

Energy Statement

Energy and Carbon Reduction Revision A

Parkwood Road, Golcar

Reference Number: 009595

Date: December 2025

Issue: Rev A

thefesgroup.com

 PLANNING

 DESIGN

 ON-CONSTRUCTION

 EXISTING BUILDINGS

Project name: Parkwood Road, Golcar

Ref: 009595

Author: Kaya Bates

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Author:

Initial review by:

Secondary review by:

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Sam Palmer

Summary of changes:

Revision A (December 2025) – Plot arrangement amended in line with re-plan.

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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.

Introduction

This report has been prepared by the FES Group on behalf of Mandale Group to accompany the planning application for the proposed development known as Parkwood Road, Golcar.

The development proposals will see the construction of 28 new dwellings, consisting of detached, semi-detached and mid-terraced houses.

This report reviews the proposed energy and carbon reduction strategy advanced by Mandale Group 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 CO₂ consumption of the site over 2021 Building Regulations under SAP10.

The following documents were considered when formulating the report:

- National Planning Policy Framework 2025 – 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.

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. Mandale Group is dedicated to taking pro-active measures to addressing these issues.

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.

	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

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 Mandale Group 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 does not apply to flats. In this case it will take the form of accessible terrace areas for 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 Mandale Group 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)	6	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	118.36
Normalisation Factor	0.91
Water Consumption with Normalisation Factor	107.743
External Use	5.00
Part G Water Consumption	112.73

Table 2 – Water Consumption

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 proposed development, the site layout and orientation a two panel system is 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.



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 orientated 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.

Table 6, located on Page 16, confirms the PV amounts required on a housetype basis, enough to reach compliance under Part L 2021.



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.



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 suburban 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	0.18W/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, Mandale Group 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.

In line with best practice the proposed energy strategy for Parkwood Road, Golcar 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 principal 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.

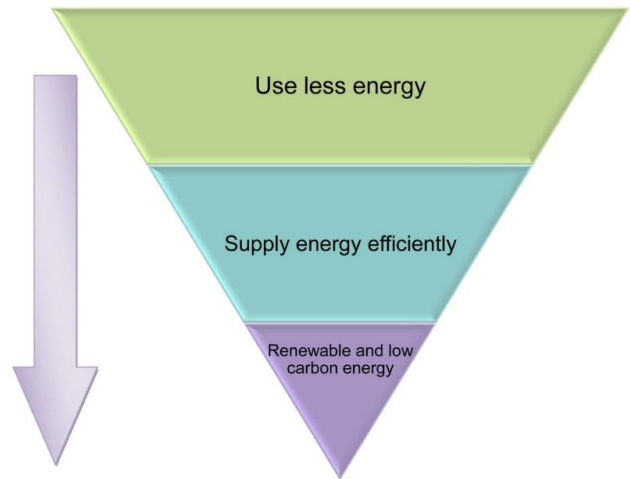
Mandale Group has confirmed Lean measures equal to a 2.29% reduction in fabric heat loss across the building envelope. This greatly reduces the need for energy within a dwelling.

Be Clean.

Mandale Group has confirmed Clean measures which include high efficiency 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 intermittent extract fans.

Be Green.

Mandale Group has confirmed Green measures through usage of WWHR and PV panels, alongside EV charging points to promote the use of electric/hybrid vehicles.



Establishing a Baseline

To adequately ascertain the potential of Mandale Group's 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 CO² 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 - Acorn - End	6	5,280.32	27,672.34
HT - Acorn - Mid	2	1,572.31	8,211.09
HT - Hickory - Semi	12	12,508.79	65,249.16
HT - Laurel - Det	2	2,643.36	13,874.28
HT - Maple - Det	4	6,068.13	32,111.94
HT - Rose - Semi	2	1,670.68	8,773.43
Total	28	29,743.58	155,892.23

Table 4 – Baseline Energy Consumption & CO²

The calculations summarised in the table above confirm Parkwood Road, Golcar has a baseline site wide energy requirement of 155,892.23 kWh/year and an associated CO₂ emission rate of 29,743.58 kgCO₂/year.

Fabric and Building Services Specification

Mandale Group 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/m ² K	0.20-0.34W/m ² K
Roof	0.16W/m ² K	0.08-0.16W/m ² K
Floor	0.18W/m ² K	0.10-0.18W/m ² K
Glazing & Doors	1.80W/m ² K	1.20-1.50W/m ² K
Air Test	8.00m ³ /h.m ² at 50Pa	4.50/5.00m ³ /h.m ² at 50Pa
Renewables (PV)	40% of Floor Area / 6.50	See Table 6
Waste Water Heat Recovery	1x	1x all plots

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;

- Mandale Group will adopt a set of approved & bespoke thermal bridging details, the latter have been independently calculated and will be 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 valves. 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, please see Table 6, located below, which confirms the PV amounts. Note that this table outlines the PV amounts required to achieve compliance under Part L 2021.

House Type	Total kWp
HT - Acorn - End	0.92
HT - Acorn - Mid	0.92
HT - Hickory - Semi	1.84
HT - Laurel - Det	3.22
HT - Maple - Det	4.60
HT - Rose - Semi	0.92

Table 6 – PV Array

It is clear that the proposed strategy places a great importance on the efficiency of a building's 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.

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 - Acorn - End	6	5,037.69	26,878.65
HT - Acorn - Mid	2	1,490.06	7,941.04
HT - Hickory - Semi	12	12,289.13	64,624.87
HT - Laurel - Det	2	2,629.98	13,802.96
HT - Maple - Det	4	6,034.61	31,715.22
HT - Rose - Semi	2	1,546.44	8,232.71
Total	28	29,027.91	153,195.44

Table 7 – Reduced Emission Rate & Energy Requirement

The calculations summarised in the table above confirm Parkwood Road, Golcar has a reduced energy requirement of 153,195.44 kWh/year and an associated emission rate of 29,027.91 kgCO₂/year. These are respectively 1.73% and 2.41% reductions over the baselines calculated previously.

In order to comply with the planning requirements, it is necessary for this development to show measures have been taken to ensure high energy efficiency and best practice with regards to energy consumption inline with the Energy Hierarchy.

Evaluation

The FES Group was instructed by Mandale Group to review the performance of the proposed Energy Strategy for the development at Parkwood Road, Golcar. The energy strategy was detailed previously but can be best summarised as follows;

- Mandale Group proposes an energy strategy, which addresses the two policy concerns of sustainable design and construction: climate change and energy security.
- Mandale Group 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, including the installation of photovoltaics and WWHR, will permanently reduce regulated emissions by 2.41% and the proposed energy demand by 1.73%. This is a betterment and demonstrates that the proposed development will have a reduced reliance on national resources (gas and electricity).

