

Energy Statement

Energy and Carbon Reduction

Hollingworth Road, Littleborough

Reference Number: 008091

Date: October 2023

Issue: 6

thefesgroup.com



PLANNING



DESIGN



ON-CONSTRUCTION



EXISTING BUILDINGS

Project name: Hollingworth Road, Littleborough

Ref: 008091

Author: George Leadley

Origination Date: May 2021

Reviser: Dean Shores

Date of last revision: October 2023

Issue Number: 6

Author:

Initial review by:

Secondary review by:



Dean Shores



Paul Bainbridge



Sam Palmer

Summary of changes:

Rev A - Summary of changes: New housetypes introduced and removed 2 plots from site totalling to 169 plots.

Rev B - Amended u value to dormer wall to 0.24W/m2K.

Rev C - Uplifted 126 plots to Part L 2021.

Rev D - Report revised following comments from Sam Buswell on 5/10/23.

Rev E - Report revised following comments from Sam Buswell on 10/10/23.

Rev F - Report revised following comments from Sam Buswell on 12/10/23.

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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 Countryside Partnerships Yorkshire to accompany the planning application for the proposed development known as Hollingworth Road, Littleborough.

The development proposals will see the construction of 126 new dwellings, consisting of detached, semi detached and terraces.

This report reviews the proposed energy and carbon reduction strategy advanced by Countryside Partnerships 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 CO₂ 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.

The development was initially assessed under Part L1a 2013 and to address the Rochdale Borough Council policy which pre-dates the recent update to part L of the Building Regulations. As the development will now be subject to being constructed under the new Part L 2021 Building Regulations, and the Rochdale Borough policies were written prior to these coming into force, the initial Energy Statement (ref: 8091 rev B) can be considered superseded. This revised Energy Statement assesses the development in the context of the current Building Regulations (Part L 2021) which provides a significant betterment when compared to the previous requirements in respect to energy efficiency and CO₂ reduction. Compliance with the new regulations typically requires the incorporation of renewable technologies, to achieve this and therefore satisfies by default the Councils low carbon and energy policies.

This report has also been written to in the interest of demonstrating compliance with the councils policies and satisfy a planning condition of the developments approved planning permission. The relevant condition is referenced below:

No development other than site clearance, remediation and ground preparation works shall commence until an updated energy statement detailing how the scheme will meet the current Part L Building Regulations have been submitted for approval to the Local Planning Authority. This shall include the installation of solar panels and/or photovoltaic panels, in accordance with the submitted Energy Statement (ref: 8091 rev B).

Reason: In the interests of sustainability and air quality management in accordance with Core Strategy Policy T2 and the National Planning Policy Framework.

Reason for pre-commencement: to ensure that the development is carried out in a way which appropriately responds to the requirements of the NPPF in relation to sustainability.

We also seek to clarify that our previous energy statement (ref: 8091 rev B) did not assess or commit the development to providing solar panel / photovoltaic panels. The statement suggested this would be a viable option that could be considered alongside a range of other suitable technologies.

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. Countryside Partnerships Yorkshire is dedicated to taking proactive 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 Countryside Partnerships 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 Countryside Partnerships 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	7.696
Taps (excluding kitchen tap)	Flow rate (litres/minute)	6	1.58	1.58	11.06
Baths (where shower present)	Capacity to overflow (litres)	140	0.11	0.00	15.4
Showers (where bath present)	Flow rate (litres/minute)	6	4.37	0.00	26.22
Kitchen sink tap	Flow rate (litres/minute)	6	0.44	10.36	13
Washing Machine	Litres/kg dry load	8.17	2.1	0.00	17.157
Dishwasher	Litres/place setting	1.25	3.60	0.00	4.50
Total					100.87

Contribution from Greywater (litres/person/day)	0
Contribution from Rainwater (litres/person/day)	0
Total Internal Water Consumption	100.87
Normalisation Factor	0.91
Water Consumption with Normalisation Factor	91.79
External Use	5.00
Part G Water Consumption	96.79

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.

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.

As a result this type of technology is not required as Countryside Partnerships Yorkshire have confirmed that air source heat pumps will be installed to achieve compliance.



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 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.

Photovoltaic panels are not required therefore, will not be installed on the development. Countryside Partnerships Yorkshire have confirmed that they will adopt an alternative strategy which will see the installation of air source heat pumps, in lieu of PV.



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.

Countryside Partnerships Yorkshire have confirmed that all plots will be installed with an air source heat pump to ensure that the development is gas free.



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, Countryside Partnerships 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.

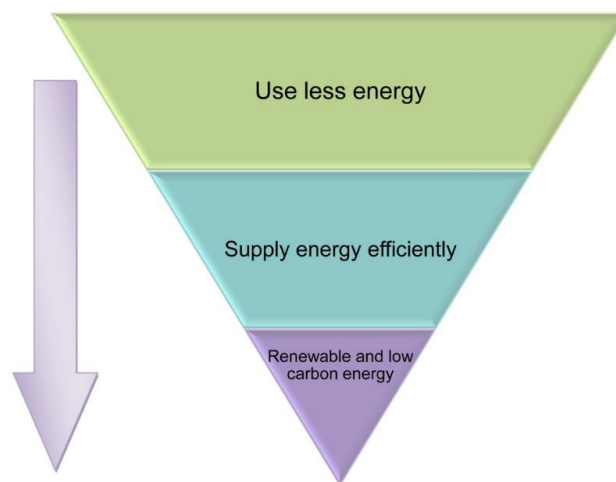
The proposed dwellings were modelled in SAP10 to determine the energy consumption and corresponding CO2 emissions of the development. Standard Assessment Procedure, or SAP, is the Government's approved methodology for the calculation of energy consumption and CO2 emissions for new build dwellings.

In line with best practice the proposed energy strategy for Hollingworth Road, Littleborough 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.

Countryside Partnerships Yorkshire have confirmed Lean measures equal to a 4.65% reduction in fabric heat loss across the building envelope. This greatly reduces the need for energy within a dwelling.

Be Clean.

Countryside Partnerships Yorkshire have confirmed Clean measures which include 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.

Countryside Partnerships Yorkshire have confirmed Green measures where EV charging points will be installed to promote the use of electric/hybrid vehicles.

Establishing a Baseline

To adequately ascertain the potential of Countryside Partnerships 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 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 - Aspen - Det	10	15,862.06	82,953.24
HT - Atkins - Semi	2	2,327.26	12,168.46
HT - Birch - Det	3	4,736.86	24,882.14
HT - Butterworth - Mid	2	2,960.07	16,067.54
HT - Chestnut - Det	9	13,916.68	72,708.92
HT - Cypress - Det	5	7,405.82	38,764.65
HT - Cypress - Semi	4	5,348.23	27,929.09
HT - Hazel - Semi	9	10,858.95	56,643.40
HT - Jessop - Semi/End	6	9,114.71	48,603.25
HT - Jessop - Mid	1	1,362.52	7,263.22
HT - Juniper - Det	10	14,933.96	78,304.97
HT - Lime - Det	3	5,129.21	27,001.60
HT - MacArthur - Semi	4	5,091.86	26,533.88
HT - Maple - Det	8	12,711.74	66,736.64
HT - Newall - Semi	5	6,477.36	33,887.94
HT - Poplar - Semi	7	9,010.39	47,194.90
Ht - Rowan - Semi	2	2,477.79	12,930.83
HT - Spruce - Det	8	11,893.34	62,225.13
HT - Spruce - Semi/End	7	9,514.67	49,654.68
HT - Stansfield - Semi	12	18,614.26	98,404.34
HT - Willow - Det	4	5,976.83	31,277.40
HT - Yew - Det	5	8,469.04	44,323.03
Total	126	184,193.59	966,459.25

Table 4 – Baseline Energy Consumption & CO₂

The calculations summarised in the table above confirm Hollingworth Road, Littleborough has a baseline site wide energy requirement of 966,459.25 kWh/year and an associated CO₂ emission rate of 184,193.59 kgCO₂/year.

Fabric and Building Services Specification

Countryside Partnerships 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/m ² K	0.21/0.22W/m ² K
Roof	0.16W/m ² K	0.08/0.14W/m ² K
Floor	0.20W/m ² K	0.11W/m ² K
Glazing & Doors	1.80W/m ² K	1.10-1.60W/m ² K
Air Test	8.00m ³ /h.m ² at 50Pa	4.50m ³ /h.m ² at 50Pa

- 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.

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.

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;

- Countryside Partnerships 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 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

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 - Aspen - Det	10	6,724.30	70,385.02
HT - Atkins - Semi	2	978.12	10,311.52
HT - Birch - Det	3	2,113.52	21,996.47
HT - Butterworth - Mid	2	1,082.99	11,344.83
HT - Chestnut - Det	9	5,941.20	62,214.16
HT - Cypress - Det	5	3,063.83	32,116.95
HT - Cypress - Semi	4	2,280.64	23,964.28
HT - Hazel - Semi	9	4,736.66	49,931.50
HT - Jessop - Semi/End	6	3,592.19	37,647.70
HT - Jessop - Mid	1	536.91	5,645.02
HT - Juniper - Det	10	6,307.26	66,083.81
HT - Lime - Det	3	2,320.50	24,135.45
HT - MacArthur - Semi	4	2,183.64	22,920.78
HT - Maple - Det	8	5,691.03	59,144.17
HT - Newall - Semi	5	2,505.84	26,311.32
HT - Poplar - Semi	7	3,499.90	36,761.38
Ht - Rowan - Semi	2	1,070.65	11,261.49
HT - Spruce - Det	8	4,947.23	51,810.97
HT - Spruce - Semi/End	7	4,022.75	42,265.07
HT - Stansfield - Semi	12	7,639.63	79,878.23
HT - Willow - Det	4	2,473.76	25,892.00
HT - Yew - Det	5	3,546.19	37,030.25
Total	126	77,258.73	809,052.37

Table 6 – Reduced Emission Rate & Energy Requirement

The calculations summarised in the table above confirm Hollingworth Road, Littleborough has a reduced energy requirement of 809,052.37 kWh/year and an associated emission rate of 77,258.73 kgCO₂/year. These are respectively 16.29% and 58.06% reductions over the baseline 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 Countryside Partnerships Yorkshire to review the performance of the proposed Energy Strategy for the development at Hollingworth Road, Littleborough. The energy strategy was detailed previously but can be best summarised as follows;

- Countryside Partnerships Yorkshire proposes an energy strategy, which addresses the two policy concerns of sustainable design and construction: climate change and energy security.
- Countryside Partnerships 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 58.06% and the proposed energy demand by 16.29% This is a significant betterment and demonstrates that the proposed development will have a reduced reliance on national resources (gas and electricity). These are achieved by installing air source heat pumps on all plots across the development.
- Previously Countryside Partnerships Yorkshire proposed a fabric and building services specification that reduced emissions by 1.93% and the proposed energy demand by 2.26% however, this was under Part L1a 2013. Now that the development will be constructed under Part L 2021, this requires a 31% betterment in emissions over the previous regulations and as the development now achieves a 58.06% improvement in emissions under the 2021 building regulations, when comparing the reduction that is now achieved with the reduction that was achieved under Part L1a 2013, there is a significant betterment.
- The development was initially assessed under Part L1a 2013 and to address the Rochdale Borough Council policy which pre-dates the recent update to part L of the Building Regulations. As the development will now be subject to being constructed under the new Part L 2021 Building Regulations, and the Rochdale Borough policies were written prior to these coming into force, the initial Energy Statement (ref: 8091 rev B) can be considered superseded. This revised Energy Statement has assessed the development in the context of the current Building Regulations (Part L 2021) which provide significant betterment when compared to the previous requirements in respect to energy efficiency and CO2 reduction.
- To aid compliance with the current Building Regulations (Part L 2021) Countryside Partnerships proposes to install an Air Source Heat Pump to every plot as the preferred technology, which will deliver upon their ambition that the development is 'Gas free', reducing its reliance on carbon energy sources.
- 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 Countryside Partnerships Yorkshire.

Appendix A

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.

Summary for Input Data

Property Reference	008091 - HT - Aspen - DET			Issued on Date	05/10/2023
Assessment Reference	As Designed - As (Type 1)		Prop Type Ref	HT - Aspen - DET	
Property	Plot , Hollingworth Road, Littleborough				

SAP Rating	79 C	DER	4.43	TER	10.45
Environmental	96 A	% DER < TER			57.61
CO ₂ Emissions (t/year)	0.56	DFEE	40.83	TFEE	42.28
Compliance Check	See BREL	% DFEE < TFEE			3.42
% DPER < TPER	15.15	DPER	46.37	TPER	54.65

Assessor Details	Mr. Robert Beeson			Assessor ID	P759-0001
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	2023	
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	N/A	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
Basement:	0.00 m	0.00 m ²	0.00 m
Ground floor:	32.87 m	64.55 m ²	2.53 m
1st Storey:	32.87 m	64.55 m ²	2.69 m
2nd Storey:	18.01 m	22.69 m ²	2.48 m
3rd Storey:	0.00 m	0.00 m ²	0.00 m
4th Storey:	0.00 m	0.00 m ²	0.00 m
5th Storey:	0.00 m	0.00 m ²	0.00 m
6th Storey:	0.00 m	0.00 m ²	0.00 m
7th Storey:	0.00 m	0.00 m ²	0.00 m

8.0 Living Area	17.24	m ²
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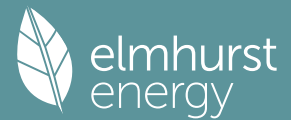
9.0 External Walls										
Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Gross Area(m ²)	Nett Area (m ²)	Shelter Res	Shelter	Openings	Area Calculation Type
External Wall	Cavity Wall	Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure	0.22	110.00	171.69	144.88	0.00	None	26.81	Enter Gross Area

9.1 Party Walls								
Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Area (m ²)	Shelter Res	Shelter	
Party Wall	Filled Cavity with Edge Sealing	Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill	0.00	110.00	36.33	0.00	None	

9.2 Internal Walls				
Description	Construction	Kappa (kJ/m ² K)	Area (m ²)	
Ground Floor	Plasterboard on timber frame	9.00	35.02	
First Floor	Plasterboard on timber frame	9.00	198.68	
Ground Floor - Block	Dense block, plasterboard on dabs	75.00	68.77	

10.0 External Roofs										
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Summary for Input Data



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	0.08	9.00	64.55	64.55	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	64.55

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	64.55

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
First Floor		Plasterboard ceiling, carpeted chipboard floor	9.00	64.55

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Front Doors	Manufacturer	Solid Door			Air Filled	0.00	Wood	0.70	1.10
Windows	BFR, BSI or CERTASS data	Window	Double Low-E Soft 0.05		Air Filled	0.47	Wood	1.00	1.20
Patio Doors	Manufacturer	Window	Double Low-E Soft 0.05		Air Filled	0.63	Wood	0.70	1.30
Roof Windows	Manufacturer	Roof Window	Double Low-E Soft 0.05		Air Filled	0.63	Wood	0.70	1.30
Rear/Side Doors	Manufacturer	Half Glazed Door	Double Low-E Soft 0.05		Air Filled	0.63	Wood	0.70	1.20

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
Front Door	Front Doors	External Wall	East	2.16	0
Front Windows	Windows	External Wall	East	8.74	0
Rear Windows	Windows	External Wall	West	3.84	0
Rear Patio Doors	Patio Doors	External Wall	West	5.67	0
LH Windows	Windows	External Wall	South	1.55	0
RH Windows	Windows	External Wall	North	4.85	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
E3 Sill	Independently assessed	13.85	0.01	0.01	FES	No
E4 Jamb	Independently assessed	39.24	0.01	0.01	FES	No
E5 Ground floor (normal)	Independently assessed	32.87	0.06	0.06	FES	No
E6 Intermediate floor within a dwelling	Independently assessed	32.87	-0.04	-0.04	FES	No
E12 Gable (insulation at ceiling level)	Independently assessed	19.35	0.05	0.05	FES	No
E16 Corner (normal)	Independently assessed	26.12	0.01	0.01	FES	No
E10 Eaves (insulation at ceiling level)	Independently assessed	13.52	0.08	0.08	FES	No
E1 Steel lintel with perforated steel base plate	Independently assessed	18.02	0.34	0.34	FES	No

Y-value W/m²K

18.0 Pressure Testing

Designed AP ₅₀	4.50	m³/(h.m²) @ 50 Pa
Property Tested?	Yes	
Test Method	Blower Door	
As Built AP ₅₀	0.10	m³/(h.m²) @ 50 Pa

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	500787
Duct Type	Flexible
MVHR Efficiency	0.00
Wet Rooms	4

Summary for Input Data

SFP from Installer Commissioning Certificate

No

19.1 Mechanical extract ventilation - Decentralised

SFP	Fan/Room Type	Count
0.13	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
0.10	Through Wall Fan Kitchen	1
0.10	Through Wall Fan Other Wet Room	1

20.0 Fans, Open Fireplaces, Flues

21.0 Fixed Cooling System

No

22.0 Lighting

No Fixed Lighting

No

Name	Efficacy	Power	Capacity	Count
Downlights	80.00	28	2240	15
Spotlights	90.00	9	810	15

24.0 Main Heating 1

Database	
Percentage of Heat	100.00 %
Database Ref. No.	106473
Fuel Type	Electricity
SAP Code	0
In Winter	0.00
In Summer	0.00
Model Name	EDLA06EV3
Manufacturer	Daikin Europe NV
System Type	Heat Pump
Controls SAP Code	2207
Delayed Start Stat	No
Burner Control	On/Off
HETAS approved System	No
Oil Pump Inside	No
FI Case	0.00
Flue Type	None or Unknown
Fan Assisted Flue	No
Is MHS Pumped	Pump in unheated space
Heating Pump Age	2013 or later
Heat Emitter	Radiators
Flow Temperature	Enter value
Flow Temperature Value	55.00
Boiler Interlock	No
Combi boiler type	No Combi
Combi keep hot type	None

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								

Summary for Input Data

Heat source 5 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	No
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Summer Immersion	No
Cold Water Source	From mains
Bath Count	1
Supplementary Immersion	No
Immersion Only Heating Hot Water	No

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
Main Bathroom En-Suite	Combi boiler or unvented hot water system Instantaneous electric shower	6.00	9.30	No No	Instantaneous System 1

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder

Hot Water Cylinder	Hot Water Cylinder	
Cylinder Stat	Yes	
Cylinder In Heated Space	Yes	
Independent Time Control	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	242.00	L
Loss	2.51	kWh/day
Pipes insulation	Fully insulated primary pipework	
In Airing Cupboard	No	

31.0 Thermal Store

None

34.0 Small-scale Hydro

0.0 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	008091 - HT - Atkins - SEMI		Issued on Date	05/10/2023
Assessment Reference	As Designed - As	Prop Type Ref	HT - Atkins - SEMI	
Property	Plot , Hollingworth Road, Littleborough			

SAP Rating	80 C	DER	5.22	TER	12.42
Environmental	96 A	% DER < TER			57.97
CO ₂ Emissions (t/year)	0.36	DFEE	36.80	TFEE	39.00
Compliance Check	See BREL	% DFEE < TFEE			5.64
% DPER < TPER	15.27	DPER	55.03	TPER	64.94

Assessor Details	Mr. Robert Beeson	Assessor ID	P759-0001
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	2023	
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	N/A	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
Basement:	0.00 m	0.00 m ²	0.00 m
Ground floor:	16.87 m	35.50 m ²	2.54 m
1st Storey:	16.87 m	35.50 m ²	2.69 m
2nd Storey:	18.01 m	22.69 m ²	2.48 m
3rd Storey:	0.00 m	0.00 m ²	0.00 m
4th Storey:	0.00 m	0.00 m ²	0.00 m
5th Storey:	0.00 m	0.00 m ²	0.00 m
6th Storey:	0.00 m	0.00 m ²	0.00 m
7th Storey:	0.00 m	0.00 m ²	0.00 m

8.0 Living Area	11.61	m ²
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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 or battens, lightweight aggregate block, filled cavity, any outside structure	0.21	110.00	88.10	72.01	0.00	None	16.09	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	42.37	0.00	None

9.2 Internal Walls				
Description		Construction	Kappa (kJ/m²K)	Area (m²)
Ground Floor		Plasterboard on timber frame	9.00	71.37
First Floor		Plasterboard on timber frame	9.00	80.43

10.0 External Roofs									
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Summary for Input Data



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	0.08	9.00	35.50	35.50	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	35.50

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	35.50

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
First Floor		Plasterboard ceiling, carpeted chipboard floor	9.00	35.50

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Front Doors	Manufacturer	Solid Door			Air Filled	0.00	Wood	0.70	1.10
Windows	BFRC, BSI or CERTASS data	Window	Double Low-E Soft 0.05		Air Filled	0.47	Wood	1.00	1.20
Patio Doors	Manufacturer	Window	Double Low-E Soft 0.05		Air Filled	0.63	Wood	0.70	1.30
Roof Windows	Manufacturer	Roof Window	Double Low-E Soft 0.05		Air Filled	0.63	Wood	0.70	1.30

