



## Energy & Sustainability Statement

Ickleford Mill  
Arlesey Road  
Ickleford  
Hitchin  
Hertfordshire  
SG5 3UN

Hill Residential Limited

Report No: PA-ES-HRL-IM-26-01

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## 1. PROJECT DETAILS

| Type of Application | Reserved Matters Application                                                                                                                                                                                                                                                                                                           |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Project Name        | Ickleford Mill                                                                                                                                                                                                                                                                                                                         |
| Project Address     | Ickleford Mill, Arlesey Road, Ickleford Mill, Arlesey Road, Hitchin, Hertfordshire, SG5 3UN                                                                                                                                                                                                                                            |
| Project Description | Reserved matters application for appearance, landscaping, layout and scale in relation to erection of 55 dwellings and associated access, car parking, garages, landscaping and open space including demolition and removal of all existing structures, buildings and hardstanding pursuant to outline planning permission 17/01955/1. |
| Applicant           | Hill Residential Limited                                                                                                                                                                                                                                                                                                               |
| Applicant's Address | The Courtyard, Abbey Barns, Ickleton, Essex, CB10 1SX                                                                                                                                                                                                                                                                                  |
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| Report Issue Number | Date     | Reason                                       | Author |
|---------------------|----------|----------------------------------------------|--------|
| 01                  | 04/03/26 | For Issue                                    | MH     |
| 02                  | 23/07/26 | Updated site layout and landscape masterplan |        |
| 03                  |          |                                              |        |

## 2. EXECUTIVE SUMMARY

### Introduction

This Energy & Sustainability Statement has been prepared by Abbey Consultants (Southern) Ltd on behalf of Hill Residential Limited (the 'Applicant' hereafter) to accompany the submission of a reserved matters application for the site located at Ickleford Mill, Arlesey Road, Ickleford Mill, Arlesey Road, Hitchin, Hertfordshire, SG5 3UN (hereafter 'the site').

The site is located within the administrative boundaries of North Hertfordshire District Council and Hertfordshire County Council.

The proposal encompasses:

*"Reserved matters application for appearance, landscaping, layout and scale in relation to erection of 55 dwellings and associated access, car parking, garages, landscaping and open space including demolition and removal of all existing structures, buildings and hardstanding pursuant to outline planning permission 17/01955/1."*

Outline Planning Permission (reference 17/01955/1) was granted for development of the site by North Hertfordshire District Council on 11<sup>th</sup> March 2024.

This report has been prepared to address Condition 33 of the Outline Planning Permission (17/01955/1) as amended. This report has also been prepared in accordance with the relevant requirements at both national and local level, as set out in the National Planning Policy Framework (2024) and North Hertfordshire Local Plan 2011-2031 (2022), and the Council's adopted Sustainability Supplementary Planning Document (SPD)(2024), which provides detailed guidance on energy efficiency, carbon reduction and sustainable design measures.

The Sustainability SPD sets out detailed guidance on energy efficiency and carbon reduction through its Bronze, Silver and Gold framework, which establishes progressively higher performance standards. The energy strategy has been prepared with regard to this framework to ensure an appropriate level of sustainability performance is achieved.

The report outlines the key features and strategies that will be adopted by the development team to enhance the energy and sustainability performance of the proposed development.

### 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.

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.

The 'Be Green' stage of the energy hierarchy introduces low carbon energy supply systems to the houses in the form of individual air source heat pumps. These will efficiently supply the houses with space heating and hot water. The apartments will also benefit from heat pump technology in the form of Nilan Compact P units. These units are a combined ventilation and heating system.

Although the proposed heating system will rely on electricity to provide power for the heat pumps, it will support the shift towards carbon neutrality. This is due to the ongoing decarbonisation of the electricity grid, meaning that grid electricity will eventually be generated solely through renewable sources. Therefore, this scheme will be less dependent on fossil fuels and will be future proofed against any future ban of gas heating.

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.