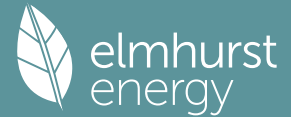
After detailed analysis we can conclude that the preferred energy strategy adheres to the principles and aspirations of sustainable design and construction as advanced by national and local government and the house building industry. We therefore recommend the adoption of the preferred energy strategy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

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

Summary for Input Data



Property Reference	009595 - HT - Acorn - End		Issued on Date	02/06/2025
Assessment Reference	As Designed - As	Prop Type Ref	009595-SAP-Acorn-End	
Property	Plot, Parkwood Road, Golcar, HD			

SAP Rating	90 B	DER	12.25	TER	12.84
Environmental	91 B	% DER < TER			4.60
CO ₂ Emissions (t/year)	0.83	DFEE	36.46	TFEE	37.67
Compliance Check	See BREL	% DFEE < TFEE			3.20
% DPER < TPER	2.87	DPER	65.36	TPER	67.29

Assessor Details	Mr. Kaya Bates	Assessor ID	AW45-0001
Client			

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

Orientation	East
Property Tenure	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	2025
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	267.61 kJ/m ² K
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:	16.57 m	34.27 m ²	2.40 m
	1st Storey:	16.57 m	34.27 m ²	2.67 m

8.0 Living Area	25.81 m ²
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Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Gross Area(m ²)	Nett Area (m ²)	Shelter Res	Shelter	Openings	Area Calculation Type
External Wall	Cavity Wall	Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure	0.20	110.00	83.99	70.85	0.00	None	13.14	Enter Gross Area

Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Area (m ²)	Shelter Res	Shelter
Party Wall	Filled Cavity with Edge Sealing	Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill	0.00	110.00	40.61	0.00	None

Description	Construction	Kappa (kJ/m ² K)	Area (m ²)
GF Timber	Plasterboard on timber frame	9.00	51.98
FF Timber	Plasterboard on timber frame	9.00	67.82

Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Gross Area(m ²)	Nett Area (m ²)	Shelter Code	Shelter Factor	Calculation Type	Openings Area
Insulated Plane	External Plane Roof	Plasterboard, insulated at ceiling level	0.08	9.00	34.27	34.27	None	0.00	Enter Gross Area	0.00

10.2 Internal Ceilings

Summary for Input Data



Description GF Ceiling	Storey Lowest occupied	Construction Plasterboard ceiling, carpeted chipboard floor	Area (m²) 34.27
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11.0 Heat Loss Floors

Description	Type	Storey Index	Construction	U-Value (W/m ² K)	Shelter Code	Shelter Factor	Kappa (kJ/m ² K)	Area (m ²)
Ground Floor	Ground Floor - Solid	Lowest occupied	Slab on ground, screed over insulation	0.11	None	0.00	110.00	34.27

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m ² K)	Area (m ²)
FF		Plasterboard ceiling, carpeted chipboard floor	9.00	34.27

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m ² K)
Solid Door	Manufacturer	Solid Door				0.00			1.50
Windows	Manufacturer	Window	Double Low-E Soft 0.05			0.63		0.70	1.20
Patio Doors	Manufacturer	Window	Double Low-E Soft 0.05			0.63		0.70	1.20

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m ²)	Pitch
Front Door	Solid Door	External Wall	East	2.15	0
Front Windows	Windows	External Wall	East	4.37	0
LH Window	Windows	External Wall	South	0.72	0
Rear Windows	Windows	External Wall	West	1.63	0
Rear Patio Door	Patio Doors	External Wall	West	4.27	0

14.0 Conservatory

15.0 Draught Proofing %

16.0 Draught Lobby

17.0 Thermal Bridging

17.1 List of Bridges

Bridge Type	Source Type	Length	Psi	Adjusted Reference:	Imported
E2 Other lintels (including other steel lintels)	Independently assessed	8.97	0.06	0.06 Hi Therm+ (Keystone)	No
E3 Sill	Gov Approved Scheme	5.91	0.02	0.02 RCD	No
E4 Jamb	Gov Approved Scheme	21.90	0.02	0.02 RCD	No
E5 Ground floor (normal)	Independently assessed	16.57	0.08	0.08 FES	No
E10 Eaves (insulation at ceiling level)	Gov Approved Scheme	8.56	0.06	0.06 RCD	No
E12 Gable (insulation at ceiling level)	Gov Approved Scheme	8.01	0.06	0.06 RCD	No
E16 Corner (normal)	Gov Approved Scheme	10.14	0.05	0.05 RCD	No
E18 Party wall between dwellings	Gov Approved Scheme	10.14	0.04	0.04 RCD	No
P1 Party wall - Ground floor	Non Gov Approved Schemes	8.01	0.16	0.16 Half DEFAULT	No
P4 Party wall - Roof (insulation at ceiling level)	Gov Approved Scheme	8.01	0.10	0.10 RCD	No
P2 Party wall - Intermediate floor within a dwelling	Table K1 - Default	8.01	0.00	0.00	No
E6 Intermediate floor within a dwelling	Gov Approved Scheme	16.57	0.00	0.00 RCD	No

Y-value W/m²K

19.0 Mechanical Ventilation

Mechanical Ventilation

Mechanical Ventilation System Present

20.0 Fans, Open Fireplaces, Flues

Number of open chimneys

Number of open flues

Number of chimneys/flues attached to closed fire

Number of flues attached to solid fuel boiler

Number of flues attached to other heater

Number of blocked chimneys

Number of intermittent extract fans

Number of passive vents

Number of flueless gas fires

21.0 Fixed Cooling System

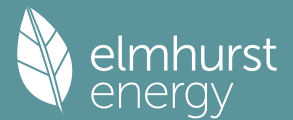
22.0 Pressure Testing

Designed AP₅₀ m³/(h.m²) @ 50 Pa

Property Tested?

Test Method

Summary for Input Data



22.0 Lighting

No Fixed Lighting

No				
Name	Efficacy	Power	Capacity	Count
Pendants	100.00	9.00	900.00	8
LED Downlights	90.00	9.00	810.00	9

24.0 Main Heating 1

Percentage of Heat

Database	100.00	%
----------	--------	---

Database Ref. No.

18122

Fuel Type

Mains gas

SAP Code

0

In Winter

89.00

In Summer

87.30

Model Name

LOGIC CODE COMBI ESP1

Manufacturer

Ideal Boilers

System Type

Combi boiler

Controls SAP Code

2110

Delayed Start Stat

Yes

Burner Control

Modulating

HETAS approved System

No

Flue Type

Balanced

Fan Assisted Flue

Yes

Is MHS Pumped

Pump in heated space

Heating Pump Age

2013 or later

Heat Emitter

Radiators

Flow Temperature

Unknown

Boiler Interlock

Yes

Combi boiler type

Standard Combi

25.0 Main Heating 2

None

26.0 Heat Networks

None

27.0 Secondary Heating

None

28.0 Water Heating

Water Heating

Main Heating 1

SAP Code

901

Flue Gas Heat Recovery System

Yes

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

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

Bathroom

Combi boiler or unvented hot water system

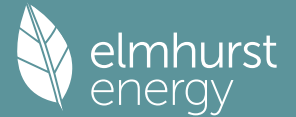
8.00

Yes

Instantaneous System 1

28.2 Flue Gas Heat Recovery System

Summary for Input Data



Database ID

Brand Model

Details

28.3 Waste Water Heat Recovery System Instantaneous System 1

Database ID

Brand Model

Details

29.0 Hot Water Cylinder

Cylinder Stat

Cylinder In Heated Space

Independent Time Control

In Airing Cupboard

31.0 Thermal Store

32.0 Photovoltaic Unit

Export Capable Meter?