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
Front Door	Front Doors	External Wall	East	2.16	0
Front Windows	Windows	External Wall	East	5.64	0
Rear Windows	Windows	External Wall	West	3.64	0
Rear Patio Doors	Patio Doors	External Wall	West	3.09	0
Side Windows	Windows	External Wall	South	1.56	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
E1 Steel lintel with perforated steel base plate	Independently assessed	10.78	0.34	0.34	FES	No
E3 Sill	Independently assessed	8.27	0.01	0.01	FES	No
E4 Jamb	Independently assessed	26.22	0.01	0.01	FES	No
E5 Ground floor (normal)	Independently assessed	16.87	0.06	0.06	FES	No
E6 Intermediate floor within a dwelling	Independently assessed	16.87	-0.04	-0.04	FES	No
E12 Gable (insulation at ceiling level)	Independently assessed	8.11	0.05	0.05	FES	No
E16 Corner (normal)	Independently assessed	10.45	0.01	0.01	FES	No
E18 Party wall between dwellings	Independently assessed	10.45	0.03	0.03	FES	No
P1 Party wall - Ground floor	Independently assessed	8.11	0.08	0.08	FES	No
P2 Party wall - Intermediate floor within a dwelling	Table K1 - Default	8.11	0.00	0.00		No
P4 Party wall - Roof (insulation at ceiling level)	Independently assessed	8.11	0.08	0.08	FES	No
E10 Eaves (insulation at ceiling level)	Independently assessed	8.75	0.08	0.08	FES	No

Y-value	0.00	W/m²K
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18.0 Pressure Testing

Designed AP ₅₀	4.50	m³/(h.m²) @ 50 Pa
Property Tested?	Yes	
Test Method	Blower Door	
As Built AP ₅₀	0.10	m³/(h.m²) @ 50 Pa

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	500787
Duct Type	Flexible
MVHR Efficiency	0.00

Summary for Input Data

Wet Rooms

SFP from Installer Commissioning Certificate

19.1 Mechanical extract ventilation - Decentralised

SFP	Fan/Room Type	Count
0.13	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
0.10	Through Wall Fan Kitchen	1
0.10	Through Wall Fan Other Wet Room	0

20.0 Fans, Open Fireplaces, Flues

21.0 Fixed Cooling System

22.0 Lighting

No Fixed Lighting	No				
Name	Efficacy	Power	Capacity	Count	
Downlights	80.00	28	2240	7	
Spotlights	90.00	9	810	14	

24.0 Main Heating 1

	Database	
Percentage of Heat	100.00	%
Database Ref. No.	106465	
Fuel Type	Electricity	
SAP Code	0	
In Winter	0.00	
In Summer	0.00	
Model Name	EDLA04EV3	
Manufacturer	Daikin Europe NV	
System Type	Heat Pump	
Controls SAP Code	2207	
Delayed Start Stat	No	
Burner Control	On/Off	
HETAS approved System	No	
Oil Pump Inside	No	
FI Case	0.00	
Flue Type	None or Unknown	
Fan Assisted Flue	No	
Is MHS Pumped	Pump in unheated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	55.00	
Boiler Interlock	No	
Combi boiler type	No Combi	
Combi keep hot type	None	

25.0 Main Heating 2

26.0 Heat Networks

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								

Summary for Input Data

Heat source 3 None
Heat source 4 None
Heat source 5 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	No
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Summer Immersion	No
Cold Water Source	From mains
Bath Count	1
Supplementary Immersion	No
Immersion Only Heating Hot Water	No

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
Main Bathroom	Combi boiler or unvented hot water system	6.00		No	Instantaneous System 1

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder

Cylinder Stat	Yes	
Cylinder In Heated Space	Yes	
Independent Time Control	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	192.00	L
Loss	2.18	kWh/day
Pipes insulation	Fully insulated primary pipework	
In Airing Cupboard	No	

31.0 Thermal Store

None

34.0 Small-scale Hydro

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	008091 - HT - Birch - DET		Issued on Date	05/10/2023
Assessment Reference	As Designed - As (Type 1)	Prop Type Ref	HT - Birch - DET	
Property	Plot , Hollingworth Road, Littleborough			

SAP Rating	79 C	DER	4.27	TER	9.57
Environmental	96 A	% DER < TER			55.38
CO ₂ Emissions (t/year)	0.69	DFEE	40.76	TFEE	42.94
Compliance Check	See BREL	% DFEE < TFEE			5.07
% DPER < TPER	11.61	DPER	44.44	TPER	50.27

Assessor Details	Mr. Robert Beeson	Assessor ID	P759-0001
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	2023	
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	N/A	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
Basement:	0.00 m	0.00 m ²	0.00 m
Ground floor:	39.44 m	84.44 m ²	2.54 m
1st Storey:	38.08 m	80.55 m ²	2.69 m
2nd Storey:	0.00 m	0.00 m ²	0.00 m
3rd Storey:	0.00 m	0.00 m ²	0.00 m
4th Storey:	0.00 m	0.00 m ²	0.00 m
5th Storey:	0.00 m	0.00 m ²	0.00 m
6th Storey:	0.00 m	0.00 m ²	0.00 m
7th Storey:	0.00 m	0.00 m ²	0.00 m

8.0 Living Area	16.80	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	0.21	110.00	200.59	166.72	0.00	None	33.87	Enter Gross Area
Dormer Wall	Timber Frame	Timber framed wall (one layer of plasterboard)	0.26	9.00	0.88	0.48	0.00	None	0.40	Enter Gross Area

9.2 Internal Walls				
Description	Construction	Kappa (kJ/m ² K)	Area (m ²)	
GF - Block	Dense block, plasterboard on dabs	75.00	81.18	
GF - Timber	Plasterboard on timber frame	9.00	56.79	
1F - Timber	Plasterboard on timber frame	9.00	236.83	

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
Cold Roof	External Plane Roof	Plasterboard, insulated at ceiling level	0.08	9.00	80.55	80.55	None	0.00	Enter Gross Area	0.00

Summary for Input Data

Warm Roof	External Slope Roof	Plasterboard, insulated slope	0.14	9.00	2.55	2.55	None	0.00	Enter Gross Area	0.00
Dormer Flat Roof	External Flat Roof	Plasterboard, insulated flat roof	0.16	9.00	0.57	0.57	None	0.00	Enter Gross Area	0.00
Bay Flat Roof	External Plane Roof	Plasterboard, insulated at ceiling level	0.16	9.00	1.23	1.23	None	0.00	Enter Gross Area	0.00

10.2 Internal Ceilings

Description	Storey	Construction	Area (m²)
GF - Ceiling	Lowest occupied	Plasterboard ceiling, carpeted chipboard floor	80.55

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	84.44

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
1F - Floor		Plasterboard ceiling, carpeted chipboard floor	9.00	83.21

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Windows	BFRC, BSI or CERTASS data	Window	Double Low-E Soft 0.05		Air Filled	0.47	Wood	1.00	1.20
Door	Manufacturer	Solid Door			Air Filled	0.00	Wood	0.70	1.10
Patio Door	Manufacturer	Window	Double Low-E Soft 0.05		Air Filled	0.63	Wood	1.00	1.30
Rear/Side Door	Manufacturer	Half Glazed Door	Double Low-E Soft 0.05		Air Filled	0.63	Wood	0.70	1.20

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
Front Door	Door	External Wall	East	2.15	0
Front Window	Windows	External Wall	East	10.46	0
Rear Windows	Windows	External Wall	West	6.42	0
Rear Patio Door	Patio Door	External Wall	West	5.68	0
Left Windows	Windows	External Wall	South	1.65	0
Right Windows	Windows	External Wall	North	5.39	0
Left Door	Rear/Side Door	External Wall	South	2.12	0
Front Dormer Window	Windows	Dormer Wall	East	0.40	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
E1 Steel lintel with perforated steel base plate	Independently assessed	23.15	0.34	0.34 FES	No
E3 Sill	Independently assessed	17.93	0.01	0.01 FES	No
E4 Jamb	Independently assessed	51.73	0.01	0.01 FES	No
E5 Ground floor (normal)	Independently assessed	39.44	0.06	0.06 FES	No
E6 Intermediate floor within a dwelling	Independently assessed	38.08	-0.04	-0.04 FES	No
E10 Eaves (insulation at ceiling level)	Independently assessed	18.24	0.08	0.08 FES	No
E12 Gable (insulation at ceiling level)	Independently assessed	19.84	0.05	0.05 FES	No
E16 Corner (normal)	Independently assessed	32.75	0.01	0.01 FES	No
E17 Corner (inverted – internal area greater than external area)	Independently assessed	14.73	-0.10	-0.10 RCD	No
E11 Eaves (insulation at rafter level)	Independently assessed	1.67	0.01	0.01 RCD	No
E13 Gable (insulation at rafter level)	Independently assessed	1.37	0.05	0.05 RCD	No
E14 Flat roof	Table K1 - Default	0.71	0.16	0.16 Default	No
R1 Head of roof window	Table K1 - Default	0.69	0.24	0.24	No
R3 Jamb of roof window	Table K1 - Default	1.16	0.24	0.24	No
R6 Flat ceiling	Table K1 - Default	2.36	0.12	0.12	No
R7 Flat ceiling (inverted)	Table K1 - Default	0.69	0.12	0.12	No
R9 Roof to wall (flat ceiling)	Table K1 - Default	2.34	0.32	0.32	No
E16 Corner (normal)	Table K1 - Default	1.16	0.18	0.18 Dormer Corners	No
E24 Eaves (insulation at ceiling level - inverted)	Table K1 - Default	1.82	0.15	0.15	No

Y-value W/m²K

18.0 Pressure Testing

Designed AP ₅₀	4.50	m³/(h.m²) @ 50 Pa
Property Tested?	Yes	
Test Method	Blower Door	
As Built AP ₅₀	0.10	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Mechanical Ventilation

Summary for Input Data

Mechanical Ventilation System Present	Yes
Approved Installation	No
Mechanical Ventilation data Type	Database
Type	Mechanical extract ventilation - decentralised
MV Reference Number	500787
Duct Type	Rigid
MVHR Efficiency	0.00
Wet Rooms	6
SFP from Installer Commissioning Certificate	No

19.1 Mechanical extract ventilation - Decentralised

SFP	Fan/Room Type	Count
0.13	In Room Fan Kitchen	0
0.11	In Room Fan Other Wet Room	4
0.00	In Duct Fan Kitchen	0
0.00	In Duct Fan Other Wet Room	0
0.10	Through Wall Fan Kitchen	2
0.10	Through Wall Fan Other Wet Room	0

20.0 Fans, Open Fireplaces, Flues

21.0 Fixed Cooling System	No
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22.0 Lighting

No Fixed Lighting	No				
Name	Efficacy	Power	Capacity	Count	
Down Lights	80.00	28	2240	15	
Spotlights	90.00	9	810	18	

24.0 Main Heating 1

	Database	
Percentage of Heat	100.00	%
Database Ref. No.	106485	
Fuel Type	Electricity	
SAP Code	0	
In Winter	0.00	
In Summer	0.00	
Model Name	EDLA08EV3	
Manufacturer	Daikin Europe NV	
System Type	Heat Pump	
Controls SAP Code	2207	
Delayed Start Stat	No	
Burner Control	Modulating	
HETAS approved System	No	
Oil Pump Inside	No	
FI Case	0.00	
Flue Type	None or Unknown	
Fan Assisted Flue	No	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	55.00	
Boiler Interlock	No	
Combi boiler type	No Combi	

Summary for Input Data

Combi keep hot type

None

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								

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

No

Waste Water Heat Recovery Instantaneous System 2

No

Waste Water Heat Recovery Storage System

No

Solar Panel

No

Water use <= 125 litres/person/day

Yes

Summer Immersion

No

Cold Water Source

From mains

Bath Count

1

Supplementary Immersion

No

Immersion Only Heating Hot Water

No

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
Main Bathroom	Combi boiler or unvented hot water system	6.00		No	
Ensuite 1	Instantaneous electric shower	11.00	9.30	No	
Ensuite 2	Instantaneous electric shower		9.30	No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder

Cylinder Stat

Yes

Cylinder In Heated Space

Yes

Independent Time Control

Yes

Insulation Type

Measured Loss

Cylinder Volume

242.00

L

Loss

2.51

kWh/day

Pipes insulation

Fully insulated primary pipework

In Airing Cupboard

No

31.0 Thermal Store

None

34.0 Small-scale Hydro

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	008091 - HT - Butterworth -MID			Issued on Date	05/10/2023
Assessment Reference	As Designed	Prop Type Ref	HT - Butterworth - MID		
Property	Plot , Hollingworth Road, Littleborough				

SAP Rating	70 C	DER	7.76	TER	21.21
Environmental	94 A	% DER < TER			63.41
CO ₂ Emissions (t/year)	0.53	DFEE	64.64	TFEE	65.82
Compliance Check	See BREL	% DFEE < TFEE			1.78
% DPER < TPER	29.40	DPER	81.29	TPER	115.13

Assessor Details	Mr. Robert Beeson	Assessor ID	P759-0001
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, Mid-Terrace	
Which Floor	0	
2.0 Number of Storeys	2	
3.0 Date Built	2023	
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	N/A	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
Basement:	0.00 m	0.00 m ²	0.00 m
Ground floor:	7.99 m	5.39 m ²	2.82 m
1st Storey:	21.30 m	64.39 m ²	3.43 m
2nd Storey:	0.00 m	0.00 m ²	0.00 m
3rd Storey:	0.00 m	0.00 m ²	0.00 m
4th Storey:	0.00 m	0.00 m ²	0.00 m
5th Storey:	0.00 m	0.00 m ²	0.00 m
6th Storey:	0.00 m	0.00 m ²	0.00 m
7th Storey:	0.00 m	0.00 m ²	0.00 m

8.0 Living Area	30.75	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	0.21	110.00	71.05	55.80	0.00	None	15.25	Enter Gross Area
	Garage Wall	Cavity Wall	Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure	0.20	110.00	16.21	14.24	0.25	Garage Single 2 Outside	1.97	Enter Gross Area

9.1 Party Walls	Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Area (m ²)	Shelter Res	Shelter
	Party Wall	Filled Cavity with Edge Sealing	Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill	0.00	110.00	43.91	0.00	None

9.2 Internal Walls	Description	Construction	Kappa (kJ/m ² K)	Area (m ²)
	GF - Timber	Plasterboard on timber frame	9.00	6.20
	1F - Timber	Plasterboard on timber frame	9.00	144.20

Summary for Input Data

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	Plasterboard, insulated at ceiling level	0.08	9.00	32.73	32.73	None	0.00	Enter Gross Area	0.00
Warm Roof	External Slope	Plasterboard, insulated slope	0.14	9.00	44.77	43.52	None	0.00	Enter Gross Area	1.25

10.2 Internal Ceilings

Description	Storey	Construction	Area (m²)
GF - Ceiling	Lowest occupied	Plasterboard ceiling, carpeted chipboard floor	5.39

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	5.39
Exposed Floor Over Garage	Exposed Floor - Timber	+1	Timber exposed floor, insulation between joists	0.15	Garage Single 2 Outside	0.25	20.00	57.95
Exposed Floor Over Porch	Exposed Floor - Timber	+1	Timber exposed floor, insulation between joists	0.18	None	0.00	20.00	1.05

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
1F - Floor		Plasterboard ceiling, carpeted chipboard floor	9.00	5.39

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Windows	BFRC, BSI or CERTASS data	Window	Double Low-E Soft 0.05		Air Filled	0.47	Wood	1.00	1.20
Door	Manufacturer	Solid Door			Air Filled	0.00	Wood	0.70	1.10
Patio Door	Manufacturer	Window	Double Low-E Soft 0.05		Air Filled	0.63	Wood	1.00	1.30
Roof Windows	Manufacturer	Roof Window	Double Low-E Soft 0.05		Air Filled	0.63	Wood	0.70	1.30

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
Front Door	Door	External Wall	East	2.15	0
Front Windows	Windows	External Wall	East	4.83	0
Front Patio	Patio Door	External Wall	East	3.54	0
Rear Window	Windows	External Wall	West	2.49	0
Rear Door	Door	External Wall	West	2.24	0
Rear Roof Windows	Roof Windows	Warm Roof	West	1.25	45
Left Garage Door	Door	Garage Wall	South	1.97	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	8.83	0.02	0.02 RCD Hi Therm Lintels	No
E3 Sill	Independently assessed	5.25	0.01	0.01 FES	No
E4 Jamb	Independently assessed	30.47	0.01	0.01 FES	No
E5 Ground floor (normal)	Independently assessed	7.99	0.06	0.06 FES	No
E6 Intermediate floor within a dwelling	Independently assessed	0.88	-0.04	-0.04 FES	No
E12 Gable (insulation at ceiling level)	Independently assessed	6.15	0.05	0.05 FES	No
E16 Corner (normal)	Independently assessed	8.45	0.01	0.01 FES	No
P1 Party wall - Ground floor	Independently assessed	5.28	0.08	0.08 FES	No
P2 Party wall - Intermediate floor within a dwelling	Table K1 - Default	5.28	0.00	0.00 Default	No
E20 Exposed floor (normal)	Table K1 - Default	20.42	0.32	0.32	No
E21 Exposed floor (inverted)	Table K1 - Default	7.12	0.32	0.32	No
P8 Party Wall - Exposed floor (inverted)	Table K1 - Default	6.05	0.48	0.48	No
E24 Eaves (insulation at ceiling level - inverted)	Independently assessed	12.09	0.07	0.07 DefaultSplitBetween2Dwellings	No
E11 Eaves (insulation at rafter level)	Independently assessed	21.30	0.01	0.01 RCD	No
E13 Gable (insulation at rafter level)	Independently assessed	8.41	0.05	0.05 RCD	No
E17 Corner (inverted - internal area greater than external area)	Independently assessed	2.82	-0.10	-0.10 RCD	No
E25 Staggered party wall between dwellings	Independently assessed	15.15	0.04	0.04 RCD	No
R1 Head of roof window	Table K1 - Default	1.10	0.24	0.24	No
R2 Sill of roof window	Table K1 - Default	1.10	0.24	0.24	No
R3 Jamb of roof window	Table K1 - Default	4.55	0.24	0.24	No
R6 Flat ceiling	Table K1 - Default	21.30	0.12	0.12	No
R8 Roof to wall (rafter)	Table K1 - Default	0.77	0.12	0.12	No

Y-value W/m²K

18.0 Pressure Testing

Designed AP₅₀ m³/(h.m²) @ 50 Pa

Property Tested?

