ABBEYCONSULTANTS

Energy Statement

Submission of Details Required by Condition 23 of Full Planning Permission (Ref: 241567)

Land East of Longwater Road
Longwater Road
Finchampstead
Wokingham
RG40 3TS

Stonebond Properties (Guildford) Limited

Report No: PA-ES-SB-LWR-26-01

Report Date: January 2026

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1. PROJECT DETAILS

Item	Details
Project Name	Land East of Longwater Road
Project Address	Land East of Longwater Road, Longwater Road, Finchampstead, Wokingham, RG40 3TS
Project Description	Full planning permission for the erection of 38no. dwellings (Use Class C3), together with associated outdoor space and landscaping, drainage infrastructure, hard and soft landscaping, parking, access, and associated works.
Applicant	Stonebond Properties (Guildford) Limited
Applicant's Address	1 Bishops Wharf, Walnnut Tree Close, Guildford, Surrey, GU1 4UP
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Report Issue Number	Date	Reason	Author
01	13/01/26	For Issue	MH
02			
03			

2. EXECUTIVE SUMMARY

Introduction

This Energy Statement has been prepared by Abbey Consultants (Southern) Ltd on behalf of Stonebond Properties (Guildford) Limited (the 'Applicant' hereafter) to support the discharging of Condition 23 of the current planning permission (Ref: 241567) for the site located at Land East of Longwater Road, Longwater Road, Finchampstead, Wokingham, RG40 3TS (hereafter 'the site'). The site is located within the administrative boundaries of Wokingham Borough Council.

Full Planning Permission was granted for the following development on 29th September 2025. The planning proposal is as detailed below:

> *"Full planning permission for the erection of 38no. dwellings (Use Class C3), together with associated outdoor space and landscaping, drainage infrastructure, hard and soft landscaping, parking, access, and associated works."*

Full planning permission was approved for the development, subject to a number of conditions set out in Wokingham Borough Council's Decision Notice (Ref: 241567). This report responds only to Condition 23, which has been reproduced below:

> 23. *Low and zero-carbon technology - Prior to the commencement of development, a scheme for achieving a 10% reduction in the predicted carbon emissions arising from operation of the development through the use of decentralised renewable and/or low carbon sources (as defined in the glossary of Planning Policy Statement: Planning and Climate Change (December 2007) or any subsequent version) shall be submitted to and approved in writing by the local planning authority. The minimum 10% reduction shall be achieved in addition to the levels of reduction in carbon emissions required through the Building Regulations in force at the time of the submission of planning application. The approved scheme shall be implemented before the development is first occupied and shall remain operational for the lifetime of the development.*

A Sustainability and Energy Statement (June 2024) and subsequent Addendum (November 2024) were prepared by Icenci Projects in support of the planning application. Following the approval, the Applicant has refined the scheme and is proposing updates to the original energy strategy. This report outlines the revised approach and demonstrates continued compliance with all relevant regulatory and planning requirements, specifically those set out in Condition 23 of Wokingham Borough Council.

In order to effectively respond to the requirements of Condition 23, this report will detail the Energy Strategy for the development. This will include a calculation of the reduction in predicted carbon emissions as a result of the proposed renewable energy sources. This will then be compared against the minimum 10% target set by Condition 23.

Energy Strategy

The strategy for reducing energy use and associated carbon emissions through the design of the scheme follows the energy hierarchy of 'Be Lean', 'Be Clean and 'Be Green'.

The proposed development has been assessed using Elmhurst Energy's latest version of their Standard Assessment Procedure (SAP) software (Design SAP 10) which uses the SAP 10.2 methodology. This assessment has determined the Building Regulations Part L baseline, to which the scheme must comply with, and each stage of the energy hierarchy will be compared against.

Firstly, the energy demand is reduced at the 'Be Lean' stage of the energy hierarchy. This includes a set of energy efficiency measures, including the following:

- The thermal performance of the proposed fabric will exceed Part L (2021) minimum requirements in terms of U-values and air tightness.

- Orientation has been considered in the design of the façades to ensure energy use is balanced through daylight provision and thermal comfort.
- Where applicable, the detailed design will independently assess the thermal junctions to ensure insulation continuity for minimising thermal bridging.
- Solar control glass will be utilised to ensure solar gains are balanced to lower the heat demand but also assist in mitigating the risk of overheating.
- Light fittings of low energy types will be specified throughout the scheme.
- Highly efficient gas boilers to serve the space heating and water heating demands of the dwellings.

The 'Be Clean' stage of the energy strategy explores the potential for a district heat network to serve this scheme. However, this development proposal is deemed unsuitable for this type of heat network. Alternatively, individual heating systems have been specified for the dwellings.

At the 'Be Green' stage of the energy hierarchy, renewable/low carbon technology has been introduced in the form of an estimated 70.0 kWp of PV panels to be installed across the development.

The energy strategy also acknowledges the incoming Future Homes and Buildings Standard, however the details of this are yet to be finalised. When this scheme reaches detailed design stage, this energy strategy should be reviewed to ensure that the proposals make best use of the technology available at the time and are fully compliant with any updated regulatory requirements.

Through implementation of the energy strategy, the table below details the regulated carbon dioxide emissions and savings that are anticipated after all measures proposed within the energy hierarchy are accounted for. This shows that a 2% improvement is to be achieved in comparison to the Building Regulations Part L (2021) baseline. This equates to an annual saving of an estimated 3.41 tonnes in regulated CO_2 emissions. This is compliant with the requirements of Condition 23.

Table 1: Summary of CO_2 emissions savings

Stage of Energy Hierarchy	Regulated CO_2 Emissions (tonnes/year)
Total Part L 2021 Baseline	38.92
Total After Energy Hierarchy	37.37
Total Saving	**3.41**
Total Improvement	**2%**

Carbon Emissions Reduced Through PV

Wokingham Borough Council's Condition 23 of the Full Planning Permission (Ref: 241567), sets a target for the development to achieve a minimum reduction of 10% in the predicted carbon emissions through the use of decentralised renewable and/or low carbon sources.

The Energy Strategy details a proposal for an estimated 70.0 kWp of PV panels across the development. This is anticipated to reduce the developments carbon emissions by 7.82 tonnes per year. This equates to 16% of the developments total estimated carbon emissions, which exceeds the minimum 10% target set by Condition 23.

Table 2: Total Carbon Emissions Reduced Through Renewable Energy Sources (PV)

Item	Regulated CO_2 Emissions (tonnes/year)

Total estimated regulated carbon emissions of the development	44.65
Total estimated carbon emissions to be reduced through renewable energy sources (PV)	7.28
% of total carbon emissions reduced through renewable energy sources (PV)	**16%**

3. INTRODUCTION

This report has been prepared by Abbey Consultants (Southern) Ltd, a specialist environmental and energy consultancy, on behalf of Stonebond Properties (Guildford) Limited to support the discharging of Condition 23 of the current planning permission (Ref: 241567) for the proposed development at Land East of Longwater Road, Longwater Road, Finchampstead, Wokingham, RG40 3TS.

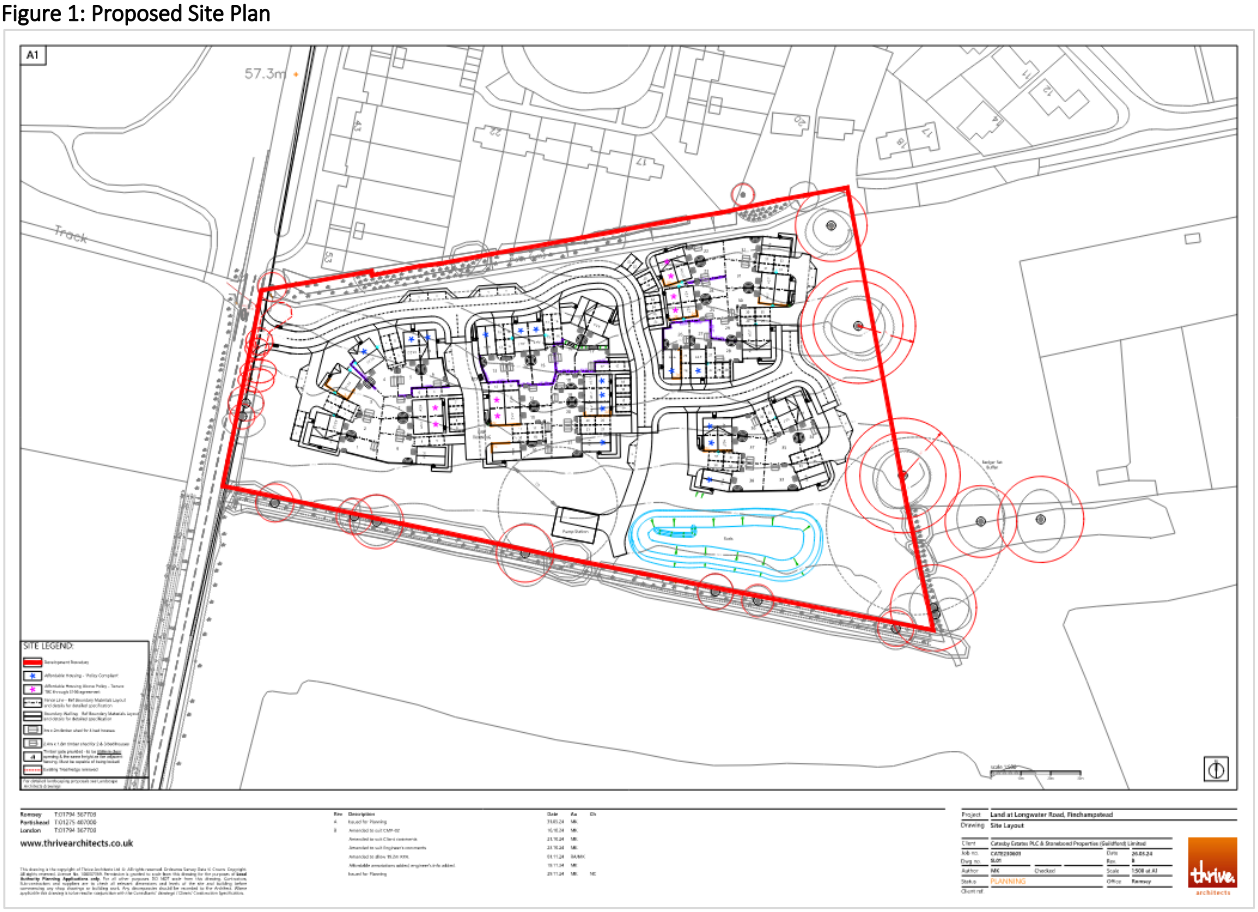
The development was granted full planning permission (Ref: 241567) by Wokingham Borough Council on 29th September 2025. A Sustainability and Energy Statement (June 2024) and subsequent Addendum (November 2024) were prepared by Icenci Projects in support of the planning application. Following the approval, the Applicant has refined the scheme and is proposing updates to the original energy strategy. This report outlines the revised approach and evidences continued compliance with all applicable regulatory and planning requirements, specifically those set out in Condition 23 of Wokingham Borough Council.

The planning proposal for the development is as follows:

> *"Full planning permission for the erection of 38no. dwellings (Use Class C3), together with associated outdoor space and landscaping, drainage infrastructure, hard and soft landscaping, parking, access, and associated works."*

Figure 1 details the proposed site layout.

Figure 1: Proposed Site Plan



This report details the proposed Energy Strategy for the development. This first establishes a baseline assessment of the energy demands and associated CO_2 emissions for the development.

It then follows widely recognised Energy Hierarchy approach of Be Lean, Be Clean and Be Green to enable the maximum viable reductions in Regulated CO_2 emissions to be achieved.

1. Be Lean: use less energy and manage demand during operation through fabric and servicing improvements and the incorporation of flexibility measures;

2. Be Clean: exploit local energy resources and supply energy efficiently and cleanly by connecting to district heating networks;

3. Be Green: explore opportunities for renewable energy by producing, storing and/or using renewable energy on-site.

The report takes into consideration the layout, use and requirements for the development to recommend an overarching strategy that integrates the most suitable technologies available that are commercially viable, whilst also adhering to the requirements of Condition 23 of the Full Planning Permission (Ref: 241567).

4. PLANNING CONDITION

The following report sets out the intentions of Stonebond Properties (Guildford) Limited, with regards to the submission of details in order to discharge Condition 23 of Wokingham Borough Council's Full Planning Permission (Ref: 241567).

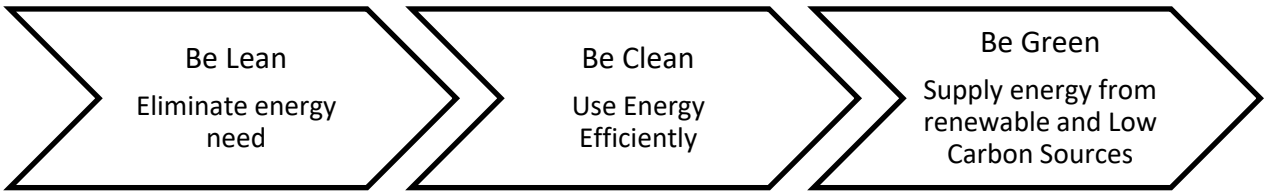
The Condition reads as below:

> 23. *Low and zero-carbon technology - Prior to the commencement of development, a scheme for achieving a 10% reduction in the predicted carbon emissions arising from operation of the development through the use of decentralised renewable and/or low carbon sources (as defined in the glossary of Planning Policy Statement: Planning and Climate Change (December 2007) or any subsequent version) shall be submitted to and approved in writing by the local planning authority. The minimum 10% reduction shall be achieved in addition to the levels of reduction in carbon emissions required through the Building Regulations in force at the time of the submission of planning application. The approved scheme shall be implemented before the development is first occupied and shall remain operational for the lifetime of the development.*
>
> *Reason: To ensure developments contribute to sustainable development in accordance with NPPF Section 14 (Meeting the Challenge of Climate Change, Flooding and Coastal Change), WBC Climate Emergency Action Plan, Core Strategy policy CP1, MDDLP policy CC05 & the Sustainable Design and Construction Supplementary Planning Document.*

5. ENERGY ASSESSMENT

5.1. ENERGY HIERARCHY

The proposed energy strategy follows the established and widely accepted Energy Hierarchy of eliminate energy need (Be Lean), Use energy efficiently (Be Clean) and supply energy from renewable and low carbon sources (Be Green) to enable the maximum viable reductions in regulated and total CO_2 emissions over the baseline.