Connected To Dwelling

Diverter

Battery Capacity [kWh]

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

34.0 Small-scale Hydro

Electricity Generated

Apportioned kWh/Year

Connected to dwelling's electricity meter

Electricity Generation

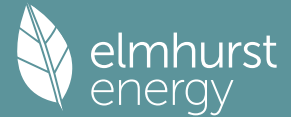
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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Recommendations

Lower cost measures
None

Further measures to achieve even higher standards
None

Summary for Input Data



Property Reference	009595 - HT - Acorn - Mid	Issued on Date	02/06/2025
Assessment Reference	As Designed	Prop Type Ref	009595-SAP-Acorn-Mid
Property	Plot, Parkwood Road, Golcar		

SAP Rating	90 B	DER	10.87	TER	11.47
Environmental	92 A	% DER < TER			5.23
CO ₂ Emissions (t/year)	0.71	DFEE	30.38	TFEE	31.36
Compliance Check	See BREL	% DFEE < TFEE			3.11
% DPER < TPER	3.28	DPER	57.93	TPER	59.90

Assessor Details	Mr. Kaya Bates	Assessor ID	AW45-0001
Client			

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

Orientation	East
Property Tenure	ND
Transaction Type	6
Terrain Type	Suburban
1.0 Property Type	House, Mid-Terrace
Which Floor	0
2.0 Number of Storeys	2
3.0 Date Built	2025
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	268.77 kJ/m ² K
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:	8.56 m	34.27 m ²	2.40 m
	1st Storey:	8.56 m	34.27 m ²	2.67 m

8.0 Living Area	25.41 m ²
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Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Gross Area(m ²)	Nett Area (m ²)	Shelter Res	Shelter	Openings	Area Calculation Type
External Wall	Cavity Wall	Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure	0.20	110.00	43.38	30.96	0.00	None	12.42	Enter Gross Area

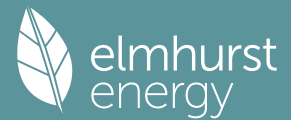
Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Area (m ²)	Shelter Res	Shelter
Party Wall	Filled Cavity with Edge Sealing	Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill	0.00	110.00	81.22	0.00	None

Description	Construction	Kappa (kJ/m ² K)	Area (m ²)
GF Timber	Plasterboard on timber frame	9.00	51.98
FF Timber	Plasterboard on timber frame	9.00	67.82

Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Gross Area(m ²)	Nett Area (m ²)	Shelter Code	Shelter Factor	Calculation Type	Openings Area
Insulated Plane	External Plane Roof	Plasterboard, insulated at ceiling level	0.08	9.00	34.27	34.27	None	0.00	Enter Gross Area	0.00

10.2 Internal Ceilings

Summary for Input Data



Description GF Ceiling	Storey Lowest occupied	Construction Plasterboard ceiling, carpeted chipboard floor	Area (m²) 34.27
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11.0 Heat Loss Floors

Description	Type	Storey Index	Construction	U-Value (W/m ² K)	Shelter Code	Shelter Factor	Kappa (kJ/m ² K)	Area (m ²)
Ground Floor	Ground Floor - Solid	Lowest occupied	Slab on ground, screed over insulation	0.10	None	0.00	110.00	34.27

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m ² K)	Area (m ²)
FF		Plasterboard ceiling, carpeted chipboard floor	9.00	34.27

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m ² K)
Solid Door	Manufacturer	Solid Door				0.00			1.50
Windows	Manufacturer	Window	Double Low-E Soft 0.05			0.63		0.70	1.20
Patio Doors	Manufacturer	Window	Double Low-E Soft 0.05			0.63		0.70	1.20

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m ²)	Pitch
Front Door	Solid Door	External Wall	East	2.15	0
Front Windows	Windows	External Wall	East	4.37	0
Rear Windows	Windows	External Wall	West	1.63	0
Rear Patio Door	Patio Doors	External Wall	West	4.27	0

14.0 Conservatory

15.0 Draught Proofing %

16.0 Draught Lobby

17.0 Thermal Bridging

17.1 List of Bridges

Bridge Type	Source Type	Length	Psi	Adjusted Reference:	Imported
E2 Other lintels (including other steel lintels)	Independently assessed	8.28	0.06	0.06 Hi Therm+ (Keystone)	No
E3 Sill	Gov Approved Scheme	5.23	0.02	0.02 RCD	No
E4 Jamb	Gov Approved Scheme	19.80	0.02	0.02 RCD	No
E5 Ground floor (normal)	Independently assessed	8.56	0.08	0.08 FES	No
E10 Eaves (insulation at ceiling level)	Gov Approved Scheme	8.56	0.06	0.06 RCD	No
E18 Party wall between dwellings	Gov Approved Scheme	20.28	0.04	0.04 RCD	No
P1 Party wall - Ground floor	Non Gov Approved Schemes	16.02	0.16	0.16 Half DEFAULT	No
P4 Party wall - Roof (insulation at ceiling level)	Gov Approved Scheme	16.02	0.10	0.10 RCD	No
P2 Party wall - Intermediate floor within a dwelling	Table K1 - Default	16.02	0.00	0.00	No
E6 Intermediate floor within a dwelling	Gov Approved Scheme	8.56	0.00	0.00 RCD	No

Y-value W/m²K

19.0 Mechanical Ventilation

Mechanical Ventilation

Mechanical Ventilation System Present

20.0 Fans, Open Fireplaces, Flues

Number of open chimneys

Number of open flues

Number of chimneys/flues attached to closed fire

Number of flues attached to solid fuel boiler

Number of flues attached to other heater

Number of blocked chimneys

Number of intermittent extract fans

Number of passive vents

Number of flueless gas fires

21.0 Fixed Cooling System

22.0 Pressure Testing

Designed AP₅₀ m³/(h.m²) @ 50 Pa

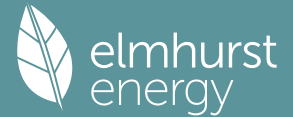
Property Tested?

