FES GROUP

CONSTRUCTION COMPLIANCE, SUSTAINABILITY, OVERHEATING, RETROFIT

Energy Statement

Energy and Carbon Reduction

Land off Barugh Green Road

Reference Number: 009521

Date: February 2025

Issue: 1

PLANNING

DESIGN

ON-CONSTRUCTION

EXISTING BUILDINGS

thefesgroup.com

Project name: Land off Barugh Green Road

Ref: 009521

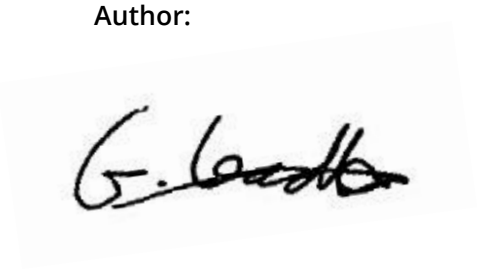
Author: George Leadley

Origination Date: February 2025

Reviser: N/A

Date of last revision: N/A

Issue Number: 1

Author:	Initial review by:	Secondary review by:
		
George Leadley	Dean Shores	Samuel Palmer

Summary of changes:

York
Clifford Chambers, 4 Clifford Street,
York, YO1 9RD | 01904 674890

London
Alpha House, 100 Borough High Street,
London, SE1 1LB | 0207 096 9186

Edinburgh
9-10 St. Andrew Square,
Edinburgh, EH2 2AF | 0131 563 9739

Contents

York
Clifford Chambers, 4 Clifford Street,
York, YO1 9RD | 01904 674890

London
Alpha House, 100 Borough High Street,
London, SE1 1LB | 0207 096 9186

Edinburgh
9-10 St. Andrew Square,
Edinburgh, EH2 2AF | 0131 563 9739

Company Profile

Established in 2007 as a family firm, we set out to create a sustainable, resilient business, establishing a happy and positive working environment for both clients and colleagues. It was important for us to offer adaptable and growing solutions for the areas of the construction industry that would benefit from them the most.

Creating an environment that was a pleasure to work in for both colleagues and clients was, and remains, incredibly important to us. Building our future on the foundations of honest relationships, flexibility and efficiency means that we value every client's success as though it were our own.

We have grown to become a trusted construction compliance partner. We continue to grow, to offer packages of sustainability, environmental and acoustic services, with the long-term aim of making our clients' lives easier, so they can focus on the jobs that they enjoy.

Today, the business works with a wide spectrum of clients from household name plc firms, one-off builds and everything in between. Our client list includes many of the nation's major house builders and contractors, as well as universities and public sector organisations. The team also lends their know-how to many architectural practices, M&E consultants and planners.

York
Clifford Chambers, 4 Clifford Street,
York, YO1 9RD | 01904 674890

London
Alpha House, 100 Borough High Street,
London, SE1 1LB | 0207 096 9186

Edinburgh
9-10 St. Andrew Square,
Edinburgh, EH2 2AF | 0131 563 9739

Introduction

This report has been prepared by the FES Group on behalf of Avant Homes West Yorkshire to accompany the planning application for the proposed dwellings at Land off Barugh Green Road.

The development proposals will see the construction of 155 new dwellings, consisting of detached, semi-detached, and terraced dwellings.

This report reviews the proposed energy and carbon reduction strategy advanced by Avant Homes West Yorkshire within the context of local and national planning policy. The report in particular considers and evaluates the measures incorporated into the design of the development to reduce the predicted CO_2 consumption of the site over 2021 Building Regulations under SAP10.

The following documents were considered when formulating the report:

- National Planning Policy Framework 2021 – The NPPF strengthens the emphasis on sustainable development and encourages Local Authorities to adopt standards consistent with the Government's zero carbon building policy and other nationally described standards.
- Building Regulations Part L 2021– Approved Document L 2021 Conservation of Fuel and Power in new dwellings sets minimum energy efficiency and fabric efficiency standards for all new domestic buildings.
- Barnsley Borough Pre-App Planning Consultation 2024/ENQ/00177

> As such, the team would ask that any residential developments meet the government's Future Homes Standard, *which from 2025 will require CO2 emissions produced by new homes to be 75-80% lower than homes that are built to current standards. Homes will need to be zero carbon ready with no retrofit work required to benefit from the decarbonisation of the electricity grid and the electrification of heating.*

As Future Homes Standard and the accompanying software (HEM) have yet to be released, the calculations used within this report have been calculated under the current Part L 2021 regulations under SAP 10. This is with the following assumptions:

- The Fabric Energy Efficiency (FEE) requirement will remain the same
- The Notional Dwelling with FHS will be calculated with a design air permeability figure of 4.00, system 3 ventilation (dMEV), and waste water heat recovery

York
Clifford Chambers, 4 Clifford Street,
York, YO1 9RD | 01904 674890

London
Alpha House, 100 Borough High Street,
London, SE1 1LB | 0207 096 9186

Edinburgh
9-10 St. Andrew Square,
Edinburgh, EH2 2AF | 0131 563 9739

Sustainable Design

The building fabric, the building services and the management of a building broadly determine the energy use of a building. In understanding this, design teams can take measures to advance sustainable design from the earliest stages of a development. However sustainability is not limited to issues concerning energy consumption. Material selection, the protection of local environments, addressing flood risk and the health and wellbeing of future occupants are all issues requiring consideration. Addressing all these issues in an integrated and intelligent manner will result in truly sustainable developments.

Material Selection

Significant amounts of energy and natural resources are consumed in the production, transportation and disposal of building materials. Two issues are of significant importance in the procurement of materials: the environmental impact of materials and the sourcing of materials. Avant Homes West Yorkshire is dedicated to taking pro-active measures to addressing these issues.

	BRE Green Guide Rating
External Wall	A+
Ground Floor	B
Intermediate Floor	C
Roof	A+
Internal Walls	A
Windows	A

Table 1- Green Guide Rating of Specification

The developer will choose materials which have a lesser environmental impact. This will be implemented during the procurement process. Suppliers will be obliged to produce Environmental Management System certificates covering the sourcing and production of materials. Timber or timber composite products will be sourced from responsible sources. Suppliers will be obliged to provide full Chain of Custody Certificates right through the supply chain; from the initial timber yard, manufacturing process, transformation and distribution. Secure certificates must be produced by valid accrediting bodies – FSC, PEFC, CSA, SFI & MTCC.

York
Clifford Chambers, 4 Clifford Street,
York, YO1 9RD | 01904 674890

London
Alpha House, 100 Borough High Street,
London, SE1 1LB | 0207 096 9186

Edinburgh
9-10 St. Andrew Square,
Edinburgh, EH2 2AF | 0131 563 9739

Flood Risk

The Flood and Water Management Act 2010, directs developers to avoid, reduce and delay the discharge of rainfall to public sewers and watercourses through the use of Sustainable Urban Drainage Systems (SUDS) with the aim of protecting watercourses and reducing the risk of localised flooding and pollution.

This obligation is taken seriously:

Where possible, impermeable surfaces are kept to a minimum, thus allowing for maximum infiltration (e.g. permeable paving)

Pollution during Construction

The contractor will be required, under the terms of their contract, to minimise dust, fumes, discharges and any other form of pollution on site, in line with best practice policies:

- The Control of Dust and Emissions from Construction & Demolition: Best Practice Guidance.

The sustainable management and monitoring of waste generated during the construction of a development is a major concern to local and national planners.

Furthermore the site will allow the successful segregation of waste on site in line with Best Practice policies. However the contractor will be obliged to adopt many of the principles of the waste hierarchy:

- Accurate specifications of materials and volumes.
- Recycling and re-use of waste on site.
- Arrange take back schemes with suppliers.
- Instruct a licensed waste contractor to segregate site waste for recycling.

Health and Wellbeing

In achieving ever stricter levels of energy efficiency, it is important that designers do not lose sight of the fact that they are building homes that people can live in and not just occupy. This is an integral part of sustainability, and a hugely important consideration if the population (and the market place) is to tolerate the sustainability agenda. While it is quite difficult to measure or even quantify health and wellbeing, the following measures are a sample of the efforts made by Avant Homes West Yorkshire to address this issue: The proposed properties will have sufficient living /dining space. While this is obviously a marketing consideration, it does fall within this category.

The principal living rooms have sufficient glazing to allow natural light to penetrate into the rooms. Numerous studies have shown this to be beneficial to the general health and happiness of occupants. Daylighting calculations can be undertaken to demonstrate that living rooms, dining rooms, kitchen and home offices receive adequate daylighting.

- The property will benefit from a garden or private space for recreation however this may not apply to flats. This will take the form of secure rear gardens to each property.
- The property has dedicated internal recycling facilities and accessible external storage in line with the local council waste and recycling collection scheme.

Water Efficiency

The average person consumes some 150 litres per day; this represents an annual increase of 1% since the 1930s. Despite the United Kingdom's wet and temperate climate, climate change will most probably result in an increase in the occurrence of drought orders and hosepipe bans. With this in mind, it is not difficult to appreciate that within the next few decades the UK (particularly the South East) will face regular water shortages.

In response to this water efficiency has gained equal billing, alongside energy efficiency. The following are the principle policy drivers.

- The Approved Document G (2015) restricts new build dwellings to a maximum consumption of 125 litres per person per day. The Water Efficiency Calculator of New Dwellings also includes an allowance for external water use.
- The Code for Sustainable Homes was first introduced in April 2007. While now disbanded, Included within the Code was mandatory water efficiency standards. Homes constructed to Code for Sustainable Homes Level 3 and 4 must achieve a maximum internal water consumption of 105 litres per person per day. Dwellings constructed to Code Levels 5 and 6 must achieve an internal water consumption of 80 litres per person per day.
- Part L 2021 and SAP10 will take account of Part G and water consumption in the calculation of the forecasted energy demand of a dwelling.

The below table details the recommended sanitary ware fittings to be adopted by Avant Homes West Yorkshire to meet with the requirement to achieve 125 Litres per person per day as required by Building Regulations Part G 2015.

Installation Type	Unit of Measurement	Capacity/Flow Rate	Use Factor	Fixed Use	Litres Per Person Per Day
WC (Dual Flush)	Full Flush (litres)	4	**1.46**	**0.00**	5.84
	Part Flush (litres)	2.6	**2.96**	**0.00**	7.70
Taps (excluding kitchen tap)	Flow rate (litres/minute)	6	**1.58**	**1.58**	11.06
Baths (where shower present)	Capacity to overflow (litres)	180	**0.11**	**0.00**	19.80
Showers (where bath present)	Flow rate (litres/minute)	9	**4.37**	**0.00**	39.33
Kitchen sink tap	Flow rate (litres/minute)	6	**0.44**	**10.36**	13.00
Washing Machine	Litres/kg dry load	8.17	**2.1**	**0.00**	17.16
Dishwasher	Litres/place setting	1.25	**3.60**	**0.00**	4.50
				Total	**118.38**

Contribution from Greywater (litres/person/day)	0
Contribution from Rainwater (litres/person/day)	0
Total Internal Water Consumption	**118.38**
Normalisation Factor	0.91
Water Consumption with Normalisation Factor	107.73
External Use	5.00
Part G Water Consumption	**112.73**

Table 2 – Water Consumption

York
Clifford Chambers, 4 Clifford Street,
York, YO1 9RD | 01904 674890

London
Alpha House, 100 Borough High Street,
London, SE1 1LB | 0207 096 9186

Edinburgh
9-10 St. Andrew Square,
Edinburgh, EH2 2AF | 0131 563 9739

Renewable Technologies

There are a number of recognised renewable technologies which have the potential to reduce the energy consumption of a dwelling. However given the nature of the development, we judge that the following technologies are worthy of consideration;

- Solar thermal panels.
- Biomass
- Photovoltaic panels.
- Air source heat pumps.
- Combined Heat & Power
- Wind Power

Solar Thermal

Solar thermal panels use radiant solar energy to heat water for domestic consumption. The system works successfully across the UK as they can work in diffuse weather conditions. In comparison to other technologies it is considered a reliable and proven technology. The system works most efficiently when the panel or evacuated tube is mounted on a 10-60° pitch facing due south, though other combinations do work successfully. During late spring to early autumn months, the system can be expected to meet some 70-90% of a dwellings domestic hot water needs.

Most systems in the UK are two panel systems, typically 4 sq m in size and accompanied with a 180-250 litre cylinder with a dedicated solar storage capacity of 65-110 litres. The typical installation costs for solar thermal vary, especially when large volumes are considered. However a rough estimate is £3500 per plot.

Occupants can expect annual savings in the region of £50-85 per year, which is relatively modest. Solar thermal panels do not qualify for feed in tariffs, however it is expected that solar thermal systems will benefit from the Renewable Heat Incentive. A 20-25 year payback can be expected, dependent on usage and dwelling type.

Taking into consideration the requirement of the development, a standard two panel system is unfeasible and is not recommended for consideration.

Biomass

Biomass boilers offer an environmentally sound, heating solution. Heating is generated by burning biomass, such as wood pellets or logs. This will emit the same amount of CO2 as is absorbed while the plants were growing, therefore, the biomass is classed as carbon neutral.

Unfortunately, such a provision for this development is both unfeasible and out of proportion to the requirement.

York
Clifford Chambers, 4 Clifford Street,
York, YO1 9RD | 01904 674890

London
Alpha House, 100 Borough High Street,
London, SE1 1LB | 0207 096 9186

Edinburgh
9-10 St. Andrew Square,
Edinburgh, EH2 2AF | 0131 563 9739

Photovoltaic

Photovoltaic panels convert sunlight into electricity for use within a dwelling. PV panels use cells to convert light into electricity. A PV cell usually consists of 1 or 2 layers of a semi-conducting material such as silicon. The greater the intensity of sunlight, the more electricity is generated. PV systems can come in different forms. The most aesthetically pleasing are PV tiles which resemble roof tiles. However the most popular are modules which can either sit on the roof or be integrated into it. The technology is most efficient when oriented due south. However panels orientated south of east or west are suitable. Generally panels orientated away from due south require a greater surface area to generate a set amount of energy.

PV is a viable option and if installed on a select number of plots across a development, this would be the most cost effective solution to a site wide CO2 reduction. As a result Avant Homes West Yorkshire have confirmed that PV will be installed on all plots. The PV array to achieve 75% compliance under current Part L is confirmed on a housetype basis on table 6.

Air Source Heat Pumps

Air source heat pumps extract heat from the outside air. The heat is absorbed into a fluid, which is pumped through a heat exchanger. Low grade heat is then extracted by the refrigeration system and after passing through the compressor is concentrated into a higher temperature. This energy is then used to heat water for space and hot water use within the dwelling. While heat pumps use national grid electricity, and so are not a renewable resource, they utilise a heat source which is naturally renewed in our environment and so are considered a low carbon technology.

Heat pumps have stated CoPs in the region of 2-4, though test results outside of the laboratory have produced mixed results. Typically the heat pump is located on an external wall. It is generally accepted that 1kW in heat pump size will provide enough heating for 20m2 of floor space.

ASHPs will be installed within, and utilised as the main heating source for, all dwellings within the development.

York
Clifford Chambers, 4 Clifford Street,
York, YO1 9RD | 01904 674890

London
Alpha House, 100 Borough High Street,
London, SE1 1LB | 0207 096 9186

Edinburgh
9-10 St. Andrew Square,
Edinburgh, EH2 2AF | 0131 563 9739

Combined Heat and Power (CHP)

Combined heat and power utilises the waste energy in the generation of electricity to provide space heating and hot water to a development. In conventional means of power generation copious amounts of energy is wasted in the form of heat. The utilisation of this waste heat can see efficiencies of CHP systems typically exceed 90%.

Combined heat and power is not a renewable technology but instead is a DECC recognised low carbon technology which qualified for the Low Carbon Building Programme. To qualify as a renewable technology the use of biomass pellet or bio-diesel would be required. At the present time biomass CHP is very much in its infancy in the UK. Furthermore it is imagined there will be significant problems in locating a sustainable and local source of pellet. Without such a source the reliability of such a system and the net carbon benefit of pellet sourced from a distance are questionable. As a result we do not recommend CHP for consideration on this development.

Wind Power

The principle of harnessing wind power is well established in the UK with access to over 40% of the total European wind resource. Until recently, developments have been concentrated within coastal regions; however technological advances mean that wind power is viable in many urban locations.

Wind turbines are a means of capturing the power within a moving air mass (wind) and converting it into electricity. As yet there is no simple and practical method of incorporating wind generated electricity to sites containing a number of buildings, or requiring high energy usage.

Furthermore, the urban location also means that it would prove difficult to harness sufficient wind energy to meet the needs of the development. The high density of urban areas obstructs air patterns and reduces the efficiency of the turbine. The size of the turbine required is also likely to detract unacceptably from the local area and generate a significant amount of noise, both of which prejudice local residential amenity.

For these reasons, together with the high installation costs, potential noise pollution and high likelihood of not achieving planning approval we are not proposing to employ wind turbines on this site.

Energy Strategy

The Context

The proposed works fall under the scope of Approved Document L 2021. The Approved Document sets minimum fabric energy efficiency standards and a maximum CO2 emission rate for residential buildings. To place the proposed energy strategy into its correct regulatory context it is worthwhile summarising the minimum standards included in the Approved Document.

Element	Part L 2021 Minimum Standard
External Walls	0.26W/m2K
Roof	0.16W/m2K
Floor	0.20W/m2K
Glazing & Doors	1.80W/m2K
Air Test	8.00m3/h.m2 at 50Pa

Table 3 – Minimum Fabric Efficiency Standards

Proposed Strategy

The National Planning Policy Framework requires that all development proposals are in line with the Government's zero carbon buildings programme.

The figures and calculations detailed in this report have been taken from SAP10 (2021 Building Regulations).

In response to this guidance, and recent shifts within the industry, Avant Homes West Yorkshire proposes the adoption of a strategy which addresses the core policy goals of sustainable construction:-

- Reduced CO2 emissions to combat the causes of climate change.
- Reduced energy consumption to address legitimate concerns of energy security.

By reducing the energy requirement of the building, the sustainable credentials of each development are enhanced and are not validated by simply bolting on expensive renewable equipment. By focusing on fabric performance and the provision of efficient heating systems each dwelling is intrinsically "green".

Before the potential of various technologies can be assessed, it is first necessary to calculate the base line energy consumption of the development and hence the target reduction.

The proposed dwellings were modelled in SAP10 to determine the energy consumption and corresponding CO2 emissions of the development. Standard Assessment Procedure, or SAP, is the Government's approved methodology for the calculation of energy consumption and CO2 emissions for new build dwellings.

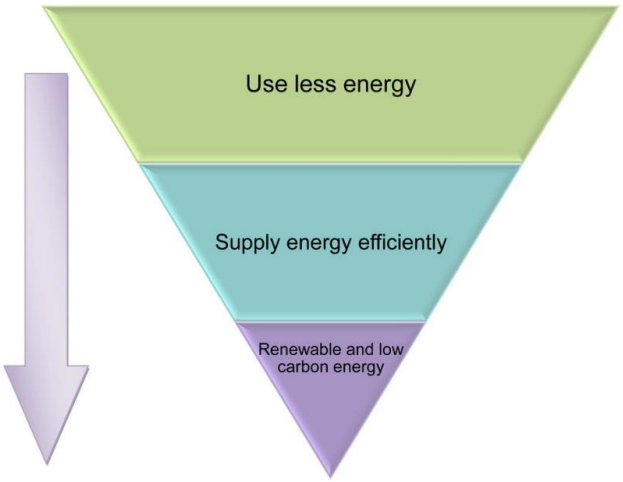
York
Clifford Chambers, 4 Clifford Street,
York, YO1 9RD | 01904 674890

London
Alpha House, 100 Borough High Street,
London, SE1 1LB | 0207 096 9186

Edinburgh
9-10 St. Andrew Square,
Edinburgh, EH2 2AF | 0131 563 9739

In line with best practice, the proposed energy strategy for Land off Barugh Green Road will adhere to the principles of the Energy Hierarchy;

- Be Lean – reduce the need for energy.
- Be Clean – supply and use energy in the most efficient manner.
- Be Green – supply energy from renewable sources.



Adhering to the principles of the Energy Hierarchy has a number of benefits. The principle benefits are;

- By reducing the energy requirement of each dwelling the renewable requirement shrinks in proportion. This has obvious cost benefits.
- The sustainable credentials of each development are enhanced and are not validated by simply bolting on expensive renewable equipment. By focusing on the fabric performance and the provision of efficient heating systems each dwelling is intrinsically "green".

Be Lean.

Avant Homes West Yorkshire have confirmed Lean measures equal to a 6.28% reduction in fabric heat loss across the building envelope. This greatly reduces the need for energy within a dwelling.

Be Clean.

Avant Homes West Yorkshire have confirmed Clean measures which include high efficiency combi gas boilers with time, temperature & zone controls to allow the user to maximise the control to ensure efficient use of the main heating system. 100% Low Energy Lighting to be installed alongside natural ventilation and trickle ventilation.

Be Green.