The proposed energy supply solutions aim to match energy profiles of the development ensuring effective use. The proposed solutions consider viability and flexibility of the scheme from both a technical and economic point of view by identifying best combination of energy efficiency measures as well as decentralised and renewable energy supply solutions.

Using these principles, the Applicant will deliver the following objectives:

- Comply with the relevant regulatory requirements.
- To reduce energy and CO_2 demand through fabric and energy efficiency measures.
- To propose to reduce energy consumption and carbon dioxide emissions further through the use of on-site renewable or low and zero carbon technologies (LZC).

5.2. ASSESSMENT METHODOLOGY

Elmhurst Energy software, which uses the Standard Assessment Procedure (SAP) 10.2 methodology to assess compliance with Part L1 2021, has been used to evaluate an initial CO_2 performance of representative residential dwellings. To assess energy performance of the entire residential development, an energy and carbon assessment model has been produced, which extrapolates the results of the SAP analysis using the floor area weighted average method detailed within Part L1 2021 to predict the energy consumption and CO_2 performance of the residential development.

Although the produced data detailed within this report provides estimations of possible energy and carbon performance of the development, it is not intended to be used as a detailed design tool.

5.3. ESTABLISHING THE BASELINE CO_2 EMISSIONS

In order to assess the energy demand and CO_2 performance of the proposed energy strategy, a baseline needs to be established. This section sets out the approach taken to calculating the baseline CO_2 emissions for the development.

The total baseline CO_2 emissions for the proposed development is defined as regulated CO_2 emissions, which is covered by Building Regulations Part L. Regulated CO_2 emissions are calculated from the CO_2 emissions associated with space heating, hot water and fixed electrical demands (for lights, fans and pumps).

Unregulated CO_2 emissions are those that are associated with appliances. Unregulated CO_2 emissions are not covered by Part L and are therefore not included as part of the assessment detailed within this energy strategy.

CO_2 Conversion Factors have been applied in accordance with the requirements of Building Regulations Part L 2021. These were detailed in the previous section of this report.

The residential baseline CO_2 performance is based on the Part L1 2021 Target Emission Rate (TER) performance of representative dwellings. The baseline CO_2 performance has been determined by carrying out SAP 10.2 modelling to establish the TERs of sample dwellings. The TER sets a minimum allowable standard for the energy performance of

a building and is defined by the annual CO_2 emissions of a notional building of the same type, size and shape to the proposed building. The specification of the notional building used to calculate the TER is defined within Building Regulations Part L 2021. The representative dwellings presented in the following table were used to carry out the SAP assessment.

Table 3: Representative Sample SAP Dwellings

Sample SAP Type Reference	No. of Units
A 1.2	3
A 2.2.2	3
A 2.7	10
A 3.3	4
A 3.6	16
P 4.13	2
TOTAL:	38

The calculated TER of the representative dwellings can be found on the SAP sheets within the appendices. The TER results of the SAP assessments from the representative dwellings have been extrapolated using a Carbon Emissions Reporting Spreadsheet. This then determines the total baseline for the residential element of the proposed development.

5.4. TOTAL BASELINE CO_2 EMISSIONS

The total baseline regulated CO_2 emissions for the development are summarised below.

Table 4: Total Baseline CO_2 emissions

Stage of Energy Hierarchy	Regulated CO_2 Emissions (tonnes/year)
Part L 2021 Baseline	38.92

6. DEMAND REDUCTION (BE LEAN)

In accordance with the Energy Hierarchy, the energy demands of the development should be reduced as much as practically viable, prior to considering low carbon or renewable measures.

A range passive design and active design measures to reduce CO_2 emissions and increase resilience to climate change are proposed. These proposals are detailed within the following sections.

It should be noted that the specifications detailed below have formed the basis of this energy strategy. However, the Developer does reserve the right to make appropriate changes to the final specification when the scheme reaches detailed design stage. In the case of any future alterations to this energy strategy, the Developer is committed to, as a minimum, achieving compliance with all of the relevant adopted planning policies and latest regulatory requirements. Details of the final energy strategy may be secured via the imposition of a planning condition if deemed to be necessary by the Local Planning Authority.

6.1. PASSIVE DESIGN

Passive design measures, including optimising orientation and site layout, natural ventilation and lighting, thermal mass and solar shading have been integrated in the design.

6.1.1. BUILDING ORIENTATION

Orientation varies across the proposed development. Orientation has been considered in the design of the façades to ensure energy use is balanced through daylight provision and thermal comfort.

6.1.2. SOLAR GAIN AND DAYLIGHT

The make-up of the proposed façades has balanced proportion of solid wall to glazing, thus providing optimum amount of daylight and winter solar heating, while limiting excessive solar gains in the summer. Some external shading will be provided in the form of deep window reveals, and this will be combined with high performance glass is proposed throughout the scheme for additional solar control.

6.1.3. BUILDING FABRIC

To reduce demand for space heating, emphasis has been placed on providing a very high standard of fabric efficiency and reducing heat loss through the building envelope. Approved Document Part L 2021 sets out the limiting fabric parameters for each of the building elements. Each stated value represents the area-weighted average U-value. The following table details the proposed U-values to be used in the described exposed element within the fabric of the development. The proposed U-values will be achieved through use of high performance insulation.

Table 5: Proposed Fabric Specification

Element	Part L1 2021 Minimum Fabric Requirements	Proposed Specification
Ground Floor	0.18 W/m²K	0.12 W/m²K
External Wall	0.26 W/m²K	0.18 W/m²K
Party Wall	0.20 W/m²K	0.00 W/m²K
Cold Roof (insulated at ceiling)	0.16 W/m²K	0.08 W/m²K

Windows	1.60 W/m²K	U-Value = 1.30 W/m²K G-Value = 0.41 BFRC Certificate
Bi-Fold/Patio Doors	1.60 W/m²K	U-Value = 1.40 W/m²K G-Value = 0.39 BFRC Certificate
Entrance Doors	1.60 W/m²K	1.20 W/m²K

6.1.4. Thermal Bridging

Where applicable, the thermal junctions will be independently assessed. This will minimise the effects of non-repeating thermal bridging and reduce heat loss further. By specifying and ensuring that appropriate detailing is designed into the build, CO_2 emissions can be greatly reduced. It is also proposed that the openings will have Hi-Therm lintels installed to maximise thermal efficiency and further reduce heat loss.

6.1.5. Air Tightness

High levels of air tightness are proposed for the buildings. The target for each residential dwelling will be set at 4.50m³/h/m². This is a significant improvement upon the Part L 2021 minimum requirement of 8.00m³/h/m². This means that air infiltration between the internal and external environment will be largely controlled and space heating demand further reduced.

6.2. Active Design

After reducing the energy demand of the development, the next stage is to use energy efficient building services systems, low energy lighting and controls throughout the scheme to reduce energy consumption and the associated CO_2 emissions.

6.2.1. Space Heating and Hot Water

The space heating requirement of the proposed development will be significantly reduced by the proposed fabric, air tightness and ventilation measures.

Heating for the houses will be provided via highly efficient gas condensing boilers with efficiencies of circa 89.5% SEDBUK 2009 are to be installed. The system will incorporate optimum start to all units and full zone controls to ensure efficient operation.

6.2.2. Ventilation

The residential dwellings will utilise continuously running decentralised extract fans (system 3) to all wet rooms and kitchens. This will ensure the airtightness of the dwellings can be kept low, without compromising on the necessity for good ventilation.

6.2.3. Cooling

It is currently assumed that the cooling requirements during the hot summer months will be met via openable windows/patio doors and mechanical ventilation with enhanced ventilation rates (where applicable). The development will be subject to an overheating assessment which will be carried out at the detailed design stage, whereby the overheating mitigation strategy will be finalised.

6.2.4. Lighting

The proposed windows aim to maximise daylight to minimise the need for artificial lighting. The electricity consumption associated with lighting will be further reduced by effectively controlling the lighting systems by:

- Using energy efficient lamps and luminaires. Low energy lamps and LED's are proposed throughout.
- Having appropriately commissioned lighting systems.

6.2.5. Smart Controls & Energy Metering

It is expected that the dwellings will be provided with an individual, programmable, zoned, control system, together with smart energy meters.

This will allow the display of energy use within individual units as required, assisting occupants to understand the way in which they consume energy and how much it costs. This will encourage them to turn off non-essential equipment or run equipment at a lower capacity during times of peak demand.

6.3. Residential Fabric Energy Efficiency (FEE)

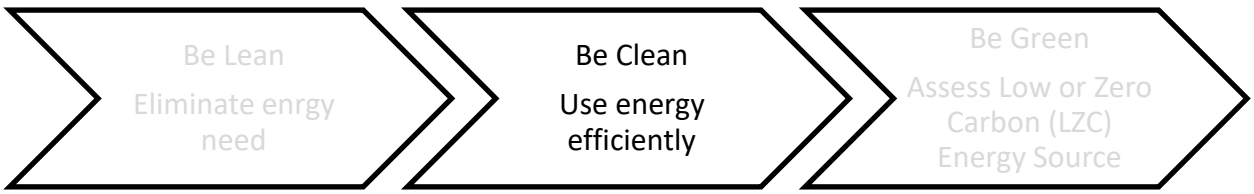
The Target Fabric Energy Efficiency rate is the minimum energy performance requirement, as stipulated by Building Regulations Part L1 2021, for all new residential dwellings. It is expressed as the amount of energy demand in units of kilowatt-hours per square metre of floor area per year. This performance metric is influenced by the fabric only, which is why it can be reported at this stage of the energy hierarchy.

The energy strategy has reduced energy demand through fabric and energy efficiency measures. The demand has been shown to have been reduced by an average of 5%, as detailed in the table below.

Table 6: FEE Performance

Element	Target Fabric Energy Efficiency (TFEE) kWh/m²/year	Dwelling Fabric Energy Efficiency (DFEE) kWh/m²/year	Improvement (%)
Site Wide Average	37.83	36.04	5%

7. SUPPLY ENERGY EFFICIENTLY (BE CLEAN)



Decentralised energy refers to energy that is generated off the main grid. This may include micro-renewables, heating and cooling. It can also refer to energy from waste plants, combined heat and power, district heating and cooling, as well as geothermal, biomass or solar energy. Decentralised Energy schemes can serve a single building or a whole community, even being built out across entire cities.

There are many benefits of decentralised heat generation and Combined Heat and Power (CHP) in terms of cost and CO_2 emissions savings. However, technology such as this is more significant for larger developments. The proposed development size of 38 dwellings is at the lower end of what the industry tends to view as viable for such systems. The development is for residential only and this will result in 'peaky' thermal demands with little anchor load to enable efficient operation of gas fired CHP. This option also risks the potential to increase costs to residents.

The site is neither sufficiently dense nor large enough to warrant investment from 3rd party managing agents or Energy Supply Companies (ESCos). The proposed development would need to be run by an independent agent/company and there would be very little if any interest among existing ESCos in servicing such a small-scale system. Even if it was possible, the cost of managing fuel procurement, customer billing, operation and maintenance would lead to disproportionally and unnecessary high service charges to residents compared to the provision of heat from individual heating sources.

Based on the anticipated timescale of the proposed development and the predicted trajectory of the national electricity grid decarbonisation, the development of a district heat network powered by fossil fuels is also not considered to be the most carbon efficient approach.

The incorporation of a gas fired combined heat and power (CHP) network will lock the development into relatively carbon intensive gas-fired heating and hot water technology and will not facilitate the transition to less carbon intensive solutions.

8. RENEWABLE ENERGY (BE GREEN)

The following low and zero carbon technologies have been considered for this scheme:

- Air Source Heat Pump (ASHP)
- Domestic Hot Water Heat Pumps
- Photovoltaic Panels (PV)
- Ground Source Heat Pump (GSHP)
- Wind Turbines
- Biomass Boiler
- Solar Thermal

The assessment has shown that photovoltaic panels (PV) are considered to be the most suitable renewable/low carbon energy solutions for this development.

All other renewable energy technology options are summarised in the appendices and have, at this stage, been deemed as not appropriate for this development.

8.1. PHOTOVOLTAIC PANELS (PV)

Solar PV technology offers advantages over other low carbon and renewable energy technologies and has been proposed for this development for the following reasons:

- Density/scale:
  - Solar technologies are modular and can be sized to available space constraints and would easily be integrated into the roofscape of the proposed development.
  - Solar PV technologies typically require 2-3 times more space to generate the equivalent energy or abate similar emissions as solar thermal panels, but they can be sized to the maximum available roof space.
- Technology Integration:
  - Solar technologies can be easily integrated into the built environment using available roof space. Since they are modular and easily fixed to buildings they can access solar irradiation in almost any location. The technologies can be integrated on almost any roof structure or vertical façade without compromising structural or aesthetic requirements.
  - Solar PV systems are generally connected to the dwelling or block via an inverter and any excess generation not utilised on-site is exported seamlessly to the local grid.
- Cost-effectiveness:
  - Solar PV costs have reduced dramatically in the last 2-3 years in the UK, due to increasing demand for the technology driven by sustainability requirements and the Government's stimulus package known as the Feed-In Tariffs (FiTs) scheme which rewards renewable electricity generation with premium tariffs.
- CO_2 Abatement Capacity:
  - Solar PV generates electricity and abates ~2.5 - 3 times more CO_2 than an alternative renewable energy technology that displaces use of gas (e.g. solar hot water technology and/or biomass boilers). Solar PV is well proven with good historical data showing that its performance credentials generally match or exceed manufacturers' claims/modelled generation profiles.

8.1.1. Initial PV Design Proposal

The required PV capacity for each dwelling type has been established by modelling their energy performance in accordance with Part L 2021 methodology. Panel quantities have therefore been sized to achieve the mandatory carbon emissions and primary energy targets for each unit.

PV panels vary in terms of their size and efficiency, but for the purposes of this proposal, the PV panels have ben assumed to be 1.7m^2 and with a maximum power output of 400w (0.4 kWp).

For the purposes of this assessment, all PV panels have been modelled with a south-east orientation. At this stage of design, the precise roof layout, pitch, and final panel arrangement are still subject to refinement as the architectural detailing progresses. A south-east orientation provides a robust and conservative basis for assessment because:

- It reflects a realistic likely mounting scenario on the proposed roof forms, which do not allow for uniform south-facing arrays across all elevations.
- It avoids overly optimistic generation estimates, ensuring that the energy strategy remains resilient and achievable once the detailed design is finalised.
- South-east orientations still offer strong generation performance, capturing morning solar gain and providing a reliable profile for Part L and planning calculations.
- It ensures consistency of modelling when comparing proposed and alternative design options at this early stage.