Test Method

22.0 Lighting

No Fixed Lighting

Summary for Input Data



Name	Efficacy	Power	Capacity	Count
Pendants	100.00	9.00	900.00	8
LED Downlights	90.00	9.00	810.00	9

24.0 Main Heating 1

Database	Database		
Percentage of Heat	100.00	%	
Database Ref. No.	18122		
Fuel Type	Mains gas		
SAP Code	0		
In Winter	89.00		
In Summer	87.30		
Model Name	LOGIC CODE COMBI ESP1		
Manufacturer	Ideal Boilers		
System Type	Combi boiler		
Controls SAP Code	2110		
Delayed Start Stat	Yes		
Burner Control	Modulating		
HETAS approved System	No		
Flue Type	Balanced		
Fan Assisted Flue	Yes		
Is MHS Pumped	Pump in heated space		
Heating Pump Age	2013 or later		
Heat Emitter	Radiators		
Flow Temperature	Unknown		
Boiler Interlock	Yes		
Combi boiler type	Standard Combi		

25.0 Main Heating 2

None

26.0 Heat Networks

None

27.0 Secondary Heating

None

28.0 Water Heating

Water Heating	Main Heating 1
SAP Code	901
Flue Gas Heat Recovery System	Yes
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
Supplementary Immersion	No
Immersion Only Heating Hot Water	No

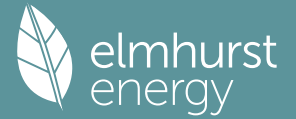
28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
Bathroom	Combi boiler or unvented hot water system	8.00		Yes	Instantaneous System 1

28.2 Flue Gas Heat Recovery System

Database ID	0
Brand Model	

Summary for Input Data



Details

28.3 Waste Water Heat Recovery System Instantaneous System 1

Database ID

Brand Model

Details

29.0 Hot Water Cylinder

Cylinder Stat

Cylinder In Heated Space

Independent Time Control

In Airing Cupboard

31.0 Thermal Store

32.0 Photovoltaic Unit

One Dwelling

Export Capable Meter?

Connected To Dwelling

Diverter

Battery Capacity [kWh]

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

34.0 Small-scale Hydro

Electricity Generated

Apportioned kWh/Year

Connected to dwelling's electricity meter

Electricity Generation

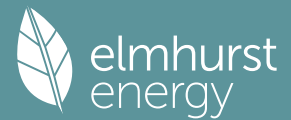
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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Recommendations

Lower cost measures
None

Further measures to achieve even higher standards
None

Summary for Input Data



Property Reference	009595 - HT - Hickory - Semi		Issued on Date	02/06/2025
Assessment Reference	As Designed - As	Prop Type Ref	009595-SAP-Hickory-Semi	
Property	Plot, Parkwood Road, Golcar			

SAP Rating	92 A	DER	10.63	TER	10.82
Environmental	91 B	% DER < TER			1.76
CO ₂ Emissions (t/year)	0.98	DFEE	35.92	TFEE	36.60
Compliance Check	See BREL	% DFEE < TFEE			1.86
% DPER < TPER	0.95	DPER	55.90	TPER	56.44

Assessor Details	Mr. Kaya Bates	Assessor ID	AW45-0001
Client			

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

Orientation	East	
Property Tenure	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	2025	
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	237.73	kJ/m ² K
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:	19.64 m	48.17 m ²	2.40 m
	1st Storey:	19.64 m	48.17 m ²	2.67 m

8.0 Living Area	13.66	m ²
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Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Gross Area(m ²)	Nett Area (m ²)	Shelter Res	Shelter	Openings	Area Calculation Type
External Wall	Cavity Wall	Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure	0.20	110.00	99.59	79.65	0.00	None	19.94	Enter Gross Area

Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Area (m ²)	Shelter Res	Shelter
Party Wall	Filled Cavity with Edge Sealing	Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill	0.00	110.00	48.03	0.00	None

Description	Construction	Kappa (kJ/m ² K)	Area (m ²)
GF Timber	Plasterboard on timber frame	9.00	89.04
FF Timber	Plasterboard on timber frame	9.00	113.80

Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Gross Area(m ²)	Nett Area (m ²)	Shelter Code	Shelter Factor	Calculation Type	Openings Area
Insulated Plane	External Plane Roof	Plasterboard, insulated at ceiling level	0.08	9.00	48.17	48.17	None	0.00	Enter Gross Area	0.00

10.2 Internal Ceilings										
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Summary for Input Data



Description GF Ceiling	Storey Lowest occupied	Construction Plasterboard ceiling, carpeted chipboard floor	Area (m²) 48.17
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11.0 Heat Loss Floors

Description	Type	Storey Index	Construction	U-Value (W/m ² K)	Shelter Code	Shelter Factor	Kappa (kJ/m ² K)	Area (m ²)
Ground Floor	Ground Floor - Solid	Lowest occupied	Slab on ground, screed over insulation	0.11	None	0.00	110.00	48.17

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m ² K)	Area (m ²)
FF		Plasterboard ceiling, carpeted chipboard floor	9.00	48.17

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m ² K)
Solid Door	Manufacturer	Solid Door				0.00			1.50
Windows	Manufacturer	Window	Double Low-E Soft 0.05			0.63		0.70	1.20
Patio Doors	Manufacturer	Window	Double Low-E Soft 0.05			0.63		0.70	1.20
Half-Glazed Door	Manufacturer	Half Glazed Door	Double Low-E Soft 0.05			0.63		0.70	1.50

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m ²)	Pitch
Front Door	Solid Door	External Wall	East	2.15	0
Front Windows	Windows	External Wall	East	5.50	0
LH Window	Windows	External Wall	South	0.72	0
Rear Windows	Windows	External Wall	West	3.26	0
Rear Patio Door	Patio Doors	External Wall	West	6.16	0
LH Door	Half-Glazed Door	External Wall	South	2.15	0

14.0 Conservatory

15.0 Draught Proofing %

16.0 Draught Lobby

17.0 Thermal Bridging

17.1 List of Bridges

Bridge Type	Source Type	Length	Psi	Adjusted Reference:	Imported
E2 Other lintels (including other steel lintels)	Independently assessed	12.80	0.06	0.06 Hi Therm+ (Keystone)	No
E3 Sill	Gov Approved Scheme	7.48	0.02	0.02 RCD	No
E4 Jamb	Gov Approved Scheme	26.40	0.02	0.02 RCD	No
E5 Ground floor (normal)	Independently assessed	19.64	0.08	0.08 FES	No
E10 Eaves (insulation at ceiling level)	Gov Approved Scheme	10.17	0.06	0.06 RCD	No
E12 Gable (insulation at ceiling level)	Gov Approved Scheme	9.47	0.06	0.06 RCD	No
E16 Corner (normal)	Gov Approved Scheme	10.14	0.05	0.05 RCD	No
E18 Party wall between dwellings	Gov Approved Scheme	10.14	0.04	0.04 RCD	No
P1 Party wall - Ground floor	Non Gov Approved Schemes	9.47	0.16	0.16 Half DEFAULT	No
P4 Party wall - Roof (insulation at ceiling level)	Gov Approved Scheme	9.47	0.10	0.10 RCD	No
P2 Party wall - Intermediate floor within a dwelling	Table K1 - Default	9.47	0.00	0.00	No
E6 Intermediate floor within a dwelling	Gov Approved Scheme	19.64	0.00	0.00 RCD	No

Y-value W/m²K

19.0 Mechanical Ventilation

Mechanical Ventilation
Mechanical Ventilation System Present

20.0 Fans, Open Fireplaces, Flues

Number of open chimneys

Number of open flues

Number of chimneys/flues attached to closed fire

Number of flues attached to solid fuel boiler

Number of flues attached to other heater

Number of blocked chimneys

Number of intermittent extract fans

Number of passive vents

Number of flueless gas fires

21.0 Fixed Cooling System

22.0 Pressure Testing

Designed AP₅₀ m²/(h.m²) @ 50 Pa

Property Tested?