### Carbon Reductions & Energy Performance

Through implementation of the energy strategy, the table below details the regulated carbon dioxide emissions and savings that are anticipated at each stage of the energy hierarchy.

**Table 1: Summary of CO<sub>2</sub> emissions savings**

| Stage of Energy Hierarchy  | Regulated CO <sub>2</sub> Emissions<br>(tonnes/year) |
|----------------------------|------------------------------------------------------|
| Total Part L 2021 Baseline | 65.75                                                |
| Total After 'Be Lean'      | 65.14                                                |
| Total After 'Be Green'     | 20.70                                                |
| <b>Total Saving</b>        | <b>45.05</b>                                         |
| <b>Total Improvement</b>   | <b>69%</b>                                           |

After all of the measures in the energy strategy have been accounted for, the proposed development achieves an overall on-site reduction of 69% in regulated carbon dioxide emissions over Part L 2021. This equates to an annual saving of an estimated 45.05 tonnes in regulated CO<sub>2</sub> emissions. This is in line with the 'Silver' level target (minimum 50% reduction) of North Hertfordshire District Council's Sustainability SPD (September 2024).

In terms of operational energy, the energy strategy includes an assessment of the Energy Use Intensity (EUI) in relation to gross internal floor area and space heating demand. Both of these performance metrics are calculated to achieve the 'Bronze' and 'Silver' level targets respectively, as detailed in the North Hertfordshire District Council's Sustainability SPD (September 2024).

All dwellings are predicted to achieve a minimum EPC rating of 'B'. This is in line with the 'Gold' level target of North Hertfordshire District Council's Sustainability SPD (September 2024).

**Sustainability Strategy**

The proposed strategy in relation to sustainable design and construction is detailed in Section 12.

The key sustainability measures to be incorporated into the development proposals are summarised below:

- A commitment that the proposed water saving measures will keep the water usage of each dwelling to less than 110 litres per person per day. This minimises water consumption in line with the 'Bronze' level target of North Hertfordshire District Council's Sustainability SPD (September 2024).
- Electric Vehicle (EV) Charging Points are to be included throughout the proposed development.
- A high quality construction and design specification will prioritise materials within 'A+', 'A' or 'B' ratings, and low embodied carbon materials selected wherever feasible using a whole life-cycle approach. Minimisation of waste and promotion of Circular Economy Measures into all aspects of design, construction and operation.
- A Transport Statement has been produced which includes details on active and sustainable transport modes.
- Ecology/Landscaping – Various ecological and biodiversity enhancements are proposed for the development site.
- The drainage strategy utilises SuDS to help the proposed development mitigate against any flood risk. The proposed SuDS features to be implemented are permeable paving, detention basins, downstream defender and flow control devices.
- Details the measures that will be introduced to help mitigate against the risk of overheating to the dwellings in the summer months.

### 3. INTRODUCTION

This report has been prepared by Abbey Consultants (Southern) Ltd, a specialist environmental and energy consultancy on behalf of Hill Residential Limited in support of the reserved matters application of the proposed development at Ickleford Mill, Arlesey Road, Ickleford Mill, Arlesey Road, Hitchin, Hertfordshire, SG5 3UN.

The site is located in the jurisdiction of North Hertfordshire District Council.

The proposed development is described as:

*“Reserved matters application for appearance, landscaping, layout and scale in relation to erection of 55 dwellings and associated access, car parking, garages, landscaping and open space including demolition and removal of all existing structures, buildings and hardstanding pursuant to outline planning permission 17/01955/1.”*

Outline Planning Permission (reference 17/01955/1) was granted for development of the site by North Hertfordshire District Council on 11<sup>th</sup> March 2024. This has been subsequently amended by reference 26/00587/S73.

Figure 1 details the proposed site layout.

**Figure 1: Proposed Site Plan**



The first section of this report details the proposed Energy Strategy for the development. This establishes a baseline assessment of the energy demands and associated CO<sub>2</sub> 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<sub>2</sub> 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 second section of this report details the Sustainability Strategy. This covers the relevant aspects of sustainability relating to the Site, including mitigation measures against the effects of climate change.