Using this assumption at planning stage therefore provides a prudent, technically reasonable, and deliverable estimate of PV output while retaining sufficient flexibility for the final layout to be optimised during detailed design. However, it should be noted that when the actual orientation of each PV panel is confirmed, the total quantity will likely fluctuate from the current estimated figure.

Based on the above assumptions, the PV schedule below estimates the PV quantity for each unit type and also calculates the total estimated site-wide PV quantity.

Table 7: Type by Type PV Schedule

Type	PV Quantity Per Unit (kWp)	Number of Units	Total Quantity of PV (kWp)
A 1.2	1.2	3	3.6
A 2.2.2	1.6	3	4.8
A 2.7	1.6	10	16.0
A 3.3	2.0	4	8.0
A 3.6	2.0	16	32.0
P 4.13	2.8	2	5.6
		Total Estimated Site-Wide PV Quantity:	**70.0**

Based on the above proposal, the predicted CO_2 and energy savings as a result of the PV panels have been summarised in the below table.

Table 8: Summary of PV including CO_2 and energy abatement

Item	Quantity	Metric
Assumed Power of PV Cell	400	Wp
Estimated Total No. of PV Cells	175	No
Total kWp	70.00	kWp
Total CO_2 saving	7.28	tonnes/CO_2/year
Total Energy saving	56,224	kWh/year

8.1.2. Total CO_2 Emissions to be Reduced Through PV As a Percentage of the Developments Total Regulated CO_2 Emissions

As per the requirements of Wokingham Borough Council's Condition 23, a 10% reduction in carbon emissions is expected to be achieved through the use of renewable/low carbon technologies.

The table below demonstrates that an estimated 16% of the development's carbon emissions will be reduced through the PV proposal detailed above, and therefore meets the requirements of Policy 23.

Table 9: Total Carbon Emissions Reduced Through Renewable Energy Sources (PV)

Item	Regulated CO_2 Emissions (tonnes/year)
Total estimated regulated carbon emissions of the development	44.65
Total estimated carbon emissions to be reduced through renewable energy sources (PV)	7.28
% of total carbon emissions reduced through renewable energy sources (PV)	**16%**

8.2. Summary of Proposed Building Services

The building services and systems to be employed within the dwellings are summarised in the following tables.

Table 10: Summary of Proposed Building Services for the dwellings

Building Service Element	Specification
Heating:	Gas condensing boilers Efficiencies circa 89.5% SEDBUK 2009
Heating Emitter:	Radiators
Secondary Heating:	None
Heating Hot Water Controls:	Time and Temperature Zone Control Delayed Start Stat No Weather Compensation
Mechanical Ventilation:	Mechanical Ventilation System 3 dMEV fans to wet rooms and kitchens
Waste Water Heat Recovery:	None
Showers:	Flow rate – 8 litres per minute

8.3. CO_2 Savings After Energy Hierarchy

The following table details the regulated CO_2 emissions after all of the measures of this energy hierarchy have been accounted for. This has then been compared back to the previously calculated Building Regulations Part L (2021) baseline and shows that a 2% improvement is achieved. This is in accordance with the requirements of Wokingham Borough Council's Condition 23.

Table 11: Total CO_2 emissions after Energy Hierarchy

Stage of Energy Hierarchy	Regulated CO_2 Emissions (tonnes/year)
Total Part L 2021 Baseline	38.92
Total After Energy Hierarchy	37.37
Total Saving	**3.41**
Total Improvement	**2%**

9. ENERGY STRATEGY SUMMARY AND CONCLUSIONS

The energy strategy has followed the energy hierarchy of 'Be Lean', 'Be Clean' and 'Be Green'. The energy strategy proposed for the development has been summarised as below.

Table 12: Proposed Energy Strategy

Element	Measure
Passive	Optimised design to enable controlled solar gain and improved direct and indirect natural lighting.
Fabric	Building fabric U values have been enhanced over and above those detailed with Part L 2021
Heating	Highly Efficient Gas Boilers
Hot Water	Via Gas Boilers
Ventilation	Low design air permeability (DAP) Mechanical extract ventilation (system 3)
Lighting	Energy efficient LED Lighting where applicable
Renewable/Low Carbon Technology	An estimated 70.0 kWp of PV panels across the development

9.1. TOTAL REGULATED CO_2 SAVINGS

The summary of the overall reduction in regulated CO_2 emissions after the energy hierarchy is summarised in the table below.

Table 13: Energy Strategy Carbon Emissions Summary

Stage of Energy Hierarchy	Regulated CO_2 Emissions (tonnes/year)
Total Part L 2021 Baseline	38.92
Total After Energy Hierarchy	37.37
Total Saving	**3.41**
Total Improvement	**2%**

The proposed energy strategy achieves and meets the following requirements:

- Complies with all of the main compliance criteria required by Part L 2021 of the Building Regulations.
- Includes improved optimal building fabric improvements, energy efficient design of building services.

- The fabric energy efficiency (DFEE) achieves a 5% reduction over the minimum standards defined by Building Regulations Part L1 2021 (TFEE).
- Specifies highly efficient gas boilers to provide the dwellings with space heating and hot water.
- The 'Be Green' stage of the energy hierarchy specifies a proposal for renewable energy in the form of an estimated 70.0 kWp of PV panels across the development. This is estimated to reduce the developments carbon emissions by 16%, which is in excess of the minimum 10% required by Wokingham Borough Council's Condition 23.
- Estimated to annually reduce 3.41 tonnes of regulated CO_2 emissions compared to the Building Regulations Part L 2021 baseline
- Achieves an overall reduction in regulated CO_2 emissions of 2% compared with the Building Regulations Part L 2021 baseline. This is in accordance with the requirements of Wokingham Borough Council's Condition 23.

10. APPENDICIES

The following pages detail:

- Appendix A: Alternative Renewable Energy Options
- Appendix B: Sample SAP Summary Information Sheets (Be Lean)
- Appendix C: Sample SAP Summary Information Sheets (Be Green)

10.1. APPENDIX A: ALTERNATIVE RENEWABLE ENERGY OPTIONS

The following alternative options to supply low carbon and renewable energy generation have been explored and discounted based on the following reasons:

Wind Turbines

Wind turbines come in a variety of sizes and shapes. Turbines of 1 Kw can be installed to single house and large-scale turbines of 1-2 MW can be installed on a development to generate electricity to multiple dwellings and other buildings. In both instances the electricity generated can be used on site or exported to the grid. Vertical- or horizontal-axis turbines are available.

A roof-mounted 1 kW micro wind system costs up to £3,000. A 2.5 kW pole-mounted system costs between £9,900 and £19,000. A 6 kW pole-mounted system costs between £21,000 and £30,000 (taken from the Energy Saving Trust, TBC by supplier)

- Local average wind speed is a determining factor. A minimum average wind speed of 6 m/s is required.
- Noise considerations can be an issue dependent on density and build-up of the surrounding area.
- Buildings in the immediate area can disrupt wind speed and reduce performance of the system.
- Planning permission will be required along with suitable space to site the turbine, whether ground installed or roof mounted.

Wind turbines have been discounted due to concerns over reliable wind resources. The use of wind turbines is likely to present aesthetic as well as nuisance issues.

Biomass Boilers

Providing a heating system fuelled by plant-based materials such as wood, crops or food waste. Biomass boilers generate heat for space heating and domestic hot water through the combustion of biofuels, such as woodchip, wood pellets or potentially biofuel or bio diesel. Biomass is considered to be virtually zero carbon. They can be used on an individual scale or for multiple dwellings as part of a district-heating network. A back-up heat source should be provided as consistent delivery of fuel is necessary for continued operation.

Biomass is considered a technically-viable option for this development scheme as there are no apparent physical constraints on site in terms of installing biomass boilers or storing a sufficient supply. There are, however, concerns regarding a sustainable supply of biomass to the site. The capital installation cost would also be high which leads us to the conclusion that biomass would not be a commercially-viable option for this development scheme.

Solar Thermal

Solar Thermal generates domestic hot water from the sun's radiation. Glycol circulates within either flat plate or evacuated tube panels, absorbing heat from the sun, and transferring this energy to a water cylinder. A well designed solar thermal system will account for 50-60% of a dwelling's annual hot water demand. Sizing the system to meet a higher demand will lead to excess heat generation in the summer months and overheating of the system.

High installation costs and dependency on sunlight has meant that this option has been discounted for this development.

Ground Source Heat Pumps (GSHP)

Ground Source Heat Pumps (GSHPs) operate on the same principle as an Air Source Heat Pump (ASHP) in that they extract heat from a source (in this instance the ground) and compress this energy to increase temperature for space heating and hot water. Pipework is installed into the ground, either through coils or in bore holes and piles, circulating a mix of water and antifreeze to extract energy from the ground, where the year-round temperature is relatively consistent (approx. 10°C at 4 metres depth). This leads to a reliable source of heat for the building.

Again, an electrically powered pump circulates the liquid and powers the compressor, however annual efficiencies for GSHPs tend to be higher than those of ASHPs.

With regards to capital cost, GSHPs are more expensive to install than ASHP and also rely on the use of energy to pump fluid around the pipework.

GSHPs have been discounted for this scheme are they are considered to be more complex, technically risky and costly, than the alternative ASHP option.

Air Source Heat Pumps (ASHP)

Air at any temperature above absolute zero contains some energy. An air source heat pump transfers some of this energy as heat from one place to another, for example, between the outside and inside of a building. This can provide space heating and hot water. A system can be designed to transfer heat in either direction, to heat or cool the interior of the building in winter and summer respectively. For simplicity, the description below focuses on use for interior heating.

The technology is similar to a refrigerator/freezer or air conditioning unit. The different effect is due to the physical location of the different system components. Just as the pipes on the back of a refrigerator become warm as the interior cools, so an ASHP warms the inside of a building whilst cooling the outside air.

Air source heat pumps could be utilised but would require outdoor space for the fan-coil units. These outdoor units would be difficult to conceal without affecting the aesthetics of the building's façade and may cause potential issues with internal noise requirements.

10.2. APPENDIX B: SAMPLE SAP SUMMARY INFORMATION SHEETS (BE LEAN)

Summary for Input Data

elmhurst energy

Plot Reference	A 1.2	**Issued on Date**	16/12/2025
Assessment Reference	001	**Plot Type Ref**	A 1.2
Plot Address	A 1.2, A 1.2	**SAP Version**	10.2

SAP Rating	85 B	**DER**	14.39	**TER**	13.10
Environmental	89 B	**% DER < TER**			-9.85
CO_2 Emissions (t/year)	0.84	**DFEE**	34.54	**TFEE**	36.64
Compliance Check	See BREL	**% DFEE < TFEE**			5.75
% DPER < TPER	-17.81	**DPER**	81.02	**TPER**	68.77

Assessor Details	Mr. Matthew Fitzpatrick	**Assessor ID**	7601-0001
Client	SB-03, Stonebond Properties (Guildford)		

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

Orientation	North	
Property Tenture	1	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	House, Semi-Detached	
2.0 Number of Storeys	2	
3.0 Date Built	2025	
4.0 Sheltered Sides	2	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Precise calculation	
Thermal Mass	201.74	kJ/m²K
7.0 Electricity Tariff	Standard	
Smart electricity meter fitted	Yes	
Smart gas meter fitted	Yes	

7.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground floor:	16.10 m	32.30 m²	2.46 m
1st Storey:	16.10 m	32.38 m²	2.76 m

8.0 Living Area 25.73 m²

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
Brickwork	Cavity Wall	Cavity wall : plasterboard on dabs, AAC block, filled cavity, any outside structure	0.18	60.00	84.04	73.22	0.00	None	10.82	Calculate Wall Area

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Area (m²)	Shelter Res	Shelter
Party Wall 1	Filled Cavity with Edge Sealing	Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill	0.00	110.00	39.08	0.00	None

9.2 Internal Walls

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Metal GF	Plasterboard on timber frame	9.00	36.75
Metal FF	Plasterboard on timber frame	9.00	47.92

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	32.38	32.38	None	0.00	Calculate Wall Area	0.00

10.2 Internal Ceilings

Description	Storey	Construction	Kappa	Area (m²)
Internal Ceiling 1	Lowest occupied	Plasterboard ceiling, carpeted chipboard floor	9.00	32.38

11.0 Heat Loss Floors

Summary for Input Data

elmhurst energy

Description	Type	Storey Index	Construction	U-Value (W/m²K)	Shelter Code	Shelter Factor	Kappa (kJ/m²K)	Area (m²)
Suspended Ground Floor	Ground Floor - Solid	Lowest occupied	Suspended concrete floor, carpeted	0.12	None	0.00	75.00	32.38

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
Internal Floor 1	+1	Plasterboard ceiling, carpeted chipboard floor	18.00	32.38

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Front Door Side Panel	Manufacturer	Half Glazed Door	Double Low-E Soft 0.1			0.63		0.70	1.20
Window	BFRC, BSI or CERTASS data	Window	Double Low-E Soft 0.1			0.41			1.30
Patio Door	BFRC, BSI or CERTASS data	Window	Double Low-E Soft 0.1			0.39			1.40

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
D01	Front Door Side Panel	Brickwork	North	2.86	
D02	Patio Door	Brickwork	South	3.80	
W01	Window	Brickwork	North	0.72	
W02	Window	Brickwork	North	0.72	
W03	Window	Brickwork	North	0.82	
W04	Window	Brickwork	South	1.90	

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
E10 Eaves (insulation at ceiling level)	Independently assessed	8.32	0.13	0.13	No
E12 Gable (insulation at ceiling level)	Independently assessed	7.79	0.06	0.06	No
P1 Party wall - Ground floor	Independently assessed	7.79	0.04	0.04	No
P2 Party wall - Intermediate floor within a dwelling	Independently assessed	7.79	0.00	0.00	No
P4 Party wall - Roof (insulation at ceiling level)	Independently assessed	7.79	0.04	0.04	No
E1 Steel lintel with perforated steel base plate	Independently assessed	7.04	0.05	0.05	Yes
E3 Sill	Independently assessed	3.87	0.05	0.05	No
E4 Jamb	Independently assessed	17.10	0.05	0.05	Yes
E5 Ground floor (normal)	Independently assessed	16.10	0.06	0.06	Yes
E6 Intermediate floor within a dwelling	Independently assessed	16.10	0.00	0.00	Yes
E16 Corner (normal)	Independently assessed	10.44	0.05	0.05	No
E18 Party wall between dwellings	Independently assessed	10.44	0.06	0.06	No