Summary for Input Data

Test Method

22.0 Lighting

No Fixed Lighting

Name	Efficacy	Power	Capacity	Count
Pendants	100.00	9.00	900.00	5
LED Downlights	90.00	9.00	810.00	33

24.0 Main Heating 1

Percentage of Heat %

Database Ref. No.

Fuel Type

SAP Code

In Winter

In Summer

Model Name

Manufacturer

System Type

Controls SAP Code

Delayed Start Stat

Burner Control

HETAS approved System

Flue Type

Fan Assisted Flue

Is MHS Pumped

Heating Pump Age

Heat Emitter

Flow Temperature

Boiler Interlock

Combi boiler type

25.0 Main Heating 2

26.0 Heat Networks

27.0 Secondary Heating

28.0 Water Heating

Water Heating

SAP Code

Flue Gas Heat Recovery System

Waste Water Heat Recovery Instantaneous System 1

Waste Water Heat Recovery Instantaneous System 2

Waste Water Heat Recovery Storage System

Solar Panel

Water use <= 125 litres/person/day

Summer Immersion

Cold Water Source

Bath Count

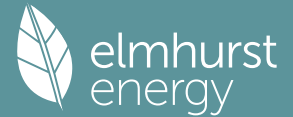
Supplementary Immersion

Immersion Only Heating Hot Water

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
En-Suite	Combi boiler or unvented hot water system	8.00		Yes	Instantaneous System 1

Summary for Input Data



28.2 Flue Gas Heat Recovery System

Database ID

Brand Model

Details

28.3 Waste Water Heat Recovery System Instantaneous System 1

Database ID

Brand Model

Details

29.0 Hot Water Cylinder

Cylinder Stat

Cylinder In Heated Space

Independent Time Control

In Airing Cupboard

31.0 Thermal Store

32.0 Photovoltaic Unit

Export Capable Meter?

Connected To Dwelling

Diverter

Battery Capacity [kWh]

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

34.0 Small-scale Hydro

Electricity Generated

Apportioned kWh/Year

Connected to dwelling's electricity meter

Electricity Generation

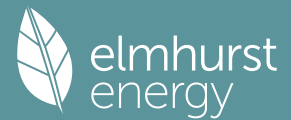
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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Recommendations

Lower cost measures
None

Further measures to achieve even higher standards
None

Summary for Input Data



Property Reference	009595 - HT - Laurel - Det	Issued on Date	02/06/2025
Assessment Reference	As Designed - As	Prop Type Ref	009595-SAP-Laurel-Det
Property	Plot, Parkwood Road, Golcar		

SAP Rating	93 A	DER	11.80	TER	11.86
Environmental	89 B	% DER < TER			0.51
CO ₂ Emissions (t/year)	1.27	DFEE	45.95	TFEE	46.66
Compliance Check	See BREL	% DFEE < TFEE			1.52
% DPER < TPER	0.52	DPER	61.93	TPER	62.25

Assessor Details	Mr. Kaya Bates	Assessor ID	AW45-0001
Client			

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

Orientation	East
Property Tenure	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	2025
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	246.85 kJ/m ² K
7.0 Electricity Tariff	Standard
Smart electricity meter fitted	Yes
Smart gas meter fitted	Yes

	Heat Loss Perimeter	Internal Floor Area	Unheated Space Floor Area	Average Storey Height
Ground floor:	33.44 m	51.32 m ²	12.06 m ²	2.66 m
1st Storey:	32.94 m	60.12 m ²		2.42 m

8.0 Living Area	14.58 m ²
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Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Gross Area(m ²)	Nett Area (m ²)	Shelter Res	Shelter	Openings	Area Calculation Type
External Wall	Cavity Wall	Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure	0.20	110.00	146.03	122.98	0.00	None	23.05	Enter Gross Area
Wall to Garage	Solid Wall	Solid wall : plasterboard on dabs, 200 mm dense block, insulated externally	0.34	150.00	22.52	22.52	0.60	Garage Single 3 Inside	0.00	Enter Gross Area

Description	Construction	Kappa (kJ/m ² K)	Area (m ²)
GF Timber	Plasterboard on timber frame	9.00	60.86
FF Timber	Plasterboard on timber frame	9.00	124.05
GF Block	Dense block, plasterboard on dabs	75.00	39.74

Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Gross Area(m ²)	Nett Area (m ²)	Shelter Code	Shelter Factor	Calculation Type	Openings
Insulated Plane	External Plane Roof	Plasterboard, insulated at ceiling level	0.08	9.00	62.57	62.57	None	0.00	Enter Gross Area	0.00
Bay Flat Roof	External Flat Roof	Plasterboard, insulated flat roof	0.16	9.00	0.81	0.81	None	0.00	Enter Gross Area	0.00

Description	Storey	Construction	Area (m ²)

Summary for Input Data



GF Ceiling Lowest occupied Plasterboard ceiling, carpeted chipboard floor 48.06

11.0 Heat Loss Floors

Description	Type	Storey Index	Construction	U-Value (W/m ² K)	Shelter Code	Shelter Factor	Kappa (kJ/m ² K)	Area (m ²)
Ground Floor Exposed	Ground Floor - Solid Exposed Floor - Timber	Lowest occupied +1	Suspended concrete floor, carpeted Timber exposed floor, insulation between joists	0.12 0.18	None Garage Single 3 Inside	0.00 0.60	75.00 20.00	51.32 12.06

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m ² K)	Area (m ²)
FF		Plasterboard ceiling, carpeted chipboard floor	9.00	48.06

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m ² K)
Solid Door	Manufacturer	Solid Door				0.00			1.50
Windows	Manufacturer	Window	Double Low-E Soft 0.05			0.63		0.70	1.20
Patio Doors	Manufacturer	Window	Double Low-E Soft 0.05			0.63		0.70	1.20

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m ²)	Pitch
Front Door	Solid Door	External Wall	East	2.15	0
Front Windows	Windows	External Wall	East	5.60	0
Rear Patio Doors	Patio Doors	External Wall	West	5.46	0
Rear Windows	Windows	External Wall	West	5.39	0
RH Door	Solid Door	External Wall	North	1.91	0
RH Window	Windows	External Wall	North	0.60	0
Front/LH Window	Windows	External Wall	South East	0.97	0
Front/RH Window	Windows	External Wall	North East	0.97	0