Summary for Input Data

Test Method	Blower Door	
As Built AP ₅₀	0.10	m³/(h.m²) @ 50 Pa

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	500787
Duct Type	Rigid
MVHR Efficiency	0.00
Wet Rooms	3
SFP from Installer Commissioning Certificate	No

19.1 Mechanical extract ventilation - Decentralised

SFP	Fan/Room Type	Count
0.13	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
0.10	Through Wall Fan Kitchen	1
0.10	Through Wall Fan Other Wet Room	0

20.0 Fans, Open Fireplaces, Flues

21.0 Fixed Cooling System	No
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22.0 Lighting

No Fixed Lighting	No			
	Name	Efficacy	Power	Capacity
	Down Lights	80.00	28	2240
	Spotlights	90.00	9	810
				Count
				12
				11

24.0 Main Heating 1

	Database	
Percentage of Heat	100.00	%
Database Ref. No.	106473	
Fuel Type	Electricity	
SAP Code	0	
In Winter	0.00	
In Summer	0.00	
Model Name	EDLA06EV3	
Manufacturer	Daikin Europe NV	
System Type	Heat Pump	
Controls SAP Code	2207	
Delayed Start Stat	No	
Burner Control	Modulating	
HETAS approved System	No	
Oil Pump Inside	No	
FI Case	0.00	
Flue Type	None or Unknown	
Fan Assisted Flue	No	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	

Summary for Input Data

Flow Temperature	Enter value
Flow Temperature Value	55.00
Boiler Interlock	No
Combi boiler type	No Combi
Combi keep hot type	None

25.0 Main Heating 2

26.0 Heat Networks

	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									

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

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
Main Bathroom	Combi boiler or unvented hot water system	6.00		No	
En-suite	Instantaneous electric shower	11.00	9.30	No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder

Hot Water Cylinder	Hot Water Cylinder	
Cylinder Stat	No	
Cylinder In Heated Space	No	
Independent Time Control	No	
Insulation Type	Measured Loss	
Cylinder Volume	192.00	L
Loss	2.18	kWh/day
Pipes insulation	Fully insulated primary pipework	
In Airing Cupboard	No	

31.0 Thermal Store

34.0 Small-scale Hydro

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

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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Summary for Input Data



Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

Summary for Input Data

Property Reference	008091 - HT - Chestnut 1 - DET		Issued on Date	05/10/2023
Assessment Reference	As Designed - As (Type 1)	Prop Type Ref	HT - Chestnut 1 - DET	
Property	Plot , Hollingworth Road, Littleborough			

SAP Rating	79 C	DER	4.41	TER	10.33
Environmental	96 A	% DER < TER			57.31
CO ₂ Emissions (t/year)	0.55	DFEE	40.26	TFEE	41.87
Compliance Check	See BREL	% DFEE < TFEE			3.85
% DPER < TPER	14.44	DPER	46.18	TPER	53.97

Assessor Details	Mr. Robert Beeson	Assessor ID	P759-0001
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	2023	
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	N/A	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
Basement:	0.00 m	0.00 m ²	0.00 m
Ground floor:	32.22 m	63.50 m ²	2.54 m
1st Storey:	32.22 m	63.50 m ²	2.69 m
2nd Storey:	18.01 m	22.69 m ²	2.48 m
3rd Storey:	0.00 m	0.00 m ²	0.00 m
4th Storey:	0.00 m	0.00 m ²	0.00 m
5th Storey:	0.00 m	0.00 m ²	0.00 m
6th Storey:	0.00 m	0.00 m ²	0.00 m
7th Storey:	0.00 m	0.00 m ²	0.00 m

8.0 Living Area	17.24	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	0.21	110.00	168.40	137.74	0.00	None	30.66	Enter Gross Area

9.1 Party Walls							
Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Area (m ²)	Shelter Res	Shelter
Party Wall	Filled Cavity with Edge Sealing	Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill	0.00	110.00	36.33	0.00	None

9.2 Internal Walls				
Description	Construction	Kappa (kJ/m ² K)	Area (m ²)	
Ground Floor	Plasterboard on timber frame	9.00	41.05	
First Floor	Plasterboard on timber frame	9.00	89.39	
Ground Floor - Block	Dense block, plasterboard on dabs	75.00	77.83	

10.0 External Roofs										
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Summary for Input Data



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	0.08	9.00	63.50	63.50	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	63.50

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	63.50

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
First Floor		Plasterboard ceiling, carpeted chipboard floor	9.00	63.50

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Front Doors	Manufacturer	Solid Door			Air Filled	0.00	Wood	0.70	1.10
Windows	BFRC, BSI or CERTASS data	Window	Double Low-E Soft 0.05		Air Filled	0.47	Wood	1.00	1.20
Patio Doors	Manufacturer	Window	Double Low-E Soft 0.05		Air Filled	0.63	Wood	0.70	1.30
Roof Windows	Manufacturer	Roof Window	Double Low-E Soft 0.05		Air Filled	0.63	Wood	0.70	1.30
Rear/Side Doors	Manufacturer	Half Glazed Door	Double Low-E Soft 0.05		Air Filled	0.63	Wood	0.70	1.20

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
Front Door	Front Doors	External Wall	East	2.15	0
Front Windows	Windows	External Wall	East	10.94	0
Rear Windows	Windows	External Wall	West	3.84	0
Rear Patio Doors	Patio Doors	External Wall	West	9.00	0
LH Windows	Windows	External Wall	South	2.76	0
RH Windows	Windows	External Wall	North	1.97	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
E3 Sill	Independently assessed	13.65	0.01	0.01	FES	No
E4 Jamb	Independently assessed	44.97	0.01	0.01	FES	No
E5 Ground floor (normal)	Independently assessed	32.22	0.06	0.06	FES	No
E6 Intermediate floor within a dwelling	Independently assessed	32.22	-0.04	-0.04	FES	No
E12 Gable (insulation at ceiling level)	Independently assessed	16.70	0.05	0.05	FES	No
E16 Corner (normal)	Independently assessed	20.92	0.01	0.01	FES	No
E10 Eaves (insulation at ceiling level)	Independently assessed	15.52	0.08	0.08	FES	No
E1 Steel lintel with perforated steel base plate	Independently assessed	19.88	0.34	0.34	FES	No

Y-value W/m²K

18.0 Pressure Testing

Designed AP ₅₀	4.50	m³/(h.m²) @ 50 Pa
Property Tested?	Yes	
Test Method	Blower Door	
As Built AP ₅₀	0.10	m³/(h.m²) @ 50 Pa

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	500787
Duct Type	Flexible
MVHR Efficiency	0.00
Wet Rooms	4

Summary for Input Data

SFP from Installer Commissioning Certificate

No

19.1 Mechanical extract ventilation - Decentralised

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

20.0 Fans, Open Fireplaces, Flues

21.0 Fixed Cooling System

No

22.0 Lighting

No Fixed Lighting

No

Name	Efficacy	Power	Capacity	Count
Downlights	80.00	28	2240	17
Spotlights	90.00	9	810	15

24.0 Main Heating 1

Database	
Percentage of Heat	100.00 %
Database Ref. No.	106473
Fuel Type	Electricity
SAP Code	0
In Winter	0.00
In Summer	0.00
Model Name	EDLA06EV3
Manufacturer	Daikin Europe NV
System Type	Heat Pump
Controls SAP Code	2207
Delayed Start Stat	No
Burner Control	On/Off
HETAS approved System	No
Oil Pump Inside	No
FI Case	0.00
Flue Type	None or Unknown
Fan Assisted Flue	No
Is MHS Pumped	Pump in unheated space
Heating Pump Age	2013 or later
Heat Emitter	Radiators
Flow Temperature	Enter value
Flow Temperature Value	55.00
Boiler Interlock	No
Combi boiler type	No Combi
Combi keep hot type	None

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								

Summary for Input Data

Heat source 5 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	No
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Summer Immersion	No
Cold Water Source	From mains
Bath Count	1
Supplementary Immersion	No
Immersion Only Heating Hot Water	No

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
Main Bathroom En-Suite	Combi boiler or unvented hot water system Instantaneous electric shower	6.00	9.30	No No	Instantaneous System 1

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder

Hot Water Cylinder	Hot Water Cylinder	
Cylinder Stat	Yes	
Cylinder In Heated Space	Yes	
Independent Time Control	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	242.00	L
Loss	2.51	kWh/day
Pipes insulation	Fully insulated primary pipework	
In Airing Cupboard	No	

31.0 Thermal Store

None

34.0 Small-scale Hydro

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

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Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

Summary for Input Data

Property Reference	008091 - HT - Cypress - DET	Issued on Date	05/10/2023
Assessment Reference	As Designed - As (Type 1)	Prop Type Ref	HT - Cypress - DET
Property	Plot , Hollingworth Road, Littleborough		

SAP Rating	78 C	DER	4.89	TER	11.82
Environmental	96 A	% DER < TER			58.63
CO ₂ Emissions (t/year)	0.49	DFEE	41.63	TFEE	43.91
Compliance Check	See BREL	% DFEE < TFEE			5.20
% DPER < TPER	17.15	DPER	51.26	TPER	61.87

Assessor Details	Mr. Robert Beeson	Assessor ID	P759-0001
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	2023	
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	N/A	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
Basement:	0.00 m	0.00 m ²	0.00 m
Ground floor:	30.18 m	51.31 m ²	2.54 m
1st Storey:	30.18 m	51.31 m ²	2.69 m
2nd Storey:	18.01 m	22.69 m ²	2.48 m
3rd Storey:	0.00 m	0.00 m ²	0.00 m
4th Storey:	0.00 m	0.00 m ²	0.00 m
5th Storey:	0.00 m	0.00 m ²	0.00 m
6th Storey:	0.00 m	0.00 m ²	0.00 m
7th Storey:	0.00 m	0.00 m ²	0.00 m

8.0 Living Area	14.83	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	0.21	110.00	157.84	136.64	0.00	None	21.20	Enter Gross Area

9.1 Party Walls	Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Area (m ²)	Shelter Res	Shelter
	Party Wall	Filled Cavity with Edge Sealing	Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill	0.00	110.00	36.33	0.00	None

9.2 Internal Walls	Description	Construction	Kappa (kJ/m ² K)	Area (m ²)
	Ground Floor	Plasterboard on timber frame	9.00	41.66
	First Floor	Plasterboard on timber frame	9.00	67.14
	Ground Floor - Block	Dense block, plasterboard on dabs	75.00	56.95

10.0 External Roofs	
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Summary for Input Data

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	0.08	9.00	51.31	51.31	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	51.31

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	51.31

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
First Floor		Plasterboard ceiling, carpeted chipboard floor	9.00	51.31

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Front Doors	Manufacturer	Solid Door			Air Filled	0.00	Wood	0.70	1.10
Windows	BFRC, BSI or CERTASS data	Window	Double Low-E Soft 0.05		Air Filled	0.47	Wood	1.00	1.20
Patio Doors	Manufacturer	Window	Double Low-E Soft 0.05		Air Filled	0.63	Wood	0.70	1.30
Roof Windows	Manufacturer	Roof Window	Double Low-E Soft 0.05		Air Filled	0.63	Wood	0.70	1.30
Rear/Side Doors	Manufacturer	Half Glazed Door	Double Low-E Soft 0.05		Air Filled	0.63	Wood	0.70	1.20

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
Front Door	Front Doors	External Wall	East	2.15	0
Front Windows	Windows	External Wall	East	6.36	0
Rear Windows	Windows	External Wall	West	4.71	0
Rear Patio Doors	Patio Doors	External Wall	West	3.33	0
LH Windows	Windows	External Wall	South	0.83	0
RH Windows	Windows	External Wall	North	1.67	0
Left Side Door	Rear/Side Doors	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
E3 Sill	Independently assessed	9.67	0.01	0.01 FES	No
E4 Jamb	Independently assessed	35.58	0.01	0.01 FES	No
E5 Ground floor (normal)	Independently assessed	30.18	0.06	0.06 FES	No
E6 Intermediate floor within a dwelling	Independently assessed	30.18	-0.04	-0.04 FES	No
E12 Gable (insulation at ceiling level)	Independently assessed	21.05	0.05	0.05 FES	No
E16 Corner (normal)	Independently assessed	26.15	0.01	0.01 FES	No
E10 Eaves (insulation at ceiling level)	Independently assessed	9.13	0.08	0.08 FES	No
E1 Steel lintel with perforated steel base plate	Independently assessed	13.77	0.34	0.34 FES	No
E17 Corner (inverted – internal area greater than external area)	Independently assessed	5.23	-0.10	-0.10 RCD	No

Y-value	0.00	W/m²K
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18.0 Pressure Testing

Designed AP ₅₀	4.50	m³/(h.m²) @ 50 Pa
Property Tested?	Yes	
Test Method	Blower Door	
As Built AP ₅₀	0.10	m³/(h.m²) @ 50 Pa

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	500787
Duct Type	Rigid

Summary for Input Data



MVHR Efficiency	0.00
Wet Rooms	5
SFP from Installer Commissioning Certificate	No

19.1 Mechanical extract ventilation - Decentralised

SFP	Fan/Room Type	Count
0.13	In Room Fan Kitchen	0
0.11	In Room Fan Other Wet Room	3
0.00	In Duct Fan Kitchen	0
0.00	In Duct Fan Other Wet Room	0
0.10	Through Wall Fan Kitchen	2
0.10	Through Wall Fan Other Wet Room	0

20.0 Fans, Open Fireplaces, Flues

21.0 Fixed Cooling System	No
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22.0 Lighting

No Fixed Lighting	No				
Name	Efficacy	Power	Capacity	Count	
Downlights	80.00	28	2240	13	
Spotlights	90.00	9	810	13	

24.0 Main Heating 1

	Database	
Percentage of Heat	100.00	%
Database Ref. No.	106473	
Fuel Type	Electricity	
SAP Code	0	
In Winter	0.00	
In Summer	0.00	
Model Name	EDLA06EV3	
Manufacturer	Daikin Europe NV	
System Type	Heat Pump	
Controls SAP Code	2207	
Delayed Start Stat	No	
Burner Control	On/Off	
HETAS approved System	No	
Oil Pump Inside	No	
FI Case	0.00	
Flue Type	None or Unknown	
Fan Assisted Flue	No	
Is MHS Pumped	Pump in unheated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	55.00	
Boiler Interlock	No	
Combi boiler type	No Combi	
Combi keep hot type	None	

25.0 Main Heating 2	None
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26.0 Heat Networks	None
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Heat Source	Fuel Type	Heating Use	Efficiency	Percentage Of Heat	Heat	Heat Power Ratio	Electrical	Fuel Factor	Efficiency type
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Summary for Input Data

Heat source 1 None
Heat source 2 None
Heat source 3 None
Heat source 4 None
Heat source 5 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	No
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Summer Immersion	No
Cold Water Source	From mains
Bath Count	1
Supplementary Immersion	No
Immersion Only Heating Hot Water	No

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
Main Bathroom	Combi boiler or unvented hot water system	6.00		No	Instantaneous System 1
En-Suite	Instantaneous electric shower		9.30	No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder

0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder Stat	Yes	
Cylinder In Heated Space	Yes	
Independent Time Control	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	192.00	L
Loss	2.18	kWh/day
Pipes insulation	Fully insulated primary pipework	
In Airing Cupboard	No	

31.0 Thermal Store

None

34.0 Small-scale Hydro

0.0 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	008091 - HT - Cypress - SEMI		Issued on Date	05/10/2023
Assessment Reference	As Designed - As	Prop Type Ref	HT - Cypress - SEMI	
Property	Plot , Hollingworth Road, Littleborough			

SAP Rating	80 C	DER	4.55	TER	10.67
Environmental	96 A	% DER < TER			57.36
CO ₂ Emissions (t/year)	0.45	DFEE	36.28	TFEE	38.51
Compliance Check	See BREL	% DFEE < TFEE			5.78
% DPER < TPER	14.20	DPER	47.81	TPER	55.72

Assessor Details	Mr. Robert Beeson	Assessor ID	P759-0001
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	2023	
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	N/A	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
Basement:	0.00 m	0.00 m ²	0.00 m
Ground floor:	21.29 m	51.31 m ²	2.54 m
1st Storey:	21.29 m	51.31 m ²	2.69 m
2nd Storey:	18.01 m	22.69 m ²	2.48 m
3rd Storey:	0.00 m	0.00 m ²	0.00 m
4th Storey:	0.00 m	0.00 m ²	0.00 m
5th Storey:	0.00 m	0.00 m ²	0.00 m
6th Storey:	0.00 m	0.00 m ²	0.00 m
7th Storey:	0.00 m	0.00 m ²	0.00 m

8.0 Living Area	14.83	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	0.21	110.00	111.35	91.82	0.00	None	19.53	Enter Gross Area

9.1 Party Walls							
Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Area (m ²)	Shelter Res	Shelter
Party Wall	Filled Cavity with Edge Sealing	Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill	0.00	110.00	46.49	0.00	None

9.2 Internal Walls				
Description	Construction	Kappa (kJ/m ² K)	Area (m ²)	
Ground Floor	Plasterboard on timber frame	9.00	41.66	
First Floor	Plasterboard on timber frame	9.00	67.14	
Ground Floor - Block	Dense block, plasterboard on dabs	75.00	56.95	

10.0 External Roofs										
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Summary for Input Data



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	0.08	9.00	51.31	51.31	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	51.31

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	51.31

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
First Floor		Plasterboard ceiling, carpeted chipboard floor	9.00	51.31

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Front Doors	Manufacturer	Solid Door			Air Filled	0.00	Wood	0.70	1.10
Windows	BFRC, BSI or CERTASS data	Window	Double Low-E Soft 0.05		Air Filled	0.47	Wood	1.00	1.20
Patio Doors	Manufacturer	Window	Double Low-E Soft 0.05		Air Filled	0.63	Wood	0.70	1.30
Roof Windows	Manufacturer	Roof Window	Double Low-E Soft 0.05		Air Filled	0.63	Wood	0.70	1.30
Rear/Side Doors	Manufacturer	Half Glazed Door	Double Low-E Soft 0.05		Air Filled	0.63	Wood	0.70	1.20

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
Front Door	Front Doors	External Wall	East	2.15	0
Front Windows	Windows	External Wall	East	6.36	0
Rear Windows	Windows	External Wall	West	4.71	0
Rear Patio Doors	Patio Doors	External Wall	West	3.33	0
LH Windows	Windows	External Wall	South	0.83	0
Left Side Door	Rear/Side Doors	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
E3 Sill	Independently assessed	8.29	0.01	0.01	FES	No
E4 Jamb	Independently assessed	30.73	0.01	0.01	FES	No
E5 Ground floor (normal)	Independently assessed	21.29	0.06	0.06	FES	No
E6 Intermediate floor within a dwelling	Independently assessed	21.29	-0.04	-0.04	FES	No
E12 Gable (insulation at ceiling level)	Independently assessed	12.16	0.05	0.05	FES	No
E16 Corner (normal)	Independently assessed	15.69	0.01	0.01	FES	No
E10 Eaves (insulation at ceiling level)	Independently assessed	9.13	0.08	0.08	FES	No
E1 Steel lintel with perforated steel base plate	Independently assessed	12.39	0.34	0.34	FES	No
E17 Corner (inverted – internal area greater than external area)	Independently assessed	5.23	-0.10	-0.10	RCD	No
E18 Party wall between dwellings	Independently assessed	10.46	0.03	0.03	FES	No
P1 Party wall - Ground floor	Independently assessed	8.89	0.08	0.08	FES	No
P2 Party wall - Intermediate floor within a dwelling	Table K1 - Default	8.89	0.00	0.00		No
P4 Party wall - Roof (insulation at ceiling level)	Independently assessed	8.89	0.08	0.08	FES	No

Y-value	0.00	W/m²K
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18.0 Pressure Testing

Designed AP ₅₀	4.50	m³/(h.m²) @ 50 Pa
Property Tested?	Yes	
Test Method	Blower Door	
As Built AP ₅₀	0.10	m³/(h.m²) @ 50 Pa

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	500787

Summary for Input Data

Duct Type	Rigid
MVHR Efficiency	0.00
Wet Rooms	5
SFP from Installer Commissioning Certificate	No

19.1 Mechanical extract ventilation - Decentralised

SFP	Fan/Room Type	Count
0.13	In Room Fan	0
	Kitchen	
0.11	In Room Fan Other	3
	Wet Room	
0.00	In Duct Fan Kitchen	0
0.00	In Duct Fan Other	0
	Wet Room	
0.10	Through Wall Fan	2
	Kitchen	
0.10	Through Wall Fan	0
	Other Wet Room	

20.0 Fans, Open Fireplaces, Flues

21.0 Fixed Cooling System	No
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22.0 Lighting

No Fixed Lighting	No				
	Name	Efficacy	Power	Capacity	Count
	Downlights	80.00	28	2240	13
	Spotlights	90.00	9	810	13

24.0 Main Heating 1

	Database	
Percentage of Heat	100.00	%
Database Ref. No.	106473	
Fuel Type	Electricity	
SAP Code	0	
In Winter	0.00	
In Summer	0.00	
Model Name	EDLA06EV3	
Manufacturer	Daikin Europe NV	
System Type	Heat Pump	
Controls SAP Code	2207	
Delayed Start Stat	No	
Burner Control	On/Off	
HETAS approved System	No	
Oil Pump Inside	No	
FI Case	0.00	
Flue Type	None or Unknown	
Fan Assisted Flue	No	
Is MHS Pumped	Pump in unheated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	55.00	
Boiler Interlock	No	
Combi boiler type	No Combi	
Combi keep hot type	None	

25.0 Main Heating 2	None
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26.0 Heat Networks	None
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Summary for Input Data

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								

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

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
Main Bathroom En-Suite	Combi boiler or unvented hot water system	6.00		No	Instantaneous System 1
	Instantaneous electric shower		9.30	No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder

Hot Water Cylinder	Hot Water Cylinder	
Cylinder Stat	Yes	
Cylinder In Heated Space	Yes	
Independent Time Control	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	192.00	L
Loss	2.18	kWh/day
Pipes insulation	Fully insulated primary pipework	
In Airing Cupboard	No	

31.0 Thermal Store

None

34.0 Small-scale Hydro

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

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

Recommendations

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

Summary for Input Data

Property Reference	008091 - HT - Hazel - SEMI		Issued on Date	05/10/2023
Assessment Reference	As Designed - As (Type 1)	Prop Type Ref	HT - Hazel - SEMI	
Property	Plot , Hollingworth Road, Littleborough			

SAP Rating	80 C	DER	4.82	TER	11.05
Environmental	96 A	% DER < TER			56.38
CO ₂ Emissions (t/year)	0.4	DFEE	35.22	TFEE	37.31
Compliance Check	See BREL	% DFEE < TFEE			5.59
% DPER < TPER	11.84	DPER	50.81	TPER	57.64

Assessor Details	Mr. Robert Beeson			Assessor ID	P759-0001
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	2023	
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	N/A	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
Basement:	0.00 m	0.00 m²	0.00 m
Ground floor:	18.71 m	43.25 m²	2.54 m
1st Storey:	18.71 m	43.25 m²	2.69 m
2nd Storey:	18.01 m	22.69 m²	2.48 m
3rd Storey:	0.00 m	0.00 m²	0.00 m
4th Storey:	0.00 m	0.00 m²	0.00 m
5th Storey:	0.00 m	0.00 m²	0.00 m
6th Storey:	0.00 m	0.00 m²	0.00 m
7th Storey:	0.00 m	0.00 m²	0.00 m

8.0 Living Area	14.08	m²
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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 or battens, lightweight aggregate block, filled cavity, any outside structure	0.21	110.00	97.74	80.40	0.00	None	17.34	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	43.53	0.00	None	

9.2 Internal Walls				
Description	Construction	Kappa (kJ/m²K)	Area (m²)	
Ground Floor	Plasterboard on timber frame	9.00	91.95	
First Floor	Plasterboard on timber frame	9.00	108.25	