Y-value	0.04	W/m²K

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	500756
Duct Type	Rigid
Wet Rooms	3

19.1 Mechanical extract ventilation - Decentralised

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

20.0 Fans, Open Fireplaces, Flues

Number of open chimneys	0
Number of open flues	0

Summary for Input Data

Number of chimneys/flues attached to closed fire	0	
Number of flues attached to solid fuel boiler	0	
Number of flues attached to other heater	0	
Number of blocked chimneys	0	
Number of intermittent extract fans	0	
Number of passive vents	0	
Number of flueless gas fires	0	
21.0 Fixed Cooling System	No	
22.0 Pressure Testing	Yes	
Designed AP_{50}	4.50	$m^3/(h.m^2)$ @ 50 Pa
Test Method	Blower Door	

22.0 Lighting

No Fixed Lighting: No

Name	Efficacy	Power	Capacity	Count
Pendant	75.00	10.00	750.00	6
Downlight	75.00	10.00	750.00	9

24.0 Main Heating 1	Database	
Percentage of Heat	100.00	%
Database Ref. No.	17929	
Fuel Type	Mains gas	
In Winter	89.00	
In Summer	87.30	
Model Name	LOGIC COMBI	
Manufacturer	Ideal Boilers	
System Type	Combi boiler	
Controls SAP Code	2110	
Controls description	Time and temperature zone control by arrangement	
Delayed Start Stat	Yes	
Flue Type	Balanced	
Fan Assisted Flue	Yes	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	55.00	
Boiler Interlock	Yes	
Combi boiler type	Standard Combi	
Combi keep hot type	None	
25.0 Main Heating 2	None	
26.0 Heat Networks	None	
27.0 Secondary Heating	None	

28.0 Water Heating

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

Summary for Input Data

Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Cold Water Source	From mains
Bath Count	1

28.1 Showers

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

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder None

34.0 Small-scale Hydro None

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

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

Summary for Input Data

elmhurst energy

Plot Reference	A 2.2.2	Issued on Date	16/12/2025
Assessment Reference	001	Plot Type Ref	A 2.2.2
Plot Address	A 2.2.2, A 2.2.2	SAP Version	10.2

SAP Rating	85 B	DER	13.34	TER	11.93
Environmental	89 B	% DER < TER			-11.82
CO_2 Emissions (t/year)	0.95	DFEE	33.97	TFEE	36.19
Compliance Check	See BREL	% DFEE < TFEE			6.14
% DPER < TPER	-20.17	DPER	75.06	TPER	62.46

Assessor Details	Mr. Matthew Fitzpatrick	Assessor ID	7601-0001
Client	SB-03, Stonebond Properties (Guildford)		

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

Orientation	North	
Property Tenture	1	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	House, Semi-Detached	
2.0 Number of Storeys	2	
3.0 Date Built	2025	
4.0 Sheltered Sides	2	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Precise calculation	
Thermal Mass	195.14	kJ/m²K
7.0 Electricity Tariff	Standard	
Smart electricity meter fitted	Yes	
Smart gas meter fitted	Yes	

7.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground floor:	17.88 m	39.63 m²	2.46 m
1st Storey:	17.88 m	39.63 m²	2.76 m

8.0 Living Area 33.09 m²

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
Brickwork	Cavity Wall	Cavity wall : plasterboard on dabs, AAC block, filled cavity, any outside structure	0.18	60.00	93.33	81.24	0.00	None	12.09	Calculate Wall Area

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Area (m²)	Shelter Res	Shelter
Party Wall 1	Filled Cavity with Edge Sealing	Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill	0.00	110.00	45.93	0.00	None

9.2 Internal Walls

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Metal GF	Plasterboard on timber frame	9.00	59.83
Metal FF	Plasterboard on timber frame	9.00	66.88

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	39.63	39.63	None	0.00	Calculate Wall Area	0.00

10.2 Internal Ceilings

Description	Storey	Construction	Kappa	Area (m²)
Internal Ceiling 1	Lowest occupied	Plasterboard ceiling, carpeted chipboard floor	9.00	39.63

11.0 Heat Loss Floors

Summary for Input Data

elmhurst energy

Description	Type	Storey Index	Construction	U-Value (W/m²K)	Shelter Code	Shelter Factor	Kappa (kJ/m²K)	Area (m²)
Suspended Ground Floor	Ground Floor - Solid	Lowest occupied	Suspended concrete floor, carpeted	0.12	None	0.00	75.00	39.63

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
Internal Floor 1	+1	Plasterboard ceiling, carpeted chipboard floor	18.00	39.63

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Front Door Side Panel	Manufacturer	Half Glazed Door	Double Low-E Soft 0.1			0.63		0.70	1.20
Window	BFRC, BSI or CERTASS data	Window	Double Low-E Soft 0.1			0.41			1.30
Patio Door	BFRC, BSI or CERTASS data	Window	Double Low-E Soft 0.1			0.39			1.40

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
D01	Front Door Side Panel	Brickwork	North	2.15	
D02	Patio Door	Brickwork	South	3.80	
W01	Window	Brickwork	North	1.07	
W02	Window	Brickwork	North	2.17	
W03	Window	Brickwork	South	2.17	
W04	Window	Brickwork	East	0.72	

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
E10 Eaves (insulation at ceiling level)	Independently assessed	9.06	0.13	0.13	No
E12 Gable (insulation at ceiling level)	Independently assessed	8.82	0.06	0.06	No
E1 Steel lintel with perforated steel base plate	Independently assessed	8.16	0.05	0.05	No
E3 Sill	Independently assessed	5.33	0.05	0.05	No
E4 Jamb	Independently assessed	17.40	0.05	0.05	No
E5 Ground floor (normal)	Independently assessed	17.88	0.06	0.06	No
E6 Intermediate floor within a dwelling	Independently assessed	17.88	0.00	0.00	No
E16 Corner (normal)	Independently assessed	10.44	0.05	0.05	Yes
E18 Party wall between dwellings	Independently assessed	10.44	0.06	0.06	Yes
P1 Party wall - Ground floor	Independently assessed	8.82	0.04	0.04	No
P2 Party wall - Intermediate floor within a dwelling	Independently assessed	8.82	0.00	0.00	No
P4 Party wall - Roof (insulation at ceiling level)	Independently assessed	8.82	0.04	0.04	No

Y-value	0.04	W/m²K

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	500755	
Duct Type	Rigid	
Wet Rooms	3	

19.1 Mechanical extract ventilation - Decentralised

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

20.0 Fans, Open Fireplaces, Flues

Number of open chimneys	0
Number of open flues	0

Summary for Input Data

Number of chimneys/flues attached to closed fire	0	
Number of flues attached to solid fuel boiler	0	
Number of flues attached to other heater	0	
Number of blocked chimneys	0	
Number of intermittent extract fans	0	
Number of passive vents	0	
Number of flueless gas fires	0	
21.0 Fixed Cooling System	No	
22.0 Pressure Testing	Yes	
Designed AP_{50}	4.50	$m^3/(h.m^2)$ @ 50 Pa
Test Method	Blower Door	

22.0 Lighting

No Fixed Lighting: No

Name	Efficacy	Power	Capacity	Count
Pendant	75.00	10.00	750.00	6
Downlight	75.00	10.00	750.00	9

24.0 Main Heating 1	Database	
Percentage of Heat	100.00	%
Database Ref. No.	17929	
Fuel Type	Mains gas	
In Winter	89.00	
In Summer	87.30	
Model Name	LOGIC COMBI	
Manufacturer	Ideal Boilers	
System Type	Combi boiler	
Controls SAP Code	2110	
Controls description	Time and temperature zone control by arrangement	
Delayed Start Stat	Yes	
Flue Type	Balanced	
Fan Assisted Flue	Yes	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	55.00	
Boiler Interlock	Yes	
Combi boiler type	Standard Combi	
Combi keep hot type	None	
25.0 Main Heating 2	None	
26.0 Heat Networks	None	
27.0 Secondary Heating	None	

28.0 Water Heating

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

Summary for Input Data

Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Cold Water Source	From mains
Bath Count	1

28.1 Showers

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

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder None

34.0 Small-scale Hydro None

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

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

Summary for Input Data

elmhurst energy

Plot Reference	A 2.7	**Issued on Date**	16/12/2025
Assessment Reference	001	**Plot Type Ref**	A 2.7
Plot Address	A 2.7, A 2.7	**SAP Version**	10.2

SAP Rating	85 B	**DER**	13.37	**TER**	11.90
Environmental	89 B	**% DER < TER**			-12.35
CO_2 Emissions (t/year)	0.98	**DFEE**	34.67	**TFEE**	36.77
Compliance Check	See BREL	**% DFEE < TFEE**			5.69
% DPER < TPER	-20.76	**DPER**	75.16	**TPER**	62.24

Assessor Details	Mr. Matthew Fitzpatrick	**Assessor ID**	7601-0001
Client	SB-03, Stonebond Properties (Guildford)		

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

Orientation	North	
Property Tenture	1	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	House, Semi-Detached	
2.0 Number of Storeys	2	
3.0 Date Built	2025	
4.0 Sheltered Sides	2	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Precise calculation	
Thermal Mass	188.27	kJ/m²K
7.0 Electricity Tariff	Standard	
Smart electricity meter fitted	Yes	
Smart gas meter fitted	Yes	

7.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground floor:	18.03 m	40.60 m²	2.46 m
1st Storey:	18.03 m	40.60 m²	2.76 m

8.0 Living Area 37.41 m²

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
Brickwork	Cavity Wall	Cavity wall : plasterboard on dabs, AAC block, filled cavity, any outside structure	0.18	60.00	94.12	80.11	0.00	None	14.01	Calculate Wall Area

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Area (m²)	Shelter Res	Shelter
Party Wall 1	Filled Cavity with Edge Sealing	Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill	0.00	110.00	45.88	0.00	None

9.2 Internal Walls

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Metal GF	Plasterboard on timber frame	9.00	35.67
Metal FF	Plasterboard on timber frame	9.00	67.32

10.0 External Roofs

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Code	Shelter Factor	Calculation Type	Openings
Cold Roof	External Plane Roof	Plasterboard, insulated at ceiling level	0.08	9.00	40.60	40.60	None	0.00	Calculate Wall Area	0.00

10.2 Internal Ceilings

Description	Storey	Construction	Kappa	Area (m²)
Internal Ceiling 1	Lowest occupied	Plasterboard ceiling, carpeted chipboard floor	9.00	40.60

11.0 Heat Loss Floors

Summary for Input Data

elmhurst energy

Description	Type	Storey Index	Construction	U-Value (W/m²K)	Shelter Code	Shelter Factor	Kappa (kJ/m²K)	Area (m²)
Suspended Ground Floor	Ground Floor - Solid	Lowest occupied	Suspended concrete floor, carpeted	0.12	None	0.00	75.00	40.60

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
Internal Floor 1	+1	Plasterboard ceiling, carpeted chipboard floor	18.00	40.60

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Front Door	Manufacturer	Half Glazed Door	Double Low-E Soft 0.1			0.63		0.70	1.20
Window	BFRC, BSI or CERTASS data	Window	Double Low-E Soft 0.1			0.41			1.30
Patio Door	BFRC, BSI or CERTASS data	Window	Double Low-E Soft 0.1			0.39			1.40

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
D01	Front Door	Brickwork	North	2.15	
D02	Patio Door	Brickwork	South	3.80	
W01	Window	Brickwork	North	2.17	
W02	Window	Brickwork	South	0.72	
W03	Window	Brickwork	North	2.17	
W04	Window	Brickwork	South	2.17	
W05	Window	Brickwork	East	0.82	

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
E10 Eaves (insulation at ceiling level)	Independently assessed	9.23	0.13	0.13	No
E12 Gable (insulation at ceiling level)	Independently assessed	7.90	0.06	0.06	No
E1 Steel lintel with perforated steel base plate	Independently assessed	9.63	0.05	0.05	No
E3 Sill	Independently assessed	6.80	0.05	0.05	No
E4 Jamb	Independently assessed	20.10	0.05	0.05	No
E5 Ground floor (normal)	Independently assessed	18.03	0.06	0.06	No
E6 Intermediate floor within a dwelling	Independently assessed	18.03	0.00	0.00	No
E16 Corner (normal)	Independently assessed	10.44	0.05	0.05	Yes
E18 Party wall between dwellings	Independently assessed	10.44	0.06	0.06	Yes
P1 Party wall - Ground floor	Independently assessed	8.79	0.04	0.04	No
P2 Party wall - Intermediate floor within a dwelling	Independently assessed	8.79	0.00	0.00	No
P4 Party wall - Roof (insulation at ceiling level)	Independently assessed	8.79	0.04	0.04	No

Y-value: 0.04 W/m²K

19.0 Mechanical Ventilation

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	No
Mechanical Ventilation data Type	Database
Type	Mechanical extract ventilation - decentralised
MV Reference Number	500755
Duct Type	Rigid
Wet Rooms	3

19.1 Mechanical extract ventilation - Decentralised

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

20.0 Fans, Open Fireplaces, Flues

Number of open chimneys	0
Number of open flues	0

Summary for Input Data

elmhurst energy

Number of chimneys/flues attached to closed fire	0	
Number of flues attached to solid fuel boiler	0	
Number of flues attached to other heater	0	
Number of blocked chimneys	0	
Number of intermittent extract fans	0	
Number of passive vents	0	
Number of flueless gas fires	0	
21.0 Fixed Cooling System	No	
22.0 Pressure Testing	Yes	
Designed AP_{50}	4.50	$m^3/(h.m^2)$ @ 50 Pa
Test Method	Blower Door	

22.0 Lighting

No Fixed Lighting: No

Name	Efficacy	Power	Capacity	Count
Pendant	75.00	10.00	750.00	6
Downlight	75.00	10.00	750.00	11

24.0 Main Heating 1	Database	
Percentage of Heat	100.00	%
Database Ref. No.	17929	
Fuel Type	Mains gas	
In Winter	89.00	
In Summer	87.30	
Model Name	LOGIC COMBI	
Manufacturer	Ideal Boilers	
System Type	Combi boiler	
Controls SAP Code	2110	
Controls description	Time and temperature zone control by arrangement	
Delayed Start Stat	Yes	
Flue Type	Balanced	
Fan Assisted Flue	Yes	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	55.00	
Boiler Interlock	Yes	
Combi boiler type	Standard Combi	
Combi keep hot type	None	
25.0 Main Heating 2	None	
26.0 Heat Networks	None	
27.0 Secondary Heating	None	
28.0 Water Heating		
Water Heating	Main Heating 1	
SAP Code	901	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	