14.0 Conservatory

15.0 Draught Proofing

%

16.0 Draught Lobby

17.0 Thermal Bridging

17.1 List of Bridges

Bridge Type	Source Type	Length	Psi	Adjusted Reference:	Imported
E2 Other lintels (including other steel lintels)	Independently assessed	15.77	0.06	0.06 Hi Therm+ (Keystone)	No
E3 Sill	Gov Approved Scheme	11.24	0.02	0.02 RCD	No
E4 Jamb	Gov Approved Scheme	33.30	0.02	0.02 RCD	No
E5 Ground floor (normal)	Independently assessed	24.82	0.08	0.08 FES	No
E10 Eaves (insulation at ceiling level)	Gov Approved Scheme	16.65	0.06	0.06 RCD	No
E12 Gable (insulation at ceiling level)	Gov Approved Scheme	17.84	0.06	0.06 RCD	No
E16 Corner (normal)	Gov Approved Scheme	21.56	0.05	0.05 RCD	No
E6 Intermediate floor within a dwelling	Gov Approved Scheme	25.90	0.00	0.00 RCD	No
E17 Corner (inverted – internal area greater than external area)	Gov Approved Scheme	6.89	-0.09	-0.09 RCD	No
E24 Eaves (insulation at ceiling level - inverted)	Table K1 - Default	5.08	0.15	0.15	No
E16 Corner (normal)	Independently assessed	5.32	0.15	0.15 Garage - SHELTER	No
E20 Exposed floor (normal)	Gov Approved Scheme	7.04	0.09	0.09 FES	No
E21 Exposed floor (inverted)	Independently assessed	7.04	0.03	0.03 FES	No
E12 Gable (insulation at ceiling level)	Independently assessed	1.58	0.21	0.21 Garage SHELTER	No
E17 Corner (inverted – internal area greater than external area)	Table K1 - Default	2.66	0.00	0.00	No
E5 Ground floor (normal)	Independently assessed	8.62	0.27	0.27 Garage SHELTER	No
E14 Flat roof	Table K1 - Default	2.45	0.16	0.16	No

Y-value W/m²K

19.0 Mechanical Ventilation

Mechanical Ventilation

Mechanical Ventilation System Present

20.0 Fans, Open Fireplaces, Flues

Number of open chimneys

Number of open flues

Number of chimneys/flues attached to closed fire

Number of flues attached to solid fuel boiler

Number of flues attached to other heater

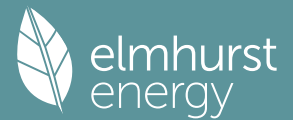
Number of blocked chimneys

Number of intermittent extract fans

Number of passive vents

Number of flueless gas fires

Summary for Input Data



21.0 Fixed Cooling System

No

22.0 Pressure Testing

Yes

Designed AP₅₀

5.00

m²/(h.m²) @ 50 Pa

Property Tested?

Yes

Test Method

Blower Door

22.0 Lighting

No Fixed Lighting

No

Name	Efficacy	Power	Capacity	Count
Pendants	100.00	9.00	900.00	8
LED Downlights	90.00	9.00	810.00	36

24.0 Main Heating 1

Database

Percentage of Heat

100.00

%

Database Ref. No.

18122

Fuel Type

Mains gas

SAP Code

0

In Winter

89.00

In Summer

87.30

Model Name

LOGIC CODE COMBI ESP1

Manufacturer

Ideal Boilers

System Type

Combi boiler

Controls SAP Code

2110

Delayed Start Stat

Yes

Burner Control

Modulating

HETAS approved System

No

Flue Type

Balanced

Fan Assisted Flue

Yes

Is MHS Pumped

Pump in heated space

Heating Pump Age

2013 or later

Heat Emitter

Radiators

Flow Temperature

Unknown

Boiler Interlock

Yes

Combi boiler type

Standard Combi

25.0 Main Heating 2

None

26.0 Heat Networks

None

27.0 Secondary Heating

None

28.0 Water Heating

Water Heating

Main Heating 1

SAP Code

901

Flue Gas Heat Recovery System

Yes

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

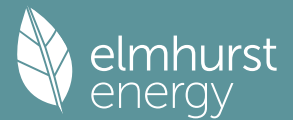
Cold Water Source

From mains

Bath Count

1

Summary for Input Data



Supplementary Immersion
 Immersion Only Heating Hot Water

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
Bathroom	Combi boiler or unvented hot water system	8.00		Yes	Instantaneous System 1
En Suite	Combi boiler or unvented hot water system	8.00		No	

28.2 Flue Gas Heat Recovery System

Database ID
 Brand Model
 Details

28.3 Waste Water Heat Recovery System Instantaneous System 1

Database ID
 Brand Model
 Details

29.0 Hot Water Cylinder

Cylinder Stat
 Cylinder In Heated Space
 Independent Time Control
 In Airing Cupboard

31.0 Thermal Store

32.0 Photovoltaic Unit

Export Capable Meter?
 Connected To Dwelling
 Diverter
 Battery Capacity [kWh]

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

34.0 Small-scale Hydro

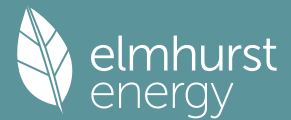
Electricity Generated
 Apportioned kWh/Year
 Connected to dwelling's electricity meter
 Electricity Generation

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	009595 - HT - Maple - Det		Issued on Date	02/06/2025
Assessment Reference	As Designed - As	Prop Type Ref	009595-SAP-Maple-Det	
Property	Plot, Parkwood Road, Golcar			

SAP Rating	95 A	DER	10.80	TER	10.86
Environmental	89 B	% DER < TER			0.55
CO ₂ Emissions (t/year)	1.45	DFEE	48.09	TFEE	48.74
Compliance Check	See BREL	% DFEE < TFEE			1.32
% DPER < TPER	1.23	DPER	56.76	TPER	57.47

Assessor Details	Mr. Kaya Bates	Assessor ID	AW45-0001
Client			

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

Orientation	East	
Property Tenure	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	2025	
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	242.62	kJ/m ² K

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:	43.07 m	70.17 m ²	20.12 m ²	2.66 m
1st Storey:	34.52 m	69.52 m ²		2.41 m

8.0 Living Area	39.48	m ²
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9.0 External Walls	Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Gross Area(m ²)	Nett Area (m ²)	Shelter Res	Shelter	Openings	Area Calculation Type
	External Wall	Cavity Wall	Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure	0.20	110.00	169.23	145.57	0.00	None	23.66	Enter Gross Area
	Wall to Garage	Solid Wall	Solid wall : plasterboard on dabs, 200 mm dense block, insulated externally	0.34	150.00	25.16	23.02	0.70	Garage Single Inside	2.14	Enter Gross Area

9.2 Internal Walls	Description	Construction	Kappa (kJ/m ² K)	Area (m ²)
	GF Timber	Plasterboard on timber frame	9.00	30.37
	FF Timber	Plasterboard on timber frame	9.00	150.38
	GF Block	Dense block, plasterboard on dabs	75.00	66.66

10.0 External Roofs	Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Gross Area(m ²)	Nett Area (m ²)	Shelter Code	Shelter Factor	Calculation Type	Openings
	Insulated Plane	External Plane Roof	Plasterboard, insulated at ceiling level	0.08	9.00	69.52	69.52	None	0.00	Enter Gross Area	0.00
	Low Pitched Roof	External Flat Roof	Plasterboard, insulated flat roof	0.16	9.00	20.98	19.37	None	0.00	Enter Gross Area	1.61

10.2 Internal Ceilings	Description	Storey	Construction	Area (m ²)
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Summary for Input Data



GF Ceiling Lowest occupied Plasterboard ceiling, carpeted chipboard floor 49.40

11.0 Heat Loss Floors

Description	Type	Storey Index	Construction	U-Value (W/m²K)	Shelter Code	Shelter Factor	Kappa (kJ/m²K)	Area (m²)
Ground Floor Exposed	Ground Floor - Solid Exposed Floor - Timber	Lowest occupied +1	Suspended concrete floor, carpeted Timber exposed floor, insulation between joists	0.12 0.18	None Garage Single 1 Inside	0.00 0.70	75.00 20.00	70.17 20.12