Avant Homes West Yorkshire have confirmed Green measures where Photovoltaic panels will be installed along with EV charging points to promote the use of electric/hybrid vehicles.

Establishing a Baseline

To adequately ascertain the potential of Avant Homes West Yorkshire preferred strategy, a baseline energy consumption associated with the development must be calculated. As such the development was modelled in SAP10 to determine the current CO^2 emission and associated energy requirement prior to the incorporation of improved fabric efficiencies and renewable technologies. The table below summarises the results calculated.

House Type	No	Baseline Emission Rate (kg/year)	Baseline Energy Rate (kWh/year)
HT - Askham - SEMI	14	11,331.87	59,274.38
HT - B3 - SEMI	14	14,399.15	75,372.85
HT - Baildon - SEMI	12	12,413.86	64,972.64
HT - Bramley - SEMI	2	1,380.81	7,230.03
HT - Cookbury - DET	3	3,736.54	19,576.04
HT - D4 - SEMI	2	2,419.69	12,640.62
HT - E2.1 - SEMI	8	7,768.55	40,784.89
HT - Eastbeck - SEMI	10	9,710.69	50,981.11
HT - Ferndale - SEMI	12	10,575.53	55,179.82
HT - HAT - SEMI	6	3,593.40	19,190.46
HT - Leyburn - DET	9	9,204.21	48,069.08
HT - Netherton - DET	17	22,660.30	118,694.89
HT - Ripley - SEMI	21	19,256.44	100,613.27
HT - Ripley-Alt - SEMI	1	910.07	4,754.31
HT - Salbury - SEMI	14	16,204.19	84,759.27
HT - Thoresby - DET	1	1,290.75	6,743.41
HT - Totley - SEMI	2	1,595.26	8,338.18
HT - Wentbridge - DET	7	8,360.89	43,781.32
Total	**155**	**156,812.19**	**820,956.57**

Table 4 – Baseline Energy Consumption & CO^2

The calculations summarised in the table above confirm Land off Barugh Green Road has a baseline site wide energy requirement of 820,956.57 kWh/year and an associated CO2 emission rate of 156,812.19 kgCO2/year.

York
Clifford Chambers, 4 Clifford Street,
York, YO1 9RD | 01904 674890

London
Alpha House, 100 Borough High Street,
London, SE1 1LB | 0207 096 9186

Edinburgh
9-10 St. Andrew Square,
Edinburgh, EH2 2AF | 0131 563 9739

Fabric and Building Services Specification

Avant Homes West Yorkshire proposes a series of fabric and building service enhancements that exceeds the minimum requirements of Part L 2021. By placing a significant emphasis on the performance of the fabric of each property, reductions in energy and carbon will be achieved. The following table details the anticipated fabric efficiency and building services standards to be incorporated into the design. These measures constitute the lean efforts.

Element	Part L 2021	Enhanced Specification
Wall	0.26W/m²K	0.24W/m²K
Roof	0.16W/m²K	0.09/0.15W/m²K
Floor	0.20W/m²K	0.11W/m²K
Glazing & Doors	1.80W/m²K	0.86/1.30W/m²K
Air Test	8.00m3/h.m² at 50Pa	4.00m3/h.m² at 50Pa
Renewables (PV)	40% of Floor Area / 6.50	See Table 6
Waste Water Heat Recovery	N/A	1x

Table 5 – Enhanced Specification Summary & Comparison

The U-values above show that the minimum requirements of Part L have been exceeded.

In addition to the summary above the following additional measures will be incorporated into the design, constituting the **clean** measures to reduce energy consumption;

- Avant Homes West Yorkshire have adopted a set of bespoke thermal bridging details which is being implemented on the site. These reduce thermal bridging throughout junctions and penetrations through the building fabric.
- Efficient independent heating systems will be provided with a programmer, room thermostats and thermostatic radiator values. These will allow the eventual occupants to exercise control over their heating system and thus reduce energy consumption.
- Energy efficient lamps will be installed in each light fitting
- Water consumption is now included in the calculation of a property's energy consumption. Thus each property will adhere to the requirements of Approved Document G– maximum internal water consumption of 125 litres per person per day.
- All dwellings will have PV to achieve compliance. Please see Table 6 (below) which confirms the PV array required on a housetype basis.

It is clear that the proposed strategy places a great importance on the efficiency of a buildings thermal envelope and internal building services. This emphasis is to be encouraged. It recognises that it is inherently more sustainable to invest resources in reducing a property's long term energy consumption in contrast to short term generation benefits.

Housetype	Dwelling Type	Total kWp
Askham	Semi	0.67
B3	Semi	0.80
Baildon	Semi	0.90
Bramley	Semi	0.67
Cookbury	Det	1.30
D4	Semi	0.90
E2.1	Semi	0.67
Eastbeck	Semi	0.67
Ferndale	Semi	0.90
HAT	Semi	0.67
Leyburn	Det	1.10
Netherton	Det	1.30
Ripley	Semi	0.90
Ripley-Alt	Semi	1.00
Salbury	Semi	1.10
Thoresby	Det	1.40
Totley	Semi	0.67
Wentbridge	Det	1.20

Table 6 – PV Array

York
Clifford Chambers, 4 Clifford Street,
York, YO1 9RD | 01904 674890

London
Alpha House, 100 Borough High Street,
London, SE1 1LB | 0207 096 9186

Edinburgh
9-10 St. Andrew Square,
Edinburgh, EH2 2AF | 0131 563 9739

Reduced Emission Rate & Energy Requirement

To determine the benefits of the proposed specification, the development was again modelled in SAP10. The table below summarises the results calculated.

House Type	No	Enhanced Emission Rate (kg/year)	Enhanced Energy Rate (kWh/year)
HT - Askham - SEMI	14	2,009.46	22,571.98
HT - B3 - SEMI	14	3,537.93	38,706.98
HT - Baildon - SEMI	12	3,084.79	34,092.76
HT - Bramley - SEMI	2	234.55	2,713.52
HT - Cookbury - DET	3	914.64	10,305.61
HT - D4 - SEMI	2	601.37	6,544.05
HT - E2.1 - SEMI	8	1,923.46	20,965.13
HT - Eastbeck - SEMI	10	2,404.33	26,206.41
HT - Ferndale - SEMI	12	2,580.93	29,118.69
HT - HAT - SEMI	6	805.86	9,146.51
HT - Leyburn - DET	9	2,253.61	25,485.55
HT - Netherton - DET	17	5,554.39	61,923.39
HT - Ripley - SEMI	21	4,749.71	53,341.62
HT - Ripley-Alt - SEMI	1	221.58	2,526.28
HT - Salbury - SEMI	14	3,951.55	44,049.81
HT - Thoresby - DET	1	321.69	3,634.66
HT - Totley - SEMI	2	301.10	3,372.91
HT - Wentbridge - DET	7	2,080.93	23,299.01
Total	**155**	**37,531.86**	**418,004.84**

Table 7 – Reduced Emission Rate & Energy Requirement

The calculations summarised in the table above confirm Land off Barugh Green Road has a reduced energy requirement of 418,004.84 kWh/year and an associated emission rate of 37,531.86 kgCO2/year. These are respectively 49.08% and 76.07% reductions over the baseline calculated previously.

York
Clifford Chambers, 4 Clifford Street,
York, YO1 9RD | 01904 674890

London
Alpha House, 100 Borough High Street,
London, SE1 1LB | 0207 096 9186

Edinburgh
9-10 St. Andrew Square,
Edinburgh, EH2 2AF | 0131 563 9739

Evaluation

The FES Group was instructed by Avant Homes West Yorkshire to review the performance of the proposed Energy Strategy for the development at Land off Barugh Green Road. The energy strategy was detailed previously but can be best summarised as follows;

- Avant Homes West Yorkshire proposes an energy strategy, which addresses the two policy concerns of sustainable design and construction: climate change and energy security.
- Avant Homes West Yorkshire has proposed a fabric first strategy, which aims to achieve long term reductions in CO2 emissions and climate change.
- The proposed fabric and building services specification will permanently reduce regulated emissions by 76.07% and the proposed energy demand by 49.08% This is a significant betterment and demonstrates that the proposed development will have a reduced reliance on national resources (gas and electricity) and meets the requirements of Barnsley Borough Pre-App Planning Consultation 2024/ENQ/00177

After detailed analysis we can conclude that the preferred energy strategy adheres to the principles and aspirations of sustainable design and construction as advanced by national and local government and the house building industry. We therefore recommend the adoption of the preferred energy strategy by Avant Homes West Yorkshire.

Future Energy Surveys Ltd T/A The FES Group and its staff shall not to be held liable for any damage or loss sustained as a result of using of the information provided in this report. The report is based on drawings and information provided by the client and/or project design team at the time of issue. The information and the drawings provided to us determine the results within the report. If anything changes during the course of the ongoing design or construction, the reduction and calculations will be incorrect. The FES Group will not be held responsible for the implications of such change.

As such this report should be viewed as providing a reasonable assessment of the predicted performance of the development based on current knowledge.

Appendix A

York
Clifford Chambers, 4 Clifford Street,
York, YO1 9RD | 01904 674890

London
Alpha House, 100 Borough High Street,
London, SE1 1LB | 0207 096 9186

Edinburgh
9-10 St. Andrew Square,
Edinburgh, EH2 2AF | 0131 563 9739

Summary for Input Data

elmhurst energy

Property Reference	009521 - HT - Askham - SEMI	**Issued on Date**	07/02/2025
Assessment Reference	Ideal HP290	**Prop Type Ref**	HT - Askham - SEMI
Property	Plot , HT - Askham - SEMI, Barugh Green Road		

SAP Rating	92 A	**DER**	2.19	**TER**	12.35
Environmental	98 A	**% DER < TER**			82.27
CO_2 Emissions (t/year)	0.12	**DFEE**	34.61	**TFEE**	37.34
Compliance Check	See BREL	**% DFEE < TFEE**			7.33
% DPER < TPER	61.92	**DPER**	24.60	**TPER**	64.60

Assessor Details	Mr. George Leadley	**Assessor ID**	P719-0001
Client			

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

Orientation	East	
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	2021	
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	0.00	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:	16.19 m	32.77 m²	2.31 m
1st Storey:	16.19 m	32.77 m²	2.62 m

8.0 Living Area	15.38	m²	

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
External Wall	Cavity Wall	Cavity wall : plasterboard on dabs, AAC block, filled cavity, any outside structure	0.24	60.00	79.76	64.53	0.00	None	15.23	Enter Gross Area

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Area (m²)	Shelter Res	Shelter
Party Wall	Filled Cavity with Edge Sealing	Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill	0.00	110.00	40.47	0.00	None

9.2 Internal Walls

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Ground Floor - Timber	Plasterboard on timber frame	9.00	47.49
First Floor - Timber	Plasterboard on timber frame	9.00	57.64

10.0 External Roofs

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Code	Shelter Factor	Calculation Type	Openings
Cold Roof	External Plane Roof	Plasterboard, insulated at ceiling level	0.09	9.00	32.77	32.77	None	0.00	Enter Gross Area	0.00

10.2 Internal Ceilings

Description	Storey	Construction	Area (m²)

Ground Floor	Lowest occupied	Plasterboard ceiling, carpeted chipboard floor		32.77

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	0.10	None	0.00	75.00	32.77

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
First Floor		Plasterboard ceiling, carpeted chipboard floor	9.00	32.77

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Solid Doors	Manufacturer	Solid Door				0.00			1.30
Windows	BFRC, BSI or CERTASS data	Window	Triple Low-E Soft 0.05			0.38		1.00	0.86
Patio Doors	BFRC, BSI or CERTASS data	Window	Triple Low-E Soft 0.05			0.35		1.00	0.89

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
Front Door	Solid Doors	External Wall	East	2.15	0
Front Windows	Windows	External Wall	East	4.86	0
LH Windows	Windows	External Wall	South	1.44	0
Rear Windows	Windows	External Wall	West	3.92	0
Rear Patio Doors	Patio Doors	External Wall	West	2.86	0

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges

17.1 List of Bridges

Bridge Type	Source Type	Length	Psi	Adjusted	Reference:	Imported
E1 Steel lintel with perforated steel base plate	Non Gov Approved Schemes	11.01	0.27	0.27	Knauf PSI Details	No
E3 Sill	Non Gov Approved Schemes	8.63	0.02	0.02	Knauf PSI Details	No
E4 Jamb	Non Gov Approved Schemes	27.00	0.02	0.02	Knauf PSI Details	No
E5 Ground floor (normal)	Independently assessed	7.98	0.04	0.04	FES - Para	No
E6 Intermediate floor within a dwelling	Non Gov Approved Schemes	16.19	0.00	0.00	Knauf PSI Details	No
E10 Eaves (insulation at ceiling level)	Non Gov Approved Schemes	7.98	0.04	0.04	Knauf PSI Details	No
E12 Gable (insulation at ceiling level)	Non Gov Approved Schemes	8.22	0.04	0.04	Knauf PSI Details	No
E16 Corner (normal)	Non Gov Approved Schemes	9.85	0.04	0.04	Knauf PSI Details	No
E18 Party wall between dwellings	Non Gov Approved Schemes	9.85	0.04	0.04	Knauf PSI Details	No
P1 Party wall - Ground floor	Independently assessed	8.22	0.07	0.07	FES	No
P2 Party wall - Intermediate floor within a dwelling	Table K1 - Default	8.22	0.00	0.00	Default	No
P4 Party wall - Roof (insulation at ceiling level)	Non Gov Approved Schemes	8.22	0.09	0.09	Knauf PSI Details	No
E5 Ground floor (normal)	Independently assessed	8.22	0.06	0.06	FES - Perp	No

19.0 Mechanical Ventilation

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Mechanical extract ventilation - decentralised
MV Reference Number	500776
Duct Type	Flexible
Wet Rooms	3
SFP from Installer Commissioning Certificate	No

19.1 Mechanical extract ventilation - Decentralised

SFP	Fan/Room Type	Count
0.14	In Room Fan Kitchen	0
0.11	In Room Fan Other Wet Room	0
0.00	In Duct Fan Kitchen	0
0.00	In Duct Fan Other Wet Room	0
0.08	Through Wall Fan Kitchen	1
0.08	Through Wall Fan Other Wet Room	2

20.0 Fans, Open Fireplaces, Flues

Number of open chimneys	0

Summary for Input Data

elmhurst energy

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	
22.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	$m^3/(h.m^2)$ @ 50 Pa
Property Tested?	Yes	
Test Method	Blower Door	
22.0 Lighting		
No Fixed Lighting	No	

Name	Efficacy	Power	Capacity	Count
Internal Lighting	108.00	8.00	864.00	8

24.0 Main Heating 1	Database	
Percentage of Heat	100.00	%
Database Ref. No.	107964	
Fuel Type	Electricity	
SAP Code	104	
Model Name	HP290 Monobloc 4.5kW	
Manufacturer	Midea	
Controls SAP Code	2207	
Delayed Start Stat	Yes	
Burner Control	Modulating	
HETAS approved System	No	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	45.00	
25.0 Main Heating 2	None	
26.0 Heat Networks	None	

	Heat Source	Fuel Type	Heating Use	Efficiency	Percentage Of Heat	Heat	Heat Power Ratio	Electrical	Fuel Factor	Efficiency type
Heat source 1	None									
Heat source 2	None									
Heat source 3	None									
Heat source 4	None									
Heat source 5	None									

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

Summary for Input Data

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	
Baths connected to WWHRS	0	
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
Shower	Combi boiler or unvented hot water system	9.00		Yes	Instantaneous System 1

28.3 Waste Water Heat Recovery System

Instantaneous System 1

Database ID	80148	
Brand Model	Recoup, Pipe HEX	
Details	Year: 2019 + current Efficiency: 55.4 Utilisation factor: 0.957	

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	0	
Cylinder Volume	150.00	L
Loss	1.22	kWh/day
Pipes insulation	Fully insulated primary pipework	
In Airing Cupboard	No	

31.0 Thermal Store	None	
Thermal Store Pipework	within a single casing	

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
0.67	East	30°	None Or Little	No	No	1.00		

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

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

Summary for Input Data

elmhurst energy

Property Reference	009521 - HT - B3 - SEMI	**Issued on Date**	07/02/2025
Assessment Reference	Ideal HP290	**Prop Type Ref**	HT - B3 - SEMI
Property	Plot , HT - B3 - SEMI, Barugh Green Road		

SAP Rating	88 B	**DER**	2.86	**TER**	11.64
Environmental	98 A	**% DER < TER**			75.43
CO_2 Emissions (t/year)	0.24	**DFEE**	34.73	**TFEE**	36.29
Compliance Check	See BREL	**% DFEE < TFEE**			4.29
% DPER < TPER	48.65	**DPER**	31.29	**TPER**	60.93

Assessor Details	Mr. George Leadley	**Assessor ID**	P719-0001
Client			

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

Orientation	East	
Property Tenture	ND	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	House, Semi-Detached	
Which Floor	0	
2.0 Number of Storeys	3	
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	0.00	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:	16.19 m	32.77 m²	2.31 m
1st Storey:	16.19 m	32.77 m²	2.63 m
2nd Storey:	16.19 m	22.82 m²	2.45 m

8.0 Living Area	15.38	m²

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
External Wall	Cavity Wall	Cavity wall : plasterboard on dabs, AAC block, filled cavity, any outside structure	0.24	60.00	89.98	74.75	0.00	None	15.23	Enter Gross Area
Gable Panel Wall	Timber Frame	Timber framed wall (one layer of plasterboard)	0.23	9.00	14.16	14.16	0.00	None	0.00	Enter Gross Area
Sheltered Stud Wall	Timber Frame	Timber framed wall (one layer of plasterboard)	0.11	9.00	13.31	13.31	0.00	None	0.00	Enter Gross Area

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Area (m²)	Shelter Res	Shelter
Party Wall	Filled Cavity with Edge Sealing	Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill	0.00	110.00	45.66	0.00	None
Party Wall	Filled Cavity with Edge Sealing	Double plasterboard on both sides, twin timber f rame with/without sheathing board	0.00	20.00	14.16	0.00	None

9.2 Internal Walls

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Ground Floor - Timber	Plasterboard on timber frame	9.00	52.30
First Floor - Timber	Plasterboard on timber frame	9.00	57.86
Second Floor - Timber	Plasterboard on timber frame	9.00	38.02

10.0 External Roofs

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Code	Shelter Factor	Calculation Type	Openings

Sloping Cassette Roof	External Slope Roof	Plasterboard, insulated slope	0.15	9.00	12.79	11.26	None	0.00	Enter Gross Area	1.53
Sheltered Stud Roof	External Slope Roof	Plasterboard, insulated slope	0.11	9.00	22.97	22.97	None	0.00	Enter Gross Area	0.00

10.2 Internal Ceilings

Description	Storey	Construction	Area (m²)
Ground Floor	Lowest occupied	Plasterboard ceiling, carpeted chipboard floor	32.77
First Floor	+1	Plasterboard ceiling, carpeted chipboard floor	22.82

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	0.10	None	0.00	75.00	32.77

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
First Floor		Plasterboard ceiling, carpeted chipboard floor	9.00	32.77
Second Floor		Plasterboard ceiling, carpeted chipboard floor	9.00	22.82

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Solid Doors	Manufacturer	Solid Door				0.00			1.30
Windows	BFRC, BSI or CERTASS data	Window	Triple Low-E Soft 0.05			0.38		1.00	0.86
Patio Doors	BFRC, BSI or CERTASS data	Window	Triple Low-E Soft 0.05			0.35		1.00	0.89
Rooflights	Manufacturer	Roof Window	Double Low-E Soft 0.05			0.63		0.70	1.30

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
Front Door	Solid Doors	External Wall	East	2.15	0
Front Windows	Windows	External Wall	East	4.86	0
LH Windows	Windows	External Wall	South	1.44	0
Rear Windows	Windows	External Wall	West	3.92	0
Rear Patio Doors	Patio Doors	External Wall	West	2.86	0
Rear RL	Rooflights	Sloping Cassette Roof	West	1.53	40

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges

17.1 List of Bridges

Bridge Type	Source Type	Length	Psi	Adjusted	Reference:	Imported
E1 Steel lintel with perforated steel base plate	Non Gov Approved Schemes	11.01	0.27	0.27	Knauf PSI Details	No
E3 Sill	Non Gov Approved Schemes	8.63	0.02	0.02	Knauf PSI Details	No
E4 Jamb	Non Gov Approved Schemes	27.00	0.02	0.02	Knauf PSI Details	No
E5 Ground floor (normal)	Independently assessed	7.98	0.04	0.04	FES - Para	No
E6 Intermediate floor within a dwelling	Non Gov Approved Schemes	32.39	0.00	0.00	Knauf PSI Details	No
E11 Eaves (insulation at rafter level)	Independently assessed	7.98	0.05	0.05	NYT PSI Details	No
E13 Gable (insulation at rafter level)	Independently assessed	10.73	0.06	0.06	NYT PSI Details	No
E16 Corner (normal)	Non Gov Approved Schemes	11.11	0.04	0.04	Knauf PSI Details	No
E18 Party wall between dwellings	Non Gov Approved Schemes	11.11	0.04	0.04	Knauf PSI Details	No
P1 Party wall - Ground floor	Independently assessed	8.22	0.07	0.07	FES	No
P2 Party wall - Intermediate floor within a dwelling	Table K1 - Default	16.43	0.00	0.00	Default	No
P5 Party wall - Roof (insulation at rafter level)	Independently assessed	10.73	0.07	0.07	NYT PSI Details	No
R1 Head of roof window	Independently assessed	1.56	0.09	0.09	Velux	No
R2 Sill of roof window	Independently assessed	1.56	0.09	0.09	Velux	No
R3 Jamb of roof window	Independently assessed	3.92	0.09	0.09	Velux	No
R4 Ridge (vaulted ceiling)	Independently assessed	3.99	0.05	0.05	NYT PSI Details	No
E5 Ground floor (normal)	Independently assessed	8.22	0.06	0.06	FES - Perp	No