Summary for Input Data

Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Cold Water Source	From mains
Bath Count	1

28.1 Showers

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

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder None

34.0 Small-scale Hydro None

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

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

Summary for Input Data

elmhurst energy

Plot Reference	A 3.3	**Issued on Date**	16/12/2025
Assessment Reference	001	**Plot Type Ref**	A 3.3
Plot Address	A 3.3, A 3.3	**SAP Version**	10.2

SAP Rating	86 B	**DER**	12.22	**TER**	10.49
Environmental	89 B	**% DER < TER**			-16.49
CO_2 Emissions (t/year)	1.07	**DFEE**	32.45	**TFEE**	34.36
Compliance Check	See BREL	**% DFEE < TFEE**			5.55
% DPER < TPER	-25.20	**DPER**	68.58	**TPER**	54.78

Assessor Details	Mr. Matthew Fitzpatrick	**Assessor ID**	7601-0001
Client	SB-03, Stonebond Properties (Guildford)		

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

Orientation	North	
Property Tenture	1	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	House, Semi-Detached	
2.0 Number of Storeys	2	
3.0 Date Built	2025	
4.0 Sheltered Sides	2	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Precise calculation	
Thermal Mass	183.44	kJ/m²K
7.0 Electricity Tariff	Standard	
Smart electricity meter fitted	Yes	
Smart gas meter fitted	Yes	

7.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground floor:	19.72 m	48.48 m²	2.46 m
1st Storey:	19.72 m	48.48 m²	2.76 m

8.0 Living Area 27.56 m²

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
Brickwork	Cavity Wall	Cavity wall : plasterboard on dabs, AAC block, filled cavity, any outside structure	0.18	60.00	102.94	88.87	0.00	None	14.07	Calculate Wall Area

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Area (m²)	Shelter Res	Shelter
Party Wall 1	Filled Cavity with Edge Sealing	Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill	0.00	110.00	48.86	0.00	None

9.2 Internal Walls

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Metal GF	Plasterboard on timber frame	9.00	85.09
Metal FF	Plasterboard on timber frame	9.00	103.64

10.0 External Roofs

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Code	Shelter Factor	Calculation Type	Openings
Cold Roof	External Plane Roof	Plasterboard, insulated at ceiling level	0.08	9.00	48.48	48.48	None	0.00	Calculate Wall Area	0.00

10.2 Internal Ceilings

Description	Storey	Construction	Kappa	Area (m²)
Internal Ceiling 1	Lowest occupied	Plasterboard ceiling, carpeted chipboard floor	9.00	48.48

11.0 Heat Loss Floors

Summary for Input Data

elmhurst energy

Description	Type	Storey Index	Construction	U-Value (W/m²K)	Shelter Code	Shelter Factor	Kappa (kJ/m²K)	Area (m²)
Suspended Ground Floor	Ground Floor - Solid	Lowest occupied	Suspended concrete floor, carpeted	0.12	None	0.00	75.00	48.48

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
Internal Floor 1	+1	Plasterboard ceiling, carpeted chipboard floor	18.00	48.48

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Front Door	Manufacturer	Solid Door				0.63			1.20
Window	BFRC, BSI or CERTASS data	Window	Double Low-E Soft 0.1			0.41			1.30
Patio Door	BFRC, BSI or CERTASS data	Window	Double Low-E Soft 0.1			0.39			1.40

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
D01	Front Door	Brickwork	North	2.62	
D02	Patio Door	Brickwork	South	5.22	
W01	Window	Brickwork	North	1.43	
W02	Window	Brickwork	North	0.72	
W03	Window	Brickwork	North	1.63	
W04	Window	Brickwork	South	1.23	
W05	Window	Brickwork	South	1.23	

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
E10 Eaves (insulation at ceiling level)	Independently assessed	10.36	0.13	0.13	No
E12 Gable (insulation at ceiling level)	Independently assessed	9.36	0.06	0.06	No
E1 Steel lintel with perforated steel base plate	Independently assessed	8.96	0.05	0.05	No
E3 Sill	Independently assessed	6.47	0.05	0.05	No
E4 Jamb	Independently assessed	19.80	0.05	0.05	No
E5 Ground floor (normal)	Independently assessed	19.72	0.06	0.06	No
E6 Intermediate floor within a dwelling	Independently assessed	19.72	0.00	0.00	No
E16 Corner (normal)	Independently assessed	10.44	0.05	0.05	No
E18 Party wall between dwellings	Independently assessed	10.44	0.06	0.06	No
P1 Party wall - Ground floor	Independently assessed	9.36	0.04	0.04	No
P2 Party wall - Intermediate floor within a dwelling	Independently assessed	9.36	0.00	0.00	No
P4 Party wall - Roof (insulation at ceiling level)	Independently assessed	9.36	0.04	0.04	No

Y-value	0.03	W/m²K

19.0 Mechanical Ventilation

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	No
Mechanical Ventilation data Type	Database
Type	Mechanical extract ventilation - decentralised
MV Reference Number	500755
Duct Type	Rigid
Wet Rooms	3

19.1 Mechanical extract ventilation - Decentralised

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

20.0 Fans, Open Fireplaces, Flues

Number of open chimneys	0
Number of open flues	0

Summary for Input Data

Number of chimneys/flues attached to closed fire	0	
Number of flues attached to solid fuel boiler	0	
Number of flues attached to other heater	0	
Number of blocked chimneys	0	
Number of intermittent extract fans	0	
Number of passive vents	0	
Number of flueless gas fires	0	
21.0 Fixed Cooling System	No	
22.0 Pressure Testing	Yes	
Designed AP_{50}	4.50	$m^3/(h.m^2)$ @ 50 Pa
Test Method	Blower Door	

22.0 Lighting

No Fixed Lighting: No

Name	Efficacy	Power	Capacity	Count
Pendant	75.00	10.00	750.00	11
Downlight	75.00	10.00	750.00	11

24.0 Main Heating 1	Database	
Percentage of Heat	100.00	%
Database Ref. No.	17929	
Fuel Type	Mains gas	
In Winter	89.00	
In Summer	87.30	
Model Name	LOGIC COMBI	
Manufacturer	Ideal Boilers	
System Type	Combi boiler	
Controls SAP Code	2110	
Controls description	Time and temperature zone control by arrangement	
Delayed Start Stat	Yes	
Flue Type	Balanced	
Fan Assisted Flue	Yes	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	55.00	
Boiler Interlock	Yes	
Combi boiler type	Standard Combi	
Combi keep hot type	None	
25.0 Main Heating 2	None	
26.0 Heat Networks	None	
27.0 Secondary Heating	None	

28.0 Water Heating

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

Summary for Input Data

Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Cold Water Source	From mains
Bath Count	1

28.1 Showers

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

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder None

34.0 Small-scale Hydro None

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

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

Summary for Input Data

elmhurst energy

Plot Reference	A 3.6	**Issued on Date**	16/12/2025
Assessment Reference	001	**Plot Type Ref**	A 3.6
Plot Address	A 3.6, A 3.6	**SAP Version**	10.2

SAP Rating	85 B	**DER**	13.35	**TER**	11.51
Environmental	88 B	**% DER < TER**			-15.99
CO_2 Emissions (t/year)	1.12	**DFEE**	37.99	**TFEE**	39.52
Compliance Check	See BREL	**% DFEE < TFEE**			3.85
% DPER < TPER	-23.97	**DPER**	74.51	**TPER**	60.10

Assessor Details	Mr. Matthew Fitzpatrick	**Assessor ID**	7601-0001
Client	SB-03, Stonebond Properties (Guildford)		

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

Orientation	North	
Property Tenture	1	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	House, Semi-Detached	
2.0 Number of Storeys	2	
3.0 Date Built	2025	
4.0 Sheltered Sides	2	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Precise calculation	
Thermal Mass	179.18	kJ/m²K
7.0 Electricity Tariff	Standard	
Smart electricity meter fitted	Yes	
Smart gas meter fitted	Yes	

7.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground floor:	19.43 m	46.87 m²	2.46 m
1st Storey:	19.43 m	46.87 m²	2.76 m

8.0 Living Area 15.94 m²

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
Brickwork	Cavity Wall	Cavity wall : plasterboard on dabs, AAC block, filled cavity, any outside structure	0.18	60.00	101.42	80.12	0.00	None	21.30	Calculate Wall Area

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Area (m²)	Shelter Res	Shelter
Party Wall 1	Filled Cavity with Edge Sealing	Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill	0.00	110.00	46.52	0.00	None

9.2 Internal Walls

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Metal GF	Plasterboard on timber frame	9.00	83.68
Metal FF	Plasterboard on timber frame	9.00	101.73

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	46.87	46.87	None	0.00	Calculate Wall Area	0.00

10.2 Internal Ceilings

Description	Storey	Construction	Kappa	Area (m²)
Internal Ceiling 1	Lowest occupied	Plasterboard ceiling, carpeted chipboard floor	9.00	46.87

11.0 Heat Loss Floors

Summary for Input Data

elmhurst energy

Description	Type	Storey Index	Construction	U-Value (W/m²K)	Shelter Code	Shelter Factor	Kappa (kJ/m²K)	Area (m²)
Suspended Ground Floor	Ground Floor - Solid	Lowest occupied	Suspended concrete floor, carpeted	0.12	None	0.00	75.00	46.87

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
Internal Floor 1	+1	Plasterboard ceiling, carpeted chipboard floor	18.00	46.87

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Front Door	Manufacturer	Solid Door				0.63			1.20
Window	BFRC, BSI or CERTASS data	Window	Double Low-E Soft 0.1			0.41			1.30
Patio Door	BFRC, BSI or CERTASS data	Window	Double Low-E Soft 0.1			0.39			1.40

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
D01	Front Door	Brickwork	North	2.62	
D02	Patio Door	Brickwork	East	5.22	
W01	Window	Brickwork	North	1.43	
W02	Window	Brickwork	North	0.72	
W03	Window	Brickwork	North	1.63	
W04	Window	Brickwork	West	1.90	
W05	Window	Brickwork	East	1.07	
W06	Window	Brickwork	North	1.63	
W07	Window	Brickwork	North	0.72	
W08	Window	Brickwork	North	1.23	
W09	Window	Brickwork	West	1.90	
W10	Window	Brickwork	East	1.23	

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
E10 Eaves (insulation at ceiling level)	Independently assessed	8.92	0.13	0.13	No
E12 Gable (insulation at ceiling level)	Independently assessed	10.52	0.06	0.06	No
E1 Steel lintel with perforated steel base plate	Independently assessed	14.86	0.05	0.05	No
E3 Sill	Independently assessed	12.38	0.05	0.05	No
E4 Jamb	Independently assessed	31.20	0.05	0.05	No
E5 Ground floor (normal)	Independently assessed	19.43	0.06	0.06	No
E6 Intermediate floor within a dwelling	Independently assessed	19.43	0.00	0.00	No
E16 Corner (normal)	Independently assessed	10.44	0.05	0.05	No
E18 Party wall between dwellings	Independently assessed	10.44	0.06	0.06	No
P1 Party wall - Ground floor	Independently assessed	8.91	0.04	0.04	No
P2 Party wall - Intermediate floor within a dwelling	Independently assessed	8.91	0.00	0.00	No
P4 Party wall - Roof (insulation at ceiling level)	Independently assessed	8.91	0.04	0.04	No

Y-value	0.04	W/m²K

19.0 Mechanical Ventilation

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	No
Mechanical Ventilation data Type	Database
Type	Mechanical extract ventilation - decentralised
MV Reference Number	500755
Duct Type	Rigid
Wet Rooms	3

19.1 Mechanical extract ventilation - Decentralised

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

Summary for Input Data

elmhurst energy

20.0 Fans, Open Fireplaces, Flues

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

21.0 Fixed Cooling System	No	
22.0 Pressure Testing	Yes	
Designed AP_{50}	4.50	$m^3/(h.m^2)$ @ 50 Pa
Test Method	Blower Door	

22.0 Lighting

No Fixed Lighting: No

Name	Efficacy	Power	Capacity	Count
Pendant	75.00	10.00	750.00	8
Downlight	75.00	10.00	750.00	9

24.0 Main Heating 1	Database	
Percentage of Heat	100.00	%
Database Ref. No.	17929	
Fuel Type	Mains gas	
In Winter	89.00	
In Summer	87.30	
Model Name	LOGIC COMBI	
Manufacturer	Ideal Boilers	
System Type	Combi boiler	
Controls SAP Code	2110	
Controls description	Time and temperature zone control by arrangement	
Delayed Start Stat	Yes	
Flue Type	Balanced	
Fan Assisted Flue	Yes	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	55.00	
Boiler Interlock	Yes	
Combi boiler type	Standard Combi	
Combi keep hot type	None	
25.0 Main Heating 2	None	
26.0 Heat Networks	None	
27.0 Secondary Heating	None	

28.0 Water Heating

Water Heating	Main Heating 1
SAP Code	901

Summary for Input Data

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
Cold Water Source	From mains
Bath Count	1

28.1 Showers

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

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder	None
34.0 Small-scale Hydro	None

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

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

Summary for Input Data

elmhurst energy

Plot Reference	P 4.13	**Issued on Date**	16/12/2025
Assessment Reference	001	**Plot Type Ref**	P 4.13
Plot Address	P 4.13, P 4.13	**SAP Version**	10.2

SAP Rating	86 B	**DER**	12.09	**TER**	10.01
Environmental	88 B	**% DER < TER**			-20.78
CO_2 Emissions (t/year)	1.37	**DFEE**	37.49	**TFEE**	39.04
Compliance Check	See BREL	**% DFEE < TFEE**			3.98
% DPER < TPER	-29.20	**DPER**	67.61	**TPER**	52.33

Assessor Details	Mr. Matthew Fitzpatrick	**Assessor ID**	7601-0001
Client	SB-03, Stonebond Properties (Guildford)		

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

Orientation	North	
Property Tenture	1	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	House, Detached	
2.0 Number of Storeys	2	
3.0 Date Built	2025	
4.0 Sheltered Sides	2	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Precise calculation	
Thermal Mass	173.22	kJ/m²K
7.0 Electricity Tariff	Standard	
Smart electricity meter fitted	Yes	
Smart gas meter fitted	Yes	

7.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground floor:	32.72 m	63.56 m²	2.46 m
1st Storey:	32.72 m	63.56 m²	2.76 m