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
FF		Plasterboard ceiling, carpeted chipboard floor	9.00	49.40

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Solid Door	Manufacturer	Solid Door				0.00			1.50
Windows	Manufacturer	Window	Double Low-E Soft 0.05			0.63		0.70	1.20
Patio Doors	Manufacturer	Window	Double Low-E Soft 0.05			0.63		0.70	1.20
Rooflights	Manufacturer	Roof Light	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 Door	External Wall	East	2.12	0
Front Windows	Windows	External Wall	East	6.66	0
Rear Patio Doors	Patio Doors	External Wall	West	9.49	0
Rear Windows	Windows	External Wall	West	3.23	0
RH Window	Windows	External Wall	North	0.72	0
LH Window	Windows	External Wall	South	1.44	0
Front Door (Garage Wall)	Solid Door	Wall to Garage	East	2.14	0
Rooflights	Rooflights	Low Pitched Roof	West	1.61	8

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
E2 Other lintels (including other steel lintels)	Independently assessed	15.42	0.06	0.06 Hi Therm+ (Keystone)	No
E3 Sill	Gov Approved Scheme	9.54	0.02	0.02 RCD	No
E4 Jamb	Gov Approved Scheme	35.70	0.02	0.02 RCD	No
E5 Ground floor (normal)	Independently assessed	33.61	0.08	0.08 FES	No
E10 Eaves (insulation at ceiling level)	Gov Approved Scheme	15.55	0.06	0.06 RCD	No
E12 Gable (insulation at ceiling level)	Gov Approved Scheme	18.97	0.06	0.06 RCD	No
E16 Corner (normal)	Gov Approved Scheme	24.40	0.05	0.05 RCD	No
E6 Intermediate floor within a dwelling	Gov Approved Scheme	18.41	0.00	0.00 RCD	No
E17 Corner (inverted – internal area greater than external area)	Gov Approved Scheme	7.98	-0.09	-0.09 RCD	No
E24 Eaves (insulation at ceiling level - inverted)	Table K1 - Default	4.86	0.15	0.15	No
E16 Corner (normal)	Independently assessed	5.32	0.15	0.15 Garage - SHELTER	No
E20 Exposed floor (normal)	Gov Approved Scheme	9.45	0.09	0.09 FES	No
E21 Exposed floor (inverted)	Independently assessed	9.45	0.03	0.03 FES	No
E17 Corner (inverted – internal area greater than external area)	Table K1 - Default	2.66	0.00	0.00	No
E5 Ground floor (normal)	Independently assessed	9.45	0.27	0.27 Garage SHELTER	No
E14 Flat roof	Table K1 - Default	13.49	0.16	0.16	No
E1 Steel lintel with perforated steel base plate	Independently assessed	1.02	0.83	0.83 Garage Shelter	No
E4 Jamb	Independently assessed	4.20	0.08	0.08 Garage Shelter	No
R1 Head of roof window	Table K1 - Default	1.65	0.24	0.24	No
R2 Sill of roof window	Table K1 - Default	1.65	0.24	0.24	No
R3 Jamb of roof window	Table K1 - Default	5.87	0.24	0.24	No

Y-value 0.05 W/m²K

19.0 Mechanical Ventilation

Mechanical Ventilation

Mechanical Ventilation System Present No

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

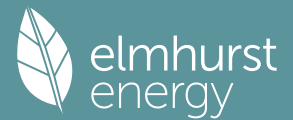
Number of flues attached to solid fuel boiler 0

Number of flues attached to other heater 0

Number of blocked chimneys 0

Number of intermittent extract fans 5

Summary for Input Data



Number of passive vents
 Number of flueless gas fires

21.0 Fixed Cooling System

22.0 Pressure Testing

Designed AP₅₀ m²/(h.m²) @ 50 Pa
 Property Tested?
 Test Method

22.0 Lighting
 No Fixed Lighting

Name	Efficacy	Power	Capacity	Count
Pendants	100.00	9.00	900.00	12
LED Downlights	90.00	9.00	810.00	41

24.0 Main Heating 1

Percentage of Heat %
 Database Ref. No.
 Fuel Type
 SAP Code
 In Winter
 In Summer
 Model Name
 Manufacturer
 System Type
 Controls SAP Code
 Delayed Start Stat
 Burner Control
 HETAS approved System
 Flue Type
 Fan Assisted Flue
 Is MHS Pumped
 Heating Pump Age
 Heat Emitter
 Flow Temperature
 Boiler Interlock
 Combi boiler type

25.0 Main Heating 2

26.0 Heat Networks

27.0 Secondary Heating

28.0 Water Heating

Water Heating
 SAP Code
 Flue Gas Heat Recovery System
 Waste Water Heat Recovery Instantaneous System 1
 Waste Water Heat Recovery Instantaneous System 2
 Waste Water Heat Recovery Storage System
 Solar Panel
 Water use <= 125 litres/person/day
 Summer Immersion

Summary for Input Data



Cold Water Source	From mains
Bath Count	1
Supplementary Immersion	No
Immersion Only Heating Hot Water	No

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
En Suite	Combi boiler or unvented hot water system	8.00		Yes	Instantaneous System 1

28.2 Flue Gas Heat Recovery System

Database ID	0
Brand Model	
Details	

28.3 Waste Water Heat Recovery System Instantaneous System 1

Database ID	80137
Brand Model	RECOUP, Easyfit+
Details	Year: 2017 + current Efficiency: 51.75 Utilisation factor: 0.972

29.0 Hot Water Cylinder

Cylinder Stat	None
Cylinder In Heated Space	No
Independent Time Control	No
In Airing Cupboard	No

31.0 Thermal Store

None

32.0 Photovoltaic Unit

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

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

34.0 Small-scale Hydro

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

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

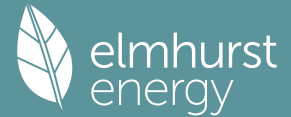
Lower cost measures

None

Further measures to achieve even higher standards

None

Summary for Input Data



Property Reference	009595 - HT - Rose - Semi		Issued on Date	02/06/2025
Assessment Reference	As Designed	Prop Type Ref	009595-SAP-Rose-Semi	
Property	Plot, Parkwood Road, Golcar, HD			

SAP Rating	89 B	DER	13.07	TER	14.12
Environmental	91 B	% DER < TER			7.44
CO ₂ Emissions (t/year)	0.76	DFEE	39.07	TFEE	40.16
Compliance Check	See BREL	% DFEE < TFEE			2.71
% DPER < TPER	6.16	DPER	69.58	TPER	74.15

Assessor Details	Mr. Kaya Bates	Assessor ID	AW45-0001
Client			

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

Orientation	East
Property Tenure	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	2025
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	278.80 kJ/m ² K
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:	15.39 m	29.58 m ²	2.40 m
	1st Storey:	15.39 m	29.58 m ²	2.67 m