19.0 Mechanical Ventilation

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Mechanical extract ventilation - decentralised
MV Reference Number	500776
Duct Type	Flexible
Wet Rooms	3
SFP from Installer Commissioning Certificate	No

19.1 Mechanical extract ventilation - Decentralised

Summary for Input Data

SFP	Fan/Room Type	Count
0.14	In Room Fan Kitchen	0
0.11	In Room Fan Other Wet Room	0
0.00	In Duct Fan Kitchen	0
0.00	In Duct Fan Other Wet Room	0
0.08	Through Wall Fan Kitchen	1
0.08	Through Wall Fan Other Wet Room	2

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
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	
22.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	$m^3/(h.m^2)$ @ 50 Pa
Property Tested?	Yes	
Test Method	Blower Door	

22.0 Lighting

No Fixed Lighting	No

Name	Efficacy	Power	Capacity	Count
Internal Lighting	108.00	8.00	864.00	10

24.0 Main Heating 1	Database	
Percentage of Heat	100.00	%
Database Ref. No.	107964	
Fuel Type	Electricity	
SAP Code	104	
Model Name	HP290 Monobloc 4.5kW	
Manufacturer	Midea	
Controls SAP Code	2207	
PCDF Controls	0	
Delayed Start Stat	Yes	
Burner Control	On/Off	
HETAS approved System	No	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	45.00	
25.0 Main Heating 2	None	
26.0 Heat Networks	None	

	Heat Source	Fuel Type	Heating Use	Efficiency	Percentage Of Heat	Heat	Heat Power Ratio	Electrical	Fuel Factor	Efficiency type
Heat source 1	None									

Heat source 2	None
Heat source 3	None
Heat source 4	None
Heat source 5	None

27.0 Secondary Heating	None

28.0 Water Heating

Water Heating	Main Heating 1
SAP Code	901
Flue Gas Heat Recovery System	No
Waste Water Heat Recovery Instantaneous System 1	Yes
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Summer Immersion	No
Cold Water Source	From mains
Bath Count	1
Baths connected to WWHRS	0
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
Shower	Combi boiler or unvented hot water system	9.00		Yes	Instantaneous System 1

28.3 Waste Water Heat Recovery System Instantaneous System 1

Database ID	80148
Brand Model	Recoup, Pipe HEX
Details	Year: 2019 + current Efficiency: 55.4 Utilisation factor: 0.957

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	0	
Cylinder Volume	180.00	L
Loss	1.63	kWh/day
Pipes insulation	Fully insulated primary pipework	
In Airing Cupboard	No	

31.0 Thermal Store	None	
Thermal Store Pipework	within a single casing	

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	East	45°	None Or Little	No	No	1.00		

34.0 Small-scale Hydro	None

Summary for Input Data

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

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

Summary for Input Data

Property Reference	009521 - HT - Baildon - SEMI	**Issued on Date**	07/02/2025
Assessment Reference	Ideal HP290	**Prop Type Ref**	HT - Baildon - SEMI
Property	Plot , HT - Baildon - SEMI, Barugh Green Road		

SAP Rating	87 B	**DER**	2.89	**TER**	11.63
Environmental	98 A	**% DER < TER**			75.15
CO_2 Emissions (t/year)	0.25	**DFEE**	34.82	**TFEE**	36.43
Compliance Check	See BREL	**% DFEE < TFEE**			4.41
% DPER < TPER	47.52	**DPER**	31.94	**TPER**	60.87

Assessor Details	Mr. George Leadley	**Assessor ID**	P719-0001
Client			

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

Orientation	East	
Property Tenture	ND	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	House, Semi-Detached	
Which Floor	0	
2.0 Number of Storeys	3	
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	0.00	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:	16.19 m	32.77 m²	2.31 m
1st Storey:	16.19 m	32.77 m²	2.63 m
2nd Storey:	16.19 m	23.41 m²	2.44 m

8.0 Living Area	15.38	m²

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
External Wall	Cavity Wall	Cavity wall : plasterboard on dabs, AAC block, filled cavity, any outside structure	0.24	60.00	89.98	74.75	0.00	None	15.23	Enter Gross Area
Gable Panel Wall	Timber Frame	Timber framed wall (one layer of plasterboard)	0.23	9.00	14.16	14.16	0.00	None	0.00	Enter Gross Area
Sheltered Stud Wall	Timber Frame	Timber framed wall (one layer of plasterboard)	0.11	9.00	13.79	13.79	0.00	None	0.00	Enter Gross Area

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Area (m²)	Shelter Res	Shelter
Party Wall	Filled Cavity with Edge Sealing	Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill	0.00	110.00	45.66	0.00	None
Party Wall	Filled Cavity with Edge Sealing	Double plasterboard on both sides, twin timber f rame with/without sheathing board	0.00	20.00	14.16	0.00	None

9.2 Internal Walls

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Ground Floor - Timber	Plasterboard on timber frame	9.00	52.30
First Floor - Timber	Plasterboard on timber frame	9.00	57.86
Second Floor - Timber	Plasterboard on timber frame	9.00	37.48

10.0 External Roofs

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Code	Shelter Factor	Calculation Type	Openings

Sloping Cassette Roof	External Slope Roof	Plasterboard, insulated slope	0.15	9.00	13.57	11.50	None	0.00	Enter Gross Area	2.07
Sheltered Stud Roof	External Slope Roof	Plasterboard, insulated slope	0.11	9.00	22.38	22.38	None	0.00	Enter Gross Area	0.00

10.2 Internal Ceilings

Description	Storey	Construction	Area (m²)
Ground Floor	Lowest occupied	Plasterboard ceiling, carpeted chipboard floor	32.77
First Floor	+1	Plasterboard ceiling, carpeted chipboard floor	23.41

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	0.10	None	0.00	75.00	32.77

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
First Floor		Plasterboard ceiling, carpeted chipboard floor	9.00	32.77
Second Floor		Plasterboard ceiling, carpeted chipboard floor	9.00	23.41

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Solid Doors	Manufacturer	Solid Door				0.00			1.30
Windows	BFRC, BSI or CERTASS data	Window	Triple Low-E Soft 0.05			0.38		1.00	0.86
Patio Doors	BFRC, BSI or CERTASS data	Window	Triple Low-E Soft 0.05			0.35		1.00	0.89
Rooflights	Manufacturer	Roof Window	Double Low-E Soft 0.05			0.63		0.70	1.30

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
Front Door	Solid Doors	External Wall	East	2.15	0
Front Windows	Windows	External Wall	East	4.86	0
LH Windows	Windows	External Wall	South	1.44	0
Rear Windows	Windows	External Wall	West	3.92	0
Rear Patio Doors	Patio Doors	External Wall	West	2.86	0
Front RL	Rooflights	Sloping Cassette Roof	East	0.54	40
Rear RL	Rooflights	Sloping Cassette Roof	West	1.53	40

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges

17.1 List of Bridges

Bridge Type	Source Type	Length	Psi	Adjusted	Reference:	Imported
E1 Steel lintel with perforated steel base plate	Non Gov Approved Schemes	11.01	0.27	0.27	Knauf PSI Details	No
E3 Sill	Non Gov Approved Schemes	8.63	0.02	0.02	Knauf PSI Details	No
E4 Jamb	Non Gov Approved Schemes	27.00	0.02	0.02	Knauf PSI Details	No
E5 Ground floor (normal)	Independently assessed	7.98	0.04	0.04	FES - Para	No
E6 Intermediate floor within a dwelling	Non Gov Approved Schemes	32.39	0.00	0.00	Knauf PSI Details	No
E11 Eaves (insulation at rafter level)	Independently assessed	7.98	0.05	0.05	NYT PSI Details	No
E13 Gable (insulation at rafter level)	Independently assessed	10.73	0.06	0.06	NYT PSI Details	No
E16 Corner (normal)	Non Gov Approved Schemes	11.11	0.04	0.04	Knauf PSI Details	No
E18 Party wall between dwellings	Non Gov Approved Schemes	11.11	0.04	0.04	Knauf PSI Details	No
P1 Party wall - Ground floor	Independently assessed	8.22	0.07	0.07	FES	No
P2 Party wall - Intermediate floor within a dwelling	Table K1 - Default	16.43	0.00	0.00	Default	No
P5 Party wall - Roof (insulation at rafter level)	Independently assessed	10.73	0.07	0.07	NYT PSI Details	No
R1 Head of roof window	Independently assessed	2.11	0.09	0.09	Velux	No
R2 Sill of roof window	Independently assessed	2.11	0.09	0.09	Velux	No
R3 Jamb of roof window	Independently assessed	5.88	0.09	0.09	Velux	No
R4 Ridge (vaulted ceiling)	Independently assessed	3.99	0.05	0.05	NYT PSI Details	No
E5 Ground floor (normal)	Independently assessed	8.22	0.06	0.06	FES - Perp	No

19.0 Mechanical Ventilation

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Mechanical extract ventilation - decentralised
MV Reference Number	500776
Duct Type	Flexible
Wet Rooms	4
SFP from Installer Commissioning Certificate	No

Summary for Input Data

elmhurst energy

19.1 Mechanical extract ventilation - Decentralised

SFP	Fan/Room Type	Count
0.14	In Room Fan Kitchen	0
0.11	In Room Fan Other Wet Room	0
0.00	In Duct Fan Kitchen	0
0.00	In Duct Fan Other Wet Room	0
0.08	Through Wall Fan Kitchen	1
0.08	Through Wall Fan Other Wet Room	3

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	
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	
22.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	$m^3/(h.m^2)$ @ 50 Pa
Property Tested?	Yes	
Test Method	Blower Door	

22.0 Lighting

No Fixed Lighting: No

Name	Efficacy	Power	Capacity	Count
Internal Lighting	108.00	8.00	864.00	12

24.0 Main Heating 1	Database	
Percentage of Heat	100.00	%
Database Ref. No.	107972	
Fuel Type	Electricity	
SAP Code	104	
Model Name	HP290 Monobloc 6kW	
Manufacturer	Midea	
Controls SAP Code	2207	
PCDF Controls	0	
Delayed Start Stat	Yes	
Burner Control	On/Off	
HETAS approved System	No	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	45.00	
25.0 Main Heating 2	None	
26.0 Heat Networks	None	

Heat Source	Fuel Type	Heating Use	Efficiency	Percentage Of Heat	Heat	Heat Power	Electrical	Fuel Factor	Efficiency type

		Ratio
Heat source 1	None	
Heat source 2	None	
Heat source 3	None	
Heat source 4	None	
Heat source 5	None	

27.0 Secondary Heating	None

28.0 Water Heating

Water Heating	Main Heating 1
SAP Code	901
Flue Gas Heat Recovery System	No
Waste Water Heat Recovery Instantaneous System 1	Yes
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Summer Immersion	No
Cold Water Source	From mains
Bath Count	1
Baths connected to WWHRS	0
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
Shower	Combi boiler or unvented hot water system	9.00		Yes	Instantaneous System 1
en-suite	Combi boiler or unvented hot water system	9.00	9.30	No	

28.3 Waste Water Heat Recovery System Instantaneous System 1

Database ID	80148
Brand Model	Recoup, Pipe HEX
Details	Year: 2019 + current Efficiency: 55.4 Utilisation factor: 0.957

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	0	
Cylinder Volume	180.00	L
Loss	1.63	kWh/day
Pipes insulation	Fully insulated primary pipework	
In Airing Cupboard	No	

31.0 Thermal Store	None
Thermal Store Pipework	within a single casing

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
0.90	East	45°	None Or Little	No	No	1.00		

Summary for Input Data

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

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

Summary for Input Data

elmhurst energy

Property Reference	009521 - HT - Bramley - SEMI	**Issued on Date**	07/02/2025
Assessment Reference	Ideal HP290	**Prop Type Ref**	HT - Bramley - SEMI
Property	Plot , HT - Bramley - SEMI, Barugh Green Road		

SAP Rating	93 A	**DER**	1.95	**TER**	11.48
Environmental	99 A	**% DER < TER**			83.01
CO_2 Emissions (t/year)	0.11	**DFEE**	26.49	**TFEE**	30.63
Compliance Check	See BREL	**% DFEE < TFEE**			13.53
% DPER < TPER	62.47	**DPER**	22.56	**TPER**	60.11

Assessor Details	Mr. George Leadley	**Assessor ID**	P719-0001
Client			

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

Orientation	East	
Property Tenture	ND	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	Maisonette, Semi-Detached	
Position of Flat	Ground-floor flat	
Which Floor	0	
2.0 Number of Storeys	1	
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	0.00	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:	18.32 m	60.14 m²	2.31 m
1st Storey:	16.19 m	32.77 m²	2.62 m

8.0 Living Area	25.00	m²

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
External Wall	Cavity Wall	Cavity wall : plasterboard on dabs, AAC block, filled cavity, any outside structure	0.24	60.00	42.32	32.75	0.00	None	9.57	Enter Gross Area

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Area (m²)	Shelter Res	Shelter
Party Wall	Filled Cavity with Edge Sealing	Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill	0.00	110.00	43.66	0.00	None

9.2 Internal Walls

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Ground Floor - Timber	Plasterboard on timber frame	9.00	76.18

10.1 Party Ceilings

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Party Ceiling	Precast concrete plank floor (screed laid on rubber), carpeted	30.00	60.14

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	0.10	None	0.00	75.00	60.14

Summary for Input Data

elmhurst energy

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Solid Doors	Manufacturer	Solid Door				0.00			1.30
Windows	BFRC, BSI or CERTASS data	Window	Triple Low-E Soft 0.05			0.38		1.00	0.86
Patio Doors	BFRC, BSI or CERTASS data	Window	Triple Low-E Soft 0.05			0.35		1.00	0.89

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
Front Door	Solid Doors	External Wall	East	2.15	0
Front Windows	Windows	External Wall	East	3.37	0
Rear Windows	Windows	External Wall	West	1.19	0
Rear Patio Doors	Patio Doors	External Wall	West	2.86	0

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges

17.1 List of Bridges

Bridge Type	Source Type	Length	Psi	Adjusted	Reference:	Imported
E1 Steel lintel with perforated steel base plate	Non Gov Approved Schemes	6.01	0.27	0.27	Knauf PSI Details	No
E3 Sill	Non Gov Approved Schemes	3.63	0.02	0.02	Knauf PSI Details	No
E4 Jamb	Non Gov Approved Schemes	15.90	0.02	0.02	Knauf PSI Details	No
E5 Ground floor (normal)	Independently assessed	13.37	0.04	0.04	FES - Para	No
E16 Corner (normal)	Non Gov Approved Schemes	4.62	0.04	0.04	Knauf PSI Details	No
E18 Party wall between dwellings	Non Gov Approved Schemes	9.24	0.04	0.04	Knauf PSI Details	No
P1 Party wall - Ground floor	Independently assessed	18.90	0.07	0.07	FES	No
E5 Ground floor (normal)	Independently assessed	4.96	0.06	0.06	FES - Perp	No
E7 Party floor between dwellings (in blocks of flats)	Independently assessed	18.32	0.06	0.06	Meadows + Ross	No
P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	Table K1 - Default	18.90	0.00	0.00		No

19.0 Mechanical Ventilation

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Mechanical extract ventilation - decentralised
MV Reference Number	500776
Duct Type	Flexible
Wet Rooms	2
SFP from Installer Commissioning Certificate	No

19.1 Mechanical extract ventilation - Decentralised

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

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
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

Summary for Input Data

elmhurst energy

Number of flueless gas fires	0	
21.0 Fixed Cooling System	No	
22.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	$m^3/(h.m^2)$ @ 50 Pa
Property Tested?	Yes	
Test Method	Blower Door	

22.0 Lighting

No Fixed Lighting: No

Name	Efficacy	Power	Capacity	Count
Internal Lighting	108.00	8.00	864.00	6

24.0 Main Heating 1	Database	
Percentage of Heat	100.00	%
Database Ref. No.	107964	
Fuel Type	Electricity	
SAP Code	104	
Model Name	HP290 Monobloc 4.5kW	
Manufacturer	Midea	
Controls SAP Code	2207	
Delayed Start Stat	Yes	
Burner Control	Modulating	
HETAS approved System	No	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	45.00	
25.0 Main Heating 2	None	
26.0 Heat Networks	None	

	Heat Source	Fuel Type	Heating Use	Efficiency	Percentage Of Heat	Heat	Heat Power Ratio	Electrical	Fuel Factor	Efficiency type
Heat source 1	None									
Heat source 2	None									
Heat source 3	None									
Heat source 4	None									
Heat source 5	None									

27.0 Secondary Heating	None

28.0 Water Heating

Water Heating	Main Heating 1
SAP Code	901
Flue Gas Heat Recovery System	No
Waste Water Heat Recovery Instantaneous System 1	Yes
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Summer Immersion	No
Cold Water Source	From mains
Bath Count	1
Baths connected to WWHRS	0

Summary for Input Data

elmhurst energy

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
Shower	Combi boiler or unvented hot water system	9.00		Yes	Instantaneous System 1

28.3 Waste Water Heat Recovery System
Instantaneous System 1

Database ID	80140	
Brand Model	RECOUP, Easyfit+	
Details	Year: 2017 + current Efficiency: 40.7 Utilisation factor: 0.956	

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	0	
Cylinder Volume	150.00	L
Loss	1.22	kWh/day
Pipes insulation	Fully insulated primary pipework	
In Airing Cupboard	No	

31.0 Thermal Store	None	
Thermal Store Pipework	within a single casing	

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
0.67	East	30°	None Or Little	No	No	1.00		

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

Recommendations
Lower cost measures
None
Further measures to achieve even higher standards
None

Summary for Input Data

elmhurst energy

Property Reference	009521 - HT - Cookbury - DET	**Issued on Date**	07/02/2025
Assessment Reference	Ideal HP290	**Prop Type Ref**	HT - Cookbury - DET
Property	Plot , HT - Cookbury - DET, Barugh Green Road		

SAP Rating	87 B	**DER**	2.58	**TER**	10.54
Environmental	98 A	**% DER < TER**			75.52
CO_2 Emissions (t/year)	0.3	**DFEE**	38.82	**TFEE**	42.50
Compliance Check	See BREL	**% DFEE < TFEE**			8.67
% DPER < TPER	47.36	**DPER**	29.07	**TPER**	55.22

Assessor Details	Mr. George Leadley	**Assessor ID**	P719-0001
Client			

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

Orientation	East	
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	2	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Precise calculation	
Thermal Mass	0.00	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	Unheated Space Floor Area	Average Storey Height
Ground floor:	33.06 m	51.39 m²	15.39 m²	2.59 m
1st Storey:	33.06 m	66.78 m²		2.34 m

8.0 Living Area	15.12	m²

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
External Wall	Cavity Wall	Cavity wall : plasterboard on dabs, AAC block, filled cavity, any outside structure	0.24	60.00	141.80	120.14	0.00	None	21.66	Enter Gross Area
Garage Wall	Solid Wall	Solid wall : plasterboard on dabs, 200 mm dense block, insulated externally	0.24	150.00	21.35	21.35	0.70	Garage Single 1 Inside	0.00	Enter Gross Area

9.2 Internal Walls

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Ground Floor - Timber	Plasterboard on timber frame	9.00	39.63
Ground Floor - Block	Dense block, plasterboard on dabs	75.00	27.71
First Floor - Timber	Plasterboard on timber frame	9.00	149.06

10.0 External Roofs

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Code	Shelter Factor	Calculation Type	Openings
Cold Roof	External Plane Roof	Plasterboard, insulated at ceiling level	0.09	9.00	66.78	66.78	None	0.00	Enter Gross Area	0.00

10.2 Internal Ceilings

Description	Storey	Construction	Area (m²)
Ground Floor	Lowest occupied	Plasterboard ceiling, carpeted chipboard floor	51.39

11.0 Heat Loss Floors

Summary for Input Data

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	0.10	None	0.00	75.00	51.39
Floor Above Garage	Exposed Floor - Timber	+1	Timber exposed floor, insulation between joists	0.15	Garage Single 1 Inside	0.70	20.00	15.39

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
First Floor		Plasterboard ceiling, carpeted chipboard floor	9.00	51.39