8.0 Living Area	16.33	m²

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
Brickwork	Cavity Wall	Cavity wall : plasterboard on dabs, AAC block, filled cavity, any outside structure	0.18	60.00	170.80	146.77	0.00	None	24.03	Calculate Wall Area

9.2 Internal Walls

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Metal GF	Plasterboard on timber frame	9.00	59.27
Metal FF	Plasterboard on timber frame	9.00	159.30
Block GF	Dense block, plasterboard on dabs	75.00	58.95

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	63.56	63.56	None	0.00	Calculate Wall Area	0.00

10.2 Internal Ceilings

Description	Storey	Construction	Kappa	Area (m²)
Internal Ceiling 1	Lowest occupied	Plasterboard ceiling, carpeted chipboard floor	9.00	63.56

11.0 Heat Loss Floors

Description	Type	Storey Index	Construction	U-Value (W/m²K)	Shelter Code	Shelter Factor	Kappa (kJ/m²K)	Area (m²)
Suspended Ground Floor	Ground Floor - Solid	Lowest occupied	Suspended concrete floor, carpeted	0.12	None	0.00	75.00	63.56

11.2 Internal Floors

Summary for Input Data

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
Internal Floor 1	+1	Plasterboard ceiling, carpeted chipboard floor	18.00	50.71

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Front Door Side Panel	Manufacturer	Half Glazed Door	Double Low-E Soft 0.1			0.63		0.70	1.20
Window	BFRC, BSI or CERTASS data	Window	Double Low-E Soft 0.1			0.41			1.30
Patio Door	BFRC, BSI or CERTASS data	Window	Double Low-E Soft 0.1			0.39			1.40

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
D01	Front Door Side Panel	Brickwork	North	3.09	
D02	Patio Door	Brickwork	South	6.16	
W01	Window	Brickwork	North	1.90	
W02	Window	Brickwork	North	0.72	
W03	Window	Brickwork	West	0.72	
W04	Window	Brickwork	South	1.66	
W05	Window	Brickwork	East	0.72	
W06	Window	Brickwork	North	1.90	
W07	Window	Brickwork	North	1.90	
W08	Window	Brickwork	West	0.72	
W09	Window	Brickwork	South	1.90	
W10	Window	Brickwork	South	1.90	
W11	Window	Brickwork	East	0.72	

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
E10 Eaves (insulation at ceiling level)	Independently assessed	13.30	0.13	0.13	No
E12 Gable (insulation at ceiling level)	Independently assessed	19.42	0.06	0.06	No
E1 Steel lintel with perforated steel base plate	Independently assessed	17.34	0.05	0.05	No
E3 Sill	Independently assessed	12.94	0.05	0.05	No
E4 Jamb	Independently assessed	33.00	0.05	0.05	No
E5 Ground floor (normal)	Independently assessed	32.72	0.06	0.06	No
E6 Intermediate floor within a dwelling	Independently assessed	32.72	0.00	0.00	No
E16 Corner (normal)	Independently assessed	26.10	0.05	0.05	No
E17 Corner (inverted – internal area greater than external area)	Independently assessed	5.22	-0.05	-0.05	No

Y-value	0.03	W/m²K

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	500755
Duct Type	Rigid
Wet Rooms	4

19.1 Mechanical extract ventilation - Decentralised

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

20.0 Fans, Open Fireplaces, Flues

Number of open chimneys	0
Number of open flues	0

Summary for Input Data

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Number of chimneys/flues attached to closed fire	0	
Number of flues attached to solid fuel boiler	0	
Number of flues attached to other heater	0	
Number of blocked chimneys	0	
Number of intermittent extract fans	0	
Number of passive vents	0	
Number of flueless gas fires	0	
21.0 Fixed Cooling System	No	
22.0 Pressure Testing	Yes	
Designed AP_{50}	4.50	$m^3/(h.m^2)$ @ 50 Pa
Test Method	Blower Door	
22.0 Lighting		
No Fixed Lighting	No	

Name	Efficacy	Power	Capacity	Count
Pendant	75.00	10.00	750.00	18
Downlight	75.00	10.00	750.00	14

24.0 Main Heating 1	Database	
Percentage of Heat	100.00	%
Database Ref. No.	17929	
Fuel Type	Mains gas	
In Winter	89.00	
In Summer	87.30	
Model Name	LOGIC COMBI	
Manufacturer	Ideal Boilers	
System Type	Combi boiler	
Controls SAP Code	2110	
Controls description	Time and temperature zone control by arrangement	
Delayed Start Stat	Yes	
Flue Type	Balanced	
Fan Assisted Flue	Yes	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	55.00	
Boiler Interlock	Yes	
Combi boiler type	Standard Combi	
Combi keep hot type	None	
25.0 Main Heating 2	None	
26.0 Heat Networks	None	
27.0 Secondary Heating	None	
28.0 Water Heating		
Water Heating	Main Heating 1	
SAP Code	901	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	

Summary for Input Data

Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Cold Water Source	From mains
Bath Count	1

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
Bathroom	Combi boiler or unvented hot water system	8.00		No	
Ensuite	Combi boiler or unvented hot water system	8.00		No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder None

34.0 Small-scale Hydro None

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

10.3. APPENDIX C: SAMPLE SAP SUMMARY INFORMATION SHEETS (BE GREEN)

Summary for Input Data

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Plot Reference	A 1.2	**Issued on Date**	16/12/2025
Assessment Reference	001	**Plot Type Ref**	A 1.2
Plot Address	A 1.2, A 1.2	**SAP Version**	10.2

SAP Rating	90 B	**DER**	12.46	**TER**	13.10
Environmental	91 B	**% DER < TER**			4.89
CO_2 Emissions (t/year)	0.71	**DFEE**	34.54	**TFEE**	36.64
Compliance Check	See BREL	**% DFEE < TFEE**			5.75
% DPER < TPER	3.48	**DPER**	66.37	**TPER**	68.77

Assessor Details	Mr. Matthew Fitzpatrick	**Assessor ID**	7601-0001
Client	SB-03, Stonebond Properties (Guildford)		

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

Orientation	North	
Property Tenture	1	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	House, Semi-Detached	
2.0 Number of Storeys	2	
3.0 Date Built	2025	
4.0 Sheltered Sides	2	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Precise calculation	
Thermal Mass	201.74	kJ/m²K
7.0 Electricity Tariff	Standard	
Smart electricity meter fitted	Yes	
Smart gas meter fitted	Yes	

7.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground floor:	16.10 m	32.30 m²	2.46 m
1st Storey:	16.10 m	32.38 m²	2.76 m

8.0 Living Area 25.73 m²

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
Brickwork	Cavity Wall	Cavity wall : plasterboard on dabs, AAC block, filled cavity, any outside structure	0.18	60.00	84.04	73.22	0.00	None	10.82	Calculate Wall Area

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Area (m²)	Shelter Res	Shelter
Party Wall 1	Filled Cavity with Edge Sealing	Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill	0.00	110.00	39.08	0.00	None

9.2 Internal Walls

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Metal GF	Plasterboard on timber frame	9.00	36.75
Metal FF	Plasterboard on timber frame	9.00	47.92

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	32.38	32.38	None	0.00	Calculate Wall Area	0.00

10.2 Internal Ceilings

Description	Storey	Construction	Kappa	Area (m²)
Internal Ceiling 1	Lowest occupied	Plasterboard ceiling, carpeted chipboard floor	9.00	32.38

11.0 Heat Loss Floors

Summary for Input Data

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Description	Type	Storey Index	Construction	U-Value (W/m²K)	Shelter Code	Shelter Factor	Kappa (kJ/m²K)	Area (m²)
Suspended Ground Floor	Ground Floor - Solid	Lowest occupied	Suspended concrete floor, carpeted	0.12	None	0.00	75.00	32.38

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
Internal Floor 1	+1	Plasterboard ceiling, carpeted chipboard floor	18.00	32.38

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Front Door Side Panel	Manufacturer	Half Glazed Door	Double Low-E Soft 0.1			0.63		0.70	1.20
Window	BFRC, BSI or CERTASS data	Window	Double Low-E Soft 0.1			0.41			1.30
Patio Door	BFRC, BSI or CERTASS data	Window	Double Low-E Soft 0.1			0.39			1.40

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
D01	Front Door Side Panel	Brickwork	North	2.86	
D02	Patio Door	Brickwork	South	3.80	
W01	Window	Brickwork	North	0.72	
W02	Window	Brickwork	North	0.72	
W03	Window	Brickwork	North	0.82	
W04	Window	Brickwork	South	1.90	

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
E10 Eaves (insulation at ceiling level)	Independently assessed	8.32	0.13	0.13	No
E12 Gable (insulation at ceiling level)	Independently assessed	7.79	0.06	0.06	No
P1 Party wall - Ground floor	Independently assessed	7.79	0.04	0.04	No
P2 Party wall - Intermediate floor within a dwelling	Independently assessed	7.79	0.00	0.00	No
P4 Party wall - Roof (insulation at ceiling level)	Independently assessed	7.79	0.04	0.04	No
E1 Steel lintel with perforated steel base plate	Independently assessed	7.04	0.05	0.05	Yes
E3 Sill	Independently assessed	3.87	0.05	0.05	No
E4 Jamb	Independently assessed	17.10	0.05	0.05	Yes
E5 Ground floor (normal)	Independently assessed	16.10	0.06	0.06	Yes
E6 Intermediate floor within a dwelling	Independently assessed	16.10	0.00	0.00	Yes
E16 Corner (normal)	Independently assessed	10.44	0.05	0.05	No
E18 Party wall between dwellings	Independently assessed	10.44	0.06	0.06	No

Y-value	0.04	W/m²K

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	500756
Duct Type	Rigid
Wet Rooms	3

19.1 Mechanical extract ventilation - Decentralised

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

20.0 Fans, Open Fireplaces, Flues

Number of open chimneys	0
Number of open flues	0

Summary for Input Data

Number of chimneys/flues attached to closed fire	0	
Number of flues attached to solid fuel boiler	0	
Number of flues attached to other heater	0	
Number of blocked chimneys	0	
Number of intermittent extract fans	0	
Number of passive vents	0	
Number of flueless gas fires	0	
21.0 Fixed Cooling System	No	
22.0 Pressure Testing	Yes	
Designed AP_{50}	4.50	$m^3/(h.m^2)$ @ 50 Pa
Test Method	Blower Door	

22.0 Lighting

No Fixed Lighting: No

Name	Efficacy	Power	Capacity	Count
Pendant	75.00	10.00	750.00	6
Downlight	75.00	10.00	750.00	9

24.0 Main Heating 1	Database	
Percentage of Heat	100.00	%
Database Ref. No.	17929	
Fuel Type	Mains gas	
In Winter	89.00	
In Summer	87.30	
Model Name	LOGIC COMBI	
Manufacturer	Ideal Boilers	
System Type	Combi boiler	
Controls SAP Code	2110	
Controls description	Time and temperature zone control by arrangement	
Delayed Start Stat	Yes	
Flue Type	Balanced	
Fan Assisted Flue	Yes	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	55.00	
Boiler Interlock	Yes	
Combi boiler type	Standard Combi	
Combi keep hot type	None	
25.0 Main Heating 2	None	
26.0 Heat Networks	None	
27.0 Secondary Heating	None	

28.0 Water Heating

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

Summary for Input Data

Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Cold Water Source	From mains
Bath Count	1

28.1 Showers

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

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder	None

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

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

34.0 Small-scale Hydro	None

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

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Plot Reference	A 2.2.2	Issued on Date	16/12/2025
Assessment Reference	001	Plot Type Ref	A 2.2.2
Plot Address	A 2.2.2, A 2.2.2	SAP Version	10.2

SAP Rating	92 A	DER	11.24	TER	11.93
Environmental	91 B	% DER < TER			5.78
CO_2 Emissions (t/year)	0.78	DFEE	33.97	TFEE	36.19
Compliance Check	See BREL	% DFEE < TFEE			6.14
% DPER < TPER	4.72	DPER	59.51	TPER	62.46

Assessor Details	Mr. Matthew Fitzpatrick	Assessor ID	7601-0001
Client	SB-03, Stonebond Properties (Guildford)		

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

Orientation	North	
Property Tenture	1	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	House, Semi-Detached	
2.0 Number of Storeys	2	
3.0 Date Built	2025	
4.0 Sheltered Sides	2	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Precise calculation	
Thermal Mass	195.14	kJ/m²K
7.0 Electricity Tariff	Standard	
Smart electricity meter fitted	Yes	
Smart gas meter fitted	Yes	

7.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground floor:	17.88 m	39.63 m²	2.46 m
1st Storey:	17.88 m	39.63 m²	2.76 m

8.0 Living Area 33.09 m²

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
Brickwork	Cavity Wall	Cavity wall : plasterboard on dabs, AAC block, filled cavity, any outside structure	0.18	60.00	93.33	81.24	0.00	None	12.09	Calculate Wall Area

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Area (m²)	Shelter Res	Shelter
Party Wall 1	Filled Cavity with Edge Sealing	Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill	0.00	110.00	45.93	0.00	None

9.2 Internal Walls

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Metal GF	Plasterboard on timber frame	9.00	59.83
Metal FF	Plasterboard on timber frame	9.00	66.88

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	39.63	39.63	None	0.00	Calculate Wall Area	0.00

10.2 Internal Ceilings

Description	Storey	Construction	Kappa	Area (m²)
Internal Ceiling 1	Lowest occupied	Plasterboard ceiling, carpeted chipboard floor	9.00	39.63

11.0 Heat Loss Floors

Summary for Input Data

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Description	Type	Storey Index	Construction	U-Value (W/m²K)	Shelter Code	Shelter Factor	Kappa (kJ/m²K)	Area (m²)
Suspended Ground Floor	Ground Floor - Solid	Lowest occupied	Suspended concrete floor, carpeted	0.12	None	0.00	75.00	39.63

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
Internal Floor 1	+1	Plasterboard ceiling, carpeted chipboard floor	18.00	39.63

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Front Door Side Panel	Manufacturer	Half Glazed Door	Double Low-E Soft 0.1			0.63		0.70	1.20
Window	BFRC, BSI or CERTASS data	Window	Double Low-E Soft 0.1			0.41			1.30
Patio Door	BFRC, BSI or CERTASS data	Window	Double Low-E Soft 0.1			0.39			1.40

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
D01	Front Door Side Panel	Brickwork	North	2.15	
D02	Patio Door	Brickwork	South	3.80	
W01	Window	Brickwork	North	1.07	
W02	Window	Brickwork	North	2.17	
W03	Window	Brickwork	South	2.17	
W04	Window	Brickwork	East	0.72	