8.0 Living Area	25.77 m ²
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Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Gross Area(m ²)	Nett Area (m ²)	Shelter Res	Shelter	Openings	Area Calculation Type
External Wall	Cavity Wall	Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure	0.20	110.00	78.03	65.04	0.00	None	12.99	Enter Gross Area

Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Area (m ²)	Shelter Res	Shelter
Party Wall	Filled Cavity with Edge Sealing	Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill	0.00	110.00	37.87	0.00	None

Description	Construction	Kappa (kJ/m ² K)	Area (m ²)
GF Timber	Plasterboard on timber frame	9.00	33.00
FF Timber	Plasterboard on timber frame	9.00	62.00

Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Gross Area(m ²)	Nett Area (m ²)	Shelter Code	Shelter Factor	Calculation Type	Openings Area
Insulated Plane	External Plane Roof	Plasterboard, insulated at ceiling level	0.08	9.00	29.58	29.58	None	0.00	Enter Gross Area	0.00

10.2 Internal Ceilings

Summary for Input Data



Description GF Ceiling	Storey Lowest occupied	Construction Plasterboard ceiling, carpeted chipboard floor	Area (m²) 29.58
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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	Slab on ground, screed over insulation	0.11	None	0.00	110.00	29.58	

11.2 Internal Floors									
Description	Storey Index	Construction						Kappa (kJ/m²K)	Area (m²)
FF		Plasterboard ceiling, carpeted chipboard floor						9.00	29.58

12.0 Opening Types									
Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Solid Door	Manufacturer	Solid Door				0.00			1.50
Windows	Manufacturer	Window	Double Low-E Soft 0.05			0.63		0.70	1.20
Patio Doors	Manufacturer	Window	Double Low-E Soft 0.05			0.63		0.70	1.20

13.0 Openings					
Name	Opening Type	Location	Orientation	Area (m²)	Pitch
Front Door	Solid Door	External Wall	East	2.15	0
Front Windows	Windows	External Wall	East	3.85	0
Rear Windows	Windows	External Wall	West	2.72	0
Rear Patio Door	Patio Doors	External Wall	West	4.27	0

14.0 Conservatory	<input type="text" value="None"/>
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15.0 Draught Proofing	<input type="text" value="100"/>	%
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16.0 Draught Lobby	<input type="text" value="No"/>
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17.0 Thermal Bridging	<input type="text" value="Calculate Bridges"/>
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17.1 List of Bridges						
Bridge Type	Source Type	Length	Psi	Adjusted Reference:		Imported
E2 Other lintels (including other steel lintels)	Independently assessed	8.71	0.06	0.06	Hi Therm+ (Keystone)	No
E3 Sill	Gov Approved Scheme	5.65	0.02	0.02	RCD	No
E4 Jamb	Gov Approved Scheme	17.70	0.02	0.02	RCD	No
E5 Ground floor (normal)	Independently assessed	15.39	0.08	0.08	FES	No
E10 Eaves (insulation at ceiling level)	Gov Approved Scheme	7.92	0.06	0.06	RCD	No
E12 Gable (insulation at ceiling level)	Gov Approved Scheme	7.47	0.06	0.06	RCD	No
E16 Corner (normal)	Gov Approved Scheme	10.14	0.05	0.05	RCD	No
E18 Party wall between dwellings	Gov Approved Scheme	10.14	0.04	0.04	RCD	No
P1 Party wall - Ground floor	Non Gov Approved Schemes	7.47	0.16	0.16	Half DEFAULT	No
P4 Party wall - Roof (insulation at ceiling level)	Gov Approved Scheme	7.47	0.10	0.10	RCD	No
P2 Party wall - Intermediate floor within a dwelling	Table K1 - Default	7.47	0.00	0.00		No
E6 Intermediate floor within a dwelling	Gov Approved Scheme	15.39	0.00	0.00	RCD	No

Y-value	<input type="text" value="0.04"/>	W/m ² K
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19.0 Mechanical Ventilation	
Mechanical Ventilation	<input type="text" value="No"/>
Mechanical Ventilation System Present	

20.0 Fans, Open Fireplaces, Flues	
Number of open chimneys	<input type="text" value="0"/>
Number of open flues	<input type="text" value="0"/>
Number of chimneys/flues attached to closed fire	<input type="text" value="0"/>
Number of flues attached to solid fuel boiler	<input type="text" value="0"/>
Number of flues attached to other heater	<input type="text" value="0"/>
Number of blocked chimneys	<input type="text" value="0"/>
Number of intermittent extract fans	<input type="text" value="3"/>
Number of passive vents	<input type="text" value="0"/>
Number of flueless gas fires	<input type="text" value="0"/>

21.0 Fixed Cooling System	<input type="text" value="No"/>
----------------------------------	---------------------------------

22.0 Pressure Testing	
<input type="text" value="Yes"/>	
Designed AP ₅₀	<input type="text" value="5.00"/> m ³ /(h.m ²) @ 50 Pa
Property Tested?	<input type="text" value="Yes"/>
Test Method	<input type="text" value="Blower Door"/>

22.0 Lighting

Summary for Input Data

No Fixed Lighting

No				
Name	Efficacy	Power	Capacity	Count
Pendants	100.00	9.00	900.00	8
LED Downlights	90.00	9.00	810.00	9

24.0 Main Heating 1

Database	
Percentage of Heat	100.00 %
Database Ref. No.	18122
Fuel Type	Mains gas
SAP Code	0
In Winter	89.00
In Summer	87.30
Model Name	LOGIC CODE COMBI ESP1
Manufacturer	Ideal Boilers
System Type	Combi boiler
Controls SAP Code	2110
Delayed Start Stat	Yes
Burner Control	Modulating
HETAS approved System	No
Flue Type	Balanced
Fan Assisted Flue	Yes
Is MHS Pumped	Pump in heated space
Heating Pump Age	2013 or later
Heat Emitter	Radiators
Flow Temperature	Unknown
Boiler Interlock	Yes
Combi boiler type	Standard Combi

25.0 Main Heating 2

None

26.0 Heat Networks

None

27.0 Secondary Heating

None

28.0 Water Heating

Water Heating	Main Heating 1
SAP Code	901
Flue Gas Heat Recovery System	Yes
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
Supplementary Immersion	No
Immersion Only Heating Hot Water	No

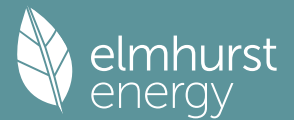
28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
Bathroom	Combi boiler or unvented hot water system	8.00		Yes	Instantaneous System 1

28.2 Flue Gas Heat Recovery System

Database ID: 0

Summary for Input Data



Brand Model

Details

28.3 Waste Water Heat Recovery System Instantaneous System 1

Database ID

Brand Model

Details

29.0 Hot Water Cylinder

Cylinder Stat

Cylinder In Heated Space

Independent Time Control

In Airing Cupboard

31.0 Thermal Store

32.0 Photovoltaic Unit

Export Capable Meter?

Connected To Dwelling

Diverter

Battery Capacity [kWh]

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

34.0 Small-scale Hydro

Electricity Generated

Apportioned kWh/Year

Connected to dwelling's electricity meter

Electricity Generation

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

Lower cost measures
None

Further measures to achieve even higher standards
None