10.0 External Roofs										
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Summary for Input Data

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	0.08	9.00	43.25	43.25	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	43.25

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	43.25

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
First Floor		Plasterboard ceiling, carpeted chipboard floor	9.00	43.25

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Front Doors	Manufacturer	Solid Door			Air Filled	0.00	Wood	0.70	1.10
Windows	BFRC, BSI or CERTASS data	Window	Double Low-E Soft 0.05		Air Filled	0.47	Wood	1.00	1.20
Patio Doors	Manufacturer	Window	Double Low-E Soft 0.05		Air Filled	0.63	Wood	0.70	1.30
Roof Windows	Manufacturer	Roof Window	Double Low-E Soft 0.05		Air Filled	0.63	Wood	0.70	1.30
Rear/Side Doors	Manufacturer	Half Glazed Door	Double Low-E Soft 0.05		Air Filled	0.63	Wood	0.70	1.20

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
Front Door	Front Doors	External Wall	East	2.15	0
Front Windows	Windows	External Wall	East	5.79	0
Rear Windows	Windows	External Wall	West	4.72	0
Rear Patio Doors	Patio Doors	External Wall	West	3.11	0
LH Windows	Windows	External Wall	South	1.57	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
E3 Sill	Independently assessed	9.22	0.01	0.01 FES	No
E4 Jamb	Independently assessed	28.69	0.01	0.01 FES	No
E5 Ground floor (normal)	Independently assessed	18.71	0.06	0.06 FES	No
E6 Intermediate floor within a dwelling	Independently assessed	18.71	-0.04	-0.04 FES	No
E12 Gable (insulation at ceiling level)	Independently assessed	10.38	0.05	0.05 FES	No
E16 Corner (normal)	Independently assessed	10.45	0.01	0.01 FES	No
E10 Eaves (insulation at ceiling level)	Independently assessed	8.33	0.08	0.08 FES	No
E1 Steel lintel with perforated steel base plate	Independently assessed	12.19	0.34	0.34 FES	No
E18 Party wall between dwellings	Independently assessed	10.45	0.03	0.03 FES	No
P1 Party wall - Ground floor	Independently assessed	8.33	0.08	0.08 FES	No
P2 Party wall - Intermediate floor within a dwelling	Table K1 - Default	8.33	0.00	0.00	No
P4 Party wall - Roof (insulation at ceiling level)	Independently assessed	8.33	0.08	0.08 FES	No

Y-value W/m²K

18.0 Pressure Testing

Designed AP ₅₀	4.50	m³/(h.m²) @ 50 Pa
Property Tested?	Yes	
Test Method	Blower Door	
As Built AP ₅₀	0.10	m³/(h.m²) @ 50 Pa

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	500787
Duct Type	Rigid

Summary for Input Data



MVHR Efficiency	0.00
Wet Rooms	4
SFP from Installer Commissioning Certificate	No

19.1 Mechanical extract ventilation - Decentralised

SFP	Fan/Room Type	Count
0.13	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
0.10	Through Wall Fan Kitchen	1
0.10	Through Wall Fan Other Wet Room	1

20.0 Fans, Open Fireplaces, Flues

21.0 Fixed Cooling System	No
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22.0 Lighting

No Fixed Lighting	No				
Name	Efficacy	Power	Capacity	Count	
Downlights	80.00	28	2240	15	
Spotlights	90.00	9	810	11	

24.0 Main Heating 1

	Database	
Percentage of Heat	100.00	%
Database Ref. No.	106465	
Fuel Type	Electricity	
SAP Code	0	
In Winter	0.00	
In Summer	0.00	
Model Name	EDLA04EV3	
Manufacturer	Daikin Europe NV	
System Type	Heat Pump	
Controls SAP Code	2207	
Delayed Start Stat	No	
Burner Control	On/Off	
HETAS approved System	No	
Oil Pump Inside	No	
FI Case	0.00	
Flue Type	None or Unknown	
Fan Assisted Flue	No	
Is MHS Pumped	Pump in unheated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	55.00	
Boiler Interlock	No	
Combi boiler type	No Combi	
Combi keep hot type	None	

25.0 Main Heating 2	None
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26.0 Heat Networks	None
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Heat Source	Fuel Type	Heating Use	Efficiency	Percentage Of Heat	Heat	Heat Power Ratio	Electrical	Fuel Factor	Efficiency type
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Summary for Input Data

Heat source 1 None
Heat source 2 None
Heat source 3 None
Heat source 4 None
Heat source 5 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	No
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Summer Immersion	No
Cold Water Source	From mains
Bath Count	1
Supplementary Immersion	No
Immersion Only Heating Hot Water	No

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
Main Bathroom	Combi boiler or unvented hot water system	6.00		No	Instantaneous System 1
En-Suite	Instantaneous electric shower		9.30	No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder

Hot Water Cylinder	Hot Water Cylinder	
Cylinder Stat	Yes	
Cylinder In Heated Space	Yes	
Independent Time Control	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	145.00	L
Loss	1.85	kWh/day
Pipes insulation	Fully insulated primary pipework	
In Airing Cupboard	No	

31.0 Thermal Store

None

34.0 Small-scale Hydro

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	008091 - HT - Jessop - MID		Issued on Date	05/10/2023
Assessment Reference	As Designed	Prop Type Ref	HT - Jessop - MID	
Property	Plot , Hollingworth Road, Littleborough			

SAP Rating	77 C	DER	5.04	TER	12.79
Environmental	95 A	% DER < TER			60.59
CO ₂ Emissions (t/year)	0.52	DFEE	36.43	TFEE	38.96
Compliance Check	See BREL	% DFEE < TFEE			6.48
% DPER < TPER	22.29	DPER	52.99	TPER	68.18

Assessor Details	Mr. Robert Beeson	Assessor ID	P759-0001
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, Mid-Terrace	
Which Floor	0	
2.0 Number of Storeys	3	
3.0 Date Built	2023	
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	N/A	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
Basement:	0.00 m	0.00 m ²	0.00 m
Ground floor:	14.13 m	17.99 m ²	2.82 m
1st Storey:	11.33 m	44.27 m ²	2.42 m
2nd Storey:	11.33 m	44.27 m ²	2.79 m
3rd Storey:	0.00 m	0.00 m ²	0.00 m
4th Storey:	0.00 m	0.00 m ²	0.00 m
5th Storey:	0.00 m	0.00 m ²	0.00 m
6th Storey:	0.00 m	0.00 m ²	0.00 m
7th Storey:	0.00 m	0.00 m ²	0.00 m

8.0 Living Area	33.11	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	0.21	110.00	73.21	53.90	0.00	None	19.31	Enter Gross Area
	Basement Wall	Cavity Wall	Cavity wall : plasterboard on dabs, AAC block, filled cavity, any outside structure	0.21	60.00	6.03	6.03	0.00	None	0.00	Enter Gross Area
	Garage Wall	Cavity Wall	Cavity wall : plasterboard on dabs, AAC block, filled cavity, any outside structure	0.34	60.00	19.58	17.68	0.25	Garage Single 2 Outside	1.90	Enter Gross Area

9.1 Party Walls	Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Area (m ²)	Shelter Res	Shelter
	Party Wall	Filled Cavity with Edge Sealing	Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill	0.00	110.00	104.78	0.00	None

9.2 Internal Walls	Description	Construction	Kappa (kJ/m ² K)	Area (m ²)
	GF - Timber	Plasterboard on timber frame	9.00	35.36

Summary for Input Data



1F - Timber	Plasterboard on timber frame	9.00	32.52
SF - Timber	Plasterboard on timber frame	9.00	118.29

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	0.08	9.00	44.27	44.27	None	0.00	Enter Gross Area	0.00

10.2 Internal Ceilings

Description	Storey	Construction	Area (m²)
GF - Ceiling	Lowest occupied	Plasterboard ceiling, carpeted chipboard floor	17.99
1F - Ceiling	+1	Plasterboard ceiling, carpeted chipboard floor	44.27

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	17.99
Exposed Floor Over Garage	Exposed Floor - Timber	+1	Timber exposed floor, insulation between joists	0.15	Garage Single 2 Outside	0.25	20.00	26.28

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
1F - Floor		Plasterboard ceiling, carpeted chipboard floor	9.00	17.99
2F - Floor		Plasterboard ceiling, carpeted chipboard floor	9.00	44.27

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Windows	BFRC, BSI or CERTASS data	Window	Double Low-E Soft 0.05		Air Filled	0.47	Wood	1.00	1.20
Door	Manufacturer	Solid Door			Air Filled	0.00	Wood	0.70	1.10
Patio Door	Manufacturer	Window	Double Low-E Soft 0.05		Air Filled	0.63	Wood	0.70	1.30

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
Front Door	Door	External Wall	East	2.15	0
Front Windows	Windows	External Wall	East	9.76	0
Rear Windows	Windows	External Wall	West	4.07	0
Rear Patio Door	Patio Door	External Wall	West	3.33	0
Garage Door	Door	Garage Wall	North	1.90	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	11.93	0.02	RCD Hi Therm Lintels	No
E3 Sill	Independently assessed	7.96	0.01	FES	No
E4 Jamb	Independently assessed	39.05	0.01	FES	No
E5 Ground floor (normal)	Independently assessed	11.99	0.06	FES	No
E6 Intermediate floor within a dwelling	Independently assessed	22.66	-0.04	FES	No
E10 Eaves (insulation at ceiling level)	Independently assessed	10.89	0.08	FES	No
E12 Gable (insulation at ceiling level)	Independently assessed	0.44	0.05	FES	No
E16 Corner (normal)	Independently assessed	10.84	0.01	FES	No
E18 Party wall between dwellings	Independently assessed	26.47	0.03	FES	No
P1 Party wall - Ground floor	Independently assessed	6.95	0.08	FES	No
P2 Party wall - Intermediate floor within a dwelling	Table K1 - Default	8.40	0.00	Default	No
P4 Party wall - Roof (insulation at ceiling level)	Independently assessed	8.40	0.08	FES	No
E20 Exposed floor (normal)	Table K1 - Default	7.61	0.32		No
E21 Exposed floor (inverted)	Table K1 - Default	6.95	0.32		No
E22 Basement floor	Table K1 - Default	2.14	0.22		No
E17 Corner (inverted – internal area greater than external area)	Independently assessed	5.21	-0.10	RCD	No

Y-value W/m²K

18.0 Pressure Testing

Designed AP ₅₀	4.50	m³/(h.m²) @ 50 Pa
Property Tested?	Yes	
Test Method	Blower Door	
As Built AP ₅₀	0.10	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Mechanical Ventilation

Summary for Input Data

Mechanical Ventilation System Present	Yes
Approved Installation	No
Mechanical Ventilation data Type	Database
Type	Mechanical extract ventilation - decentralised
MV Reference Number	500787
Duct Type	Rigid
MVHR Efficiency	0.00
Wet Rooms	4
SFP from Installer Commissioning Certificate	No

19.1 Mechanical extract ventilation - Decentralised

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

20.0 Fans, Open Fireplaces, Flues

21.0 Fixed Cooling System	No
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22.0 Lighting

No Fixed Lighting	No				
Name	Efficacy	Power	Capacity	Count	
Down Lights	80.00	28	2240	12	
Spotlights	90.00	9	810	16	

24.0 Main Heating 1

	Database	
Percentage of Heat	100.00	%
Database Ref. No.	106485	
Fuel Type	Electricity	
SAP Code	0	
In Winter	0.00	
In Summer	0.00	
Model Name	EDLA08EV3	
Manufacturer	Daikin Europe NV	
System Type	Heat Pump	
Controls SAP Code	2207	
Delayed Start Stat	No	
Burner Control	On/Off	
HETAS approved System	No	
Oil Pump Inside	No	
FI Case	0.00	
Flue Type	None or Unknown	
Fan Assisted Flue	No	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	55.00	
Boiler Interlock	No	
Combi boiler type	No Combi	

Summary for Input Data

Combi keep hot type

None

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								

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

No

Waste Water Heat Recovery Instantaneous System 2

No

Waste Water Heat Recovery Storage System

No

Solar Panel

No

Water use <= 125 litres/person/day

Yes

Summer Immersion

No

Cold Water Source

From mains

Bath Count

2

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
En-suite

Combi boiler or unvented hot water system
Instantaneous electric shower

6.00
11.00

No
9.30

No
No

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder

Hot Water Cylinder

Cylinder Stat

No

Cylinder In Heated Space

No

Independent Time Control

No

Insulation Type

Measured Loss

Cylinder Volume

242.00

L

Loss

2.51

kWh/day

Pipes insulation

Fully insulated primary pipework

In Airing Cupboard

No

31.0 Thermal Store

None

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	008091 - HT - Jessop - SEMI		Issued on Date	05/10/2023
Assessment Reference	As Designed (Type 1)	Prop Type Ref	HT - Jessop - SEMI	
Property	Plot , Hollingworth Road, Littleborough			

SAP Rating	75 C	DER	5.62	TER	14.26
Environmental	95 A	% DER < TER			60.59
CO ₂ Emissions (t/year)	0.58	DFEE	44.27	TFEE	45.77
Compliance Check	See BREL	% DFEE < TFEE			3.26
% DPER < TPER	22.54	DPER	58.90	TPER	76.04

Assessor Details	Mr. Robert Beeson	Assessor ID	P759-0001
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	2023	
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	N/A	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
Basement:	0.00 m	0.00 m ²	0.00 m
Ground floor:	21.08 m	17.99 m ²	2.82 m
1st Storey:	19.73 m	44.27 m ²	2.42 m
2nd Storey:	19.73 m	44.27 m ²	2.79 m
3rd Storey:	0.00 m	0.00 m ²	0.00 m
4th Storey:	0.00 m	0.00 m ²	0.00 m
5th Storey:	0.00 m	0.00 m ²	0.00 m
6th Storey:	0.00 m	0.00 m ²	0.00 m
7th Storey:	0.00 m	0.00 m ²	0.00 m

8.0 Living Area	33.11	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	0.21	110.00	136.54	115.05	0.00	None	21.49	Enter Gross Area
	Basement Wall	Cavity Wall	Cavity wall : plasterboard on dabs, AAC block, filled cavity, any outside structure	0.21	60.00	6.03	6.03	0.00	None	0.00	Enter Gross Area
	Garage Wall	Cavity Wall	Cavity wall : plasterboard on dabs, AAC block, filled cavity, any outside structure	0.34	60.00	19.58	17.68	0.25	Garage Single 2 Outside	1.90	Enter Gross Area

9.1 Party Walls	Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Area (m ²)	Shelter Res	Shelter
	Party Wall	Filled Cavity with Edge Sealing	Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill	0.00	110.00	67.37	0.00	None

9.2 Internal Walls	Description	Construction	Kappa (kJ/m ² K)	Area (m ²)
	GF - Timber	Plasterboard on timber frame	9.00	35.36

Summary for Input Data



1F - Timber	Plasterboard on timber frame	9.00	32.52
SF - Timber	Plasterboard on timber frame	9.00	118.29

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	0.08	9.00	44.27	44.27	None	0.00	Enter Gross Area	0.00

10.2 Internal Ceilings

Description	Storey	Construction	Area (m²)
GF - Ceiling	Lowest occupied	Plasterboard ceiling, carpeted chipboard floor	17.99
1F - Ceiling	+1	Plasterboard ceiling, carpeted chipboard floor	44.27

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	17.99
Exposed Floor Over Garage	Exposed Floor - Timber	+1	Timber exposed floor, insulation between joists	0.15	Garage Single 2 Outside	0.25	20.00	26.28

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
1F - Floor		Plasterboard ceiling, carpeted chipboard floor	9.00	17.99
2F - Floor		Plasterboard ceiling, carpeted chipboard floor	9.00	44.27

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Windows	BFRC, BSI or CERTASS data	Window	Double Low-E Soft 0.05		Air Filled	0.47	Wood	1.00	1.20
Door	Manufacturer	Solid Door			Air Filled	0.00	Wood	0.70	1.10
Patio Door	Manufacturer	Window	Double Low-E Soft 0.05		Air Filled	0.63	Wood	0.70	1.30

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
Front Door	Door	External Wall	East	2.15	0
Front Windows	Windows	External Wall	East	9.76	0
Rear Windows	Windows	External Wall	West	4.07	0
Rear Patio Door	Patio Door	External Wall	West	3.33	0
Left Windows	Windows	External Wall	South	2.18	0
Garage Door	Door	Garage Wall	North	1.90	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	13.98	0.02	0.02	RCD Hi Therm Lintels	No
E3 Sill	Independently assessed	10.01	0.01	0.01	FES	No
E4 Jamb	Independently assessed	45.41	0.01	0.01	FES	No
E5 Ground floor (normal)	Independently assessed	18.82	0.06	0.06	FES	No
E6 Intermediate floor within a dwelling	Independently assessed	32.85	-0.04	-0.04	FES	No
E10 Eaves (insulation at ceiling level)	Independently assessed	10.89	0.08	0.08	FES	No
E12 Gable (insulation at ceiling level)	Independently assessed	8.40	0.05	0.05	FES	No
E16 Corner (normal)	Independently assessed	18.43	0.01	0.01	FES	No
E18 Party wall between dwellings	Independently assessed	10.42	0.03	0.03	FES	No
P7 Party Wall - Exposed floor (normal)	Table K1 - Default	7.96	0.48	0.48		No
P2 Party wall - Intermediate floor within a dwelling	Table K1 - Default	7.96	0.00	0.00	Default	No
E20 Exposed floor (normal)	Table K1 - Default	6.60	0.32	0.32		No
E21 Exposed floor (inverted)	Table K1 - Default	7.96	0.32	0.32		No
E22 Basement floor	Table K1 - Default	2.14	0.22	0.22		No
E17 Corner (inverted – internal area greater than external area)	Independently assessed	5.20	-0.10	-0.10	RCD	No
P4 Party wall - Roof (insulation at ceiling level)	Independently assessed	7.96	0.08	0.08	FES	No

Y-value W/m²K

18.0 Pressure Testing

Designed AP₅₀ m³/(h.m²) @ 50 Pa
 Property Tested?
 Test Method
 As Built AP₅₀ m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Mechanical Ventilation

Summary for Input Data

Mechanical Ventilation System Present	Yes
Approved Installation	No
Mechanical Ventilation data Type	Database
Type	Mechanical extract ventilation - decentralised
MV Reference Number	500787
Duct Type	Rigid
MVHR Efficiency	0.00
Wet Rooms	4
SFP from Installer Commissioning Certificate	No

19.1 Mechanical extract ventilation - Decentralised

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

20.0 Fans, Open Fireplaces, Flues

21.0 Fixed Cooling System

No

22.0 Lighting

No Fixed Lighting

No

Name	Efficacy	Power	Capacity	Count
Down Lights	80.00	28	2240	12
Spotlights	90.00	9	810	16

24.0 Main Heating 1

	Database	
Percentage of Heat	100.00	%
Database Ref. No.	106485	
Fuel Type	Electricity	
SAP Code	0	
In Winter	0.00	
In Summer	0.00	
Model Name	EDLA08EV3	
Manufacturer	Daikin Europe NV	
System Type	Heat Pump	
Controls SAP Code	2207	
Delayed Start Stat	No	
Burner Control	On/Off	
HETAS approved System	No	
Oil Pump Inside	No	
FI Case	0.00	
Flue Type	None or Unknown	
Fan Assisted Flue	No	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	55.00	
Boiler Interlock	No	
Combi boiler type	No Combi	

Summary for Input Data

Combi keep hot type

None

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								

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

No

Waste Water Heat Recovery Instantaneous System 2

No

Waste Water Heat Recovery Storage System

No

Solar Panel

No

Water use <= 125 litres/person/day

Yes

Summer Immersion

No

Cold Water Source

From mains

Bath Count

2

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
En-suite

Combi boiler or unvented hot water system
Instantaneous electric shower

6.00
11.00

No
9.30

No
No

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder

Hot Water Cylinder

Cylinder Stat

No

Cylinder In Heated Space

No

Independent Time Control

No

Insulation Type

Measured Loss

Cylinder Volume

242.00

L

Loss

2.51

kWh/day

Pipes insulation

Fully insulated primary pipework

In Airing Cupboard

No

31.0 Thermal Store

None

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	008091 - HT - Juniper - DET		Issued on Date	05/10/2023
Assessment Reference	As Designed - As (Type 1)	Prop Type Ref	HT - Juniper - DET	
Property	Plot , Hollingworth Road, Littleborough			

SAP Rating	79 C	DER	4.65	TER	11.01
Environmental	96 A	% DER < TER			57.77
CO ₂ Emissions (t/year)	0.51	DFEE	40.33	TFEE	42.35
Compliance Check	See BREL	% DFEE < TFEE			4.77
% DPER < TPER	15.31	DPER	48.72	TPER	57.53

Assessor Details	Mr. Robert Beeson	Assessor ID	P759-0001
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	2023	
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	N/A	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
Basement:	0.00 m	0.00 m ²	0.00 m
Ground floor:	30.88 m	56.52 m ²	2.53 m
1st Storey:	30.88 m	56.52 m ²	2.69 m
2nd Storey:	18.01 m	22.69 m ²	2.48 m
3rd Storey:	0.00 m	0.00 m ²	0.00 m
4th Storey:	0.00 m	0.00 m ²	0.00 m
5th Storey:	0.00 m	0.00 m ²	0.00 m
6th Storey:	0.00 m	0.00 m ²	0.00 m
7th Storey:	0.00 m	0.00 m ²	0.00 m