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Solid Doors	Manufacturer	Solid Door				0.00			1.30
Windows	BFRC, BSI or CERTASS data	Window	Triple Low-E Soft 0.05			0.38		1.00	0.86
Patio Doors	BFRC, BSI or CERTASS data	Window	Triple Low-E Soft 0.05			0.35		1.00	0.89

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
Front Door	Solid Doors	External Wall	East	2.15	0
Front Windows	Windows	External Wall	East	7.51	0
LH Windows	Windows	External Wall	South	0.72	0
Rear Windows	Windows	External Wall	West	7.48	0
Rear Patio Doors	Patio Doors	External Wall	West	3.80	0

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges

17.1 List of Bridges

Bridge Type	Source Type	Length	Psi	Adjusted	Reference:	Imported
E1 Steel lintel with perforated steel base plate	Non Gov Approved Schemes	16.21	0.27	0.27	Knauf PSI Details	No
E3 Sill	Non Gov Approved Schemes	13.38	0.02	0.02	Knauf PSI Details	No
E4 Jamb	Non Gov Approved Schemes	31.50	0.02	0.02	Knauf PSI Details	No
E5 Ground floor (normal)	Independently assessed	11.23	0.04	0.04	FES - Para	No
E5 Ground floor (normal)	Independently assessed	13.59	0.06	0.06	FES - Perp	No
E20 Exposed floor (normal)	Independently assessed	8.24	0.05	0.05	FES	No
E21 Exposed floor (inverted)	Independently assessed	8.24	0.02	0.02	FES	No
E6 Intermediate floor within a dwelling	Non Gov Approved Schemes	24.82	0.00	0.00	Knauf PSI Details	No
E10 Eaves (insulation at ceiling level)	Non Gov Approved Schemes	12.50	0.04	0.04	Knauf PSI Details	No
E12 Gable (insulation at ceiling level)	Non Gov Approved Schemes	20.56	0.04	0.04	Knauf PSI Details	No
E16 Corner (normal)	Non Gov Approved Schemes	22.08	0.04	0.04	Knauf PSI Details	No
E16 Corner (normal)	Table K1 - Default	5.18	0.18	0.18		No
E17 Corner (inverted – internal area greater than external area)	Non Gov Approved Schemes	4.93	-0.09	-0.09	Knauf PSI Details	No
E17 Corner (inverted – internal area greater than external area)	Table K1 - Default	2.59	0.00	0.00		No
E5 Ground floor (normal)	Independently assessed	8.24	0.05	0.05	FES - Garage	No

19.0 Mechanical Ventilation

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Mechanical extract ventilation - decentralised
MV Reference Number	500776
Duct Type	Flexible
Wet Rooms	4
SFP from Installer Commissioning Certificate	No

19.1 Mechanical extract ventilation - Decentralised

SFP	Fan/Room Type	Count
0.14	In Room Fan Kitchen	0
0.11	In Room Fan Other Wet Room	0
0.00	In Duct Fan Kitchen	0
0.00	In Duct Fan Other Wet Room	0
0.08	Through Wall Fan Kitchen	1
0.08	Through Wall Fan Other Wet Room	3

Summary for Input Data

elmhurst energy

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	
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	
22.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	$m^3/(h.m^2)$ @ 50 Pa
Property Tested?	Yes	
Test Method	Blower Door	

22.0 Lighting

No Fixed Lighting	No	

Name	Efficacy	Power	Capacity	Count
Internal Lighting	108.00	8.00	864.00	15

24.0 Main Heating 1	Database	
Percentage of Heat	100.00	%
Database Ref. No.	107980	
Fuel Type	Electricity	
SAP Code	104	
Model Name	HP290 Monobloc 8kW	
Manufacturer	Midea	
Controls SAP Code	2207	
PCDF Controls	0	
Delayed Start Stat	Yes	
Burner Control	On/Off	
HETAS approved System	No	
Is MHS Pumped	Pump in unheated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	45.00	
25.0 Main Heating 2	None	
26.0 Heat Networks	None	

	Heat Source	Fuel Type	Heating Use	Efficiency	Percentage Of Heat	Heat	Heat Power Ratio	Electrical	Fuel Factor	Efficiency type
Heat source 1	None									
Heat source 2	None									
Heat source 3	None									
Heat source 4	None									
Heat source 5	None									

27.0 Secondary Heating	None	

28.0 Water Heating

Water Heating	Main Heating 1	
SAP Code	901	

Summary for Input Data

Flue Gas Heat Recovery System	No
Waste Water Heat Recovery Instantaneous System 1	Yes
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Summer Immersion	No
Cold Water Source	From mains
Bath Count	1
Baths connected to WWHRS	0
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
Shower	Combi boiler or unvented hot water system	9.00		Yes	Instantaneous System 1
en-suite	Combi boiler or unvented hot water system	9.00	9.30	No	

28.3 Waste Water Heat Recovery System Instantaneous System 1

Database ID	80148	
Brand Model	Recoup, Pipe HEX	
Details	Year: 2019 + current Efficiency: 55.4 Utilisation factor: 0.957	

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	0	
Cylinder Volume	300.00	L
Loss	2.26	kWh/day
Pipes insulation	Fully insulated primary pipework	
In Airing Cupboard	No	

31.0 Thermal Store	None	
Thermal Store Pipework	within a single casing	

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
1.30	East	30°	None Or Little	No	No	1.00		

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

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

Summary for Input Data

elmhurst energy

Property Reference	009521 - HT - D4 - SEMI	**Issued on Date**	07/02/2025
Assessment Reference	Ideal HP290	**Prop Type Ref**	HT - D4 - SEMI
Property	Plot , HT - D4 - SEMI, Barugh Green Road		

SAP Rating	88 B	**DER**	2.54	**TER**	10.22
Environmental	98 A	**% DER < TER**			75.15
CO_2 Emissions (t/year)	0.26	**DFEE**	33.98	**TFEE**	35.48
Compliance Check	See BREL	**% DFEE < TFEE**			4.25
% DPER < TPER	48.24	**DPER**	27.64	**TPER**	53.39

Assessor Details	Mr. George Leadley	**Assessor ID**	P719-0001
Client			

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

Orientation	East	
Property Tenture	ND	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	House, Semi-Detached	
Which Floor	0	
2.0 Number of Storeys	3	
3.0 Date Built	2021	
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	0.00	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:	18.89 m	43.95 m²	2.31 m
1st Storey:	18.89 m	43.95 m²	2.63 m
2nd Storey:	18.89 m	30.48 m²	2.48 m

8.0 Living Area	12.35	m²

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
External Wall	Cavity Wall	Cavity wall : plasterboard on dabs, AAC block, filled cavity, any outside structure	0.24	60.00	104.98	88.33	0.00	None	16.65	Enter Gross Area
Gable Panel Wall	Timber Frame	Timber framed wall (one layer of plasterboard)	0.23	9.00	14.42	14.42	0.00	None	0.00	Enter Gross Area
Sheltered Stud Wall	Timber Frame	Timber framed wall (one layer of plasterboard)	0.11	9.00	18.93	18.93	0.00	None	0.00	Enter Gross Area

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Area (m²)	Shelter Res	Shelter
Party Wall	Filled Cavity with Edge Sealing	Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill	0.00	110.00	46.08	0.00	None
Party Wall	Filled Cavity with Edge Sealing	Double plasterboard on both sides, twin timber f rame with/without sheathing board	0.00	20.00	14.42	0.00	None

9.2 Internal Walls

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Ground Floor - Timber	Plasterboard on timber frame	9.00	42.69
First Floor - Timber	Plasterboard on timber frame	9.00	95.73
Second Floor - Timber	Plasterboard on timber frame	9.00	42.56
Ground Floor - Block	Dense block, plasterboard on dabs	75.00	50.68

10.0 External Roofs

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area	Shelter Code	Shelter Factor	Calculation Type	Openings

Summary for Input Data

Sloping Cassette Roof	External Slope Roof	Plasterboard, insulated slope	0.15	9.00	16.69	15.16 (m²)	None	0.00	Enter Gross Area	1.53
Sheltered Stud Roof	External Slope Roof	Plasterboard, insulated slope	0.11	9.00	31.16	31.16	None	0.00	Enter Gross Area	0.00

10.2 Internal Ceilings

Description	Storey	Construction	Area (m²)
Ground Floor	Lowest occupied	Plasterboard ceiling, carpeted chipboard floor	43.95
First Floor	+1	Plasterboard ceiling, carpeted chipboard floor	30.48

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	0.10	None	0.00	75.00	43.95

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
First Floor		Plasterboard ceiling, carpeted chipboard floor	9.00	43.95
Second Floor		Plasterboard ceiling, carpeted chipboard floor	9.00	30.48

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Solid Doors	Manufacturer	Solid Door				0.00			1.30
Windows	BFRC, BSI or CERTASS data	Window	Triple Low-E Soft 0.05			0.38		1.00	0.86
Patio Doors	BFRC, BSI or CERTASS data	Window	Triple Low-E Soft 0.05			0.35		1.00	0.89
Rooflights	Manufacturer	Roof Window	Double Low-E Soft 0.05			0.63		0.70	1.30

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
Front Door	Solid Doors	External Wall	East	2.15	0
Front Windows	Windows	External Wall	East	5.81	0
Rear Windows	Windows	External Wall	West	3.92	0
Rear Patio Doors	Patio Doors	External Wall	West	3.33	0
Front RL	Rooflights	Sloping Cassette Roof	East	1.53	40
RH Windows	Windows	External Wall	North	1.44	0

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges

17.1 List of Bridges

Bridge Type	Source Type	Length	Psi	Adjusted	Reference:	Imported
E1 Steel lintel with perforated steel base plate	Non Gov Approved Schemes	12.14	0.27	0.27	Knauf PSI Details	No
E3 Sill	Non Gov Approved Schemes	9.53	0.02	0.02	Knauf PSI Details	No
E4 Jamb	Non Gov Approved Schemes	26.70	0.02	0.02	Knauf PSI Details	No
E5 Ground floor (normal)	Independently assessed	8.10	0.04	0.04	FES - Para	No
E6 Intermediate floor within a dwelling	Non Gov Approved Schemes	37.78	0.00	0.00	Knauf PSI Details	No
E11 Eaves (insulation at rafter level)	Independently assessed	10.60	0.05	0.05	NYT PSI Details	No
E13 Gable (insulation at rafter level)	Independently assessed	10.82	0.06	0.06	NYT PSI Details	No
E16 Corner (normal)	Non Gov Approved Schemes	11.11	0.04	0.04	Knauf PSI Details	No
R1 Head of roof window	Independently assessed	1.56	0.09	0.09	Velux	No
R2 Sill of roof window	Independently assessed	1.56	0.09	0.09	Velux	No
R3 Jamb of roof window	Independently assessed	3.92	0.09	0.09	Velux	No
R4 Ridge (vaulted ceiling)	Independently assessed	5.30	0.05	0.05	NYT PSI Details	No
E5 Ground floor (normal)	Independently assessed	10.79	0.06	0.06	FES - Perp	No
E18 Party wall between dwellings	Independently assessed	11.11	0.04	0.04	Knauf PSI Details	No
P1 Party wall - Ground floor	Independently assessed	8.29	0.07	0.07	FES	No
P2 Party wall - Intermediate floor within a dwelling	Table K1 - Default	16.58	0.00	0.00		No
P5 Party wall - Roof (insulation at rafter level)	Independently assessed	10.82	0.07	0.07	NYT PSI Details	No

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	500776
Duct Type	Flexible
Wet Rooms	3
SFP from Installer Commissioning Certificate	No

Summary for Input Data

elmhurst energy

19.1 Mechanical extract ventilation - Decentralised

SFP	Fan/Room Type	Count
0.14	In Room Fan Kitchen	0
0.11	In Room Fan Other Wet Room	0
0.00	In Duct Fan Kitchen	0
0.00	In Duct Fan Other Wet Room	0
0.08	Through Wall Fan Kitchen	1
0.08	Through Wall Fan Other Wet Room	2

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	
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	
22.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	$m^3/(h.m^2)$ @ 50 Pa
Property Tested?	Yes	
Test Method	Blower Door	

22.0 Lighting

No Fixed Lighting: No

Name	Efficacy	Power	Capacity	Count
Internal Lighting	108.00	8.00	864.00	15

24.0 Main Heating 1	Database	
Percentage of Heat	100.00	%
Database Ref. No.	107980	
Fuel Type	Electricity	
SAP Code	104	
Model Name	HP290 Monobloc 8kW	
Manufacturer	Midea	
Controls SAP Code	2207	
PCDF Controls	0	
Delayed Start Stat	Yes	
Burner Control	Modulating	
HETAS approved System	No	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	45.00	
25.0 Main Heating 2	None	
26.0 Heat Networks	None	

Heat Source	Fuel Type	Heating Use	Efficiency	Percentage Of Heat	Heat	Heat Power	Electrical	Fuel Factor	Efficiency type

		Ratio
Heat source 1	None	
Heat source 2	None	
Heat source 3	None	
Heat source 4	None	
Heat source 5	None	

27.0 Secondary Heating	None

28.0 Water Heating

Water Heating	Main Heating 1
SAP Code	901
Flue Gas Heat Recovery System	No
Waste Water Heat Recovery Instantaneous System 1	Yes
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Summer Immersion	No
Cold Water Source	From mains
Bath Count	1
Baths connected to WWHRS	0
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
Shower	Combi boiler or unvented hot water system	9.00		Yes	Instantaneous System 1

28.3 Waste Water Heat Recovery System Instantaneous System 1

Database ID	80148
Brand Model	Recoup, Pipe HEX
Details	Year: 2019 + current Efficiency: 55.4 Utilisation factor: 0.957

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	0	
Cylinder Volume	225.00	L
Loss	1.99	kWh/day
Pipes insulation	Fully insulated primary pipework	
In Airing Cupboard	No	

31.0 Thermal Store	None
Thermal Store Pipework	within a single casing

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
0.90	East	45°	None Or Little	No	No	1.00		

Summary for Input Data

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

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

Summary for Input Data

elmhurst energy

Property Reference	009521 - HT - E2.1 - SEMI	**Issued on Date**	07/02/2025
Assessment Reference	Ideal HP290	**Prop Type Ref**	HT - E2.1 - SEMI
Property	Plot , HT - E2.1 - SEMI, Barugh Green Road		

SAP Rating	87 B	**DER**	3.09	**TER**	12.48
Environmental	97 A	**% DER < TER**			75.24
CO_2 Emissions (t/year)	0.23	**DFEE**	35.77	**TFEE**	36.93
Compliance Check	See BREL	**% DFEE < TFEE**			3.14
% DPER < TPER	48.60	**DPER**	33.68	**TPER**	65.52

Assessor Details	Mr. George Leadley	**Assessor ID**	P719-0001
Client			

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

Orientation	East	
Property Tenture	ND	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	House, Semi-Detached	
Which Floor	0	
2.0 Number of Storeys	3	
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	0.00	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:	15.21 m	28.91 m²	2.31 m
1st Storey:	15.21 m	28.91 m²	2.63 m
2nd Storey:	15.21 m	19.99 m²	2.45 m

8.0 Living Area	22.25	m²

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
External Wall	Cavity Wall	Cavity wall : plasterboard on dabs, AAC block, filled cavity, any outside structure	0.24	60.00	84.53	73.05	0.00	None	11.48	Enter Gross Area
Gable Panel Wall	Timber Frame	Timber framed wall (one layer of plasterboard)	0.23	9.00	12.78	12.78	0.00	None	0.00	Enter Gross Area
Sheltered Stud Wall	Timber Frame	Timber framed wall (one layer of plasterboard)	0.11	9.00	12.09	12.09	0.00	None	0.00	Enter Gross Area

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Area (m²)	Shelter Res	Shelter
Party Wall	Filled Cavity with Edge Sealing	Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill	0.00	110.00	43.38	0.00	None
Party Wall	Filled Cavity with Edge Sealing	Double plasterboard on both sides, twin timber f rame with/without sheathing board	0.00	20.00	12.78	0.00	None

9.2 Internal Walls

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Ground Floor - Timber	Plasterboard on timber frame	9.00	35.34
First Floor - Timber	Plasterboard on timber frame	9.00	57.44
Second Floor - Timber	Plasterboard on timber frame	9.00	31.61

10.0 External Roofs

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Code	Shelter Factor	Calculation Type	Openings

Sloping Cassette Roof	External Slope Roof	Plasterboard, insulated slope	0.15	9.00	12.30	10.77	None	0.00	Enter Gross Area	1.53
Sheltered Stud Roof	External Slope Roof	Plasterboard, insulated slope	0.11	9.00	19.49	19.49	None	0.00	Enter Gross Area	0.00

10.2 Internal Ceilings

Description	Storey	Construction	Area (m²)
Ground Floor	Lowest occupied	Plasterboard ceiling, carpeted chipboard floor	28.91
First Floor	+1	Plasterboard ceiling, carpeted chipboard floor	19.99

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	0.10	None	0.00	75.00	28.91

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
First Floor		Plasterboard ceiling, carpeted chipboard floor	9.00	28.91
Second Floor		Plasterboard ceiling, carpeted chipboard floor	9.00	19.99

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Solid Doors	Manufacturer	Solid Door				0.00			1.30
Windows	BFRC, BSI or CERTASS data	Window	Triple Low-E Soft 0.05			0.38		1.00	0.86
Patio Doors	BFRC, BSI or CERTASS data	Window	Triple Low-E Soft 0.05			0.35		1.00	0.89
Rooflights	Manufacturer	Roof Window	Double Low-E Soft 0.05			0.63		0.70	1.30

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
Front Door	Solid Doors	External Wall	East	2.15	0
Front Windows	Windows	External Wall	East	3.38	0
LH Windows	Windows	External Wall	South	0.72	0
Rear Windows	Windows	External Wall	West	1.90	0
Rear Patio Doors	Patio Doors	External Wall	West	3.33	0
Front RL	Rooflights	Sloping Cassette Roof	East	1.53	40

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges

17.1 List of Bridges

Bridge Type	Source Type	Length	Psi	Adjusted	Reference:	Imported
E1 Steel lintel with perforated steel base plate	Non Gov Approved Schemes	7.83	0.27	0.27	Knauf PSI Details	No
E3 Sill	Non Gov Approved Schemes	5.23	0.02	0.02	Knauf PSI Details	No
E4 Jamb	Non Gov Approved Schemes	19.80	0.02	0.02	Knauf PSI Details	No
E5 Ground floor (normal)	Independently assessed	7.41	0.04	0.04	FES - Para	No
E6 Intermediate floor within a dwelling	Non Gov Approved Schemes	30.42	0.00	0.00	Knauf PSI Details	No
E11 Eaves (insulation at rafter level)	Independently assessed	7.41	0.05	0.05	NYT PSI Details	No
E13 Gable (insulation at rafter level)	Independently assessed	10.19	0.06	0.06	NYT PSI Details	No
E16 Corner (normal)	Non Gov Approved Schemes	11.11	0.04	0.04	Knauf PSI Details	No
E18 Party wall between dwellings	Non Gov Approved Schemes	11.11	0.04	0.04	Knauf PSI Details	No
P1 Party wall - Ground floor	Independently assessed	7.81	0.07	0.07	FES	No
P2 Party wall - Intermediate floor within a dwelling	Table K1 - Default	15.61	0.00	0.00	Default	No
P5 Party wall - Roof (insulation at rafter level)	Independently assessed	10.19	0.07	0.07	NYT PSI Details	No
R1 Head of roof window	Independently assessed	1.56	0.09	0.09	Velux	No
R2 Sill of roof window	Independently assessed	1.56	0.09	0.09	Velux	No
R3 Jamb of roof window	Independently assessed	3.92	0.09	0.09	Velux	No
R4 Ridge (vaulted ceiling)	Independently assessed	3.70	0.05	0.05	NYT PSI Details	No
E5 Ground floor (normal)	Independently assessed	7.81	0.06	0.06	FES - Perp	No

19.0 Mechanical Ventilation

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Mechanical extract ventilation - decentralised
MV Reference Number	500776
Duct Type	Flexible
Wet Rooms	3
SFP from Installer Commissioning Certificate	No

19.1 Mechanical extract ventilation - Decentralised

Summary for Input Data

SFP	Fan/Room Type	Count
0.14	In Room Fan Kitchen	0
0.11	In Room Fan Other Wet Room	0
0.00	In Duct Fan Kitchen	0
0.00	In Duct Fan Other Wet Room	0
0.08	Through Wall Fan Kitchen	1
0.08	Through Wall Fan Other Wet Room	2

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
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	
22.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	$m^3/(h.m^2)$ @ 50 Pa
Property Tested?	Yes	
Test Method	Blower Door	

22.0 Lighting

No Fixed Lighting	No

Name	Efficacy	Power	Capacity	Count
Internal Lighting	108.00	8.00	864.00	11

24.0 Main Heating 1	Database	
Percentage of Heat	100.00	%
Database Ref. No.	107964	
Fuel Type	Electricity	
SAP Code	104	
Model Name	HP290 Monobloc 4.5kW	
Manufacturer	Midea	
Controls SAP Code	2207	
PCDF Controls	0	
Delayed Start Stat	Yes	
Burner Control	On/Off	
HETAS approved System	No	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	45.00	
25.0 Main Heating 2	None	
26.0 Heat Networks	None	