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
E10 Eaves (insulation at ceiling level)	Independently assessed	9.06	0.13	0.13	No
E12 Gable (insulation at ceiling level)	Independently assessed	8.82	0.06	0.06	No
E1 Steel lintel with perforated steel base plate	Independently assessed	8.16	0.05	0.05	No
E3 Sill	Independently assessed	5.33	0.05	0.05	No
E4 Jamb	Independently assessed	17.40	0.05	0.05	No
E5 Ground floor (normal)	Independently assessed	17.88	0.06	0.06	No
E6 Intermediate floor within a dwelling	Independently assessed	17.88	0.00	0.00	No
E16 Corner (normal)	Independently assessed	10.44	0.05	0.05	Yes
E18 Party wall between dwellings	Independently assessed	10.44	0.06	0.06	Yes
P1 Party wall - Ground floor	Independently assessed	8.82	0.04	0.04	No
P2 Party wall - Intermediate floor within a dwelling	Independently assessed	8.82	0.00	0.00	No
P4 Party wall - Roof (insulation at ceiling level)	Independently assessed	8.82	0.04	0.04	No

Y-value	0.04	W/m²K

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	500755	
Duct Type	Rigid	
Wet Rooms	3	

19.1 Mechanical extract ventilation - Decentralised

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

20.0 Fans, Open Fireplaces, Flues

Number of open chimneys	0
Number of open flues	0

Summary for Input Data

Number of chimneys/flues attached to closed fire	0	
Number of flues attached to solid fuel boiler	0	
Number of flues attached to other heater	0	
Number of blocked chimneys	0	
Number of intermittent extract fans	0	
Number of passive vents	0	
Number of flueless gas fires	0	
21.0 Fixed Cooling System	No	
22.0 Pressure Testing	Yes	
Designed AP_{50}	4.50	$m^3/(h.m^2)$ @ 50 Pa
Test Method	Blower Door	

22.0 Lighting

No Fixed Lighting: No

Name	Efficacy	Power	Capacity	Count
Pendant	75.00	10.00	750.00	6
Downlight	75.00	10.00	750.00	9

24.0 Main Heating 1	Database	
Percentage of Heat	100.00	%
Database Ref. No.	17929	
Fuel Type	Mains gas	
In Winter	89.00	
In Summer	87.30	
Model Name	LOGIC COMBI	
Manufacturer	Ideal Boilers	
System Type	Combi boiler	
Controls SAP Code	2110	
Controls description	Time and temperature zone control by arrangement	
Delayed Start Stat	Yes	
Flue Type	Balanced	
Fan Assisted Flue	Yes	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	55.00	
Boiler Interlock	Yes	
Combi boiler type	Standard Combi	
Combi keep hot type	None	
25.0 Main Heating 2	None	
26.0 Heat Networks	None	
27.0 Secondary Heating	None	

28.0 Water Heating

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

Summary for Input Data

Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Cold Water Source	From mains
Bath Count	1

28.1 Showers

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

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder	None

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

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

34.0 Small-scale Hydro	None

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

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

Summary for Input Data

elmhurst energy

Plot Reference	A 2.7	Issued on Date	16/12/2025
Assessment Reference	001	Plot Type Ref	A 2.7
Plot Address	A 2.7, A 2.7	SAP Version	10.2

SAP Rating	92 A	DER	11.32	TER	11.90
Environmental	91 B	% DER < TER			4.87
CO_2 Emissions (t/year)	0.8	DFEE	34.67	TFEE	36.77
Compliance Check	See BREL	% DFEE < TFEE			5.69
% DPER < TPER	3.68	DPER	59.95	TPER	62.24

Assessor Details	Mr. Matthew Fitzpatrick	Assessor ID	7601-0001
Client	SB-03, Stonebond Properties (Guildford)		

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

Orientation	North	
Property Tenture	1	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	House, Semi-Detached	
2.0 Number of Storeys	2	
3.0 Date Built	2025	
4.0 Sheltered Sides	2	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Precise calculation	
Thermal Mass	188.27	kJ/m²K
7.0 Electricity Tariff	Standard	
Smart electricity meter fitted	Yes	
Smart gas meter fitted	Yes	

7.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground floor:	18.03 m	40.60 m²	2.46 m
1st Storey:	18.03 m	40.60 m²	2.76 m

8.0 Living Area 37.41 m²

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
Brickwork	Cavity Wall	Cavity wall : plasterboard on dabs, AAC block, filled cavity, any outside structure	0.18	60.00	94.12	80.11	0.00	None	14.01	Calculate Wall Area

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Area (m²)	Shelter Res	Shelter
Party Wall 1	Filled Cavity with Edge Sealing	Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill	0.00	110.00	45.88	0.00	None

9.2 Internal Walls

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Metal GF	Plasterboard on timber frame	9.00	35.67
Metal FF	Plasterboard on timber frame	9.00	67.32

10.0 External Roofs

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Code	Shelter Factor	Calculation Type	Openings
Cold Roof	External Plane Roof	Plasterboard, insulated at ceiling level	0.08	9.00	40.60	40.60	None	0.00	Calculate Wall Area	0.00

10.2 Internal Ceilings

Description	Storey	Construction	Kappa	Area (m²)
Internal Ceiling 1	Lowest occupied	Plasterboard ceiling, carpeted chipboard floor	9.00	40.60

11.0 Heat Loss Floors

Summary for Input Data

elmhurst energy

Description	Type	Storey Index	Construction	U-Value (W/m²K)	Shelter Code	Shelter Factor	Kappa (kJ/m²K)	Area (m²)
Suspended Ground Floor	Ground Floor - Solid	Lowest occupied	Suspended concrete floor, carpeted	0.12	None	0.00	75.00	40.60

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
Internal Floor 1	+1	Plasterboard ceiling, carpeted chipboard floor	18.00	40.60

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Front Door	Manufacturer	Half Glazed Door	Double Low-E Soft 0.1			0.63		0.70	1.20
Window	BFRC, BSI or CERTASS data	Window	Double Low-E Soft 0.1			0.41			1.30
Patio Door	BFRC, BSI or CERTASS data	Window	Double Low-E Soft 0.1			0.39			1.40

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
D01	Front Door	Brickwork	North	2.15	
D02	Patio Door	Brickwork	South	3.80	
W01	Window	Brickwork	North	2.17	
W02	Window	Brickwork	South	0.72	
W03	Window	Brickwork	North	2.17	
W04	Window	Brickwork	South	2.17	
W05	Window	Brickwork	East	0.82	

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
E10 Eaves (insulation at ceiling level)	Independently assessed	9.23	0.13	0.13	No
E12 Gable (insulation at ceiling level)	Independently assessed	7.90	0.06	0.06	No
E1 Steel lintel with perforated steel base plate	Independently assessed	9.63	0.05	0.05	No
E3 Sill	Independently assessed	6.80	0.05	0.05	No
E4 Jamb	Independently assessed	20.10	0.05	0.05	No
E5 Ground floor (normal)	Independently assessed	18.03	0.06	0.06	No
E6 Intermediate floor within a dwelling	Independently assessed	18.03	0.00	0.00	No
E16 Corner (normal)	Independently assessed	10.44	0.05	0.05	Yes
E18 Party wall between dwellings	Independently assessed	10.44	0.06	0.06	Yes
P1 Party wall - Ground floor	Independently assessed	8.79	0.04	0.04	No
P2 Party wall - Intermediate floor within a dwelling	Independently assessed	8.79	0.00	0.00	No
P4 Party wall - Roof (insulation at ceiling level)	Independently assessed	8.79	0.04	0.04	No

Y-value: 0.04 W/m²K

19.0 Mechanical Ventilation

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	No
Mechanical Ventilation data Type	Database
Type	Mechanical extract ventilation - decentralised
MV Reference Number	500755
Duct Type	Rigid
Wet Rooms	3

19.1 Mechanical extract ventilation - Decentralised

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

20.0 Fans, Open Fireplaces, Flues

Number of open chimneys	0
Number of open flues	0

Summary for Input Data

elmhurst energy

Number of chimneys/flues attached to closed fire	0	
Number of flues attached to solid fuel boiler	0	
Number of flues attached to other heater	0	
Number of blocked chimneys	0	
Number of intermittent extract fans	0	
Number of passive vents	0	
Number of flueless gas fires	0	
21.0 Fixed Cooling System	No	
22.0 Pressure Testing	Yes	
Designed AP_{50}	4.50	$m^3/(h.m^2)$ @ 50 Pa
Test Method	Blower Door	

22.0 Lighting

No Fixed Lighting: No

Name	Efficacy	Power	Capacity	Count
Pendant	75.00	10.00	750.00	6
Downlight	75.00	10.00	750.00	11

24.0 Main Heating 1	Database	
Percentage of Heat	100.00	%
Database Ref. No.	17929	
Fuel Type	Mains gas	
In Winter	89.00	
In Summer	87.30	
Model Name	LOGIC COMBI	
Manufacturer	Ideal Boilers	
System Type	Combi boiler	
Controls SAP Code	2110	
Controls description	Time and temperature zone control by arrangement	
Delayed Start Stat	Yes	
Flue Type	Balanced	
Fan Assisted Flue	Yes	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	55.00	
Boiler Interlock	Yes	
Combi boiler type	Standard Combi	
Combi keep hot type	None	
25.0 Main Heating 2	None	
26.0 Heat Networks	None	
27.0 Secondary Heating	None	
28.0 Water Heating		
Water Heating	Main Heating 1	
SAP Code	901	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	

Summary for Input Data

Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Cold Water Source	From mains
Bath Count	1

28.1 Showers

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

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder	None

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

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

34.0 Small-scale Hydro	None

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

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

Summary for Input Data

elmhurst energy

Plot Reference	A 3.3	**Issued on Date**	16/12/2025
Assessment Reference	001	**Plot Type Ref**	A 3.3
Plot Address	A 3.3, A 3.3	**SAP Version**	10.2

SAP Rating	93 A	**DER**	10.07	**TER**	10.49
Environmental	91 B	**% DER < TER**			4.00
CO_2 Emissions (t/year)	0.85	**DFEE**	32.45	**TFEE**	34.36
Compliance Check	See BREL	**% DFEE < TFEE**			5.55
% DPER < TPER	3.26	**DPER**	52.99	**TPER**	54.78

Assessor Details	Mr. Matthew Fitzpatrick	**Assessor ID**	7601-0001
Client	SB-03, Stonebond Properties (Guildford)		

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

Orientation	North	
Property Tenture	1	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	House, Semi-Detached	
2.0 Number of Storeys	2	
3.0 Date Built	2025	
4.0 Sheltered Sides	2	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Precise calculation	
Thermal Mass	183.44	kJ/m²K
7.0 Electricity Tariff	Standard	
Smart electricity meter fitted	Yes	
Smart gas meter fitted	Yes	

7.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground floor:	19.72 m	48.48 m²	2.46 m
1st Storey:	19.72 m	48.48 m²	2.76 m

8.0 Living Area	27.56	m²

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
Brickwork	Cavity Wall	Cavity wall : plasterboard on dabs, AAC block, filled cavity, any outside structure	0.18	60.00	102.94	88.87	0.00	None	14.07	Calculate Wall Area

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Area (m²)	Shelter Res	Shelter
Party Wall 1	Filled Cavity with Edge Sealing	Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill	0.00	110.00	48.86	0.00	None

9.2 Internal Walls

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Metal GF	Plasterboard on timber frame	9.00	85.09
Metal FF	Plasterboard on timber frame	9.00	103.64

10.0 External Roofs

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Code	Shelter Factor	Calculation Type	Openings
Cold Roof	External Plane Roof	Plasterboard, insulated at ceiling level	0.08	9.00	48.48	48.48	None	0.00	Calculate Wall Area	0.00

10.2 Internal Ceilings

Description	Storey	Construction	Kappa	Area (m²)
Internal Ceiling 1	Lowest occupied	Plasterboard ceiling, carpeted chipboard floor	9.00	48.48

11.0 Heat Loss Floors

Summary for Input Data

elmhurst energy

Description	Type	Storey Index	Construction	U-Value (W/m²K)	Shelter Code	Shelter Factor	Kappa (kJ/m²K)	Area (m²)
Suspended Ground Floor	Ground Floor - Solid	Lowest occupied	Suspended concrete floor, carpeted	0.12	None	0.00	75.00	48.48

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
Internal Floor 1	+1	Plasterboard ceiling, carpeted chipboard floor	18.00	48.48

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Front Door	Manufacturer	Solid Door				0.63			1.20
Window	BFRC, BSI or CERTASS data	Window	Double Low-E Soft 0.1			0.41			1.30
Patio Door	BFRC, BSI or CERTASS data	Window	Double Low-E Soft 0.1			0.39			1.40

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
D01	Front Door	Brickwork	North	2.62	
D02	Patio Door	Brickwork	South	5.22	
W01	Window	Brickwork	North	1.43	
W02	Window	Brickwork	North	0.72	
W03	Window	Brickwork	North	1.63	
W04	Window	Brickwork	South	1.23	
W05	Window	Brickwork	South	1.23	

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
E10 Eaves (insulation at ceiling level)	Independently assessed	10.36	0.13	0.13	No
E12 Gable (insulation at ceiling level)	Independently assessed	9.36	0.06	0.06	No
E1 Steel lintel with perforated steel base plate	Independently assessed	8.96	0.05	0.05	No
E3 Sill	Independently assessed	6.47	0.05	0.05	No
E4 Jamb	Independently assessed	19.80	0.05	0.05	No
E5 Ground floor (normal)	Independently assessed	19.72	0.06	0.06	No
E6 Intermediate floor within a dwelling	Independently assessed	19.72	0.00	0.00	No
E16 Corner (normal)	Independently assessed	10.44	0.05	0.05	No
E18 Party wall between dwellings	Independently assessed	10.44	0.06	0.06	No
P1 Party wall - Ground floor	Independently assessed	9.36	0.04	0.04	No
P2 Party wall - Intermediate floor within a dwelling	Independently assessed	9.36	0.00	0.00	No
P4 Party wall - Roof (insulation at ceiling level)	Independently assessed	9.36	0.04	0.04	No

Y-value	0.03	W/m²K

19.0 Mechanical Ventilation

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	No
Mechanical Ventilation data Type	Database
Type	Mechanical extract ventilation - decentralised
MV Reference Number	500755
Duct Type	Rigid
Wet Rooms	3