8.0 Living Area	13.92	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	0.21	110.00	161.44	136.72	0.00	None	24.72	Enter Gross Area

9.1 Party Walls									
Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Area (m ²)	Shelter Res	Shelter		
Party Wall	Filled Cavity with Edge Sealing	Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill	0.00	110.00	36.33	0.00	None		

9.2 Internal Walls				
Description	Construction	Kappa (kJ/m ² K)	Area (m ²)	
Ground Floor	Plasterboard on timber frame	9.00	62.48	
First Floor	Plasterboard on timber frame	9.00	163.98	
Ground Floor - Block	Dense block, plasterboard on dabs	75.00	36.63	

10.0 External Roofs										
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Summary for Input Data

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	0.08	9.00	56.52	56.52	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	56.52

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	56.52

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
First Floor		Plasterboard ceiling, carpeted chipboard floor	9.00	56.52

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Front Doors	Manufacturer	Solid Door			Air Filled	0.00	Wood	0.70	1.10
Windows	BFR, BSI or CERTASS data	Window	Double Low-E Soft 0.05		Air Filled	0.47	Wood	1.00	1.20
Patio Doors	Manufacturer	Window	Double Low-E Soft 0.05		Air Filled	0.63	Wood	0.70	1.30
Roof Windows	Manufacturer	Roof Window	Double Low-E Soft 0.05		Air Filled	0.63	Wood	0.70	1.30
Rear/Side Doors	Manufacturer	Half Glazed Door	Double Low-E Soft 0.05		Air Filled	0.63	Wood	0.70	1.20

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
Front Door	Front Doors	External Wall	East	2.15	0
Front Windows	Windows	External Wall	East	8.50	0
Rear Windows	Windows	External Wall	West	6.01	0
Rear Patio Doors	Patio Doors	External Wall	West	5.67	0
LH Windows	Windows	External Wall	South	0.83	0
RH Windows	Windows	External Wall	North	1.56	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
E3 Sill	Independently assessed	12.32	0.01	0.01	FES	No
E4 Jamb	Independently assessed	36.44	0.01	0.01	FES	No
E5 Ground floor (normal)	Independently assessed	30.88	0.06	0.06	FES	No
E6 Intermediate floor within a dwelling	Independently assessed	30.88	-0.04	-0.04	FES	No
E12 Gable (insulation at ceiling level)	Independently assessed	18.15	0.05	0.05	FES	No
E16 Corner (normal)	Independently assessed	26.14	0.01	0.01	FES	No
E10 Eaves (insulation at ceiling level)	Independently assessed	12.73	0.08	0.08	FES	No
E1 Steel lintel with perforated steel base plate	Independently assessed	16.50	0.34	0.34	FES	No
E17 Corner (inverted – internal area greater than external area)	Independently assessed	5.23	-0.10	-0.10	RCD	No

Y-value	0.00	W/m²K
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18.0 Pressure Testing

Designed AP ₅₀	4.50	m³/(h.m²) @ 50 Pa
Property Tested?	Yes	
Test Method	Blower Door	
As Built AP ₅₀	0.10	m³/(h.m²) @ 50 Pa

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	500787
Duct Type	Flexible
MVHR Efficiency	0.00

Summary for Input Data

Wet Rooms

SFP from Installer Commissioning Certificate

19.1 Mechanical extract ventilation - Decentralised

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

20.0 Fans, Open Fireplaces, Flues

21.0 Fixed Cooling System

22.0 Lighting

No Fixed Lighting	No				
	Name	Efficacy	Power	Capacity	Count
	Downlights	80.00	28	2240	15
	Spotlights	90.00	9	810	13

24.0 Main Heating 1

	Database	
Percentage of Heat	100.00	%
Database Ref. No.	106473	
Fuel Type	Electricity	
SAP Code	0	
In Winter	0.00	
In Summer	0.00	
Model Name	EDLA06EV3	
Manufacturer	Daikin Europe NV	
System Type	Heat Pump	
Controls SAP Code	2207	
Delayed Start Stat	No	
Burner Control	On/Off	
HETAS approved System	No	
Oil Pump Inside	No	
FI Case	0.00	
Flue Type	None or Unknown	
Fan Assisted Flue	No	
Is MHS Pumped	Pump in unheated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	55.00	
Boiler Interlock	No	
Combi boiler type	No Combi	
Combi keep hot type	None	

25.0 Main Heating 2

26.0 Heat Networks

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								

Summary for Input Data

Heat source 3 None
Heat source 4 None
Heat source 5 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	No
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Summer Immersion	No
Cold Water Source	From mains
Bath Count	1
Supplementary Immersion	No
Immersion Only Heating Hot Water	No

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
Main Bathroom	Combi boiler or unvented hot water system	6.00		No	Instantaneous System 1
En-Suite	Instantaneous electric shower		9.30	No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder

Cylinder Stat	Yes	
Cylinder In Heated Space	Yes	
Independent Time Control	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	242.00	L
Loss	2.51	kWh/day
Pipes insulation	Fully insulated primary pipework	
In Airing Cupboard	No	

31.0 Thermal Store

None

34.0 Small-scale Hydro

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	008091 - HT - Lime - DET		Issued on Date	05/10/2023
Assessment Reference	As Designed - As (Type 1)	Prop Type Ref	HT - Lime - DET	
Property	Plot , Hollingworth Road, Littleborough			

SAP Rating	79 C	DER	4.04	TER	8.93
Environmental	96 A	% DER < TER			54.76
CO ₂ Emissions (t/year)	0.76	DFEE	40.42	TFEE	42.26
Compliance Check	See BREL	% DFEE < TFEE			4.36
% DPER < TPER	10.62	DPER	42.02	TPER	47.01

Assessor Details	Mr. Robert Beeson	Assessor ID	P759-0001
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	2023	
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	N/A	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
Basement:	0.00 m	0.00 m ²	0.00 m
Ground floor:	41.67 m	96.96 m ²	2.54 m
1st Storey:	38.96 m	94.50 m ²	2.69 m
2nd Storey:	0.00 m	0.00 m ²	0.00 m
3rd Storey:	0.00 m	0.00 m ²	0.00 m
4th Storey:	0.00 m	0.00 m ²	0.00 m
5th Storey:	0.00 m	0.00 m ²	0.00 m
6th Storey:	0.00 m	0.00 m ²	0.00 m
7th Storey:	0.00 m	0.00 m ²	0.00 m

8.0 Living Area	21.93	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	0.22	110.00	209.88	167.22	0.00	None	42.66	Enter Gross Area

9.2 Internal Walls	Description	Construction	Kappa (kJ/m ² K)	Area (m ²)
	GF - Block	Dense block, plasterboard on dabs	75.00	92.25
	GF - Timber	Plasterboard on timber frame	9.00	64.77
	1F - Timber	Plasterboard on timber frame	9.00	274.27

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
	Cold Roof	External Plane Roof	Plasterboard, insulated at ceiling level	0.08	9.00	94.50	94.50	None	0.00	Enter Gross Area	0.00

Summary for Input Data



Bay Flat Roof	External Plane Roof	Plasterboard, insulated at ceiling level	0.16	9.00	2.46	2.46	None	0.00	Enter Gross Area	0.00
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10.2 Internal Ceilings

Description	Storey	Construction	Area (m²)
GF - Ceiling	Lowest occupied	Plasterboard ceiling, carpeted chipboard floor	94.50

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	94.50

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
1F - Floor		Plasterboard ceiling, carpeted chipboard floor	9.00	94.50

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Windows	BFRC, BSI or CERTASS data	Window	Double Low-E Soft 0.05		Air Filled	0.47	Wood	1.00	1.20
Door	Manufacturer	Solid Door			Air Filled	0.00	Wood	0.70	1.10
Patio Door	Manufacturer	Window	Double Low-E Soft 0.05		Air Filled	0.63	Wood	1.00	1.30
Rear/Side Door	Manufacturer	Half Glazed Door	Double Low-E Soft 0.05		Air Filled	0.63	Wood	0.70	1.20

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
Front Door	Door	External Wall	East	2.15	0
Front Window	Windows	External Wall	East	13.37	0
Rear Windows	Windows	External Wall	West	7.89	0
Rear Patio Door	Patio Door	External Wall	West	5.65	0
Left Windows	Windows	External Wall	South	3.43	0
Right Windows	Windows	External Wall	North	8.02	0
Left Door	Rear/Side 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
E1 Steel lintel with perforated steel base plate	Independently assessed	28.85	0.34	0.34	FES	No
E3 Sill	Independently assessed	23.19	0.01	0.01	FES	No
E4 Jamb	Independently assessed	64.22	0.01	0.01	FES	No
E5 Ground floor (normal)	Independently assessed	41.67	0.06	0.06	FES	No
E6 Intermediate floor within a dwelling	Independently assessed	38.96	-0.04	-0.04	FES	No
E10 Eaves (insulation at ceiling level)	Independently assessed	20.73	0.08	0.08	FES	No
E12 Gable (insulation at ceiling level)	Independently assessed	18.24	0.05	0.05	FES	No
E16 Corner (normal)	Independently assessed	30.14	0.01	0.01	FES	No
E17 Corner (inverted – internal area greater than external area)	Independently assessed	9.24	-0.10	-0.10	RCD	No
E14 Flat roof	Table K1 - Default	6.35	0.16	0.16	Default	No
E24 Eaves (insulation at ceiling level - inverted)	Table K1 - Default	3.64	0.15	0.15		No

Y-value W/m²K

18.0 Pressure Testing

Designed AP₅₀ m³/(h.m²) @ 50 Pa
 Property Tested?
 Test Method
 As Built AP₅₀ m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Mechanical Ventilation

Mechanical Ventilation System Present
 Approved Installation
 Mechanical Ventilation data Type
 Type
 MV Reference Number
 Duct Type
 MVHR Efficiency

Summary for Input Data

Wet Rooms

SFP from Installer Commissioning Certificate

19.1 Mechanical extract ventilation - Decentralised

SFP	Fan/Room Type	Count
0.13	In Room Fan Kitchen	0
0.11	In Room Fan Other Wet Room	5
0.00	In Duct Fan Kitchen	0
0.00	In Duct Fan Other Wet Room	0
0.10	Through Wall Fan Kitchen	2
0.10	Through Wall Fan Other Wet Room	0

20.0 Fans, Open Fireplaces, Flues

21.0 Fixed Cooling System

22.0 Lighting

No Fixed Lighting	No				
Name	Efficacy	Power	Capacity	Count	
Down Lights	80.00	28	2240	17	
Spotlights	90.00	9	810	22	

24.0 Main Heating 1

	Database	
Percentage of Heat	100.00	%
Database Ref. No.	106485	
Fuel Type	Electricity	
SAP Code	0	
In Winter	0.00	
In Summer	0.00	
Model Name	EDLA08EV3	
Manufacturer	Daikin Europe NV	
System Type	Heat Pump	
Controls SAP Code	2207	
Delayed Start Stat	No	
Burner Control	Modulating	
HETAS approved System	No	
Oil Pump Inside	No	
FI Case	0.00	
Flue Type	None or Unknown	
Fan Assisted Flue	No	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	55.00	
Boiler Interlock	No	
Combi boiler type	No Combi	
Combi keep hot type	None	

25.0 Main Heating 2

26.0 Heat Networks

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								

Summary for Input Data

Heat source 3 None
Heat source 4 None
Heat source 5 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	No
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Summer Immersion	No
Cold Water Source	From mains
Bath Count	1
Supplementary Immersion	No
Immersion Only Heating Hot Water	No

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
Main Bathroom	Combi boiler or unvented hot water system	6.00		No	
Ensuite 1	Instantaneous electric shower	11.00	9.30	No	
Ensuite 2	Instantaneous electric shower		9.30	No	
Ensuite 3	Instantaneous electric shower		9.30	No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder

Hot Water Cylinder	Hot Water Cylinder	
Cylinder Stat	Yes	
Cylinder In Heated Space	Yes	
Independent Time Control	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	242.00	L
Loss	2.51	kWh/day
Pipes insulation	Fully insulated primary pipework	
In Airing Cupboard	No	

31.0 Thermal Store

None

34.0 Small-scale Hydro

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	008091 - HT - Macarthur - SEMI		Issued on Date	05/10/2023
Assessment Reference	As Designed - As	Prop Type Ref	HT - Macarthur - SEMI	
Property	Plot , Hollingworth Road, Littleborough			

SAP Rating	80 C	DER	4.43	TER	10.33
Environmental	96 A	% DER < TER			57.12
CO ₂ Emissions (t/year)	0.43	DFEE	34.81	TFEE	37.00
Compliance Check	See BREL	% DFEE < TFEE			5.91
% DPER < TPER	13.62	DPER	46.50	TPER	53.83

Assessor Details	Mr. Robert Beeson	Assessor ID	P759-0001
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	2023	
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	N/A	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
Basement:	0.00 m	0.00 m ²	0.00 m
Ground floor:	20.16 m	50.27 m ²	2.54 m
1st Storey:	20.16 m	50.27 m ²	2.69 m
2nd Storey:	18.01 m	22.69 m ²	2.48 m
3rd Storey:	0.00 m	0.00 m ²	0.00 m
4th Storey:	0.00 m	0.00 m ²	0.00 m
5th Storey:	0.00 m	0.00 m ²	0.00 m
6th Storey:	0.00 m	0.00 m ²	0.00 m
7th Storey:	0.00 m	0.00 m ²	0.00 m

8.0 Living Area	18.41	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	0.21	110.00	105.24	86.91	0.00	None	18.33	Enter Gross Area

9.1 Party Walls							
Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Area (m ²)	Shelter Res	Shelter
Party Wall	Filled Cavity with Edge Sealing	Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill	0.00	110.00	47.31	0.00	None

9.2 Internal Walls				
Description	Construction	Kappa (kJ/m ² K)	Area (m ²)	
Ground Floor	Plasterboard on timber frame	9.00	82.25	
First Floor	Plasterboard on timber frame	9.00	152.09	

10.0 External Roofs										
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Summary for Input Data



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	0.08	9.00	50.27	50.27	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	50.27

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	50.27

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
First Floor		Plasterboard ceiling, carpeted chipboard floor	9.00	50.27

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Front Doors	Manufacturer	Solid Door			Air Filled	0.00	Wood	0.70	1.10
Windows	BFRC, BSI or CERTASS data	Window	Double Low-E Soft 0.05		Air Filled	0.47	Wood	1.00	1.20
Patio Doors	Manufacturer	Window	Double Low-E Soft 0.05		Air Filled	0.63	Wood	0.70	1.30
Roof Windows	Manufacturer	Roof Window	Double Low-E Soft 0.05		Air Filled	0.63	Wood	0.70	1.30
Rear/Side Doors	Manufacturer	Half Glazed Door	Double Low-E Soft 0.05		Air Filled	0.63	Wood	0.70	1.20

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
Front Door	Front Doors	External Wall	East	2.15	0
Front Windows	Windows	External Wall	East	5.79	0
Rear Windows	Windows	External Wall	West	4.90	0
Rear Patio Doors	Patio Doors	External Wall	West	3.11	0
LH Windows	Windows	External Wall	South	2.38	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
E3 Sill	Independently assessed	10.55	0.01	0.01 FES	No
E4 Jamb	Independently assessed	31.72	0.01	0.01 FES	No
E5 Ground floor (normal)	Independently assessed	20.16	0.06	0.06 FES	No
E6 Intermediate floor within a dwelling	Independently assessed	20.16	-0.04	-0.04 FES	No
E12 Gable (insulation at ceiling level)	Independently assessed	9.06	0.05	0.05 FES	No
E16 Corner (normal)	Independently assessed	10.44	0.01	0.01 FES	No
E10 Eaves (insulation at ceiling level)	Independently assessed	11.10	0.08	0.08 FES	No
E1 Steel lintel with perforated steel base plate	Independently assessed	13.05	0.34	0.34 FES	No
E18 Party wall between dwellings	Independently assessed	10.44	0.03	0.03 FES	No
P1 Party wall - Ground floor	Independently assessed	9.06	0.08	0.08 FES	No
P2 Party wall - Intermediate floor within a dwelling	Table K1 - Default	9.06	0.00	0.00	No
P4 Party wall - Roof (insulation at ceiling level)	Independently assessed	9.06	0.08	0.08 FES	No

Y-value

 W/m²K

18.0 Pressure Testing

Designed AP ₅₀	4.50	m³/(h.m²) @ 50 Pa
Property Tested?	Yes	
Test Method	Blower Door	
As Built AP ₅₀	0.10	m³/(h.m²) @ 50 Pa

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	500787
Duct Type	Rigid

Summary for Input Data



MVHR Efficiency	0.00
Wet Rooms	3
SFP from Installer Commissioning Certificate	No

19.1 Mechanical extract ventilation - Decentralised

SFP	Fan/Room Type	Count
0.13	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
0.10	Through Wall Fan Kitchen	1
0.10	Through Wall Fan Other Wet Room	0

20.0 Fans, Open Fireplaces, Flues

21.0 Fixed Cooling System	No
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22.0 Lighting

No Fixed Lighting	No				
Name	Efficacy	Power	Capacity	Count	
Downlights	80.00	28	2240	10	
Spotlights	90.00	9	810	12	

24.0 Main Heating 1

	Database	
Percentage of Heat	100.00	%
Database Ref. No.	106465	
Fuel Type	Electricity	
SAP Code	0	
In Winter	0.00	
In Summer	0.00	
Model Name	EDLA04EV3	
Manufacturer	Daikin Europe NV	
System Type	Heat Pump	
Controls SAP Code	2207	
Delayed Start Stat	No	
Burner Control	On/Off	
HETAS approved System	No	
Oil Pump Inside	No	
FI Case	0.00	
Flue Type	None or Unknown	
Fan Assisted Flue	No	
Is MHS Pumped	Pump in unheated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	55.00	
Boiler Interlock	No	
Combi boiler type	No Combi	
Combi keep hot type	None	

25.0 Main Heating 2	None
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26.0 Heat Networks	None
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Heat Source	Fuel Type	Heating Use	Efficiency	Percentage Of Heat	Heat	Heat Power Ratio	Electrical	Fuel Factor	Efficiency type
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Summary for Input Data

Heat source 1 None
Heat source 2 None
Heat source 3 None
Heat source 4 None
Heat source 5 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	No
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Summer Immersion	No
Cold Water Source	From mains
Bath Count	1
Supplementary Immersion	No
Immersion Only Heating Hot Water	No

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
Main Bathroom	Combi boiler or unvented hot water system	6.00		No	Instantaneous System 1

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder

Hot Water Cylinder	Hot Water Cylinder	
Cylinder Stat	Yes	
Cylinder In Heated Space	Yes	
Independent Time Control	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	145.00	L
Loss	1.85	kWh/day
Pipes insulation	Fully insulated primary pipework	
In Airing Cupboard	No	

31.0 Thermal Store

None

34.0 Small-scale Hydro

0.0 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	008091 - HT - Maple - DET		Issued on Date	05/10/2023
Assessment Reference	As Designed - As (Type 1)	Prop Type Ref	HT - Maple - DET	
Property	Plot , Hollingworth Road, Littleborough			

SAP Rating	79 C	DER	4.28	TER	9.56
Environmental	96 A	% DER < TER			55.23
CO ₂ Emissions (t/year)	0.69	DFEE	41.21	TFEE	43.20
Compliance Check	See BREL	% DFEE < TFEE			4.60
% DPER < TPER	11.38	DPER	44.48	TPER	50.19

Assessor Details	Mr. Robert Beeson	Assessor ID	P759-0001
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	2023	
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	N/A	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
Basement:	0.00 m	0.00 m ²	0.00 m
Ground floor:	43.01 m	83.91 m ²	2.54 m
1st Storey:	41.66 m	82.30 m ²	2.69 m
2nd Storey:	0.00 m	0.00 m ²	0.00 m
3rd Storey:	0.00 m	0.00 m ²	0.00 m
4th Storey:	0.00 m	0.00 m ²	0.00 m
5th Storey:	0.00 m	0.00 m ²	0.00 m
6th Storey:	0.00 m	0.00 m ²	0.00 m
7th Storey:	0.00 m	0.00 m ²	0.00 m

8.0 Living Area	17.33	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	0.21	110.00	19.61	15.85	0.00	None	3.76	Enter Gross Area
External Wall (S)	Cavity Wall	Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure	0.22	110.00	200.49	159.37	0.00	None	41.12	Enter Gross Area

9.2 Internal Walls				
Description	Construction	Kappa (kJ/m ² K)	Area (m ²)	
GF - Block	Dense block, plasterboard on dabs	75.00	67.41	
GF - Timber	Plasterboard on timber frame	9.00	69.44	
1F - Timber	Plasterboard on timber frame	9.00	205.02	

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

Summary for Input Data



Cold Roof	External Plane	Plasterboard, insulated at ceiling level	0.08	9.00	82.30	82.30	None	0.00	Enter Gross Area	0.00
Bay Flat Roof	External Plane	Plasterboard, insulated at ceiling level	0.16	9.00	1.61	1.61	None	0.00	Enter Gross Area	0.00