	Heat Source	Fuel Type	Heating Use	Efficiency	Percentage Of Heat	Heat	Heat Power Ratio	Electrical	Fuel Factor	Efficiency type
Heat source 1	None									

Heat source 2	None
Heat source 3	None
Heat source 4	None
Heat source 5	None

27.0 Secondary Heating	None

28.0 Water Heating

Water Heating	Main Heating 1
SAP Code	901
Flue Gas Heat Recovery System	No
Waste Water Heat Recovery Instantaneous System 1	Yes
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Summer Immersion	No
Cold Water Source	From mains
Bath Count	1
Baths connected to WWHRS	0
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
Shower	Combi boiler or unvented hot water system	9.00		Yes	Instantaneous System 1

28.3 Waste Water Heat Recovery System Instantaneous System 1

Database ID	80148
Brand Model	Recoup, Pipe HEX
Details	Year: 2019 + current Efficiency: 55.4 Utilisation factor: 0.957

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	0	
Cylinder Volume	180.00	L
Loss	1.63	kWh/day
Pipes insulation	Fully insulated primary pipework	
In Airing Cupboard	No	

31.0 Thermal Store	None	
Thermal Store Pipework	within a single casing	

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
0.67	East	45°	None Or Little	No	No	1.00		

34.0 Small-scale Hydro	None

Summary for Input Data

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

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

Summary for Input Data

Property Reference	009521 - HT - Eastbeck - SEMI	**Issued on Date**	07/02/2025
Assessment Reference	Ideal HP290	**Prop Type Ref**	HT - Eastbeck - SEMI
Property	Plot , HT - Eastbeck - SEMI, Barugh Green Road		

SAP Rating	87 B	**DER**	3.09	**TER**	12.48
Environmental	97 A	**% DER < TER**			75.24
CO_2 Emissions (t/year)	0.23	**DFEE**	35.77	**TFEE**	36.93
Compliance Check	See BREL	**% DFEE < TFEE**			3.14
% DPER < TPER	48.60	**DPER**	33.68	**TPER**	65.52

Assessor Details	Mr. George Leadley	**Assessor ID**	P719-0001
Client			

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

Orientation	East	
Property Tenture	ND	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	House, Semi-Detached	
Which Floor	0	
2.0 Number of Storeys	3	
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	0.00	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:	15.21 m	28.91 m²	2.31 m
1st Storey:	15.21 m	28.91 m²	2.63 m
2nd Storey:	15.21 m	19.99 m²	2.45 m

8.0 Living Area	22.25	m²

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
External Wall	Cavity Wall	Cavity wall : plasterboard on dabs, AAC block, filled cavity, any outside structure	0.24	60.00	84.53	73.05	0.00	None	11.48	Enter Gross Area
Gable Panel Wall	Timber Frame	Timber framed wall (one layer of plasterboard)	0.23	9.00	12.78	12.78	0.00	None	0.00	Enter Gross Area
Sheltered Stud Wall	Timber Frame	Timber framed wall (one layer of plasterboard)	0.11	9.00	12.09	12.09	0.00	None	0.00	Enter Gross Area

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Area (m²)	Shelter Res	Shelter
Party Wall	Filled Cavity with Edge Sealing	Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill	0.00	110.00	43.38	0.00	None
Party Wall	Filled Cavity with Edge Sealing	Double plasterboard on both sides, twin timber f rame with/without sheathing board	0.00	20.00	12.78	0.00	None

9.2 Internal Walls

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Ground Floor - Timber	Plasterboard on timber frame	9.00	35.34
First Floor - Timber	Plasterboard on timber frame	9.00	57.44
Second Floor - Timber	Plasterboard on timber frame	9.00	31.61

10.0 External Roofs

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Code	Shelter Factor	Calculation Type	Openings

Sloping Cassette Roof	External Slope Roof	Plasterboard, insulated slope	0.15	9.00	12.30	10.77	None	0.00	Enter Gross Area	1.53
Sheltered Stud Roof	External Slope Roof	Plasterboard, insulated slope	0.11	9.00	19.49	19.49	None	0.00	Enter Gross Area	0.00

10.2 Internal Ceilings

Description	Storey	Construction	Area (m²)
Ground Floor	Lowest occupied	Plasterboard ceiling, carpeted chipboard floor	28.91
First Floor	+1	Plasterboard ceiling, carpeted chipboard floor	19.99

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	0.10	None	0.00	75.00	28.91

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
First Floor		Plasterboard ceiling, carpeted chipboard floor	9.00	28.91
Second Floor		Plasterboard ceiling, carpeted chipboard floor	9.00	19.99

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Solid Doors	Manufacturer	Solid Door				0.00			1.30
Windows	BFRC, BSI or CERTASS data	Window	Triple Low-E Soft 0.05			0.38		1.00	0.86
Patio Doors	BFRC, BSI or CERTASS data	Window	Triple Low-E Soft 0.05			0.35		1.00	0.89
Rooflights	Manufacturer	Roof Window	Double Low-E Soft 0.05			0.63		0.70	1.30

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
Front Door	Solid Doors	External Wall	East	2.15	0
Front Windows	Windows	External Wall	East	3.38	0
LH Windows	Windows	External Wall	South	0.72	0
Rear Windows	Windows	External Wall	West	1.90	0
Rear Patio Doors	Patio Doors	External Wall	West	3.33	0
Front RL	Rooflights	Sloping Cassette Roof	East	1.53	40

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges

17.1 List of Bridges

Bridge Type	Source Type	Length	Psi	Adjusted	Reference:	Imported
E1 Steel lintel with perforated steel base plate	Non Gov Approved Schemes	7.83	0.27	0.27	Knauf PSI Details	No
E3 Sill	Non Gov Approved Schemes	5.23	0.02	0.02	Knauf PSI Details	No
E4 Jamb	Non Gov Approved Schemes	19.80	0.02	0.02	Knauf PSI Details	No
E5 Ground floor (normal)	Independently assessed	7.41	0.04	0.04	FES - Para	No
E6 Intermediate floor within a dwelling	Non Gov Approved Schemes	30.42	0.00	0.00	Knauf PSI Details	No
E11 Eaves (insulation at rafter level)	Independently assessed	7.41	0.05	0.05	NYT PSI Details	No
E13 Gable (insulation at rafter level)	Independently assessed	10.19	0.06	0.06	NYT PSI Details	No
E16 Corner (normal)	Non Gov Approved Schemes	11.11	0.04	0.04	Knauf PSI Details	No
E18 Party wall between dwellings	Non Gov Approved Schemes	11.11	0.04	0.04	Knauf PSI Details	No
P1 Party wall - Ground floor	Independently assessed	7.81	0.07	0.07	FES	No
P2 Party wall - Intermediate floor within a dwelling	Table K1 - Default	15.61	0.00	0.00	Default	No
P5 Party wall - Roof (insulation at rafter level)	Independently assessed	10.19	0.07	0.07	NYT PSI Details	No
R1 Head of roof window	Independently assessed	1.56	0.09	0.09	Velux	No
R2 Sill of roof window	Independently assessed	1.56	0.09	0.09	Velux	No
R3 Jamb of roof window	Independently assessed	3.92	0.09	0.09	Velux	No
R4 Ridge (vaulted ceiling)	Independently assessed	3.70	0.05	0.05	NYT PSI Details	No
E5 Ground floor (normal)	Independently assessed	7.81	0.06	0.06	FES - Perp	No

19.0 Mechanical Ventilation

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Mechanical extract ventilation - decentralised
MV Reference Number	500776
Duct Type	Flexible
Wet Rooms	3
SFP from Installer Commissioning Certificate	No

19.1 Mechanical extract ventilation - Decentralised

Summary for Input Data

SFP	Fan/Room Type	Count
0.14	In Room Fan Kitchen	0
0.11	In Room Fan Other Wet Room	0
0.00	In Duct Fan Kitchen	0
0.00	In Duct Fan Other Wet Room	0
0.08	Through Wall Fan Kitchen	1
0.08	Through Wall Fan Other Wet Room	2

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
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	
22.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	$m^3/(h.m^2)$ @ 50 Pa
Property Tested?	Yes	
Test Method	Blower Door	

22.0 Lighting

No Fixed Lighting	No

Name	Efficacy	Power	Capacity	Count
Internal Lighting	108.00	8.00	864.00	11

24.0 Main Heating 1	Database	
Percentage of Heat	100.00	%
Database Ref. No.	107964	
Fuel Type	Electricity	
SAP Code	104	
Model Name	HP290 Monobloc 4.5kW	
Manufacturer	Midea	
Controls SAP Code	2207	
PCDF Controls	0	
Delayed Start Stat	Yes	
Burner Control	On/Off	
HETAS approved System	No	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	45.00	
25.0 Main Heating 2	None	
26.0 Heat Networks	None	

	Heat Source	Fuel Type	Heating Use	Efficiency	Percentage Of Heat	Heat	Heat Power Ratio	Electrical	Fuel Factor	Efficiency type
Heat source 1	None									

Heat source 2	None
Heat source 3	None
Heat source 4	None
Heat source 5	None

27.0 Secondary Heating	None

28.0 Water Heating

Water Heating	Main Heating 1
SAP Code	901
Flue Gas Heat Recovery System	No
Waste Water Heat Recovery Instantaneous System 1	Yes
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Summer Immersion	No
Cold Water Source	From mains
Bath Count	1
Baths connected to WWHRS	0
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
Shower	Combi boiler or unvented hot water system	9.00		Yes	Instantaneous System 1

28.3 Waste Water Heat Recovery System Instantaneous System 1

Database ID	80148
Brand Model	Recoup, Pipe HEX
Details	Year: 2019 + current Efficiency: 55.4 Utilisation factor: 0.957

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	0	
Cylinder Volume	180.00	L
Loss	1.63	kWh/day
Pipes insulation	Fully insulated primary pipework	
In Airing Cupboard	No	

31.0 Thermal Store	None	
Thermal Store Pipework	within a single casing	

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
0.67	East	45°	None Or Little	No	No	1.00		

34.0 Small-scale Hydro	None

Summary for Input Data

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

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

Summary for Input Data

elmhurst energy

Property Reference	009521 - HT - Ferndale - SEMI	**Issued on Date**	07/02/2025
Assessment Reference	Ideal HP290	**Prop Type Ref**	HT - Ferndale - SEMI
Property	Plot , HT - Ferndale - SEMI, Barugh Green Road		

SAP Rating	88 B	**DER**	2.87	**TER**	11.76
Environmental	98 A	**% DER < TER**			75.60
CO_2 Emissions (t/year)	0.21	**DFEE**	34.71	**TFEE**	37.17
Compliance Check	See BREL	**% DFEE < TFEE**			6.62
% DPER < TPER	47.23	**DPER**	32.38	**TPER**	61.36

Assessor Details	Mr. George Leadley	**Assessor ID**	P719-0001
Client			

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

Orientation	East	
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	0.00	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:	17.34 m	37.47 m²	2.31 m
1st Storey:	17.34 m	37.47 m²	2.62 m

8.0 Living Area	13.00	m²	

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
External Wall	Cavity Wall	Cavity wall : plasterboard on dabs, AAC block, filled cavity, any outside structure	0.24	60.00	85.47	61.67	0.00	None	23.80	Enter Gross Area

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Area (m²)	Shelter Res	Shelter
Party Wall	Filled Cavity with Edge Sealing	Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill	0.00	110.00	40.51	0.00	None

9.2 Internal Walls

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Ground Floor - Timber	Plasterboard on timber frame	9.00	76.46
First Floor - Timber	Plasterboard on timber frame	9.00	98.51

10.0 External Roofs

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Code	Shelter Factor	Calculation Type	Openings
Cold Roof	External Plane Roof	Plasterboard, insulated at ceiling level	0.09	9.00	37.47	37.47	None	0.00	Enter Gross Area	0.00

10.2 Internal Ceilings

Description	Storey	Construction	Area (m²)

Ground Floor	Lowest occupied	Plasterboard ceiling, carpeted chipboard floor		37.47

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	0.10	None	0.00	75.00	37.47

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
First Floor		Plasterboard ceiling, carpeted chipboard floor	9.00	37.47

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Solid Doors	Manufacturer	Solid Door				0.00			1.30
Windows	BFRC, BSI or CERTASS data	Window	Triple Low-E Soft 0.05			0.38		1.00	0.86
Patio Doors	BFRC, BSI or CERTASS data	Window	Triple Low-E Soft 0.05			0.35		1.00	0.89

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
Front Door	Solid Doors	External Wall	East	2.15	0
Front Windows	Windows	External Wall	East	8.80	0
RH Windows	Windows	External Wall	North	5.71	0
LH Windows	Windows	External Wall	South	3.81	0
LH Patio Doors	Patio Doors	External Wall	South	3.33	0

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges

17.1 List of Bridges

Bridge Type	Source Type	Length	Psi	Adjusted	Reference:	Imported
E1 Steel lintel with perforated steel base plate	Non Gov Approved Schemes	17.57	0.27	0.27	Knauf PSI Details	No
E3 Sill	Non Gov Approved Schemes	14.96	0.02	0.02	Knauf PSI Details	No
E4 Jamb	Non Gov Approved Schemes	34.80	0.02	0.02	Knauf PSI Details	No
E5 Ground floor (normal)	Independently assessed	9.12	0.04	0.04	FES - Para	No
E6 Intermediate floor within a dwelling	Non Gov Approved Schemes	17.34	0.00	0.00	Knauf PSI Details	No
E10 Eaves (insulation at ceiling level)	Non Gov Approved Schemes	17.34	0.04	0.04	Knauf PSI Details	No
E16 Corner (normal)	Non Gov Approved Schemes	9.86	0.04	0.04	Knauf PSI Details	No
E18 Party wall between dwellings	Non Gov Approved Schemes	9.86	0.04	0.04	Knauf PSI Details	No
P1 Party wall - Ground floor	Independently assessed	8.22	0.07	0.07	FES	No
P2 Party wall - Intermediate floor within a dwelling	Table K1 - Default	8.22	0.00	0.00	Default	No
P4 Party wall - Roof (insulation at ceiling level)	Non Gov Approved Schemes	8.22	0.09	0.09	Knauf PSI Details	No
E5 Ground floor (normal)	Independently assessed	8.22	0.06	0.06	FES - Perp	No

19.0 Mechanical Ventilation

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Mechanical extract ventilation - decentralised
MV Reference Number	500776
Duct Type	Flexible
Wet Rooms	4
SFP from Installer Commissioning Certificate	No

19.1 Mechanical extract ventilation - Decentralised

SFP	Fan/Room Type	Count
0.14	In Room Fan Kitchen	0
0.11	In Room Fan Other Wet Room	1
0.00	In Duct Fan Kitchen	0
0.00	In Duct Fan Other Wet Room	0
0.08	Through Wall Fan Kitchen	1
0.08	Through Wall Fan Other Wet Room	2

20.0 Fans, Open Fireplaces, Flues

Number of open chimneys	0

Summary for Input Data

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	
22.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested?	Yes	
Test Method	Blower Door	
22.0 Lighting		
No Fixed Lighting	No	

Name	Efficacy	Power	Capacity	Count
Internal Lighting	108.00	8.00	864.00	11

24.0 Main Heating 1	Database	
Percentage of Heat	100.00	%
Database Ref. No.	107964	
Fuel Type	Electricity	
SAP Code	104	
Model Name	HP290 Monobloc 4.5kW	
Manufacturer	Midea	
Controls SAP Code	2207	
PCDF Controls	0	
Delayed Start Stat	Yes	
Burner Control	On/Off	
HETAS approved System	No	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	45.00	
25.0 Main Heating 2	None	
26.0 Heat Networks	None	

	Heat Source	Fuel Type	Heating Use	Efficiency	Percentage Of Heat	Heat	Heat Power Ratio	Electrical	Fuel Factor	Efficiency type
Heat source 1	None									
Heat source 2	None									
Heat source 3	None									
Heat source 4	None									
Heat source 5	None									

27.0 Secondary Heating	None	
28.0 Water Heating		
Water Heating	Main Heating 1	
SAP Code	901	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	Yes	

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
Baths connected to WWHRS	0
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
Shower	Combi boiler or unvented hot water system	9.00		Yes	Instantaneous System 1
en-suite	Combi boiler or unvented hot water system	9.00	9.30	No	

28.3 Waste Water Heat Recovery System
Instantaneous System 1

Database ID	80148	
Brand Model	Recoup, Pipe HEX	
Details	Year: 2019 + current Efficiency: 55.4 Utilisation factor: 0.957	

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	0	
Cylinder Volume	180.00	L
Loss	1.63	kWh/day
Pipes insulation	Fully insulated primary pipework	
In Airing Cupboard	No	

31.0 Thermal Store	None	
Thermal Store Pipework	within a single casing	

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
0.90	East	30°	None Or Little	No	No	1.00		

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

Recommendations
Lower cost measures
None
Further measures to achieve even higher standards
None

Summary for Input Data

elmhurst energy

Property Reference	009521 - HT - HAT - SEMI	**Issued on Date**	07/02/2025
Assessment Reference	Ideal HP290	**Prop Type Ref**	HT - HAT - SEMI
Property	Plot , HT - HAT - SEMI, Barugh Green Road		

SAP Rating	92 A	**DER**	2.20	**TER**	9.81
Environmental	98 A	**% DER < TER**			77.57
CO_2 Emissions (t/year)	0.13	**DFEE**	33.05	**TFEE**	38.36
Compliance Check	See BREL	**% DFEE < TFEE**			13.84
% DPER < TPER	52.34	**DPER**	24.97	**TPER**	52.39

Assessor Details	Mr. George Leadley	**Assessor ID**	P719-0001
Client			

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

Orientation	East	
Property Tenture	ND	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	Bungalow, Semi-Detached	
Which Floor	0	
2.0 Number of Storeys	1	
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	0.00	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:	22.62 m	61.05 m²	2.31 m

8.0 Living Area	13.91	m²

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
External Wall	Cavity Wall	Cavity wall : plasterboard on dabs, AAC block, filled cavity, any outside structure	0.24	60.00	52.26	39.95	0.00	None	12.31	Enter Gross Area

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Area (m²)	Shelter Res	Shelter
Party Wall	Filled Cavity with Edge Sealing	Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill	0.00	110.00	20.54	0.00	None

9.2 Internal Walls

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Ground Floor - Timber	Plasterboard on timber frame	9.00	86.26
Ground Floor - Block	Dense block, plasterboard on dabs	75.00	31.69

10.0 External Roofs

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Code	Shelter Factor	Calculation Type	Openings
Cold Roof	External Plane Roof	Plasterboard, insulated at ceiling level	0.09	9.00	61.05	61.05	None	0.00	Enter Gross Area	0.00

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	0.10	None	0.00	75.00	60.47

Summary for Input Data

elmhurst energy

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Solid Doors	Manufacturer	Solid Door				0.00			1.30
Windows	BFRC, BSI or CERTASS data	Window	Triple Low-E Soft 0.05			0.38		1.00	0.86
Patio Doors	BFRC, BSI or CERTASS data	Window	Triple Low-E Soft 0.05			0.35		1.00	0.89
Rooflights	Manufacturer	Roof Window	Double Low-E Soft 0.05			0.63		0.70	1.30

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
Front Door	Solid Doors	External Wall	East	2.15	0
Front Windows	Windows	External Wall	East	3.33	0
LH Windows	Windows	External Wall	South	1.36	0
Rear Windows	Windows	External Wall	West	2.14	0
Rear Patio Doors	Patio Doors	External Wall	West	3.33	0

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges

17.1 List of Bridges

Bridge Type	Source Type	Length	Psi	Adjusted	Reference:	Imported
E1 Steel lintel with perforated steel base plate	Non Gov Approved Schemes	8.05	0.27	0.27	Knauf	No
E3 Sill	Non Gov Approved Schemes	5.44	0.02	0.02	Knauf	No
E4 Jamb	Non Gov Approved Schemes	18.30	0.02	0.02	Knauf	No
E5 Ground floor (normal)	Independently assessed	8.89	0.04	0.04	FES - Para	No
E10 Eaves (insulation at ceiling level)	Non Gov Approved Schemes	11.45	0.04	0.04	Knauf	No
E16 Corner (normal)	Non Gov Approved Schemes	4.62	0.04	0.04	Knauf	No
E18 Party wall between dwellings	Non Gov Approved Schemes	4.62	0.04	0.04	Knauf	No
P1 Party wall - Ground floor	Independently assessed	8.89	0.07	0.07	FES	No
P4 Party wall - Roof (insulation at ceiling level)	Non Gov Approved Schemes	8.89	0.09	0.09	Knauf	No
E5 Ground floor (normal)	Independently assessed	13.73	0.06	0.06	FES - Perp	No
E12 Gable (insulation at ceiling level)	Independently assessed	11.18	0.04	0.04	Knauf	No