19.1 Mechanical extract ventilation - Decentralised

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

20.0 Fans, Open Fireplaces, Flues

Number of open chimneys	0
Number of open flues	0

Summary for Input Data

Number of chimneys/flues attached to closed fire	0	
Number of flues attached to solid fuel boiler	0	
Number of flues attached to other heater	0	
Number of blocked chimneys	0	
Number of intermittent extract fans	0	
Number of passive vents	0	
Number of flueless gas fires	0	
21.0 Fixed Cooling System	No	
22.0 Pressure Testing	Yes	
Designed AP_{50}	4.50	$m^3/(h.m^2)$ @ 50 Pa
Test Method	Blower Door	

22.0 Lighting

No Fixed Lighting: No

Name	Efficacy	Power	Capacity	Count
Pendant	75.00	10.00	750.00	11
Downlight	75.00	10.00	750.00	11

24.0 Main Heating 1	Database	
Percentage of Heat	100.00	%
Database Ref. No.	17929	
Fuel Type	Mains gas	
In Winter	89.00	
In Summer	87.30	
Model Name	LOGIC COMBI	
Manufacturer	Ideal Boilers	
System Type	Combi boiler	
Controls SAP Code	2110	
Controls description	Time and temperature zone control by arrangement	
Delayed Start Stat	Yes	
Flue Type	Balanced	
Fan Assisted Flue	Yes	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	55.00	
Boiler Interlock	Yes	
Combi boiler type	Standard Combi	
Combi keep hot type	None	
25.0 Main Heating 2	None	
26.0 Heat Networks	None	
27.0 Secondary Heating	None	

28.0 Water Heating

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

Summary for Input Data

Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Cold Water Source	From mains
Bath Count	1

28.1 Showers

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

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder	None

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

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

34.0 Small-scale Hydro	None

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

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

Summary for Input Data

elmhurst energy

Plot Reference	A 3.6	Issued on Date	16/12/2025
Assessment Reference	001	Plot Type Ref	A 3.6
Plot Address	A 3.6, A 3.6	SAP Version	10.2

SAP Rating	93 A	DER	11.13	TER	11.51
Environmental	90 B	% DER < TER			3.30
CO_2 Emissions (t/year)	0.9	DFEE	37.99	TFEE	39.52
Compliance Check	See BREL	% DFEE < TFEE			3.85
% DPER < TPER	2.73	DPER	58.46	TPER	60.10

Assessor Details	Mr. Matthew Fitzpatrick	Assessor ID	7601-0001
Client	SB-03, Stonebond Properties (Guildford)		

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

Orientation	North	
Property Tenture	1	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	House, Semi-Detached	
2.0 Number of Storeys	2	
3.0 Date Built	2025	
4.0 Sheltered Sides	2	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Precise calculation	
Thermal Mass	179.18	kJ/m²K
7.0 Electricity Tariff	Standard	
Smart electricity meter fitted	Yes	
Smart gas meter fitted	Yes	

7.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground floor:	19.43 m	46.87 m²	2.46 m
1st Storey:	19.43 m	46.87 m²	2.76 m

8.0 Living Area 15.94 m²

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
Brickwork	Cavity Wall	Cavity wall : plasterboard on dabs, AAC block, filled cavity, any outside structure	0.18	60.00	101.42	80.12	0.00	None	21.30	Calculate Wall Area

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Area (m²)	Shelter Res	Shelter
Party Wall 1	Filled Cavity with Edge Sealing	Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill	0.00	110.00	46.52	0.00	None

9.2 Internal Walls

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Metal GF	Plasterboard on timber frame	9.00	83.68
Metal FF	Plasterboard on timber frame	9.00	101.73

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	46.87	46.87	None	0.00	Calculate Wall Area	0.00

10.2 Internal Ceilings

Description	Storey	Construction	Kappa	Area (m²)
Internal Ceiling 1	Lowest occupied	Plasterboard ceiling, carpeted chipboard floor	9.00	46.87

11.0 Heat Loss Floors

Summary for Input Data

elmhurst energy

Description	Type	Storey Index	Construction	U-Value (W/m²K)	Shelter Code	Shelter Factor	Kappa (kJ/m²K)	Area (m²)
Suspended Ground Floor	Ground Floor - Solid	Lowest occupied	Suspended concrete floor, carpeted	0.12	None	0.00	75.00	46.87

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
Internal Floor 1	+1	Plasterboard ceiling, carpeted chipboard floor	18.00	46.87

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Front Door	Manufacturer	Solid Door				0.63			1.20
Window	BFRC, BSI or CERTASS data	Window	Double Low-E Soft 0.1			0.41			1.30
Patio Door	BFRC, BSI or CERTASS data	Window	Double Low-E Soft 0.1			0.39			1.40

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
D01	Front Door	Brickwork	North	2.62	
D02	Patio Door	Brickwork	East	5.22	
W01	Window	Brickwork	North	1.43	
W02	Window	Brickwork	North	0.72	
W03	Window	Brickwork	North	1.63	
W04	Window	Brickwork	West	1.90	
W05	Window	Brickwork	East	1.07	
W06	Window	Brickwork	North	1.63	
W07	Window	Brickwork	North	0.72	
W08	Window	Brickwork	North	1.23	
W09	Window	Brickwork	West	1.90	
W10	Window	Brickwork	East	1.23	

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
E10 Eaves (insulation at ceiling level)	Independently assessed	8.92	0.13	0.13	No
E12 Gable (insulation at ceiling level)	Independently assessed	10.52	0.06	0.06	No
E1 Steel lintel with perforated steel base plate	Independently assessed	14.86	0.05	0.05	No
E3 Sill	Independently assessed	12.38	0.05	0.05	No
E4 Jamb	Independently assessed	31.20	0.05	0.05	No
E5 Ground floor (normal)	Independently assessed	19.43	0.06	0.06	No
E6 Intermediate floor within a dwelling	Independently assessed	19.43	0.00	0.00	No
E16 Corner (normal)	Independently assessed	10.44	0.05	0.05	No
E18 Party wall between dwellings	Independently assessed	10.44	0.06	0.06	No
P1 Party wall - Ground floor	Independently assessed	8.91	0.04	0.04	No
P2 Party wall - Intermediate floor within a dwelling	Independently assessed	8.91	0.00	0.00	No
P4 Party wall - Roof (insulation at ceiling level)	Independently assessed	8.91	0.04	0.04	No

Y-value	0.04	W/m²K

19.0 Mechanical Ventilation

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	No
Mechanical Ventilation data Type	Database
Type	Mechanical extract ventilation - decentralised
MV Reference Number	500755
Duct Type	Rigid
Wet Rooms	3

19.1 Mechanical extract ventilation - Decentralised

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

Summary for Input Data

elmhurst energy

20.0 Fans, Open Fireplaces, Flues

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

21.0 Fixed Cooling System	No	
22.0 Pressure Testing	Yes	
Designed AP_{50}	4.50	$m^3/(h.m^2)$ @ 50 Pa
Test Method	Blower Door	

22.0 Lighting

No Fixed Lighting: No

Name	Efficacy	Power	Capacity	Count
Pendant	75.00	10.00	750.00	8
Downlight	75.00	10.00	750.00	9

24.0 Main Heating 1	Database	
Percentage of Heat	100.00	%
Database Ref. No.	17929	
Fuel Type	Mains gas	
In Winter	89.00	
In Summer	87.30	
Model Name	LOGIC COMBI	
Manufacturer	Ideal Boilers	
System Type	Combi boiler	
Controls SAP Code	2110	
Controls description	Time and temperature zone control by arrangement	
Delayed Start Stat	Yes	
Flue Type	Balanced	
Fan Assisted Flue	Yes	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	55.00	
Boiler Interlock	Yes	
Combi boiler type	Standard Combi	
Combi keep hot type	None	
25.0 Main Heating 2	None	
26.0 Heat Networks	None	
27.0 Secondary Heating	None	

28.0 Water Heating

Water Heating	Main Heating 1
SAP Code	901

Summary for Input Data

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
Cold Water Source	From mains
Bath Count	1

28.1 Showers

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

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder	None

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

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

34.0 Small-scale Hydro	None

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

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

Summary for Input Data

elmhurst energy

Plot Reference	P 4.13	**Issued on Date**	16/12/2025
Assessment Reference	001	**Plot Type Ref**	P 4.13
Plot Address	P 4.13, P 4.13	**SAP Version**	10.2

SAP Rating	94 A	**DER**	9.80	**TER**	10.01
Environmental	91 B	**% DER < TER**			2.10
CO_2 Emissions (t/year)	1.07	**DFEE**	37.49	**TFEE**	39.04
Compliance Check	See BREL	**% DFEE < TFEE**			3.98
% DPER < TPER	1.48	**DPER**	51.55	**TPER**	52.33

Assessor Details	Mr. Matthew Fitzpatrick	**Assessor ID**	7601-0001
Client	SB-03, Stonebond Properties (Guildford)		

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

Orientation	North	
Property Tenture	1	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	House, Detached	
2.0 Number of Storeys	2	
3.0 Date Built	2025	
4.0 Sheltered Sides	2	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Precise calculation	
Thermal Mass	173.22	kJ/m²K
7.0 Electricity Tariff	Standard	
Smart electricity meter fitted	Yes	
Smart gas meter fitted	Yes	

7.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground floor:	32.72 m	63.56 m²	2.46 m
1st Storey:	32.72 m	63.56 m²	2.76 m

8.0 Living Area	16.33	m²

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
Brickwork	Cavity Wall	Cavity wall : plasterboard on dabs, AAC block, filled cavity, any outside structure	0.18	60.00	170.80	146.77	0.00	None	24.03	Calculate Wall Area

9.2 Internal Walls

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Metal GF	Plasterboard on timber frame	9.00	59.27
Metal FF	Plasterboard on timber frame	9.00	159.30
Block GF	Dense block, plasterboard on dabs	75.00	58.95

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	63.56	63.56	None	0.00	Calculate Wall Area	0.00

10.2 Internal Ceilings

Description	Storey	Construction	Kappa	Area (m²)
Internal Ceiling 1	Lowest occupied	Plasterboard ceiling, carpeted chipboard floor	9.00	63.56

11.0 Heat Loss Floors

Description	Type	Storey Index	Construction	U-Value (W/m²K)	Shelter Code	Shelter Factor	Kappa (kJ/m²K)	Area (m²)
Suspended Ground Floor	Ground Floor - Solid	Lowest occupied	Suspended concrete floor, carpeted	0.12	None	0.00	75.00	63.56

11.2 Internal Floors

Summary for Input Data

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
Internal Floor 1	+1	Plasterboard ceiling, carpeted chipboard floor	18.00	50.71

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Front Door Side Panel	Manufacturer	Half Glazed Door	Double Low-E Soft 0.1			0.63		0.70	1.20
Window	BFRC, BSI or CERTASS data	Window	Double Low-E Soft 0.1			0.41			1.30
Patio Door	BFRC, BSI or CERTASS data	Window	Double Low-E Soft 0.1			0.39			1.40

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
D01	Front Door Side Panel	Brickwork	North	3.09	
D02	Patio Door	Brickwork	South	6.16	
W01	Window	Brickwork	North	1.90	
W02	Window	Brickwork	North	0.72	
W03	Window	Brickwork	West	0.72	
W04	Window	Brickwork	South	1.66	
W05	Window	Brickwork	East	0.72	
W06	Window	Brickwork	North	1.90	
W07	Window	Brickwork	North	1.90	
W08	Window	Brickwork	West	0.72	
W09	Window	Brickwork	South	1.90	
W10	Window	Brickwork	South	1.90	
W11	Window	Brickwork	East	0.72	

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
E10 Eaves (insulation at ceiling level)	Independently assessed	13.30	0.13	0.13	No
E12 Gable (insulation at ceiling level)	Independently assessed	19.42	0.06	0.06	No
E1 Steel lintel with perforated steel base plate	Independently assessed	17.34	0.05	0.05	No
E3 Sill	Independently assessed	12.94	0.05	0.05	No
E4 Jamb	Independently assessed	33.00	0.05	0.05	No
E5 Ground floor (normal)	Independently assessed	32.72	0.06	0.06	No
E6 Intermediate floor within a dwelling	Independently assessed	32.72	0.00	0.00	No
E16 Corner (normal)	Independently assessed	26.10	0.05	0.05	No
E17 Corner (inverted – internal area greater than external area)	Independently assessed	5.22	-0.05	-0.05	No

Y-value	0.03	W/m²K

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	500755
Duct Type	Rigid
Wet Rooms	4

19.1 Mechanical extract ventilation - Decentralised

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

20.0 Fans, Open Fireplaces, Flues

Number of open chimneys	0
Number of open flues	0

Summary for Input Data

elmhurst energy

Number of chimneys/flues attached to closed fire	0	
Number of flues attached to solid fuel boiler	0	
Number of flues attached to other heater	0	
Number of blocked chimneys	0	
Number of intermittent extract fans	0	
Number of passive vents	0	
Number of flueless gas fires	0	
21.0 Fixed Cooling System	No	
22.0 Pressure Testing	Yes	
Designed AP_{50}	4.50	$m^3/(h.m^2)$ @ 50 Pa
Test Method	Blower Door	
22.0 Lighting		
No Fixed Lighting	No	

Name	Efficacy	Power	Capacity	Count
Pendant	75.00	10.00	750.00	18
Downlight	75.00	10.00	750.00	14

24.0 Main Heating 1	Database	
Percentage of Heat	100.00	%
Database Ref. No.	17929	
Fuel Type	Mains gas	
In Winter	89.00	
In Summer	87.30	
Model Name	LOGIC COMBI	
Manufacturer	Ideal Boilers	
System Type	Combi boiler	
Controls SAP Code	2110	
Controls description	Time and temperature zone control by arrangement	
Delayed Start Stat	Yes	
Flue Type	Balanced	
Fan Assisted Flue	Yes	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Flow Temperature	Enter value	
Flow Temperature Value	55.00	
Boiler Interlock	Yes	
Combi boiler type	Standard Combi	
Combi keep hot type	None	
25.0 Main Heating 2	None	
26.0 Heat Networks	None	
27.0 Secondary Heating	None	
28.0 Water Heating		
Water Heating	Main Heating 1	
SAP Code	901	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	

Summary for Input Data

Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
Cold Water Source	From mains
Bath Count	1

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
Bathroom	Combi boiler or unvented hot water system	8.00		No	
Ensuite	Combi boiler or unvented hot water system	8.00		No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder None

32.0 Photovoltaic Unit One Dwelling

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

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

34.0 Small-scale Hydro None

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