10.2 Internal Ceilings

Description	Storey	Construction	Area (m²)
GF - Ceiling	Lowest occupied	Plasterboard ceiling, carpeted chipboard floor	82.30

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	82.30

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
1F - Floor		Plasterboard ceiling, carpeted chipboard floor	9.00	94.50

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Windows	BFRG, BSI or CERTASS data	Window	Double Low-E Soft 0.05		Air Filled	0.47	Wood	1.00	1.20
Door	Manufacturer	Solid Door			Air Filled	0.00	Wood	0.70	1.10
Patio Door	Manufacturer	Window	Double Low-E Soft 0.05		Air Filled	0.63	Wood	1.00	1.30
Rear/Side Door	Manufacturer	Half Glazed Door	Double Low-E Soft 0.05		Air Filled	0.63	Wood	0.70	1.20

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
Front Door	Door	External Wall (S)	East	2.15	0
Front Window	Windows	External Wall	East	1.88	0
Rear Windows	Windows	External Wall (S)	West	3.21	0
Rear Patio Door	Patio Door	External Wall (S)	West	5.64	0
Left Windows	Windows	External Wall	South	1.88	0
Right Windows	Windows	External Wall (S)	North	7.66	0
Rear Door	Rear/Side Door	External Wall (S)	West	2.15	0
Front Window (S)	Windows	External Wall (S)	East	10.92	0
Left Windows (S)	Windows	External Wall (S)	South	9.39	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
E1 Steel lintel with perforated steel base plate	Independently assessed	30.34	0.34	0.34 FES	No
E3 Sill	Independently assessed	24.68	0.01	0.01 FES	No
E4 Jamb	Independently assessed	67.82	0.01	0.01 FES	No
E5 Ground floor (normal)	Independently assessed	43.01	0.06	0.06 FES	No
E6 Intermediate floor within a dwelling	Independently assessed	41.66	-0.04	-0.04 FES	No
E10 Eaves (insulation at ceiling level)	Independently assessed	27.47	0.08	0.08 FES	No
E12 Gable (insulation at ceiling level)	Independently assessed	14.19	0.05	0.05 FES	No
E16 Corner (normal)	Independently assessed	35.94	0.01	0.01 FES	No
E17 Corner (inverted – internal area greater than external area)	Independently assessed	15.06	-0.10	-0.10 RCD	No
E14 Flat roof	Table K1 - Default	3.73	0.16	0.16 Default	No
E24 Eaves (insulation at ceiling level - inverted)	Table K1 - Default	2.38	0.15	0.15	No

Y-value W/m²K

18.0 Pressure Testing

Designed AP₅₀ m³/(h.m²) @ 50 Pa
 Property Tested?
 Test Method
 As Built AP₅₀ m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Mechanical Ventilation
 Mechanical Ventilation System Present
 Approved Installation
 Mechanical Ventilation data Type
 Type
 MV Reference Number

Summary for Input Data

Duct Type	Rigid
MVHR Efficiency	0.00
Wet Rooms	6
SFP from Installer Commissioning Certificate	No

19.1 Mechanical extract ventilation - Decentralised

SFP	Fan/Room Type	Count
0.13	In Room Fan	0
	Kitchen	
0.11	In Room Fan Other	4
	Wet Room	
0.00	In Duct Fan Kitchen	0
0.00	In Duct Fan Other	0
	Wet Room	
0.10	Through Wall Fan	2
	Kitchen	
0.10	Through Wall Fan	0
	Other Wet Room	

20.0 Fans, Open Fireplaces, Flues

21.0 Fixed Cooling System	No
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22.0 Lighting

No Fixed Lighting

No				
Name	Efficacy	Power	Capacity	Count
Down Lights	80.00	28	2240	26
Spotlights	90.00	9	810	17

24.0 Main Heating 1

	Database	
Percentage of Heat	100.00	%
Database Ref. No.	106485	
Fuel Type	Electricity	
SAP Code	0	
In Winter	0.00	
In Summer	0.00	
Model Name	EDLA08EV3	
Manufacturer	Daikin Europe NV	
System Type	Heat Pump	
Controls SAP Code	2207	
Delayed Start Stat	No	
Burner Control	Modulating	
HETAS approved System	No	
Oil Pump Inside	No	
FI Case	0.00	
Flue Type	None or Unknown	
Fan Assisted Flue	No	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	55.00	
Boiler Interlock	No	
Combi boiler type	No Combi	
Combi keep hot type	None	

25.0 Main Heating 2	None
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26.0 Heat Networks	None
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Summary for Input Data

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								

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

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
Main Bathroom	Combi boiler or unvented hot water system	6.00		No	
Ensuite 1	Instantaneous electric shower	11.00	9.30	No	
Ensuite 2	Instantaneous electric shower		9.30	No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder

Hot Water Cylinder	Hot Water Cylinder	
Cylinder Stat	Yes	
Cylinder In Heated Space	Yes	
Independent Time Control	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	242.00	L
Loss	2.51	kWh/day
Pipes insulation	Fully insulated primary pipework	
In Airing Cupboard	No	

31.0 Thermal Store

None

34.0 Small-scale Hydro

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

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

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

Summary for Input Data

Property Reference	008091 - HT - Newell - SEMI	Issued on Date	05/10/2023
Assessment Reference	As Designed - As	Prop Type Ref	HT - Newell - SEMI
Property	Plot , Hollingworth Road, Littleborough		

SAP Rating	80 C	DER	4.24	TER	10.96
Environmental	96 A	% DER < TER			61.31
CO ₂ Emissions (t/year)	0.49	DFEE	36.22	TFEE	38.46
Compliance Check	See BREL	% DFEE < TFEE			5.84
% DPER < TPER	22.36	DPER	44.52	TPER	57.34

Assessor Details	Mr. Robert Beeson	Assessor ID	P759-0001
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	2023	
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	N/A	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
Basement:	0.00 m	0.00 m ²	0.00 m
Ground floor:	18.71 m	39.40 m ²	2.54 m
1st Storey:	18.71 m	39.40 m ²	2.70 m
2nd Storey:	18.71 m	39.40 m ²	2.68 m
3rd Storey:	0.00 m	0.00 m ²	0.00 m
4th Storey:	0.00 m	0.00 m ²	0.00 m
5th Storey:	0.00 m	0.00 m ²	0.00 m
6th Storey:	0.00 m	0.00 m ²	0.00 m
7th Storey:	0.00 m	0.00 m ²	0.00 m

8.0 Living Area	16.04	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	0.21	110.00	140.95	108.65	0.00	None	32.30	Enter Gross Area

9.1 Party Walls							
Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Area (m ²)	Shelter Res	Shelter
Party Wall	Filled Cavity with Edge Sealing	Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill	0.00	110.00	66.09	0.00	None

9.2 Internal Walls				
Description	Construction	Kappa (kJ/m ² K)	Area (m ²)	
Ground Floor	Plasterboard on timber frame	9.00	64.36	
First Floor	Plasterboard on timber frame	9.00	66.47	
Second Floor	Plasterboard on timber frame	9.00	93.53	

10.0 External Roofs										
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Summary for Input Data

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	0.08	9.00	39.40	39.40	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	39.40
First Floor	+1	Plasterboard ceiling, carpeted chipboard floor	39.40

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	Ground Floor - Solid	Lowest occupied	Suspended concrete floor, carpeted	0.11	None	0.00	75.00	39.40

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
First Floor		Plasterboard ceiling, carpeted chipboard floor	9.00	39.40
Second Floor		Plasterboard ceiling, carpeted chipboard floor	9.00	39.40

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Front Doors	Manufacturer	Solid Door			Air Filled	0.00	Wood	0.70	1.10
Windows	BFRC, BSI or CERTASS data	Window	Double Low-E Soft 0.05		Air Filled	0.47	Wood	1.00	1.20
Patio Doors	Manufacturer	Window	Double Low-E Soft 0.05		Air Filled	0.63	Wood	0.70	1.30
Roof Windows	Manufacturer	Roof Window	Double Low-E Soft 0.05		Air Filled	0.63	Wood	0.70	1.30
Rear/Side Doors	Manufacturer	Half Glazed Door	Double Low-E Soft 0.05		Air Filled	0.63	Wood	0.70	1.20

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
Front Door	Front Doors	External Wall	East	2.15	0
Front Windows	Windows	External Wall	East	12.97	0
Left Side Windows	Windows	External Wall	South	8.96	0
Right Side Windows	Windows	External Wall	North	6.07	0
Side Door	Rear/Side Doors	External Wall	North	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
E3 Sill	Independently assessed	16.47	0.01	0.01 FES	No
E4 Jamb	Independently assessed	71.66	0.01	0.01 FES	No
E5 Ground floor (normal)	Independently assessed	17.79	0.06	0.06 FES	No
E6 Intermediate floor within a dwelling	Independently assessed	35.58	-0.04	-0.04 FES	No
E12 Gable (insulation at ceiling level)	Independently assessed	9.45	0.05	0.05 FES	No
E16 Corner (normal)	Independently assessed	15.85	0.01	0.01 FES	No
E10 Eaves (insulation at ceiling level)	Independently assessed	8.34	0.08	0.08 FES	No
E1 Steel lintel with perforated steel base plate	Independently assessed	18.98	0.34	0.34 FES	No
E18 Party wall between dwellings	Independently assessed	15.85	0.03	0.03 FES	No
P1 Party wall - Ground floor	Independently assessed	8.34	0.08	0.08 FES	No
P2 Party wall - Intermediate floor within a dwelling	Table K1 - Default	16.68	0.00	0.00	No
P4 Party wall - Roof (insulation at ceiling level)	Independently assessed	8.34	0.08	0.08 FES	No

Y-value	0.00	W/m²K
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18.0 Pressure Testing

Designed AP ₅₀	4.50	m³/(h.m²) @ 50 Pa
Property Tested?	Yes	
Test Method	Blower Door	
As Built AP ₅₀	0.10	m³/(h.m²) @ 50 Pa

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	500787

Summary for Input Data

Duct Type	Rigid
MVHR Efficiency	0.00
Wet Rooms	4
SFP from Installer Commissioning Certificate	No

19.1 Mechanical extract ventilation - Decentralised

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

20.0 Fans, Open Fireplaces, Flues

21.0 Fixed Cooling System	No
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22.0 Lighting

No Fixed Lighting	No				
Name	Efficacy	Power	Capacity	Count	
Downlights	80.00	28	2240	15	
Spotlights	90.00	9	810	16	

24.0 Main Heating 1

Database	Database	
Percentage of Heat	100.00	%
Database Ref. No.	106473	
Fuel Type	Electricity	
SAP Code	0	
In Winter	0.00	
In Summer	0.00	
Model Name	EDLA06EV3	
Manufacturer	Daikin Europe NV	
System Type	Heat Pump	
Controls SAP Code	2207	
Delayed Start Stat	No	
Burner Control	On/Off	
HETAS approved System	No	
Oil Pump Inside	No	
FI Case	0.00	
Flue Type	None or Unknown	
Fan Assisted Flue	No	
Is MHS Pumped	Pump in unheated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	55.00	
Boiler Interlock	No	
Combi boiler type	No Combi	
Combi keep hot type	None	

25.0 Main Heating 2	None
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26.0 Heat Networks	None
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Summary for Input Data

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								

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

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
Main Bathroom En-Suite	Combi boiler or unvented hot water system	6.00		No	Instantaneous System 1
	Instantaneous electric shower		9.30	No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder

Hot Water Cylinder:	Hot Water Cylinder:	
Cylinder Stat	Yes	
Cylinder In Heated Space	Yes	
Independent Time Control	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	192.00	L
Loss	2.18	kWh/day
Pipes insulation	Fully insulated primary pipework	
In Airing Cupboard	No	

31.0 Thermal Store

None

34.0 Small-scale Hydro

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

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

Recommendations

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

Summary for Input Data

Property Reference	008091 - HT - Poplar - SEMI	Issued on Date	05/10/2023
Assessment Reference	As Designed - As (Type 1)	Prop Type Ref	HT - Poplar - SEMI
Property	Plot , Hollingworth Road, Littleborough		

SAP Rating	80 C	DER	4.23	TER	10.89
Environmental	96 A	% DER < TER			61.16
CO ₂ Emissions (t/year)	0.49	DFEE	35.16	TFEE	37.65
Compliance Check	See BREL	% DFEE < TFEE			6.62
% DPER < TPER	22.10	DPER	44.43	TPER	57.04

Assessor Details	Mr. Robert Beeson	Assessor ID	P759-0001
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	2023	
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	N/A	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
Basement:	0.00 m	0.00 m ²	0.00 m
Ground floor:	17.79 m	39.40 m ²	2.54 m
1st Storey:	17.79 m	39.40 m ²	2.70 m
2nd Storey:	17.79 m	39.40 m ²	2.68 m
3rd Storey:	0.00 m	0.00 m ²	0.00 m
4th Storey:	0.00 m	0.00 m ²	0.00 m
5th Storey:	0.00 m	0.00 m ²	0.00 m
6th Storey:	0.00 m	0.00 m ²	0.00 m
7th Storey:	0.00 m	0.00 m ²	0.00 m

8.0 Living Area	16.28	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	0.21	110.00	141.06	118.76	0.00	None	22.30	Enter Gross Area

9.1 Party Walls	Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Area (m ²)	Shelter Res	Shelter
	Party Wall	Filled Cavity with Edge Sealing	Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill	0.00	110.00	66.14	0.00	None

9.2 Internal Walls	Description	Construction	Kappa (kJ/m ² K)	Area (m ²)
	Ground Floor	Plasterboard on timber frame	9.00	68.58
	First Floor	Plasterboard on timber frame	9.00	74.31
	Second Floor	Plasterboard on timber frame	9.00	81.51

10.0 External Roofs

Summary for Input Data

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	0.08	9.00	39.40	39.40	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	39.40
First Floor	+1	Plasterboard ceiling, carpeted chipboard floor	39.40

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	Ground Floor - Solid	Lowest occupied	Suspended concrete floor, carpeted	0.11	None	0.00	75.00	39.40

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
First Floor		Plasterboard ceiling, carpeted chipboard floor	9.00	39.40
Second Floor		Plasterboard ceiling, carpeted chipboard floor	9.00	39.40

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Front Doors	Manufacturer	Solid Door			Air Filled	0.00	Wood	0.70	1.10
Windows	BFRC, BSI or CERTASS data	Window	Double Low-E Soft 0.05		Air Filled	0.47	Wood	1.00	1.20
Patio Doors	Manufacturer	Window	Double Low-E Soft 0.05		Air Filled	0.63	Wood	0.70	1.30
Roof Windows	Manufacturer	Roof Window	Double Low-E Soft 0.05		Air Filled	0.63	Wood	0.70	1.30
Rear/Side Doors	Manufacturer	Half Glazed Door	Double Low-E Soft 0.05		Air Filled	0.63	Wood	0.70	1.20

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
Front Door	Front Doors	External Wall	East	2.15	0
Front Windows	Windows	External Wall	East	7.87	0
Left Side Windows	Windows	External Wall	South	2.40	0
Rear Windows	Windows	External Wall	West	7.73	0
Rear Door	Rear/Side Doors	External Wall	North	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
E3 Sill	Independently assessed	10.29	0.01	0.01	FES	No
E4 Jamb	Independently assessed	53.74	0.01	0.01	FES	No
E5 Ground floor (normal)	Independently assessed	17.79	0.06	0.06	FES	No
E6 Intermediate floor within a dwelling	Independently assessed	35.58	-0.04	-0.04	FES	No
E12 Gable (insulation at ceiling level)	Independently assessed	9.45	0.05	0.05	FES	No
E16 Corner (normal)	Independently assessed	15.85	0.01	0.01	FES	No
E10 Eaves (insulation at ceiling level)	Independently assessed	8.34	0.08	0.08	FES	No
E1 Steel lintel with perforated steel base plate	Independently assessed	12.33	0.34	0.34	FES	No
E18 Party wall between dwellings	Independently assessed	15.85	0.03	0.03	FES	No
P1 Party wall - Ground floor	Independently assessed	8.34	0.08	0.08	FES	No
P2 Party wall - Intermediate floor within a dwelling	Table K1 - Default	16.68	0.00	0.00		No
P4 Party wall - Roof (insulation at ceiling level)	Independently assessed	8.34	0.08	0.08	FES	No

Y-value	0.00	W/m²K
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18.0 Pressure Testing

Designed AP ₅₀	4.50	m³/(h.m²) @ 50 Pa
Property Tested?	Yes	
Test Method	Blower Door	
As Built AP ₅₀	0.10	m³/(h.m²) @ 50 Pa

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	500787

Summary for Input Data

Duct Type	Rigid
MVHR Efficiency	0.00
Wet Rooms	4
SFP from Installer Commissioning Certificate	No

19.1 Mechanical extract ventilation - Decentralised

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

20.0 Fans, Open Fireplaces, Flues

21.0 Fixed Cooling System	No
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22.0 Lighting

No Fixed Lighting	No				
Name	Efficacy	Power	Capacity	Count	
Downlights	80.00	28	2240	15	
Spotlights	90.00	9	810	16	

24.0 Main Heating 1

Database	Database	
Percentage of Heat	100.00	%
Database Ref. No.	106473	
Fuel Type	Electricity	
SAP Code	0	
In Winter	0.00	
In Summer	0.00	
Model Name	EDLA06EV3	
Manufacturer	Daikin Europe NV	
System Type	Heat Pump	
Controls SAP Code	2207	
Delayed Start Stat	No	
Burner Control	On/Off	
HETAS approved System	No	
Oil Pump Inside	No	
FI Case	0.00	
Flue Type	None or Unknown	
Fan Assisted Flue	No	
Is MHS Pumped	Pump in unheated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	55.00	
Boiler Interlock	No	
Combi boiler type	No Combi	
Combi keep hot type	None	

25.0 Main Heating 2	None
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26.0 Heat Networks	None
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Summary for Input Data

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								

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

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
Main Bathroom En-Suite	Combi boiler or unvented hot water system	6.00		No	Instantaneous System 1
	Instantaneous electric shower		9.30	No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder

Hot Water Cylinder:	Hot Water Cylinder:	
Cylinder Stat	Yes	
Cylinder In Heated Space	Yes	
Independent Time Control	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	192.00	L
Loss	2.18	kWh/day
Pipes insulation	Fully insulated primary pipework	
In Airing Cupboard	No	

31.0 Thermal Store

None

34.0 Small-scale Hydro

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

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

Recommendations

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

Summary for Input Data

Property Reference	008091 - HT - Rowan - SEMI	Issued on Date	05/10/2023
Assessment Reference	As Designed - As (Type 1)	Prop Type Ref	HT - Rowan - SEMI
Property	Plot , Hollingworth Road, Littleborough		

SAP Rating	79 C	DER	4.90	TER	11.34
Environmental	96 A	% DER < TER			56.79
CO ₂ Emissions (t/year)	0.41	DFEE	36.58	TFEE	38.54
Compliance Check	See BREL	% DFEE < TFEE			5.09
% DPER < TPER	12.90	DPER	51.54	TPER	59.18

Assessor Details	Mr. Robert Beeson	Assessor ID	P759-0001
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	2023	
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	N/A	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
Basement:	0.00 m	0.00 m ²	0.00 m
Ground floor:	18.72 m	43.28 m ²	2.54 m
1st Storey:	18.72 m	43.28 m ²	2.69 m
2nd Storey:	18.01 m	22.69 m ²	2.48 m
3rd Storey:	0.00 m	0.00 m ²	0.00 m
4th Storey:	0.00 m	0.00 m ²	0.00 m
5th Storey:	0.00 m	0.00 m ²	0.00 m
6th Storey:	0.00 m	0.00 m ²	0.00 m
7th Storey:	0.00 m	0.00 m ²	0.00 m

8.0 Living Area	32.60	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	0.21	110.00	97.83	79.66	0.00	None	18.17	Enter Gross Area

9.1 Party Walls	Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Area (m ²)	Shelter Res	Shelter
	Party Wall	Filled Cavity with Edge Sealing	Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill	0.00	110.00	43.58	0.00	None

9.2 Internal Walls	Description	Construction	Kappa (kJ/m ² K)	Area (m ²)
	Ground Floor	Plasterboard on timber frame	9.00	49.63
	First Floor	Plasterboard on timber frame	9.00	130.36

10.0 External Roofs	
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Summary for Input Data

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	0.08	9.00	43.28	43.28	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	43.28

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	43.28

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
First Floor		Plasterboard ceiling, carpeted chipboard floor	9.00	43.28

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Front Doors	Manufacturer	Solid Door			Air Filled	0.00	Wood	0.70	1.10
Windows	BFRC, BSI or CERTASS data	Window	Double Low-E Soft 0.05		Air Filled	0.47	Wood	1.00	1.20
Patio Doors	Manufacturer	Window	Double Low-E Soft 0.05		Air Filled	0.63	Wood	0.70	1.30
Roof Windows	Manufacturer	Roof Window	Double Low-E Soft 0.05		Air Filled	0.63	Wood	0.70	1.30
Rear/Side Doors	Manufacturer	Half Glazed Door	Double Low-E Soft 0.05		Air Filled	0.63	Wood	0.70	1.20