19.0 Mechanical Ventilation

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Mechanical extract ventilation - decentralised
MV Reference Number	500776
Duct Type	Flexible
Wet Rooms	2
SFP from Installer Commissioning Certificate	No

19.1 Mechanical extract ventilation - Decentralised

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

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
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

Summary for Input Data

elmhurst energy

Number of passive vents	0	
Number of flueless gas fires	0	
21.0 Fixed Cooling System	No	
22.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	$m^3/(h.m^2)$ @ 50 Pa
Property Tested?	Yes	
Test Method	Blower Door	
22.0 Lighting		
No Fixed Lighting	No	

Name	Efficacy	Power	Capacity	Count
Internal Lighting	108.00	8.00	864.00	8

24.0 Main Heating 1	Database	
Percentage of Heat	100.00	%
Database Ref. No.	107964	
Fuel Type	Electricity	
SAP Code	104	
Model Name	HP290 Monobloc 4.5kW	
Manufacturer	Midea	
Controls SAP Code	2207	
PCDF Controls	0	
Delayed Start Stat	Yes	
Burner Control	On/Off	
HETAS approved System	No	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	45.00	
25.0 Main Heating 2	None	
26.0 Heat Networks	None	

	Heat Source	Fuel Type	Heating Use	Efficiency	Percentage Of Heat	Heat	Heat Power Ratio	Electrical	Fuel Factor	Efficiency type
Heat source 1	None									
Heat source 2	None									
Heat source 3	None									
Heat source 4	None									
Heat source 5	None									

27.0 Secondary Heating	None	
28.0 Water Heating		
Water Heating	Main Heating 1	
SAP Code	901	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	Yes	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
Summer Immersion	No	
Cold Water Source	From mains	

Summary for Input Data

Bath Count	1
Baths connected to WWHRS	0
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
Shower	Combi boiler or unvented hot water system	9.00		Yes	Instantaneous System 1

28.3 Waste Water Heat Recovery System
Instantaneous System 1

Database ID	80140
Brand Model	RECOUP, Easyfit+
Details	Year: 2017 + current Efficiency: 40.7 Utilisation factor: 0.956

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	0	
Cylinder Volume	150.00	L
Loss	1.22	kWh/day
Pipes insulation	Fully insulated primary pipework	
In Airing Cupboard	No	

31.0 Thermal Store	None	
Thermal Store Pipework	within a single casing	

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
0.67	East	30°	None Or Little	No	No	1.00		

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

Recommendations
Lower cost measures
None
Further measures to achieve even higher standards
None

Summary for Input Data

elmhurst energy

Property Reference	009521 - HT - Leyburn - DET	**Issued on Date**	07/02/2025
Assessment Reference	Ideal HP290	**Prop Type Ref**	HT- Leyburn - DET
Property	Plot , HT - Leyburn - DET, Barugh Green Road		

SAP Rating	87 B	**DER**	2.85	**TER**	11.64
Environmental	98 A	**% DER < TER**			75.52
CO_2 Emissions (t/year)	0.24	**DFEE**	38.15	**TFEE**	40.27
Compliance Check	See BREL	**% DFEE < TFEE**			5.25
% DPER < TPER	46.98	**DPER**	32.23	**TPER**	60.79

Assessor Details	Mr. George Leadley	**Assessor ID**	P719-0001
Client			

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

Orientation	East	
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	2	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Precise calculation	
Thermal Mass	0.00	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:	27.18 m	43.93 m²	2.31 m
1st Storey:	27.18 m	43.93 m²	2.62 m

8.0 Living Area	15.72	m²	

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
External Wall	Cavity Wall	Cavity wall : plasterboard on dabs, AAC block, filled cavity, any outside structure	0.24	60.00	133.98	110.30	0.00	None	23.68	Enter Gross Area

9.2 Internal Walls

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Ground Floor - Timber	Plasterboard on timber frame	9.00	19.73
First Floor - Timber	Plasterboard on timber frame	9.00	101.29
Ground Floor - Block	Dense block, plasterboard on dabs	75.00	48.97

10.0 External Roofs

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Code	Shelter Factor	Calculation Type	Openings
Cold Roof	External Plane Roof	Plasterboard, insulated at ceiling level	0.09	9.00	43.93	43.93	None	0.00	Enter Gross Area	0.00

10.2 Internal Ceilings

Description	Storey	Construction	Area (m²)
Ground Floor	Lowest occupied	Plasterboard ceiling, carpeted chipboard floor	43.93

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	0.10	None	0.00	75.00	43.93

Summary for Input Data

elmhurst energy

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
First Floor		Plasterboard ceiling, carpeted chipboard floor	9.00	43.93

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Solid Doors	Manufacturer	Solid Door				0.00			1.30
Windows	BFRC, BSI or CERTASS data	Window	Triple Low-E Soft 0.05			0.38		1.00	0.86
Patio Doors	BFRC, BSI or CERTASS data	Window	Triple Low-E Soft 0.05			0.35		1.00	0.89

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
Front Door	Solid Doors	External Wall	East	2.15	0
Front Windows	Windows	External Wall	East	9.28	0
RH Windows	Windows	External Wall	North	5.00	0
LH Windows	Windows	External Wall	South	3.92	0
LH Patio Doors	Patio Doors	External Wall	South	3.33	0

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges

17.1 List of Bridges

Bridge Type	Source Type	Length	Psi	Adjusted	Reference:	Imported
E1 Steel lintel with perforated steel base plate	Non Gov Approved Schemes	17.57	0.27	0.27	Knauf PSI Details	No
E3 Sill	Non Gov Approved Schemes	14.96	0.02	0.02	Knauf PSI Details	No
E4 Jamb	Non Gov Approved Schemes	34.80	0.02	0.02	Knauf PSI Details	No
E5 Ground floor (normal)	Independently assessed	16.58	0.04	0.04	FES - Para	No
E6 Intermediate floor within a dwelling	Non Gov Approved Schemes	27.18	0.00	0.00	Knauf PSI Details	No
E10 Eaves (insulation at ceiling level)	Non Gov Approved Schemes	16.58	0.04	0.04	Knauf PSI Details	No
E12 Gable (insulation at ceiling level)	Non Gov Approved Schemes	10.60	0.04	0.04	Knauf PSI Details	No
E16 Corner (normal)	Non Gov Approved Schemes	19.72	0.04	0.04	Knauf PSI Details	No
E5 Ground floor (normal)	Independently assessed	10.60	0.06	0.06	FES - Perp	No

19.0 Mechanical Ventilation

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Mechanical extract ventilation - decentralised
MV Reference Number	500776
Duct Type	Flexible
Wet Rooms	5
SFP from Installer Commissioning Certificate	No

19.1 Mechanical extract ventilation - Decentralised

SFP	Fan/Room Type	Count
0.14	In Room Fan Kitchen	0
0.11	In Room Fan Other Wet Room	2
0.00	In Duct Fan Kitchen	0
0.00	In Duct Fan Other Wet Room	0
0.08	Through Wall Fan Kitchen	1
0.08	Through Wall Fan Other Wet Room	2

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
Number of flues attached to solid fuel boiler	0
Number of flues attached to other heater	0
Number of blocked chimneys	0

Summary for Input Data

elmhurst energy

Number of intermittent extract fans	0	
Number of passive vents	0	
Number of flueless gas fires	0	
21.0 Fixed Cooling System	No	
22.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested?	Yes	
Test Method	Blower Door	
22.0 Lighting		
No Fixed Lighting	No	

Name	Efficacy	Power	Capacity	Count
Internal Lighting	108.00	8.00	864.00	12

24.0 Main Heating 1	Database	
Percentage of Heat	100.00	%
Database Ref. No.	107964	
Fuel Type	Electricity	
SAP Code	104	
Model Name	HP290 Monobloc 4.5kW	
Manufacturer	Midea	
Controls SAP Code	2207	
PCDF Controls	0	
Delayed Start Stat	Yes	
Burner Control	On/Off	
HETAS approved System	No	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	45.00	
25.0 Main Heating 2	None	
26.0 Heat Networks	None	

	Heat Source	Fuel Type	Heating Use	Efficiency	Percentage Of Heat	Heat	Heat Power Ratio	Electrical	Fuel Factor	Efficiency type
Heat source 1	None									
Heat source 2	None									
Heat source 3	None									
Heat source 4	None									
Heat source 5	None									

27.0 Secondary Heating	None
28.0 Water Heating	
Water Heating	Main Heating 1
SAP Code	901
Flue Gas Heat Recovery System	No
Waste Water Heat Recovery Instantaneous System 1	Yes
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Summer Immersion	No

Summary for Input Data

Cold Water Source	From mains	
Bath Count	1	
Baths connected to WWHRS	0	
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
Shower	Combi boiler or unvented hot water system	9.00		Yes	Instantaneous System 1
Ensuite	Combi boiler or unvented hot water system	9.00	9.30	No	

28.3 Waste Water Heat Recovery System

Instantaneous System 1

Database ID	80148	
Brand Model	Recoup, Pipe HEX	
Details	Year: 2019 + current Efficiency: 55.4 Utilisation factor: 0.957	

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	0	
Cylinder Volume	180.00	L
Loss	1.63	kWh/day
Pipes insulation	Fully insulated primary pipework	
In Airing Cupboard	No	
31.0 Thermal Store	None	
Thermal Store Pipework	within a single casing	
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
1.10	East	30°	None Or Little	No	No	1.00		

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

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

Summary for Input Data

elmhurst energy

Property Reference	009521 - HT - Netherton - DET	**Issued on Date**	07/02/2025
Assessment Reference	Ideal HP290	**Prop Type Ref**	HT - Netherton - DET
Property	Plot , HT - Netherton - DET, Barugh Green Road		

SAP Rating	87 B	**DER**	2.76	**TER**	11.26
Environmental	97 A	**% DER < TER**			75.49
CO_2 Emissions (t/year)	0.29	**DFEE**	39.88	**TFEE**	40.38
Compliance Check	See BREL	**% DFEE < TFEE**			1.24
% DPER < TPER	47.83	**DPER**	30.77	**TPER**	58.98

Assessor Details	Mr. George Leadley	**Assessor ID**	P719-0001
Client			

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

Orientation	East	
Property Tenture	ND	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	House, Detached	
Which Floor	0	
2.0 Number of Storeys	3	
3.0 Date Built	2021	
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	0.00	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:	27.18 m	43.95 m²	2.31 m
1st Storey:	27.18 m	43.95 m²	2.63 m
2nd Storey:	27.18 m	30.48 m²	2.48 m

8.0 Living Area	15.99	m²

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
External Wall	Cavity Wall	Cavity wall : plasterboard on dabs, AAC block, filled cavity, any outside structure	0.24	60.00	151.06	134.78	0.00	None	16.28	Enter Gross Area
Gable Panel Wall	Timber Frame	Timber framed wall (one layer of plasterboard)	0.23	9.00	28.85	28.85	0.00	None	0.00	Enter Gross Area
Sheltered Stud Wall	Timber Frame	Timber framed wall (one layer of plasterboard)	0.11	9.00	18.93	18.93	0.00	None	0.00	Enter Gross Area

9.2 Internal Walls

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Ground Floor - Timber	Plasterboard on timber frame	9.00	24.58
First Floor - Timber	Plasterboard on timber frame	9.00	104.78
Second Floor - Timber	Plasterboard on timber frame	9.00	42.56
Ground Floor - Block	Dense block, plasterboard on dabs	75.00	48.79

10.0 External Roofs

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Code	Shelter Factor	Calculation Type	Openings
Sloping Cassette Roof	External Slope Roof	Plasterboard, insulated slope	0.15	9.00	16.69	14.62	None	0.00	Enter Gross Area	2.07
Sheltered Stud Roof	External Slope Roof	Plasterboard, insulated slope	0.11	9.00	31.16	31.16	None	0.00	Enter Gross Area	0.00

10.2 Internal Ceilings

Description	Storey	Construction	Area (m²)

Ground Floor	Lowest occupied	Plasterboard ceiling, carpeted chipboard floor	43.95
First Floor	+1	Plasterboard ceiling, carpeted chipboard floor	30.48

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	0.10	None	0.00	75.00	43.95

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
First Floor		Plasterboard ceiling, carpeted chipboard floor	9.00	43.95
Second Floor		Plasterboard ceiling, carpeted chipboard floor	9.00	30.48

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Solid Doors	Manufacturer	Solid Door				0.00			1.30
Windows	BFRC, BSI or CERTASS data	Window	Triple Low-E Soft 0.05			0.38		1.00	0.86
Patio Doors	BFRC, BSI or CERTASS data	Window	Triple Low-E Soft 0.05			0.35		1.00	0.89
Rooflights	Manufacturer	Roof Window	Double Low-E Soft 0.05			0.63		0.70	1.30

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
Front Door	Solid Doors	External Wall	East	2.15	0
Front Windows	Windows	External Wall	East	5.44	0
Rear Windows	Windows	External Wall	West	3.92	0
Rear Patio Doors	Patio Doors	External Wall	West	3.33	0
Front RL	Rooflights	Sloping Cassette Roof	East	1.53	40
Rear RL	Rooflights	Sloping Cassette Roof	West	0.54	40
RH Windows	Windows	External Wall	North	0.72	0
LH Windows	Windows	External Wall	South	0.72	0

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges

17.1 List of Bridges

Bridge Type	Source Type	Length	Psi	Adjusted	Reference:	Imported
E1 Steel lintel with perforated steel base plate	Non Gov Approved Schemes	11.69	0.27	0.27	Knauf PSI Details	No
E3 Sill	Non Gov Approved Schemes	9.08	0.02	0.02	Knauf PSI Details	No
E4 Jamb	Non Gov Approved Schemes	27.00	0.02	0.02	Knauf PSI Details	No
E5 Ground floor (normal)	Independently assessed	11.32	0.04	0.04	FES - Para	No
E6 Intermediate floor within a dwelling	Non Gov Approved Schemes	54.37	0.00	0.00	Knauf PSI Details	No
E11 Eaves (insulation at rafter level)	Independently assessed	10.60	0.05	0.05	NYT PSI Details	No
E13 Gable (insulation at rafter level)	Independently assessed	21.65	0.06	0.06	NYT PSI Details	No
E16 Corner (normal)	Non Gov Approved Schemes	22.23	0.04	0.04	Knauf PSI Details	No
R1 Head of roof window	Independently assessed	2.11	0.09	0.09	Velux	No
R2 Sill of roof window	Independently assessed	2.11	0.09	0.09	Velux	No
R3 Jamb of roof window	Independently assessed	5.88	0.09	0.09	Velux	No
R4 Ridge (vaulted ceiling)	Independently assessed	5.30	0.05	0.05	NYT PSI Details	No
E5 Ground floor (normal)	Independently assessed	15.86	0.06	0.06	FES - Perp	No

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	500776
Duct Type	Flexible
Wet Rooms	5
SFP from Installer Commissioning Certificate	No

19.1 Mechanical extract ventilation - Decentralised

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

0.08	Through Wall Fan Kitchen	1
0.08	Through Wall Fan Other Wet Room	4

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
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

22.0 Pressure Testing — Yes

Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested?	Yes	
Test Method	Blower Door	

22.0 Lighting

No Fixed Lighting: No

Name	Efficacy	Power	Capacity	Count
Internal Lighting	108.00	8.00	864.00	15

24.0 Main Heating 1 — Database

Percentage of Heat	100.00	%
Database Ref. No.	107980	
Fuel Type	Electricity	
SAP Code	104	
Model Name	HP290 Monobloc 8kW	
Manufacturer	Midea	
Controls SAP Code	2207	
PCDF Controls	0	
Delayed Start Stat	Yes	
Burner Control	Modulating	
HETAS approved System	No	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	45.00	

25.0 Main Heating 2 — None

26.0 Heat Networks — None

	Heat Source	Fuel Type	Heating Use	Efficiency	Percentage Of Heat	Heat	Heat Power Ratio	Electrical	Fuel Factor	Efficiency type
Heat source 1	None									
Heat source 2	None									
Heat source 3	None									
Heat source 4	None									
Heat source 5	None									

27.0 Secondary Heating — None

Summary for Input Data

elmhurst energy

28.0 Water Heating

Water Heating	Main Heating 1
SAP Code	901
Flue Gas Heat Recovery System	No
Waste Water Heat Recovery Instantaneous System 1	Yes
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Summer Immersion	No
Cold Water Source	From mains
Bath Count	1
Baths connected to WWHRS	0
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
Shower	Combi boiler or unvented hot water system	9.00		Yes	Instantaneous System 1
en-suite	Instantaneous electric shower		9.30	No	
En-suite 2	Combi boiler or unvented hot water system	9.00	9.30	No	

28.3 Waste Water Heat Recovery System Instantaneous System 1

Database ID	80148
Brand Model	Recoup, Pipe HEX
Details	Year: 2019 + current Efficiency: 55.4 Utilisation factor: 0.957

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	0	
Cylinder Volume	225.00	L
Loss	1.99	kWh/day
Pipes insulation	Fully insulated primary pipework	
In Airing Cupboard	No	

31.0 Thermal Store	None	
Thermal Store Pipework	within a single casing	

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
1.30	East	45°	None Or Little	No	No	1.00		

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

Summary for Input Data

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

None

Summary for Input Data

elmhurst energy

Property Reference	009521 - HT - Ripley - SEMI	**Issued on Date**	07/02/2025
Assessment Reference	Ideal HP290	**Prop Type Ref**	HT - Ripley - END
Property	Plot , HT - Ripley - END, Barugh Green Road		

SAP Rating	88 B	**DER**	2.95	**TER**	11.96
Environmental	98 A	**% DER < TER**			75.33
CO_2 Emissions (t/year)	0.22	**DFEE**	35.79	**TFEE**	38.88
Compliance Check	See BREL	**% DFEE < TFEE**			7.95
% DPER < TPER	46.99	**DPER**	33.13	**TPER**	62.49

Assessor Details	Mr. George Leadley	**Assessor ID**	P719-0001
Client			

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

Orientation	North	
Property Tenture	ND	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	House, End-Terrace	
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	0.00	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:	18.70 m	39.20 m²	2.31 m
1st Storey:	17.34 m	37.47 m²	2.63 m

8.0 Living Area	19.26	m²	

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
External Wall	Cavity Wall	Cavity wall : plasterboard on dabs, AAC block, filled cavity, any outside structure	0.24	60.00	88.71	71.86	0.00	None	16.85	Enter Gross Area

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Area (m²)	Shelter Res	Shelter
Party Wall	Filled Cavity with Edge Sealing	Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill	0.00	110.00	43.70	0.00	None

9.2 Internal Walls

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Ground Floor - Timber	Plasterboard on timber frame	9.00	58.03
First Floor - Timber	Plasterboard on timber frame	9.00	97.31

10.0 External Roofs

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Code	Shelter Factor	Calculation Type	Openings
Cold Roof	External Plane Roof	Plasterboard, insulated at ceiling level	0.09	9.00	39.20	39.20	None	0.00	Enter Gross Area	0.00

10.2 Internal Ceilings

Description	Storey	Construction	Area (m²)

Ground Floor	Lowest occupied	Plasterboard ceiling, carpeted chipboard floor		37.47

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	0.10	None	0.00	75.00	39.20

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
First Floor		Plasterboard ceiling, carpeted chipboard floor	9.00	37.47

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Solid Doors	Manufacturer	Solid Door				0.00			1.30
Windows	BFRC, BSI or CERTASS data	Window	Triple Low-E Soft 0.05			0.38		1.00	0.86
Patio Doors	BFRC, BSI or CERTASS data	Window	Triple Low-E Soft 0.05			0.35		1.00	0.89

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
Front Door	Solid Doors	External Wall	North	2.15	0
Front Windows	Windows	External Wall	North	1.44	0
RH Windows	Windows	External Wall	West	6.12	0
LH Windows	Windows	External Wall	East	3.81	0
LH Patio Doors	Patio Doors	External Wall	East	3.33	0

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Bridge Type	Source Type	Length	Psi	Adjusted	Reference:	Imported
E1 Steel lintel with perforated steel base plate	Non Gov Approved Schemes	12.37	0.27	0.27	Knauf PSI Details	No
E3 Sill	Non Gov Approved Schemes	9.77	0.02	0.02	Knauf PSI Details	No
E4 Jamb	Non Gov Approved Schemes	28.80	0.02	0.02	Knauf PSI Details	No
E5 Ground floor (normal)	Independently assessed	9.12	0.04	0.04	FES - Para	No
E6 Intermediate floor within a dwelling	Non Gov Approved Schemes	16.06	0.00	0.00	Knauf PSI Details	No
E10 Eaves (insulation at ceiling level)	Non Gov Approved Schemes	10.39	0.04	0.04	Knauf PSI Details	No
E24 Eaves (insulation at ceiling level - inverted)	Table K1 - Default	1.27	0.15	0.15		No
E12 Gable (insulation at ceiling level)	Non Gov Approved Schemes	9.58	0.04	0.04	Knauf PSI Details	No
E16 Corner (normal)	Non Gov Approved Schemes	12.18	0.04	0.04	Knauf PSI Details	No
E17 Corner (inverted – internal area greater than external area)	Non Gov Approved Schemes	2.31	-0.09	-0.09	Knauf PSI Details	No
E18 Party wall between dwellings	Non Gov Approved Schemes	9.87	0.04	0.04	Knauf PSI Details	No
P1 Party wall - Ground floor	Independently assessed	9.58	0.07	0.07	FES	No
P2 Party wall - Intermediate floor within a dwelling	Table K1 - Default	8.22	0.00	0.00	Default	No
P4 Party wall - Roof (insulation at ceiling level)	Non Gov Approved Schemes	9.58	0.09	0.09	Knauf PSI Details	No
E5 Ground floor (normal)	Independently assessed	9.58	0.06	0.06	FES - Perp	No

