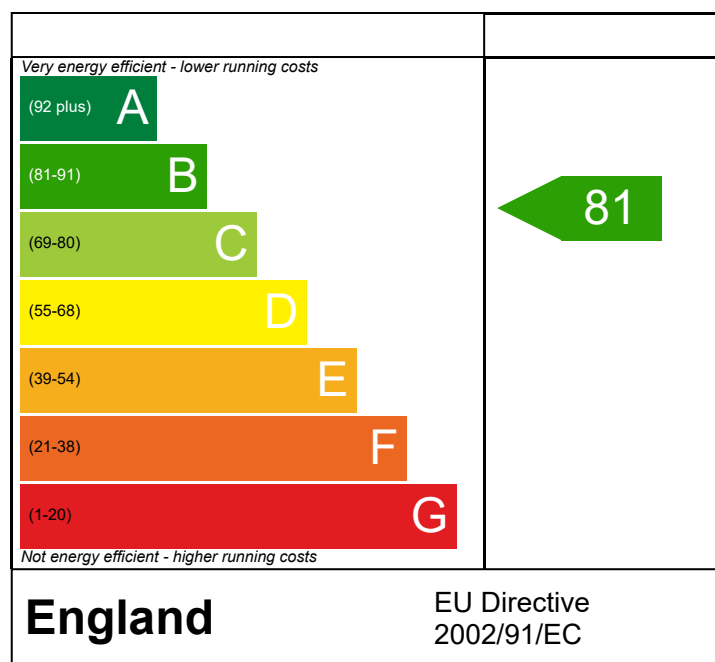
Dwelling type:
Date of assessment:
Produced by:
Total floor area:
DRRN:

House, Semi-Detached
08/07/2025
Neil Rothern
151.46 m²
8154-2304-0754

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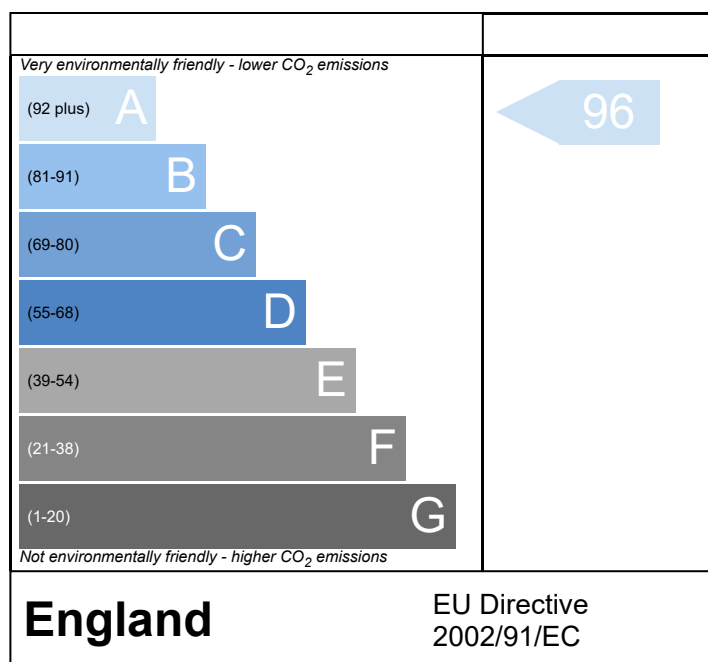
The energy performance has been assessed using the Government approved SAP 10 methodology and is rated in terms of the energy use per square meter of floor area; the energy efficiency is based on fuel costs and the environmental impact is based on carbon dioxide (CO₂) emissions.

Energy Efficiency Rating



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Environmental Impact (CO₂) Rating



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Predicted Energy Assessment



Plot 6, Turnpike Lane, Ickleford , Hitchin, SG5

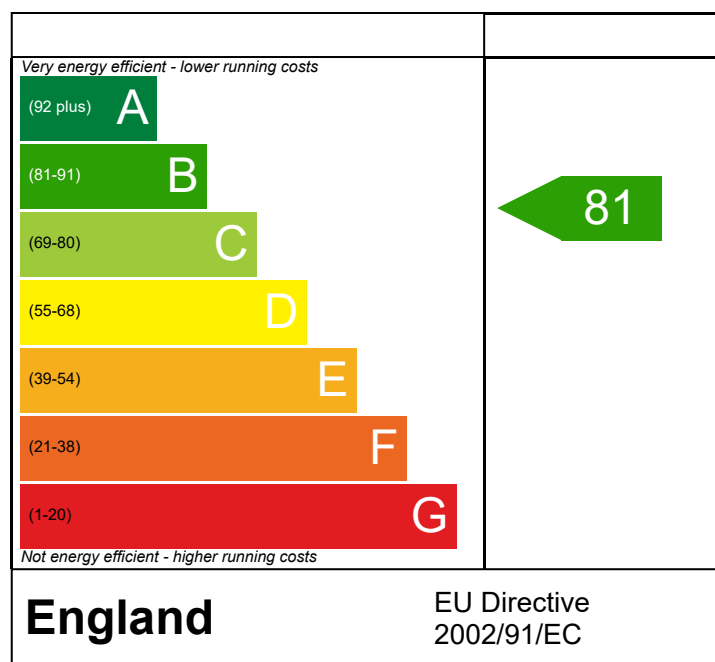
Dwelling type:
Date of assessment:
Produced by:
Total floor area:
DRRN:

House, Semi-Detached
08/07/2025
Neil Rothern
151.46 m²
0042-3434-5063

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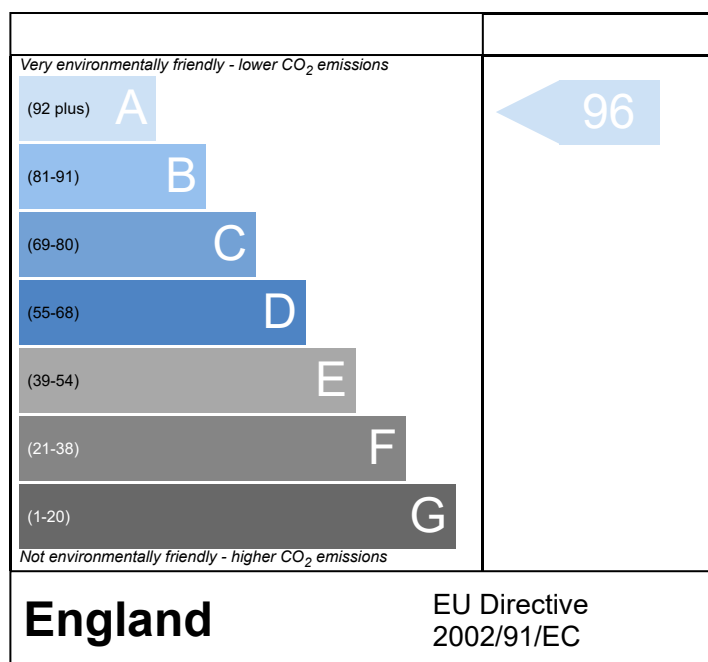
The energy performance has been assessed using the Government approved SAP 10 methodology and is rated in terms of the energy use per square meter of floor area; the energy efficiency is based on fuel costs and the environmental impact is based on carbon dioxide (CO₂) emissions.

Energy Efficiency Rating



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Environmental Impact (CO₂) Rating



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Predicted Energy Assessment



Plot 7, Turnpike Lane, Ickleford , Hitchin, SG5

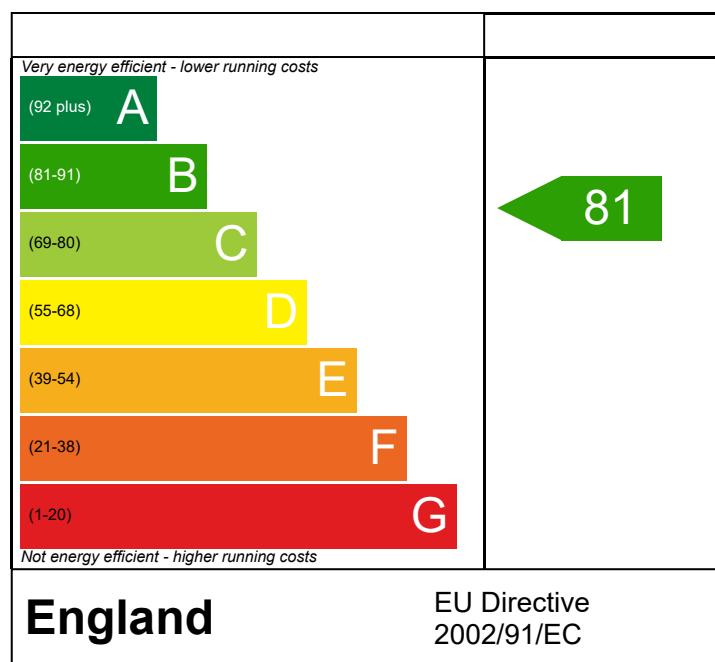
Dwelling type:
Date of assessment:
Produced by:
Total floor area:
DRRN:

House, Semi-Detached
08/07/2025
Neil Rothern
153.73 m²
2012-2414-5033

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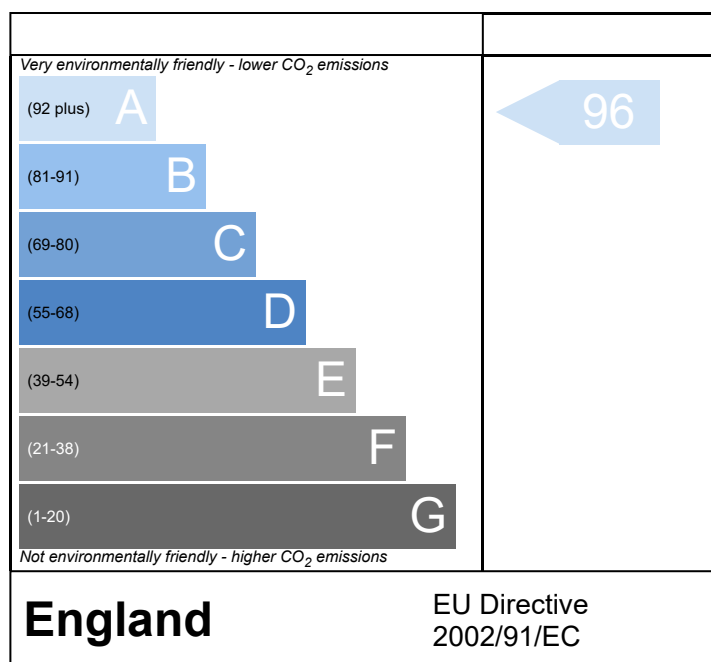
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Energy Efficiency Rating



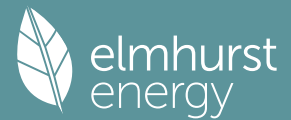
The energy efficiency rating is a measure of the overall efficiency of a home. The higher the rating the more energy efficient the home is and the lower the fuel bills are likely to be.

Environmental Impact (CO₂) Rating



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Predicted Energy Assessment



Plot 8, Turnpike Lane, Ickleford , Hitchin, SG5

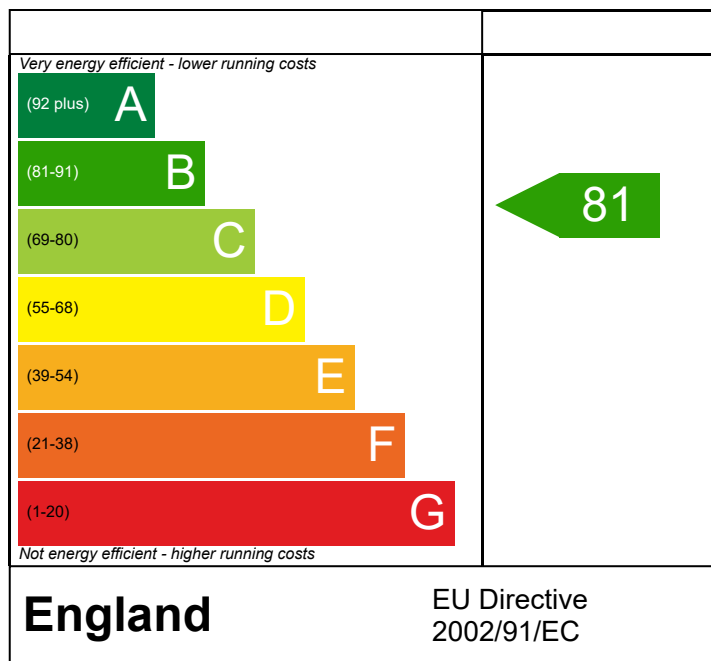
Dwelling type:
Date of assessment:
Produced by:
Total floor area:
DRRN:

House, Detached
08/07/2025
Neil Rothern
215 m²
8205-4448-4085

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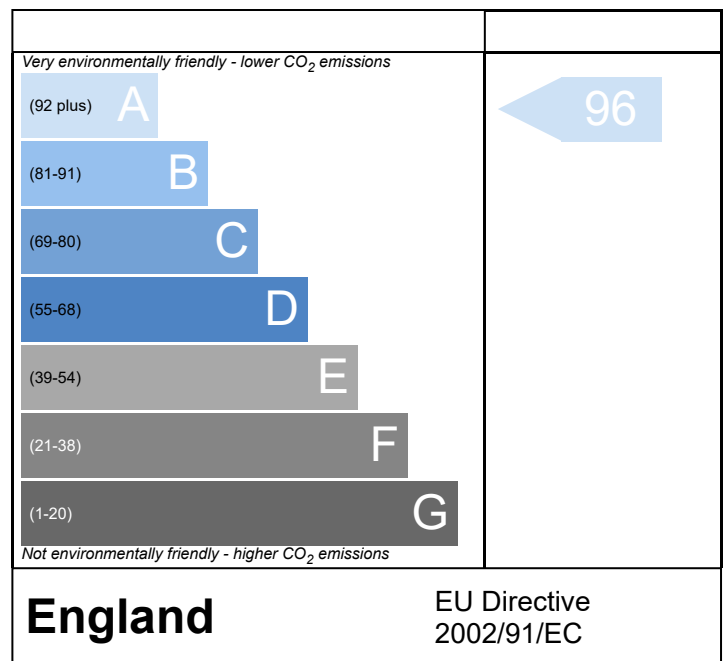
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