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
Front Door	Front Doors	External Wall	East	2.15	0
Front Windows	Windows	External Wall	East	6.93	0
Rear Windows	Windows	External Wall	West	4.31	0
Rear Patio Doors	Patio Doors	External Wall	West	3.33	0
LH Windows	Windows	External Wall	South	1.45	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
E3 Sill	Independently assessed	9.53	0.01	0.01 FES	No
E4 Jamb	Independently assessed	25.04	0.01	0.01 FES	No
E5 Ground floor (normal)	Independently assessed	18.72	0.06	0.06 FES	No
E6 Intermediate floor within a dwelling	Independently assessed	18.72	-0.04	-0.04 FES	No
E12 Gable (insulation at ceiling level)	Independently assessed	8.34	0.05	0.05 FES	No
E16 Corner (normal)	Independently assessed	10.45	0.01	0.01 FES	No
E10 Eaves (insulation at ceiling level)	Independently assessed	10.38	0.08	0.08 FES	No
E1 Steel lintel with perforated steel base plate	Independently assessed	12.59	0.34	0.34 FES	No
E18 Party wall between dwellings	Independently assessed	10.45	0.03	0.03 FES	No
P1 Party wall - Ground floor	Independently assessed	8.34	0.08	0.08 FES	No
P2 Party wall - Intermediate floor within a dwelling	Table K1 - Default	8.34	0.00	0.00	No
P4 Party wall - Roof (insulation at ceiling level)	Independently assessed	8.34	0.08	0.08 FES	No

Y-value W/m²K

18.0 Pressure Testing

Designed AP ₅₀	4.50	m³/(h.m²) @ 50 Pa
Property Tested?	Yes	
Test Method	Blower Door	
As Built AP ₅₀	0.10	m³/(h.m²) @ 50 Pa

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	500787
Duct Type	Rigid

Summary for Input Data



MVHR Efficiency	0.00
Wet Rooms	4
SFP from Installer Commissioning Certificate	No

19.1 Mechanical extract ventilation - Decentralised

SFP	Fan/Room Type	Count
0.13	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
0.10	Through Wall Fan Kitchen	1
0.10	Through Wall Fan Other Wet Room	1

20.0 Fans, Open Fireplaces, Flues

21.0 Fixed Cooling System	No
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22.0 Lighting

No Fixed Lighting	No				
Name	Efficacy	Power	Capacity	Count	
Downlights	80.00	28	2240	15	
Spotlights	90.00	9	810	9	

24.0 Main Heating 1

	Database	
Percentage of Heat	100.00	%
Database Ref. No.	106465	
Fuel Type	Electricity	
SAP Code	0	
In Winter	0.00	
In Summer	0.00	
Model Name	EDLA04EV3	
Manufacturer	Daikin Europe NV	
System Type	Heat Pump	
Controls SAP Code	2207	
Delayed Start Stat	No	
Burner Control	On/Off	
HETAS approved System	No	
Oil Pump Inside	No	
FI Case	0.00	
Flue Type	None or Unknown	
Fan Assisted Flue	No	
Is MHS Pumped	Pump in unheated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	55.00	
Boiler Interlock	No	
Combi boiler type	No Combi	
Combi keep hot type	None	

25.0 Main Heating 2	None
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26.0 Heat Networks	None
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Heat Source	Fuel Type	Heating Use	Efficiency	Percentage Of Heat	Heat	Heat Power Ratio	Electrical	Fuel Factor	Efficiency type
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Summary for Input Data

Heat source 1 None
Heat source 2 None
Heat source 3 None
Heat source 4 None
Heat source 5 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	No
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Summer Immersion	No
Cold Water Source	From mains
Bath Count	1
Supplementary Immersion	No
Immersion Only Heating Hot Water	No

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
Main Bathroom	Combi boiler or unvented hot water system	6.00		No	Instantaneous System 1
En-Suite	Instantaneous electric shower		9.30	No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder

Hot Water Cylinder	Hot Water Cylinder	
Cylinder Stat	Yes	
Cylinder In Heated Space	Yes	
Independent Time Control	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	145.00	L
Loss	1.85	kWh/day
Pipes insulation	Fully insulated primary pipework	
In Airing Cupboard	No	

31.0 Thermal Store

None

34.0 Small-scale Hydro

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

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Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

Summary for Input Data

Property Reference	008091 - HT - Spruce - DET	Issued on Date	05/10/2023
Assessment Reference	As Designed - As (Type 1)	Prop Type Ref	HT - Spruce - DET
Property	Plot , Hollingworth Road, Littleborough		

SAP Rating	78 C	DER	4.95	TER	11.90
Environmental	96 A	% DER < TER			58.40
CO ₂ Emissions (t/year)	0.49	DFEE	43.11	TFEE	44.63
Compliance Check	See BREL	% DFEE < TFEE			3.40
% DPER < TPER	16.74	DPER	51.84	TPER	62.26

Assessor Details	Mr. Robert Beeson	Assessor ID	P759-0001
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	2023	
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	N/A	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
Basement:	0.00 m	0.00 m ²	0.00 m
Ground floor:	29.55 m	51.12 m ²	2.54 m
1st Storey:	29.55 m	51.12 m ²	2.69 m
2nd Storey:	18.01 m	22.69 m ²	2.48 m
3rd Storey:	0.00 m	0.00 m ²	0.00 m
4th Storey:	0.00 m	0.00 m ²	0.00 m
5th Storey:	0.00 m	0.00 m ²	0.00 m
6th Storey:	0.00 m	0.00 m ²	0.00 m
7th Storey:	0.00 m	0.00 m ²	0.00 m

8.0 Living Area	18.33	m ²
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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 or battens, lightweight aggregate block, filled cavity, any outside structure	0.21	110.00	154.43	125.60	0.00	None	28.83	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	36.33	0.00	None

9.2 Internal Walls			
Description	Construction	Kappa (kJ/m²K)	Area (m²)
Ground Floor	Plasterboard on timber frame	9.00	39.47
First Floor	Plasterboard on timber frame	9.00	67.14
Ground Floor - Block	Dense block, plasterboard on dabs	75.00	58.52

10.0 External Roofs											
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Summary for Input Data



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	0.08	9.00	51.12	51.12	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	51.12

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	51.12

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
First Floor		Plasterboard ceiling, carpeted chipboard floor	9.00	51.12

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Front Doors	Manufacturer	Solid Door			Air Filled	0.00	Wood	0.70	1.10
Windows	BFRC, BSI or CERTASS data	Window	Double Low-E Soft 0.05		Air Filled	0.47	Wood	1.00	1.20
Patio Doors	Manufacturer	Window	Double Low-E Soft 0.05		Air Filled	0.63	Wood	0.70	1.30
Roof Windows	Manufacturer	Roof Window	Double Low-E Soft 0.05		Air Filled	0.63	Wood	0.70	1.30
Rear/Side Doors	Manufacturer	Half Glazed Door	Double Low-E Soft 0.05		Air Filled	0.63	Wood	0.70	1.20

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
Front Door	Front Doors	External Wall	East	2.15	0
Front Windows	Windows	External Wall	East	10.87	0
Rear Windows	Windows	External Wall	West	6.59	0
Rear Patio Doors	Patio Doors	External Wall	West	3.11	0
LH Windows	Windows	External Wall	South	2.08	0
RH Windows	Windows	External Wall	North	1.88	0
Rear Door	Rear/Side Doors	External Wall	West	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
E3 Sill	Independently assessed	15.01	0.01	0.01 FES	No
E4 Jamb	Independently assessed	50.32	0.01	0.01 FES	No
E5 Ground floor (normal)	Independently assessed	29.55	0.06	0.06 FES	No
E6 Intermediate floor within a dwelling	Independently assessed	29.55	-0.04	-0.04 FES	No
E12 Gable (insulation at ceiling level)	Independently assessed	11.06	0.05	0.05 FES	No
E16 Corner (normal)	Independently assessed	20.92	0.01	0.01 FES	No
E10 Eaves (insulation at ceiling level)	Independently assessed	18.49	0.08	0.08 FES	No
E1 Steel lintel with perforated steel base plate	Independently assessed	19.01	0.34	0.34 FES	No

Y-value	0.00	W/m²K
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18.0 Pressure Testing

Designed AP ₅₀	4.50	m³/(h.m²) @ 50 Pa
Property Tested?	Yes	
Test Method	Blower Door	
As Built AP ₅₀	0.10	m³/(h.m²) @ 50 Pa

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	500787
Duct Type	Rigid
MVHR Efficiency	0.00

Summary for Input Data

Wet Rooms

SFP from Installer Commissioning Certificate

19.1 Mechanical extract ventilation - Decentralised

SFP	Fan/Room Type	Count
0.13	In Room Fan Kitchen	0
0.11	In Room Fan Other Wet Room	3
0.00	In Duct Fan Kitchen	0
0.00	In Duct Fan Other Wet Room	0
0.10	Through Wall Fan Kitchen	2
0.10	Through Wall Fan Other Wet Room	0

20.0 Fans, Open Fireplaces, Flues

21.0 Fixed Cooling System

22.0 Lighting

No Fixed Lighting	No				
Name	Efficacy	Power	Capacity	Count	
Downlights	80.00	28	2240	15	
Spotlights	90.00	9	810	12	

24.0 Main Heating 1

Database	Database	
Percentage of Heat	100.00	%
Database Ref. No.	106473	
Fuel Type	Electricity	
SAP Code	0	
In Winter	0.00	
In Summer	0.00	
Model Name	EDLA06EV3	
Manufacturer	Daikin Europe NV	
System Type	Heat Pump	
Controls SAP Code	2207	
Delayed Start Stat	No	
Burner Control	On/Off	
HETAS approved System	No	
Oil Pump Inside	No	
FI Case	0.00	
Flue Type	None or Unknown	
Fan Assisted Flue	No	
Is MHS Pumped	Pump in unheated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	55.00	
Boiler Interlock	No	
Combi boiler type	No Combi	
Combi keep hot type	None	

25.0 Main Heating 2

26.0 Heat Networks

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								

Summary for Input Data

Heat source 3 None
Heat source 4 None
Heat source 5 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	No
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Summer Immersion	No
Cold Water Source	From mains
Bath Count	1
Supplementary Immersion	No
Immersion Only Heating Hot Water	No

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
Main Bathroom	Combi boiler or unvented hot water system	6.00		No	Instantaneous System 1
En-Suite	Instantaneous electric shower		9.30	No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder

Cylinder Stat	Yes	
Cylinder In Heated Space	Yes	
Independent Time Control	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	192.00	L
Loss	2.18	kWh/day
Pipes insulation	Fully insulated primary pipework	
In Airing Cupboard	No	

31.0 Thermal Store

None

34.0 Small-scale Hydro

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

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Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

Summary for Input Data

Property Reference	008091 - HT - Spruce - SEMI		Issued on Date	05/10/2023
Assessment Reference	As Designed - As (Type 1)	Prop Type Ref	HT - Spruce - SEMI	
Property	Plot , Hollingworth Road, Littleborough			

SAP Rating	80 C	DER	4.60	TER	10.88
Environmental	96 A	% DER < TER			57.72
CO ₂ Emissions (t/year)	0.46	DFEE	37.45	TFEE	39.87
Compliance Check	See BREL	% DFEE < TFEE			6.07
% DPER < TPER	14.89	DPER	48.33	TPER	56.78

Assessor Details	Mr. Robert Beeson	Assessor ID	P759-0001
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	2023	
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	N/A	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
Basement:	0.00 m	0.00 m ²	0.00 m
Ground floor:	21.20 m	51.12 m ²	2.54 m
1st Storey:	21.20 m	51.12 m ²	2.69 m
2nd Storey:	18.01 m	22.69 m ²	2.48 m
3rd Storey:	0.00 m	0.00 m ²	0.00 m
4th Storey:	0.00 m	0.00 m ²	0.00 m
5th Storey:	0.00 m	0.00 m ²	0.00 m
6th Storey:	0.00 m	0.00 m ²	0.00 m
7th Storey:	0.00 m	0.00 m ²	0.00 m

8.0 Living Area	18.33	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	0.21	110.00	110.81	86.02	0.00	None	24.79	Enter Gross Area

9.1 Party Walls								
Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Area (m ²)	Shelter Res	Shelter	
Party Wall	Filled Cavity with Edge Sealing	Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill	0.00	110.00	43.62	0.00	None	

9.2 Internal Walls				
Description	Construction	Kappa (kJ/m ² K)	Area (m ²)	
Ground Floor	Plasterboard on timber frame	9.00	39.47	
First Floor	Plasterboard on timber frame	9.00	67.14	
Ground Floor - Block	Dense block, plasterboard on dabs	75.00	58.52	

10.0 External Roofs										
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Summary for Input Data



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	0.08	9.00	51.12	51.12	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	51.12

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	51.12

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
First Floor		Plasterboard ceiling, carpeted chipboard floor	9.00	51.12

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Front Doors	Manufacturer	Solid Door			Air Filled	0.00	Wood	0.70	1.10
Windows	BFRC, BSI or CERTASS data	Window	Double Low-E Soft 0.05		Air Filled	0.47	Wood	1.00	1.20
Patio Doors	Manufacturer	Window	Double Low-E Soft 0.05		Air Filled	0.63	Wood	0.70	1.30
Roof Windows	Manufacturer	Roof Window	Double Low-E Soft 0.05		Air Filled	0.63	Wood	0.70	1.30
Rear/Side Doors	Manufacturer	Half Glazed Door	Double Low-E Soft 0.05		Air Filled	0.63	Wood	0.70	1.20

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
Front Door	Front Doors	External Wall	East	2.15	0
Front Windows	Windows	External Wall	East	9.55	0
LH Patio Doors	Patio Doors	External Wall	South	3.11	0
LH Windows	Windows	External Wall	South	1.87	0
RH Windows	Windows	External Wall	North	8.11	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
E3 Sill	Independently assessed	13.62	0.01	0.01 FES	No
E4 Jamb	Independently assessed	40.76	0.01	0.01 FES	No
E5 Ground floor (normal)	Independently assessed	21.20	0.06	0.06 FES	No
E6 Intermediate floor within a dwelling	Independently assessed	21.20	-0.04	-0.04 FES	No
E12 Gable (insulation at ceiling level)	Independently assessed	11.06	0.05	0.05 FES	No
E16 Corner (normal)	Independently assessed	20.92	0.01	0.01 FES	No
E10 Eaves (insulation at ceiling level)	Independently assessed	10.15	0.08	0.08 FES	No
E1 Steel lintel with perforated steel base plate	Independently assessed	16.58	0.34	0.34 FES	No
E25 Staggered party wall between dwellings	Independently assessed	10.45	0.04	0.04 RCD	No
P1 Party wall - Ground floor	Independently assessed	8.35	0.08	0.08 FES	No
P2 Party wall - Intermediate floor within a dwelling	Table K1 - Default	8.35	0.00	0.00	No
P4 Party wall - Roof (insulation at ceiling level)	Independently assessed	8.35	0.08	0.08 FES	No

Y-value

 W/m²K

18.0 Pressure Testing

Designed AP ₅₀	4.50	m³/(h.m²) @ 50 Pa
Property Tested?	Yes	
Test Method	Blower Door	
As Built AP ₅₀	0.10	m³/(h.m²) @ 50 Pa

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	500787
Duct Type	Rigid

Summary for Input Data



MVHR Efficiency	0.00
Wet Rooms	5
SFP from Installer Commissioning Certificate	No

19.1 Mechanical extract ventilation - Decentralised

SFP	Fan/Room Type	Count
0.13	In Room Fan Kitchen	0
0.11	In Room Fan Other Wet Room	3
0.00	In Duct Fan Kitchen	0
0.00	In Duct Fan Other Wet Room	0
0.10	Through Wall Fan Kitchen	2
0.10	Through Wall Fan Other Wet Room	0

20.0 Fans, Open Fireplaces, Flues

21.0 Fixed Cooling System	No
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22.0 Lighting

No Fixed Lighting	No				
Name	Efficacy	Power	Capacity	Count	
Downlights	80.00	28	2240	15	
Spotlights	90.00	9	810	12	

24.0 Main Heating 1

	Database	
Percentage of Heat	100.00	%
Database Ref. No.	106473	
Fuel Type	Electricity	
SAP Code	0	
In Winter	0.00	
In Summer	0.00	
Model Name	EDLA06EV3	
Manufacturer	Daikin Europe NV	
System Type	Heat Pump	
Controls SAP Code	2207	
Delayed Start Stat	No	
Burner Control	On/Off	
HETAS approved System	No	
Oil Pump Inside	No	
FI Case	0.00	
Flue Type	None or Unknown	
Fan Assisted Flue	No	
Is MHS Pumped	Pump in unheated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	55.00	
Boiler Interlock	No	
Combi boiler type	No Combi	
Combi keep hot type	None	

25.0 Main Heating 2	None
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26.0 Heat Networks	None
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Heat Source	Fuel Type	Heating Use	Efficiency	Percentage Of Heat	Heat	Heat Power Ratio	Electrical	Fuel Factor	Efficiency type
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Summary for Input Data

Heat source 1 None
Heat source 2 None
Heat source 3 None
Heat source 4 None
Heat source 5 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	No
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Summer Immersion	No
Cold Water Source	From mains
Bath Count	1
Supplementary Immersion	No
Immersion Only Heating Hot Water	No

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
Main Bathroom	Combi boiler or unvented hot water system	6.00		No	Instantaneous System 1
En-Suite	Instantaneous electric shower		9.30	No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder

Hot Water Cylinder	Hot Water Cylinder	
Cylinder Stat	Yes	
Cylinder In Heated Space	Yes	
Independent Time Control	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	192.00	L
Loss	2.18	kWh/day
Pipes insulation	Fully insulated primary pipework	
In Airing Cupboard	No	

31.0 Thermal Store

None

34.0 Small-scale Hydro

0.0 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	008091 - HT - Stansfield -SEMI		Issued on Date	05/10/2023
Assessment Reference	As Designed - As	Prop Type Ref	HT - Stanfield - SEMI	
Property	Plot , Hollingworth Road, Littleborough			

SAP Rating	76 C	DER	5.20	TER	12.67
Environmental	95 A	% DER < TER			58.96
CO ₂ Emissions (t/year)	0.62	DFEE	42.82	TFEE	43.64
Compliance Check	See BREL	% DFEE < TFEE			1.88
% DPER < TPER	18.83	DPER	54.37	TPER	66.98

Assessor Details	Mr. Robert Beeson	Assessor ID	P759-0001
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	2023	
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	N/A	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
Basement:	0.00 m	0.00 m ²	0.00 m
Ground floor:	25.66 m	28.09 m ²	2.82 m
1st Storey:	19.51 m	47.17 m ²	2.42 m
2nd Storey:	19.51 m	47.17 m ²	2.69 m
3rd Storey:	0.00 m	0.00 m ²	0.00 m
4th Storey:	0.00 m	0.00 m ²	0.00 m
5th Storey:	0.00 m	0.00 m ²	0.00 m
6th Storey:	0.00 m	0.00 m ²	0.00 m
7th Storey:	0.00 m	0.00 m ²	0.00 m

8.0 Living Area	18.63	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	145.97	120.63	0.00	None	25.34	Enter Gross Area
Garage Wall	Cavity Wall	Cavity wall : plasterboard on dabs, AAC block, filled cavity, any outside structure	0.34	60.00	26.07	26.07	0.25	Garage Single 2 Outside	0.00	Enter Gross Area

9.1 Party Walls							
Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Area (m ²)	Shelter Res	Shelter
Party Wall	Filled Cavity with Edge Sealing	Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill	0.00	110.00	52.89	0.00	None

9.2 Internal Walls			
Description	Construction	Kappa (kJ/m ² K)	Area (m ²)
GF - Timber	Plasterboard on timber frame	9.00	26.17
1F - Timber	Plasterboard on timber frame	9.00	75.70
2F - Timber	Plasterboard on timber frame	9.00	130.09

Summary for Input Data



GF - Block Dense block, plasterboard on dabs 75.00 12.58

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	0.08	9.00	47.17	47.17	None	0.00	Enter Gross Area	0.00

10.2 Internal Ceilings

Description	Storey	Construction	Area (m²)
GF - Ceiling	Lowest occupied	Plasterboard ceiling, carpeted chipboard floor	28.09
1F - Ceiling	+1	Plasterboard ceiling, carpeted chipboard floor	47.17

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	28.09
Exposed Garage Floor	Exposed Floor - Timber	+1	Timber exposed floor, insulation between joists	0.15	Garage Double 2 Outside	0.25	20.00	19.08

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
1F - Floor		Plasterboard ceiling, carpeted chipboard floor	9.00	28.09
2F Floor		Plasterboard ceiling, carpeted chipboard floor	9.00	47.17

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Windows	BFRC, BSI or CERTASS data	Window	Double Low-E Soft 0.05		Air Filled	0.47	Wood	1.00	1.20
Door	Manufacturer	Half Glazed Door	Double Low-E Soft 0.05		Air Filled	0.63	Wood	0.70	1.20
Patio Door	Manufacturer	Window	Double Low-E Soft 0.05		Air Filled	0.63	Wood	0.70	1.30