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	500776
Duct Type	Flexible
Wet Rooms	4
SFP from Installer Commissioning Certificate	No

19.1 Mechanical extract ventilation - Decentralised

SFP	Fan/Room Type	Count
0.14	In Room Fan Kitchen	0
0.11	In Room Fan Other Wet Room	1
0.00	In Duct Fan Kitchen	0
0.00	In Duct Fan Other Wet Room	0
0.08	Through Wall Fan Kitchen	1
0.08	Through Wall Fan Other Wet Room	2

Summary for Input Data

elmhurst energy

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	
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	
22.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	$m^3/(h.m^2)$ @ 50 Pa
Property Tested?	Yes	
Test Method	Blower Door	

22.0 Lighting

No Fixed Lighting	No	

Name	Efficacy	Power	Capacity	Count
Internal Lighting	108.00	8.00	864.00	11

24.0 Main Heating 1	Database	
Percentage of Heat	100.00	%
Database Ref. No.	107964	
Fuel Type	Electricity	
SAP Code	104	
Model Name	HP290 Monobloc 4.5kW	
Manufacturer	Midea	
Controls SAP Code	2207	
PCDF Controls	0	
Delayed Start Stat	Yes	
Burner Control	On/Off	
HETAS approved System	No	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	45.00	
25.0 Main Heating 2	None	
26.0 Heat Networks	None	

	Heat Source	Fuel Type	Heating Use	Efficiency	Percentage Of Heat	Heat	Heat Power Ratio	Electrical	Fuel Factor	Efficiency type
Heat source 1	None									
Heat source 2	None									
Heat source 3	None									
Heat source 4	None									
Heat source 5	None									

27.0 Secondary Heating	None	

28.0 Water Heating

Water Heating	Main Heating 1	
SAP Code	901	

Summary for Input Data

Flue Gas Heat Recovery System	No
Waste Water Heat Recovery Instantaneous System 1	Yes
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Summer Immersion	No
Cold Water Source	From mains
Bath Count	1
Baths connected to WWHRS	0
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
Shower	Combi boiler or unvented hot water system	9.00		Yes	Instantaneous System 1
en-suite	Combi boiler or unvented hot water system	9.00	9.30	No	

28.3 Waste Water Heat Recovery System Instantaneous System 1

Database ID	80148
Brand Model	Recoup, Pipe HEX
Details	Year: 2019 + current Efficiency: 55.4 Utilisation factor: 0.957

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	0	
Cylinder Volume	180.00	L
Loss	1.63	kWh/day
Pipes insulation	Fully insulated primary pipework	
In Airing Cupboard	No	

31.0 Thermal Store	None	
Thermal Store Pipework	within a single casing	

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
0.90	East	30°	None Or Little	No	No	1.00		

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

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

Summary for Input Data

elmhurst energy

Property Reference	009521 - HT - Ripley-Alt - SEM	**Issued on Date**	07/02/2025
Assessment Reference	Ideal HP290	**Prop Type Ref**	HT - Ripley-Alt - SEMI
Property	Plot , HT - Ripley-Alt - SEMI, Barugh Green Road		

SAP Rating	88 B	**DER**	2.89	**TER**	11.87
Environmental	98 A	**% DER < TER**			75.65
CO_2 Emissions (t/year)	0.19	**DFEE**	35.46	**TFEE**	38.37
Compliance Check	See BREL	**% DFEE < TFEE**			7.58
% DPER < TPER	46.87	**DPER**	32.95	**TPER**	62.01

Assessor Details	Mr. George Leadley	**Assessor ID**	P719-0001
Client			

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

Orientation	North	
Property Tenture	ND	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	House, End-Terrace	
Which Floor	0	
2.0 Number of Storeys	2	
3.0 Date Built	2021	
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	0.00	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:	20.06 m	39.20 m²	2.31 m
1st Storey:	17.34 m	37.47 m²	2.63 m

8.0 Living Area	19.26	m²	

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
External Wall	Cavity Wall	Cavity wall : plasterboard on dabs, AAC block, filled cavity, any outside structure	0.24	60.00	91.86	75.73	0.00	None	16.13	Enter Gross Area

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Area (m²)	Shelter Res	Shelter
Party Wall	Filled Cavity with Edge Sealing	Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill	0.00	110.00	40.55	0.00	None

9.2 Internal Walls

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Ground Floor - Timber	Plasterboard on timber frame	9.00	58.03
First Floor - Timber	Plasterboard on timber frame	9.00	97.31

10.0 External Roofs

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Code	Shelter Factor	Calculation Type	Openings
Cold Roof	External Plane Roof	Plasterboard, insulated at ceiling level	0.09	9.00	39.20	39.20	None	0.00	Enter Gross Area	0.00

10.2 Internal Ceilings

Description	Storey	Construction	Area (m²)

Ground Floor	Lowest occupied	Plasterboard ceiling, carpeted chipboard floor		37.47

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	0.10	None	0.00	75.00	39.20

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
First Floor		Plasterboard ceiling, carpeted chipboard floor	9.00	37.47

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Solid Doors	Manufacturer	Solid Door				0.00			1.30
Windows	BFRC, BSI or CERTASS data	Window	Triple Low-E Soft 0.05			0.38		1.00	0.86
Patio Doors	BFRC, BSI or CERTASS data	Window	Triple Low-E Soft 0.05			0.35		1.00	0.89

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
Front Door	Solid Doors	External Wall	North	2.15	0
Rear Windows	Windows	External Wall	South	0.72	0
LH Windows	Windows	External Wall	East	6.12	0
RH Windows	Windows	External Wall	West	3.81	0
RH Patio Doors	Patio Doors	External Wall	West	3.33	0

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Bridge Type	Source Type	Length	Psi	Adjusted	Reference:	Imported
E1 Steel lintel with perforated steel base plate	Non Gov Approved Schemes	11.69	0.27	0.27	Knauf PSI Details	No
E3 Sill	Non Gov Approved Schemes	9.08	0.02	0.02	Knauf PSI Details	No
E4 Jamb	Non Gov Approved Schemes	27.00	0.02	0.02	Knauf PSI Details	No
E5 Ground floor (normal)	Independently assessed	9.12	0.04	0.04	FES - Para	No
E6 Intermediate floor within a dwelling	Non Gov Approved Schemes	16.06	0.00	0.00	Knauf PSI Details	No
E10 Eaves (insulation at ceiling level)	Non Gov Approved Schemes	10.39	0.04	0.04	Knauf PSI Details	No
E24 Eaves (insulation at ceiling level - inverted)	Table K1 - Default	1.27	0.15	0.15		No
E12 Gable (insulation at ceiling level)	Non Gov Approved Schemes	10.94	0.04	0.04	Knauf PSI Details	No
E16 Corner (normal)	Non Gov Approved Schemes	12.18	0.04	0.04	Knauf PSI Details	No
E17 Corner (inverted – internal area greater than external area)	Non Gov Approved Schemes	2.31	-0.09	-0.09	Knauf PSI Details	No
E18 Party wall between dwellings	Non Gov Approved Schemes	9.87	0.04	0.04	Knauf PSI Details	No
P1 Party wall - Ground floor	Independently assessed	8.22	0.07	0.07	FES	No
P2 Party wall - Intermediate floor within a dwelling	Table K1 - Default	8.22	0.00	0.00	Default	No
P4 Party wall - Roof (insulation at ceiling level)	Non Gov Approved Schemes	8.22	0.09	0.09	Knauf PSI Details	No
E5 Ground floor (normal)	Independently assessed	10.94	0.06	0.06	FES - Perp	No

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	500776
Duct Type	Flexible
Wet Rooms	4
SFP from Installer Commissioning Certificate	No

19.1 Mechanical extract ventilation - Decentralised

SFP	Fan/Room Type	Count
0.14	In Room Fan Kitchen	0
0.11	In Room Fan Other Wet Room	1
0.00	In Duct Fan Kitchen	0
0.00	In Duct Fan Other Wet Room	0
0.08	Through Wall Fan Kitchen	1
0.08	Through Wall Fan Other Wet Room	2

Summary for Input Data

elmhurst energy

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	
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	

22.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	$m^3/(h.m^2)$ @ 50 Pa
Property Tested?	Yes	
Test Method	Blower Door	

22.0 Lighting

No Fixed Lighting	No	

Name	Efficacy	Power	Capacity	Count
Internal Lighting	108.00	8.00	864.00	11

24.0 Main Heating 1	Database	
Percentage of Heat	100.00	%
Database Ref. No.	107964	
Fuel Type	Electricity	
SAP Code	104	
Model Name	HP290 Monobloc 4.5kW	
Manufacturer	Midea	
Controls SAP Code	2207	
PCDF Controls	0	
Delayed Start Stat	Yes	
Burner Control	Modulating	
HETAS approved System	No	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	45.00	

25.0 Main Heating 2	None	

26.0 Heat Networks	None	

	Heat Source	Fuel Type	Heating Use	Efficiency	Percentage Of Heat	Heat	Heat Power Ratio	Electrical	Fuel Factor	Efficiency type
Heat source 1	None									
Heat source 2	None									
Heat source 3	None									
Heat source 4	None									
Heat source 5	None									

27.0 Secondary Heating	None	

28.0 Water Heating

Water Heating	Main Heating 1	
SAP Code	901	

Summary for Input Data

Flue Gas Heat Recovery System	No
Waste Water Heat Recovery Instantaneous System 1	Yes
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Summer Immersion	No
Cold Water Source	From mains
Bath Count	1
Baths connected to WWHRS	0
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
Shower	Combi boiler or unvented hot water system	9.00		Yes	Instantaneous System 1
en-suite	Instantaneous electric shower		9.30	No	

28.3 Waste Water Heat Recovery System
Instantaneous System 1

Database ID	80148	
Brand Model	Recoup, Pipe HEX	
Details	Year: 2019 + current Efficiency: 55.4 Utilisation factor: 0.957	

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	0	
Cylinder Volume	180.00	L
Loss	1.63	kWh/day
Pipes insulation	Fully insulated primary pipework	
In Airing Cupboard	No	

31.0 Thermal Store	None	
Thermal Store Pipework	within a single casing	

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	East	30°	None Or Little	No	No	1.00		

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

Recommendations
Lower cost measures

None

Further measures to achieve even higher standards

None

Summary for Input Data

elmhurst energy

Property Reference	009521 - HT - Salbury - SEMI	**Issued on Date**	07/02/2025
Assessment Reference	Ideal HP290	**Prop Type Ref**	HT - Salbury - SEMI
Property	Plot , HT - Salbury - SEMI, Barugh Green Road		

SAP Rating	87 B	**DER**	2.78	**TER**	11.40
Environmental	97 A	**% DER < TER**			75.61
CO_2 Emissions (t/year)	0.27	**DFEE**	36.27	**TFEE**	38.35
Compliance Check	See BREL	**% DFEE < TFEE**			5.42
% DPER < TPER	48.03	**DPER**	30.99	**TPER**	59.63

Assessor Details	Mr. George Leadley	**Assessor ID**	P719-0001
Client			

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

Orientation	North	
Property Tenture	ND	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	House, Semi-Detached	
Which Floor	0	
2.0 Number of Storeys	3	
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	0.00	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:	18.70 m	39.20 m²	2.31 m
1st Storey:	17.34 m	37.47 m²	2.63 m
2nd Storey:	17.34 m	24.86 m²	2.49 m

8.0 Living Area	19.26	m²

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
External Wall	Cavity Wall	Cavity wall : plasterboard on dabs, AAC block, filled cavity, any outside structure	0.24	60.00	99.49	82.64	0.00	None	16.85	Enter Gross Area
Gable Panel Wall	Timber Frame	Timber framed wall (one layer of plasterboard)	0.23	9.00	14.16	14.16	0.00	None	0.00	Enter Gross Area
Sheltered Stud Wall	Timber Frame	Timber framed wall (one layer of plasterboard)	0.11	9.00	18.84	18.84	0.00	None	0.00	Enter Gross Area

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Area (m²)	Shelter Res	Shelter
Party Wall	Filled Cavity with Edge Sealing	Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill	0.00	110.00	48.81	0.00	None
Party Wall	Filled Cavity with Edge Sealing	Double plasterboard on both sides, twin timber f rame with/without sheathing board	0.00	20.00	14.16	0.00	None

9.2 Internal Walls

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Ground Floor - Timber	Plasterboard on timber frame	9.00	58.03
First Floor - Timber	Plasterboard on timber frame	9.00	101.36
Second Floor - Timber	Plasterboard on timber frame	9.00	43.72

10.0 External Roofs

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Code	Shelter Factor	Calculation Type	Openings

Sloping Cassette Roof	External Slope Roof	Plasterboard, insulated slope	0.15	9.00	13.02	10.95	None	0.00	Enter Gross Area	2.07
Sheltered Stud Roof	External Slope Roof	Plasterboard, insulated slope	0.11	9.00	27.50	27.50	None	0.00	Enter Gross Area	0.00
Cold Roof	External Plane Roof	Plasterboard, insulated at ceiling level	0.09	9.00	1.74	1.74	None	0.00	Enter Gross Area	0.00

10.2 Internal Ceilings

Description	Storey	Construction	Area (m²)
Ground Floor	Lowest occupied	Plasterboard ceiling, carpeted chipboard floor	37.47
First Floor	+1	Plasterboard ceiling, carpeted chipboard floor	24.86

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	0.10	None	0.00	75.00	39.20

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
First Floor		Plasterboard ceiling, carpeted chipboard floor	9.00	37.47
Second Floor		Plasterboard ceiling, carpeted chipboard floor	9.00	24.86

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Solid Doors	Manufacturer	Solid Door				0.00			1.30
Windows	BFRC, BSI or CERTASS data	Window	Triple Low-E Soft 0.05			0.38		1.00	0.86
Patio Doors	BFRC, BSI or CERTASS data	Window	Triple Low-E Soft 0.05			0.35		1.00	0.89
Rooflights	Manufacturer	Roof Window	Double Low-E Soft 0.05			0.63		0.70	1.30

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
Front Door	Solid Doors	External Wall	North	2.15	0
Front Windows	Windows	External Wall	North	1.44	0
RH Windows	Windows	External Wall	West	6.12	0
LH Windows	Windows	External Wall	East	3.81	0
LH Patio Doors	Patio Doors	External Wall	East	3.33	0
RH RL	Rooflights	Sloping Cassette Roof	West	0.54	40
LH RL	Rooflights	Sloping Cassette Roof	East	1.53	40

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging Calculate Bridges

17.1 List of Bridges

Bridge Type	Source Type	Length	Psi	Adjusted	Reference:	Imported
E1 Steel lintel with perforated steel base plate	Non Gov Approved Schemes	12.37	0.27	0.27	Knauf PSI Details	No
E3 Sill	Non Gov Approved Schemes	9.77	0.02	0.02	Knauf PSI Details	No
E4 Jamb	Non Gov Approved Schemes	28.80	0.02	0.02	Knauf PSI Details	No
E5 Ground floor (normal)	Independently assessed	9.12	0.04	0.04	FES - Para	No
E6 Intermediate floor within a dwelling	Non Gov Approved Schemes	33.40	0.00	0.00	Knauf PSI Details	No
E10 Eaves (insulation at ceiling level)	Non Gov Approved Schemes	1.27	0.04	0.04	Knauf PSI Details	No
E24 Eaves (insulation at ceiling level - inverted)	Table K1 - Default	1.27	0.15	0.15		No
E11 Eaves (insulation at rafter level)	Independently assessed	9.12	0.05	0.05	NYT PSI Details	No
E12 Gable (insulation at ceiling level)	Non Gov Approved Schemes	1.36	0.04	0.04	Knauf PSI Details	No
E13 Gable (insulation at rafter level)	Independently assessed	10.73	0.06	0.06	NYT PSI Details	No
E16 Corner (normal)	Non Gov Approved Schemes	13.42	0.04	0.04	Knauf PSI Details	No
E17 Corner (inverted – internal area greater than external area)	Non Gov Approved Schemes	2.31	-0.09	-0.09	Knauf	No
E18 Party wall between dwellings	Non Gov Approved Schemes	11.11	0.04	0.04	Knauf PSI Details	No
P1 Party wall - Ground floor	Independently assessed	9.58	0.07	0.07	FES	No
P2 Party wall - Intermediate floor within a dwelling	Table K1 - Default	16.43	0.00	0.00	Default	No
P4 Party wall - Roof (insulation at ceiling level)	Non Gov Approved Schemes	1.36	0.09	0.09	Knauf PSI Details	No
P5 Party wall - Roof (insulation at rafter level)	Independently assessed	10.73	0.07	0.07	NYT PSI Details	No
R1 Head of roof window	Independently assessed	2.11	0.09	0.09	Velux	No
R2 Sill of roof window	Independently assessed	2.11	0.09	0.09	Velux	No
R3 Jamb of roof window	Independently assessed	5.88	0.09	0.09	Velux	No
R4 Ridge (vaulted ceiling)	Independently assessed	4.56	0.05	0.05	NYT PSI Details	No
E5 Ground floor (normal)	Independently assessed	9.58	0.06	0.06	FES - Perp	No

19.0 Mechanical Ventilation

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Mechanical extract ventilation - decentralised

Summary for Input Data

elmhurst energy

MV Reference Number	500776
Duct Type	Flexible
Wet Rooms	5
SFP from Installer Commissioning Certificate	No

19.1 Mechanical extract ventilation - Decentralised

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

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
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

22.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	$m^3/(h.m^2)$ @ 50 Pa
Property Tested?	Yes	
Test Method	Blower Door	

22.0 Lighting

No Fixed Lighting	No

Name	Efficacy	Power	Capacity	Count
Internal Lighting	108.00	8.00	864.00	15

24.0 Main Heating 1	Database	
Percentage of Heat	100.00	%
Database Ref. No.	107972	
Fuel Type	Electricity	
SAP Code	104	
Model Name	HP290 Monobloc 6kW	
Manufacturer	Midea	
Controls SAP Code	2207	
PCDF Controls	0	
Delayed Start Stat	Yes	
Burner Control	On/Off	
HETAS approved System	No	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	45.00	

Summary for Input Data

elmhurst energy

25.0 Main Heating 2	None
26.0 Heat Networks	None

	Heat Source	Fuel Type	Heating Use	Efficiency	Percentage Of Heat	Heat	Heat Power Ratio	Electrical	Fuel Factor	Efficiency type
Heat source 1	None									
Heat source 2	None									
Heat source 3	None									
Heat source 4	None									
Heat source 5	None									

27.0 Secondary Heating	None

28.0 Water Heating

Water Heating	Main Heating 1
SAP Code	901
Flue Gas Heat Recovery System	No
Waste Water Heat Recovery Instantaneous System 1	Yes
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Summer Immersion	No
Cold Water Source	From mains
Bath Count	1
Baths connected to WWHRS	0
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
Shower	Combi boiler or unvented hot water system	9.00		Yes	Instantaneous System 1
Ensuite	Combi boiler or unvented hot water system	9.00	9.30	No	
En-Suite 2	Combi boiler or unvented hot water system	9.00	9.30	No	

28.3 Waste Water Heat Recovery System Instantaneous System 1

Database ID	80148
Brand Model	Recoup, Pipe HEX
Details	Year: 2019 + current Efficiency: 55.4 Utilisation factor: 0.957

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	0	
Cylinder Volume	225.00	L
Loss	1.99	kWh/day
Pipes insulation	Fully insulated primary pipework	
In Airing Cupboard	No	

31.0 Thermal Store	None
Thermal Store Pipework	within a single casing

32.0 Photovoltaic Unit	One Dwelling
Export Capable Meter?	Yes
Connected To Dwelling	Yes

Summary for Input Data

Diverter	No
Battery Capacity [kWh]	0.00

PV Cells kWp	Orientation	Elevation	Overshading	FGHRS	MCS Certificate	Overshading Factor	MCS Certificate Reference	Panel Manufacturer
1.10	East	45°	None Or Little	No	No	1.00		

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

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

Summary for Input Data

elmhurst energy

Property Reference	009521 - HT - Thoresby - DET	**Issued on Date**	07/02/2025
Assessment Reference	Ideal HP290	**Prop Type Ref**	HT - Thoresby - DET
Property	Plot , HT - Thoresby - DET, Barugh Green Road		

SAP Rating	88 B	**DER**	2.41	**TER**	9.67
Environmental	98 A	**% DER < TER**			75.08
CO_2 Emissions (t/year)	0.28	**DFEE**	37.25	**TFEE**	39.10
Compliance Check	See BREL	**% DFEE < TFEE**			4.75
% DPER < TPER	46.09	**DPER**	27.23	**TPER**	50.52

Assessor Details	Mr. George Leadley	**Assessor ID**	P719-0001
Client			

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

Orientation	East	
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	2021	
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	0.00	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:	33.05 m	66.74 m²	2.31 m
1st Storey:	33.05 m	66.74 m²	2.63 m

8.0 Living Area	15.36	m²	

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
External Wall	Cavity Wall	Cavity wall : plasterboard on dabs, AAC block, filled cavity, any outside structure	0.24	60.00	163.10	136.85	0.00	None	26.25	Enter Gross Area

9.2 Internal Walls

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Ground Floor - Timber	Plasterboard on timber frame	9.00	48.93
Ground Floor - Block	Dense block, plasterboard on dabs	75.00	62.51
First Floor - Timber	Plasterboard on timber frame	9.00	167.32

10.0 External Roofs

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Code	Shelter Factor	Calculation Type	Openings
Cold Roof	External Plane Roof	Plasterboard, insulated at ceiling level	0.09	9.00	66.74	66.74	None	0.00	Enter Gross Area	0.00

10.2 Internal Ceilings

Description	Storey	Construction	Area (m²)
Ground Floor	Lowest occupied	Plasterboard ceiling, carpeted chipboard floor	66.74

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	0.10	None	0.00	75.00	66.74

Summary for Input Data

elmhurst energy

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
First Floor		Plasterboard ceiling, carpeted chipboard floor	9.00	66.74

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Solid Doors	Manufacturer	Solid Door				0.00			1.30
Windows	BFRC, BSI or CERTASS data	Window	Triple Low-E Soft 0.05			0.38		1.00	0.86
Patio Doors	BFRC, BSI or CERTASS data	Window	Triple Low-E Soft 0.05			0.35		1.00	0.89
Half-Glazed Door	Manufacturer	Half Glazed Door	Double Low-E Soft 0.05			0.63		0.70	1.30

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
Front Door	Solid Doors	External Wall	East	2.15	0
Front Windows	Windows	External Wall	East	9.95	0
LH Windows	Windows	External Wall	South	0.72	0
LH Door	Half-Glazed Door	External Wall	South	2.15	0
Rear Windows	Windows	External Wall	West	7.48	0
Rear Patio Doors	Patio Doors	External Wall	West	3.80	0

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges

17.1 List of Bridges

Bridge Type	Source Type	Length	Psi	Adjusted	Reference:	Imported
E3 Sill	Non Gov Approved Schemes	15.19	0.02	0.02	Knauf PSI Details	No
E4 Jamb	Non Gov Approved Schemes	38.40	0.02	0.02	Knauf PSI Details	No
E5 Ground floor (normal)	Independently assessed	14.61	0.04	0.04	FES - Para	No
E6 Intermediate floor within a dwelling	Non Gov Approved Schemes	33.05	0.00	0.00	Knauf PSI Details	No
E10 Eaves (insulation at ceiling level)	Non Gov Approved Schemes	12.49	0.04	0.04	Knauf PSI Details	No
E12 Gable (insulation at ceiling level)	Non Gov Approved Schemes	20.56	0.04	0.04	Knauf PSI Details	No
E16 Corner (normal)	Non Gov Approved Schemes	24.68	0.04	0.04	Knauf PSI Details	No
E17 Corner (inverted – internal area greater than external area)	Non Gov Approved Schemes	4.94	-0.09	-0.09	Knauf PSI Details	No
E1 Steel lintel with perforated steel base plate	Non Gov Approved Schemes	19.04	0.27	0.27	Knauf PSI Details	No
E5 Ground floor (normal)	Independently assessed	18.44	0.06	0.06	FES - Perp	No

19.0 Mechanical Ventilation

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Mechanical extract ventilation - decentralised
MV Reference Number	500776
Duct Type	Flexible
Wet Rooms	5
SFP from Installer Commissioning Certificate	No

19.1 Mechanical extract ventilation - Decentralised

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

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
Number of flues attached to solid fuel boiler	0

Summary for Input Data

elmhurst energy

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	
22.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	$m^3/(h.m^2)$ @ 50 Pa
Property Tested?	Yes	
Test Method	Blower Door	

22.0 Lighting

No Fixed Lighting: No

Name	Efficacy	Power	Capacity	Count
Internal Lighting	108.00	8.00	864.00	16

24.0 Main Heating 1	Database	
Percentage of Heat	100.00	%
Database Ref. No.	107980	
Fuel Type	Electricity	
SAP Code	104	
Model Name	HP290 Monobloc 8kW	
Manufacturer	Midea	
Controls SAP Code	2207	
PCDF Controls	0	
Delayed Start Stat	Yes	
Burner Control	Modulating	
HETAS approved System	No	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	45.00	
25.0 Main Heating 2	None	
26.0 Heat Networks	None	

	Heat Source	Fuel Type	Heating Use	Efficiency	Percentage Of Heat	Heat	Heat Power Ratio	Electrical	Fuel Factor	Efficiency type
Heat source 1	None									
Heat source 2	None									
Heat source 3	None									
Heat source 4	None									
Heat source 5	None									

27.0 Secondary Heating	None	

28.0 Water Heating

Water Heating	Main Heating 1
SAP Code	901
Flue Gas Heat Recovery System	No
Waste Water Heat Recovery Instantaneous System 1	Yes
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No

Summary for Input Data

Water use <= 125 litres/person/day	Yes
Summer Immersion	No
Cold Water Source	From mains
Bath Count	1
Baths connected to WWHRS	0
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
Shower	Combi boiler or unvented hot water system	9.00		Yes	Instantaneous System 1
Ensuite	Instantaneous electric shower		9.30	No	

28.3 Waste Water Heat Recovery System

Instantaneous System 1

Database ID	80148
Brand Model	Recoup, Pipe HEX
Details	Year: 2019 + current Efficiency: 55.4 Utilisation factor: 0.957

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	0	
Cylinder Volume	300.00	L
Loss	2.26	kWh/day
Pipes insulation	Fully insulated primary pipework	
In Airing Cupboard	No	
31.0 Thermal Store	None	
Thermal Store Pipework	within a single casing	
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
1.40	East	30°	None Or Little	No	No	1.00		

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

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

Summary for Input Data

Property Reference	009521 - HT - Totley - SEMI	**Issued on Date**	07/02/2025
Assessment Reference	Ideal HP290	**Prop Type Ref**	HT - Totley - SEMI
Property	Plot , HT - Totley - SEMI, Barugh Green Road		

SAP Rating	92 A	**DER**	2.08	**TER**	11.02
Environmental	98 A	**% DER < TER**			81.13
CO_2 Emissions (t/year)	0.14	**DFEE**	31.00	**TFEE**	32.26
Compliance Check	See BREL	**% DFEE < TFEE**			3.89
% DPER < TPER	59.55	**DPER**	23.30	**TPER**	57.60

Assessor Details	Mr. George Leadley	**Assessor ID**	P719-0001
Client			

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

Orientation	North	
Property Tenture	ND	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	Maisonette, Semi-Detached	
Position of Flat	Top-floor flat	
Which Floor	1	
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	0.00	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:	4.46 m	4.69 m²	2.70 m
1st Storey:	23.49 m	67.69 m²	2.31 m

8.0 Living Area	28.77	m²

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
External Wall	Cavity Wall	Cavity wall : plasterboard on dabs, AAC block, filled cavity, any outside structure	0.24	60.00	66.32	55.91	0.00	None	10.41	Enter Gross Area

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Area (m²)	Shelter Res	Shelter
Party Wall	Filled Cavity with Edge Sealing	Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill	0.00	110.00	43.25	0.00	None

9.2 Internal Walls

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Ground Floor - Timber	Plasterboard on timber frame	9.00	4.91
First Floor - Timber	Plasterboard on timber frame	9.00	101.69

10.0 External Roofs

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Code	Shelter Factor	Calculation Type	Openings
Cold Roof	External Plane Roof	Plasterboard, insulated at ceiling level	0.09	9.00	67.69	67.69	None	0.00	Enter Gross Area	0.00

10.2 Internal Ceilings

Summary for Input Data

Description	Storey	Construction	Area (m²)
Ground Floor	Lowest occupied	Other	4.69

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	4.69

11.1 Party Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
Party Floor	+1	Precast concrete plank floor (screed laid on rubber), carpeted	30.00	63.00

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
First Floor		Other	30.00	4.69

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Solid Doors	Manufacturer	Solid Door				0.00			1.30
Windows	BFRC, BSI or CERTASS data	Window	Triple Low-E Soft 0.05			0.38		1.00	0.86
Patio Doors	BFRC, BSI or CERTASS data	Window	Triple Low-E Soft 0.05			0.35		1.00	0.89

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
Front Door	Solid Doors	External Wall	North	2.15	0
Front Windows	Windows	External Wall	North	2.18	0
LH Windows	Windows	External Wall	East	3.53	0
RH Windows	Windows	External Wall	West	2.55	0

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges

17.1 List of Bridges

Bridge Type	Source Type	Length	Psi	Adjusted	Reference:	Imported
E1 Steel lintel with perforated steel base plate	Non Gov Approved Schemes	8.06	0.27	0.27	Knauf PSI Details	No
E3 Sill	Non Gov Approved Schemes	7.03	0.02	0.02	Knauf PSI Details	No
E4 Jamb	Non Gov Approved Schemes	18.30	0.02	0.02	Knauf PSI Details	No
E6 Intermediate floor within a dwelling	Table K1 - Default	4.46	0.14	0.14	Knauf PSI Details	No
E10 Eaves (insulation at ceiling level)	Non Gov Approved Schemes	13.37	0.04	0.04	Knauf PSI Details	No
E12 Gable (insulation at ceiling level)	Non Gov Approved Schemes	10.13	0.04	0.04	Knauf PSI Details	No
E16 Corner (normal)	Non Gov Approved Schemes	4.62	0.04	0.04	Knauf PSI Details	No
E18 Party wall between dwellings	Non Gov Approved Schemes	10.02	0.04	0.04	Knauf PSI Details	No
P1 Party wall - Ground floor	Independently assessed	7.35	0.07	0.07	FES	No
P4 Party wall - Roof (insulation at ceiling level)	Non Gov Approved Schemes	10.13	0.09	0.09	Knauf PSI Details	No
E5 Ground floor (normal)	Independently assessed	4.46	0.06	0.06	FES - Perp	No
E7 Party floor between dwellings (in blocks of flats)	Independently assessed	19.03	0.06	0.06	Meadows + Ross	No
P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	Table K1 - Default	17.48	0.00	0.00		No

19.0 Mechanical Ventilation

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Mechanical extract ventilation - decentralised
MV Reference Number	500776
Duct Type	Flexible
Wet Rooms	2
SFP from Installer Commissioning Certificate	No

19.1 Mechanical extract ventilation - Decentralised

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

0.08	Through Wall Fan Kitchen	1
0.08	Through Wall Fan Other Wet Room	0

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	
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	

22.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	$m^3/(h.m^2)$ @ 50 Pa
Property Tested?	Yes	
Test Method	Blower Door	

22.0 Lighting

No Fixed Lighting: No

Name	Efficacy	Power	Capacity	Count
Internal Lighting	108.00	8.00	864.00	7

24.0 Main Heating 1	Database	
Percentage of Heat	100.00	%
Database Ref. No.	107964	
Fuel Type	Electricity	
SAP Code	104	
Model Name	HP290 Monobloc 4.5kW	
Manufacturer	Midea	
Controls SAP Code	2207	
Delayed Start Stat	Yes	
Burner Control	Modulating	
HETAS approved System	No	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	45.00	

25.0 Main Heating 2	None	

26.0 Heat Networks	None	

	Heat Source	Fuel Type	Heating Use	Efficiency	Percentage Of Heat	Heat	Heat Power Ratio	Electrical	Fuel Factor	Efficiency type
Heat source 1	None									
Heat source 2	None									
Heat source 3	None									
Heat source 4	None									
Heat source 5	None									

27.0 Secondary Heating	None	

28.0 Water Heating

Summary for Input Data

Water Heating	Main Heating 1
SAP Code	901
Flue Gas Heat Recovery System	No
Waste Water Heat Recovery Instantaneous System 1	Yes
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Summer Immersion	No
Cold Water Source	From mains
Bath Count	1
Baths connected to WWHRS	0
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
Shower	Combi boiler or unvented hot water system	9.00		Yes	Instantaneous System 1

28.3 Waste Water Heat Recovery System Instantaneous System 1

Database ID	80148	
Brand Model	Recoup, Pipe HEX	
Details	Year: 2019 + current Efficiency: 55.4 Utilisation factor: 0.957	

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	0	
Cylinder Volume	150.00	L
Loss	1.22	kWh/day
Pipes insulation	Fully insulated primary pipework	
In Airing Cupboard	No	

31.0 Thermal Store	None	
Thermal Store Pipework	within a single casing	

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
0.67	East	30°	None Or Little	No	No	1.00		

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

Summary for Input Data

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

Summary for Input Data

elmhurst energy

Property Reference	009521 - HT - Wentbridge - DET	**Issued on Date**	07/02/2025
Assessment Reference	Ideal HP290	**Prop Type Ref**	HT- Wentbridge - DET
Property	Plot , HT - Wentbridge - DET, Barugh Green Road		

SAP Rating	87 B	**DER**	2.80	**TER**	11.25
Environmental	97 A	**% DER < TER**			75.11
CO_2 Emissions (t/year)	0.29	**DFEE**	40.62	**TFEE**	44.06
Compliance Check	See BREL	**% DFEE < TFEE**			7.81
% DPER < TPER	46.79	**DPER**	31.35	**TPER**	58.91

Assessor Details	Mr. George Leadley	**Assessor ID**	P719-0001
Client			

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

Orientation	East	
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	2	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Precise calculation	
Thermal Mass	0.00	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	Unheated Space Floor Area	Average Storey Height
Ground floor:	32.62 m	46.29 m²	13.59 m²	2.59 m
1st Storey:	32.62 m	59.88 m²		2.34 m

8.0 Living Area	11.84	m²

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
External Wall	Cavity Wall	Cavity wall : plasterboard on dabs, AAC block, filled cavity, any outside structure	0.24	60.00	141.19	120.14	0.00	None	21.05	Enter Gross Area
Garage Wall	Solid Wall	Solid wall : plasterboard on dabs, 200 mm dense block, insulated externally	0.24	150.00	19.81	19.81	0.70	Garage Single 1 Inside	0.00	Enter Gross Area

9.2 Internal Walls

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Ground Floor - Timber	Plasterboard on timber frame	9.00	62.32
Ground Floor - Block	Dense block, plasterboard on dabs	75.00	24.92
First Floor - Timber	Plasterboard on timber frame	9.00	129.87

10.0 External Roofs

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Code	Shelter Factor	Calculation Type	Openings
Cold Roof	External Plane Roof	Plasterboard, insulated at ceiling level	0.09	9.00	59.88	59.88	None	0.00	Enter Gross Area	0.00

10.2 Internal Ceilings

Description	Storey	Construction	Area (m²)
Ground Floor	Lowest occupied	Plasterboard ceiling, carpeted chipboard floor	46.29

11.0 Heat Loss Floors

Summary for Input Data

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	46.29
Floor Above Garage	Exposed Floor - Timber	+1	Timber exposed floor, insulation between joists	0.15	Garage Single 1 Inside	0.70	20.00	13.59

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
First Floor		Plasterboard ceiling, carpeted chipboard floor	9.00	46.29

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Solid Doors	Manufacturer	Solid Door				0.00			1.30
Windows	BFRC, BSI or CERTASS data	Window	Triple Low-E Soft 0.05			0.38		1.00	0.86
Patio Doors	BFRC, BSI or CERTASS data	Window	Triple Low-E Soft 0.05			0.35		1.00	0.89

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
Front Door	Solid Doors	External Wall	East	2.15	0
Front Windows	Windows	External Wall	East	6.79	0
LH Windows	Windows	External Wall	South	0.72	0
Rear Windows	Windows	External Wall	West	6.77	0
Rear Patio Doors	Patio Doors	External Wall	West	3.80	0
RH Windows	Windows	External Wall	North	0.82	0

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Bridge Type	Source Type	Length	Psi	Adjusted	Reference:	Imported
E1 Steel lintel with perforated steel base plate	Non Gov Approved Schemes	15.76	0.27	0.27	Knauf PSI Details	No
E3 Sill	Non Gov Approved Schemes	12.92	0.02	0.02	Knauf PSI Details	No
E4 Jamb	Non Gov Approved Schemes	31.50	0.02	0.02	Knauf PSI Details	No
E5 Ground floor (normal)	Independently assessed	9.99	0.04	0.04	FES - Para	No
E5 Ground floor (normal)	Independently assessed	14.99	0.06	0.06	FES - Perp	No
E20 Exposed floor (normal)	Independently assessed	7.64	0.05	0.05	FES	No
E21 Exposed floor (inverted)	Independently assessed	7.64	0.02	0.02	FES	No
E6 Intermediate floor within a dwelling	Non Gov Approved Schemes	24.98	0.00	0.00	Knauf PSI Details	No
E10 Eaves (insulation at ceiling level)	Non Gov Approved Schemes	14.32	0.04	0.04	Knauf PSI Details	No
E12 Gable (insulation at ceiling level)	Non Gov Approved Schemes	18.30	0.04	0.04	Knauf PSI Details	No
E16 Corner (normal)	Non Gov Approved Schemes	22.08	0.04	0.04	Knauf PSI Details	No
E16 Corner (normal)	Table K1 - Default	5.18	0.18	0.18		No
E17 Corner (inverted – internal area greater than external area)	Non Gov Approved Schemes	4.93	-0.09	-0.09	Knauf PSI Details	No
E17 Corner (inverted – internal area greater than external area)	Table K1 - Default	2.59	0.00	0.00	Default	No
E5 Ground floor (normal)	Independently assessed	7.64	0.05	0.05	FES - Garage	No

19.0 Mechanical Ventilation

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Mechanical extract ventilation - decentralised
MV Reference Number	500776
Duct Type	Flexible
Wet Rooms	4
SFP from Installer Commissioning Certificate	No

19.1 Mechanical extract ventilation - Decentralised

SFP	Fan/Room Type	Count
0.14	In Room Fan Kitchen	0
0.11	In Room Fan Other Wet Room	1
0.00	In Duct Fan Kitchen	0
0.00	In Duct Fan Other Wet Room	0
0.08	Through Wall Fan Kitchen	1
0.08	Through Wall Fan Other Wet Room	2

Summary for Input Data

elmhurst energy

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
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	
22.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	$m^3/(h.m^2)$ @ 50 Pa
Property Tested?	Yes	
Test Method	Blower Door	

22.0 Lighting

No Fixed Lighting: No

Name	Efficacy	Power	Capacity	Count
Internal Lighting	108.00	8.00	864.00	13

24.0 Main Heating 1	Database	
Percentage of Heat	100.00	%
Database Ref. No.	107972	
Fuel Type	Electricity	
SAP Code	104	
Model Name	HP290 Monobloc 6kW	
Manufacturer	Midea	
Controls SAP Code	2207	
PCDF Controls	0	
Delayed Start Stat	Yes	
Burner Control	On/Off	
HETAS approved System	No	
Is MHS Pumped	Pump in unheated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	45.00	
25.0 Main Heating 2	None	
26.0 Heat Networks	None	

	Heat Source	Fuel Type	Heating Use	Efficiency	Percentage Of Heat	Heat	Heat Power Ratio	Electrical	Fuel Factor	Efficiency type
Heat source 1	None									
Heat source 2	None									
Heat source 3	None									
Heat source 4	None									
Heat source 5	None									

27.0 Secondary Heating	None	

28.0 Water Heating

Water Heating	Main Heating 1
SAP Code	901

Summary for Input Data

Flue Gas Heat Recovery System	No
Waste Water Heat Recovery Instantaneous System 1	Yes
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Summer Immersion	No
Cold Water Source	From mains
Bath Count	1
Baths connected to WWHRS	0
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
Shower	Combi boiler or unvented hot water system	9.00		Yes	Instantaneous System 1
en-suite	Combi boiler or unvented hot water system	9.00	9.30	No	

28.3 Waste Water Heat Recovery System Instantaneous System 1

Database ID	80148	
Brand Model	Recoup, Pipe HEX	
Details	Year: 2019 + current Efficiency: 55.4 Utilisation factor: 0.957	

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	0	
Cylinder Volume	225.00	L
Loss	1.99	kWh/day
Pipes insulation	Fully insulated primary pipework	
In Airing Cupboard	No	

31.0 Thermal Store	None	
Thermal Store Pipework	within a single casing	

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
1.20	East	30°	None Or Little	No	No	1.00		

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

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None