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
Front Door	Door	External Wall	East	2.15	0
Front Windows	Windows	External Wall	East	7.70	0
Rear Windows	Windows	External Wall	West	9.61	0
Rear Door	Door	External Wall	West	2.15	0
Left Windows	Windows	External Wall	South	3.73	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	Independently assessed	14.61	0.34	0.34 FES	No
E3 Sill	Independently assessed	11.64	0.01	0.01 FES	No
E4 Jamb	Independently assessed	52.96	0.01	0.01 FES	No
E5 Ground floor (normal)	Independently assessed	25.66	0.06	0.06 FES	No
E6 Intermediate floor within a dwelling	Independently assessed	35.92	-0.04	-0.04 FES	No
E10 Eaves (insulation at ceiling level)	Independently assessed	8.86	0.08	0.08 FES	No
E12 Gable (insulation at ceiling level)	Independently assessed	10.65	0.05	0.05 FES	No
E16 Corner (normal)	Independently assessed	15.86	0.01	0.01 FES	No
E18 Party wall between dwellings	Independently assessed	13.04	0.03	0.03 FES	No
P1 Party wall - Ground floor	Independently assessed	2.70	0.08	0.08 FES	No
P2 Party wall - Intermediate floor within a dwelling	Table K1 - Default	11.56	0.00	0.00 FES	No
P4 Party wall - Roof (insulation at ceiling level)	Independently assessed	8.86	0.08	0.08 FES	No
E20 Exposed floor (normal)	Table K1 - Default	9.25	0.32	0.32 FES	No
E21 Exposed floor (inverted)	Table K1 - Default	9.25	0.32	0.32 FES	No
E17 Corner (inverted - internal area greater than external area)	Table K1 - Default	2.82	0.00	-0.89 FES	No
P8 Party Wall - Exposed floor (inverted)	Table K1 - Default	6.16	0.48	0.48 FES	No

Y-value 0.00 W/m²K

18.0 Pressure Testing

Yes

Designed AP₅₀ 4.50 m³/(h.m²) @ 50 Pa

Property Tested? Yes

Test Method Blower Door

As Built AP₅₀ 0.10 m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Mechanical Ventilation

Mechanical Ventilation System Present Yes

Summary for Input Data

Approved Installation	No
Mechanical Ventilation data Type	Database
Type	Mechanical extract ventilation - decentralised
MV Reference Number	500787
Duct Type	Rigid
MVHR Efficiency	0.00
Wet Rooms	4
SFP from Installer Commissioning Certificate	No

19.1 Mechanical extract ventilation - Decentralised

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

20.0 Fans, Open Fireplaces, Flues

21.0 Fixed Cooling System	No
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22.0 Lighting

No Fixed Lighting	No				
	Name	Efficacy	Power	Capacity	Count
	Down Lights	80.00	28	2240	10
	Spotlights	90.00	9	810	17

24.0 Main Heating 1

Percentage of Heat	100.00	%
Database Ref. No.	106485	
Fuel Type	Electricity	
SAP Code	0	
In Winter	0.00	
In Summer	0.00	
Model Name	EDLA08EV3	
Manufacturer	Daikin Europe NV	
System Type	Heat Pump	
Controls SAP Code	2207	
Delayed Start Stat	No	
Burner Control	Modulating	
HETAS approved System	No	
Oil Pump Inside	No	
FI Case	0.00	
Flue Type	None or Unknown	
Fan Assisted Flue	No	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	55.00	
Boiler Interlock	No	
Combi boiler type	No Combi	
Combi keep hot type	None	

Summary for Input Data

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									

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

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
Bathroom	Combi boiler or unvented hot water system	6.00		No	
En-suite	Instantaneous electric shower	11.00	9.30	No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder

Hot Water Cylinder	Hot Water Cylinder	
Cylinder Stat	No	
Cylinder In Heated Space	No	
Independent Time Control	No	
Insulation Type	Measured Loss	
Cylinder Volume	192.00	L
Loss	2.18	kWh/day
Pipes insulation	Fully insulated primary pipework	
In Airing Cupboard	No	

31.0 Thermal Store

None

34.0 Small-scale Hydro

0.0 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	008091 - HT - Willow - DET			Issued on Date	05/10/2023
Assessment Reference	As Designed - As		Prop Type Ref	HT - Willow - DET	
Property	Plot , Hollingworth Road, Littleborough				

SAP Rating	79 C	DER	4.35	TER	10.51
Environmental	96 A	% DER < TER			58.61
CO ₂ Emissions (t/year)	0.6	DFEE	38.85	TFEE	40.89
Compliance Check	See BREL	% DFEE < TFEE			4.99
% DPER < TPER	17.22	DPER	45.53	TPER	55.00

Assessor Details	Mr. Robert Beeson	Assessor ID	P759-0001
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	2023	
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	N/A	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
Basement:	0.00 m	0.00 m ²	0.00 m
Ground floor:	29.99 m	51.07 m ²	2.54 m
1st Storey:	28.63 m	49.85 m ²	2.69 m
2nd Storey:	28.63 m	41.25 m ²	2.31 m
3rd Storey:	0.00 m	0.00 m ²	0.00 m
4th Storey:	0.00 m	0.00 m ²	0.00 m
5th Storey:	0.00 m	0.00 m ²	0.00 m
6th Storey:	0.00 m	0.00 m ²	0.00 m
7th Storey:	0.00 m	0.00 m ²	0.00 m

8.0 Living Area	14.98	m ²
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9.0 External Walls	Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Gross Area(m ²)	Nett Area (m ²)	Shelter Res	Shelter	Openings	Area Calculation Type
	External Wall	Cavity Wall	Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure	0.21	110.00	188.27	164.48	0.00	None	23.79	Enter Gross Area
	Dormer Wall	Timber Frame	Timber framed wall (one layer of plasterboard)	0.26	9.00	6.68	4.76	0.00	None	1.92	Enter Gross Area
	Sheltered Stud Wal Wall	Timber Frame	Timber framed wall (one layer of plasterboard)	0.10	9.00	13.08	13.08	0.00	None	0.00	Enter Gross Area

9.2 Internal Walls	Description	Construction	Kappa (kJ/m ² K)	Area (m ²)
	GF - Block	Dense block, plasterboard on dabs	75.00	30.38
	GF - Timber	Plasterboard on timber frame	9.00	54.41
	1F - Timber	Plasterboard on timber frame	9.00	82.21
	2F - Timber	Plasterboard on timber frame	9.00	83.25

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
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Summary for Input Data

Cold Roof	External Plane	Plasterboard, insulated at ceiling level	0.08	9.00	22.23	22.23	None	0.00	Enter Gross Area	0.00
Sloped Roof	External Slope	Plasterboard, insulated slope	0.14	9.00	22.24	21.15	None	0.00	Enter Gross Area	1.09
Dormer Flat Roof	External Flat	Plasterboard, insulated flat roof	0.16	9.00	3.29	3.29	None	0.00	Enter Gross Area	0.00
Bay Flat Roof	External Plane	Plasterboard, insulated at ceiling level	0.16	9.00	1.23	1.23	None	0.00	Enter Gross Area	0.00
Sheltered Stud Ceiling	External Slope	Plasterboard, insulated slope	0.10	9.00	8.60	8.60	None	0.00	Enter Gross Area	0.00

10.2 Internal Ceilings

Description	Storey	Construction	Area (m²)
GF - Ceiling	Lowest occupied	Plasterboard ceiling, carpeted chipboard floor	49.85
1F - Ceiling	+1	Plasterboard ceiling, carpeted chipboard floor	41.25

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	51.07

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
1F - Floor		Plasterboard ceiling, carpeted chipboard floor	9.00	49.85
2F - Floor		Plasterboard ceiling, carpeted chipboard floor	9.00	41.25

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Windows	BFRC, BSI or CERTASS data	Window	Double Low-E Soft 0.05		Air Filled	0.47	Wood	1.00	1.20
Door	Manufacturer	Solid Door			Air Filled	0.00	Wood	0.70	1.10
Patio Door	Manufacturer	Window	Double Low-E Soft 0.05		Air Filled	0.63	Wood	0.70	1.30
Roof Window	Manufacturer	Roof Window	Double Low-E Soft 0.05		Air Filled	0.63	Wood	0.70	1.30

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
Front Door	Door	External Wall	East	2.15	0
Front Window	Windows	External Wall	East	7.11	0
Rear Windows	Windows	External Wall	West	4.54	0
Rear Patio Door	Patio Door	External Wall	West	5.67	0
Left Windows	Windows	External Wall	South	2.16	0
Right Windows	Windows	External Wall	North	2.16	0
Front Dormer Window	Windows	Dormer Wall	East	1.92	0
Rear Roof Window	Roof Window	Sloped Roof	West	1.09	45

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	17.94	0.02	0.02 Hi Therm Lintels	No
E3 Sill	Independently assessed	14.22	0.01	0.01 FES	No
E4 Jamb	Independently assessed	37.68	0.01	0.01 FES	No
E5 Ground floor (normal)	Independently assessed	29.99	0.06	0.06 FES	No
E6 Intermediate floor within a dwelling	Independently assessed	57.27	-0.04	-0.04 FES	No
E10 Eaves (insulation at ceiling level)	Independently assessed	7.44	0.08	0.08 FES	No
E12 Gable (insulation at ceiling level)	Independently assessed	7.44	0.05	0.05 FES	No
E16 Corner (normal)	Independently assessed	24.14	0.01	0.01 FES	No
E17 Corner (inverted – internal area greater than external area)	Independently assessed	5.07	-0.10	-0.10 RCD	No
E24 Eaves (insulation at ceiling level - inverted)	Table K1 - Default	1.81	0.15	0.15	No
E11 Eaves (insulation at rafter level)	Independently assessed	11.95	0.01	0.01 RCD	No
E13 Gable (insulation at rafter level)	Independently assessed	13.07	0.05	0.05 RCD	No
E14 Flat roof	Table K1 - Default	3.17	0.16	0.16 Default	No
R1 Head of roof window	Table K1 - Default	2.37	0.24	0.24	No
R3 Jamb of roof window	Table K1 - Default	5.22	0.24	0.24	No
R6 Flat ceiling	Table K1 - Default	11.95	0.12	0.12	No
R7 Flat ceiling (inverted)	Table K1 - Default	1.79	0.12	0.12	No
R9 Roof to wall (flat ceiling)	Table K1 - Default	5.47	0.32	0.32	No
E16 Corner (normal)	Table K1 - Default	3.68	0.18	0.18 Dormer Corners	No
R2 Sill of roof window	Table K1 - Default	2.37	0.24	0.24	No

Y-value W/m²K

18.0 Pressure Testing

Designed AP₅₀ m³/(h.m²) @ 50 Pa

Property Tested?

Summary for Input Data

Test Method
 As Built AP₅₀ m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Mechanical Ventilation

Mechanical Ventilation System Present
 Approved Installation
 Mechanical Ventilation data Type
 Type
 MV Reference Number
 Duct Type
 MVHR Efficiency
 Wet Rooms
 SFP from Installer Commissioning Certificate

19.1 Mechanical extract ventilation - Decentralised

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

20.0 Fans, Open Fireplaces, Flues

21.0 Fixed Cooling System

22.0 Lighting

No Fixed Lighting

Name	Efficacy	Power	Capacity	Count
Down Lights	80.00	28	2240	19
Spotlights	90.00	9	810	15

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
 Oil Pump Inside
 FI Case
 Flue Type
 Fan Assisted Flue
 Is MHS Pumped
 Heating Pump Age
 Heat Emitter

Summary for Input Data

Flow Temperature	Enter value
Flow Temperature Value	55.00
Boiler Interlock	No
Combi boiler type	No Combi
Combi keep hot type	None

25.0 Main Heating 2

26.0 Heat Networks

	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									

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

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
Main Bathroom	Combi boiler or unvented hot water system	6.00		No	
En-suite	Instantaneous electric shower	11.00	9.30	No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder

Hot Water Cylinder	Hot Water Cylinder	
Cylinder Stat	No	
Cylinder In Heated Space	No	
Independent Time Control	No	
Insulation Type	Measured Loss	
Cylinder Volume	145.00	L
Loss	1.85	kWh/day
Pipes insulation	Fully insulated primary pipework	
In Airing Cupboard	No	

31.0 Thermal Store

34.0 Small-scale Hydro

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

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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Summary for Input Data



Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

Summary for Input Data



Property Reference	008091 - HT - Yew - DET		Issued on Date	05/10/2023
Assessment Reference	As Designed - As	Prop Type Ref	HT - Yew - DET	
Property	Plot , Hollingworth Road, Littleborough			

SAP Rating	79 C	DER	4.07	TER	9.72
Environmental	96 A	% DER < TER			58.13
CO ₂ Emissions (t/year)	0.69	DFEE	40.12	TFEE	41.25
Compliance Check	See BREL	% DFEE < TFEE			2.72
% DPER < TPER	16.46	DPER	42.50	TPER	50.87

Assessor Details	Mr. Robert Beeson	Assessor ID	P759-0001
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	2023	
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	N/A	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
Basement:	0.00 m	0.00 m ²	0.00 m
Ground floor:	35.39 m	66.51 m ²	2.54 m
1st Storey:	31.56 m	60.46 m ²	2.69 m
2nd Storey:	31.56 m	47.29 m ²	2.18 m
3rd Storey:	0.00 m	0.00 m ²	0.00 m
4th Storey:	0.00 m	0.00 m ²	0.00 m
5th Storey:	0.00 m	0.00 m ²	0.00 m
6th Storey:	0.00 m	0.00 m ²	0.00 m
7th Storey:	0.00 m	0.00 m ²	0.00 m

8.0 Living Area	14.85	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	0.21	110.00	198.46	168.15	0.00	None	30.31	Enter Gross Area
	Dormer Wall	Timber Frame	Timber framed wall (one layer of plasterboard)	0.26	9.00	9.44	6.42	0.00	None	3.02	Enter Gross Area
	Sheltered Stud Wall	Timber Frame	Timber framed wall (one layer of plasterboard)	0.10	9.00	20.50	20.50	0.00	None	0.00	Enter Gross Area

9.2 Internal Walls	Description	Construction	Kappa (kJ/m ² K)	Area (m ²)
	GF - Block	Dense block, plasterboard on dabs	75.00	66.50
	GF - Timber	Plasterboard on timber frame	9.00	54.20
	1F - Timber	Plasterboard on timber frame	9.00	154.08
	2F - Timber	Plasterboard on timber frame	9.00	83.28

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
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Summary for Input Data

Cold Roof	External Plane Roof	Plasterboard, insulated at ceiling level	0.08	9.00	23.84	23.84	None	0.00	Enter Gross Area	0.00
Sloped Roof	External Slope Roof	Plasterboard, insulated slope	0.14	9.00	35.20	32.09	None	0.00	Enter Gross Area	3.11
Dormer Flat Roof	External Flat Roof	Plasterboard, insulated flat roof	0.16	9.00	4.62	4.62	None	0.00	Enter Gross Area	0.00
Sheltered Stud Ceiling	External Slope Roof	Plasterboard, insulated slope	0.10	9.00	13.16	13.16	None	0.00	Enter Gross Area	0.00

10.2 Internal Ceilings

Description	Storey	Construction	Area (m²)
GF - Ceiling	Lowest occupied	Plasterboard ceiling, carpeted chipboard floor	60.46
1F - Ceiling	+1	Plasterboard ceiling, carpeted chipboard floor	47.29

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	66.51

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
1F - Floor		Plasterboard ceiling, carpeted chipboard floor	9.00	60.46
2F - Floor		Plasterboard ceiling, carpeted chipboard floor	9.00	47.29

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Windows	BFRC, BSI or CERTASS data	Window	Double Low-E Soft 0.05		Air Filled	0.47	Wood	1.00	1.20
Front Door	Manufacturer	Solid Door			Air Filled	0.00	Wood	0.70	1.10
Patio Door	Manufacturer	Window	Double Low-E Soft 0.05		Air Filled	0.63	Wood	0.70	1.30
Roof Window	Manufacturer	Roof Window	Double Low-E Soft 0.05		Air Filled	0.63	Wood	0.70	1.30
Rear Door	Manufacturer	Half Glazed Door	Double Low-E Soft 0.05		Air Filled	0.63	Wood	0.70	1.20

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
Front Door	Front Door	External Wall	East	2.15	0
Front Window	Windows	External Wall	East	9.37	0
Rear Windows	Windows	External Wall	West	4.32	0
Rear Patio Door	Patio Door	External Wall	West	9.00	0
Left Windows	Windows	External Wall	South	1.66	0
Right Windows	Windows	External Wall	North	1.66	0
Front Dormer Window	Windows	Dormer Wall	East	3.02	0
Rear Roof Window	Roof Window	Sloped Roof	West	3.11	45
Rear Door	Rear Door	External Wall	West	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	20.11	0.02	0.02 Hi Therm Lintels	No
E3 Sill	Independently assessed	13.88	0.01	0.01 FES	No
E4 Jamb	Independently assessed	45.08	0.01	0.01 FES	No
E5 Ground floor (normal)	Independently assessed	35.39	0.06	0.06 FES	No
E6 Intermediate floor within a dwelling	Independently assessed	59.96	-0.04	-0.04 FES	No
E10 Eaves (insulation at ceiling level)	Independently assessed	3.17	0.08	0.08 FES	No
E12 Gable (insulation at ceiling level)	Independently assessed	7.68	0.05	0.05 FES	No
E16 Corner (normal)	Independently assessed	24.70	0.01	0.01 FES	No
E17 Corner (inverted – internal area greater than external area)	Independently assessed	2.54	-0.10	-0.10 RCD	No
E24 Eaves (insulation at ceiling level - inverted)	Table K1 - Default	3.17	0.15	0.15	No
E11 Eaves (insulation at rafter level)	Independently assessed	18.47	0.01	0.01 RCD	No
E13 Gable (insulation at rafter level)	Independently assessed	13.07	0.05	0.05 RCD	No
R1 Head of roof window	Table K1 - Default	4.84	0.24	0.24	No
R3 Jamb of roof window	Table K1 - Default	12.82	0.24	0.24	No
R6 Flat ceiling	Table K1 - Default	18.47	0.12	0.12	No
R7 Flat ceiling (inverted)	Table K1 - Default	2.98	0.12	0.12	No
R9 Roof to wall (flat ceiling)	Table K1 - Default	9.19	0.32	0.32	No
E16 Corner (normal)	Table K1 - Default	6.21	0.18	0.18 Dormer Corners	No
R2 Sill of roof window	Table K1 - Default	4.84	0.24	0.24	No

Y-value W/m²K

18.0 Pressure Testing

Designed AP₅₀ m³/(h.m²) @ 50 Pa

Property Tested?

Test Method

Summary for Input Data

As Built AP₅₀

0.10

m²/(h.m²) @ 50 Pa

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

500787

Duct Type

Rigid

MVHR Efficiency

0.00

Wet Rooms

6

SFP from Installer Commissioning Certificate

No

19.1 Mechanical extract ventilation - Decentralised

SFP	Fan/Room Type	Count
0.13	In Room Fan Kitchen	0
0.11	In Room Fan Other Wet Room	3
0.00	In Duct Fan Kitchen	0
0.00	In Duct Fan Other Wet Room	0
0.10	Through Wall Fan Kitchen	2
0.10	Through Wall Fan Other Wet Room	1

20.0 Fans, Open Fireplaces, Flues

21.0 Fixed Cooling System

No

22.0 Lighting

No Fixed Lighting

No

Name	Efficacy	Power	Capacity	Count
Down Lights	80.00	28	2240	24
Spotlights	90.00	9	810	18

24.0 Main Heating 1

Percentage of Heat

100.00

%

Database Ref. No.

106473

Fuel Type

Electricity

SAP Code

0

In Winter

0.00

In Summer

0.00

Model Name

EDLA06EV3

Manufacturer

Daikin Europe NV

System Type

Heat Pump

Controls SAP Code

2207

Delayed Start Stat

No

Burner Control

Modulating

HETAS approved System

No

Oil Pump Inside

No

FI Case

0.00

Flue Type

None or Unknown

Fan Assisted Flue

No

Is MHS Pumped

Pump in heated space

Heating Pump Age

2013 or later

Heat Emitter

Radiators

Flow Temperature

Enter value

Summary for Input Data

Flow Temperature Value	55.00
Boiler Interlock	No
Combi boiler type	No Combi
Combi keep hot type	None

25.0 Main Heating 2	None
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26.0 Heat Networks	None
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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	No
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Summer Immersion	No
Cold Water Source	From mains
Bath Count	1
Supplementary Immersion	No
Immersion Only Heating Hot Water	No

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
Main Bathroom	Combi boiler or unvented hot water system	6.00		No	
En-suite	Instantaneous electric shower	11.00	9.30	No	
Ensuite 2	Instantaneous electric shower	11.00	9.30	No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder Stat	No	
Cylinder In Heated Space	No	
Independent Time Control	No	
Insulation Type	Measured Loss	
Cylinder Volume	192.00	L
Loss	2.18	kWh/day
Pipes insulation	Fully insulated primary pipework	
In Airing Cupboard	No	

31.0 Thermal Store	None
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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