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 achieving compliance with all of the planning requirements which are applicable to this development.

## 4. RELEVANT PLANNING POLICIES, REQUIREMENTS & GUIDANCE

An effective planning system is required to contribute to achieving sustainable development.

Sustainable development is defined as having the following three overarching objectives which are interdependent and need to be pursued in mutually supportive ways: an economic objective, a social objective, and an environmental objective.

1. Economic objective – to help build a strong, responsive and competitive economy, by ensuring that sufficient land of the right types is available in the right places and at the right time to support growth, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure;
2. Social objective – to support strong, vibrant and healthy communities, by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations; and by fostering a well-designed and safe built environment, with accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural well-being; and
3. Environmental objective – to contribute to protecting and enhancing our natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.

### 4.1. NATIONAL PLANNING POLICY FRAMEWORK (NPPF) 2024

The NPPF sets out the Government's planning policies for England and how these should be applied. It provides a framework within which locally-prepared plans can provide for housing and other development in a sustainable manner. Preparing and maintaining up-to-date plans should be seen as a priority in meeting this objective.

#### **Chapter 14 Meeting the challenge of climate change, flooding and coastal change**

Paragraph 161. The planning system should support the transition to net zero by 2050 and take full account of all climate impacts including overheating, water scarcity, storm and flood risks and coastal change. It should help to: shape places in ways that contribute to radical reductions in greenhouse gas emissions, minimise vulnerability and improve resilience; encourage the reuse of existing resources, including the conversion of existing buildings; and support renewable and low carbon energy and associated infrastructure.

Paragraph 162. Plans should take a proactive approach to mitigating and adapting to climate change, taking into account the long-term implications for flood risk, coastal change, water supply, biodiversity and landscapes, and the risk of overheating and drought from rising temperatures. Policies should support appropriate measures to ensure the future health and resilience of communities and infrastructure to climate change impacts, such as providing space for physical protection measures, or making provision for the possible future relocation of vulnerable development and infrastructure.

Paragraph 163. The need to mitigate and adapt to climate change should also be considered in preparing and assessing planning applications, taking into account the full range of potential climate change impacts.

Paragraph 164. New development should be planned for in ways that:

- a. avoid increased vulnerability to the range of impacts arising from climate change. When new development is brought forward in areas which are vulnerable, care should be taken to ensure that risks can be managed through suitable adaptation measures, including through incorporating green infrastructure and sustainable drainage systems; and
- b. help to reduce greenhouse gas emissions, such as through its location, orientation and design. Any local requirements for the sustainability of buildings should reflect the Government's policy for national technical standards.

Paragraph 165. To help increase the use and supply of renewable and low carbon energy and heat, plans should:

- a. provide a positive strategy for energy from these sources, that maximises the potential for suitable development, and their future re-powering and life extension, while ensuring that adverse impacts are addressed appropriately (including cumulative landscape and visual impacts);

- b. consider identifying suitable areas for renewable and low carbon energy sources, and supporting infrastructure, where this would help secure their development; and
- c. identify opportunities for development to draw its energy supply from decentralised, renewable, or low carbon energy supply systems and for co-locating potential heat customers and suppliers.

Paragraph 166. In determining planning applications, local planning authorities should expect new development to:

- a. comply with any development plan policies on local requirements for decentralised energy supply unless it can be demonstrated by the applicant, having regard to the type of development involved and its design, that this is not feasible or viable; and
- b. take account of landform, layout, building orientation, massing and landscaping to minimise energy consumption.

Paragraph 167. Local planning authorities should also give significant weight to the need to support energy efficiency and low carbon heating improvements to existing buildings, both domestic and non-domestic (including through installation of heat pumps and solar panels where these do not already benefit from permitted development rights). Where the proposals would affect conservation areas, listed buildings or other relevant designated heritage assets, local planning authorities should also apply the policies set out in chapter 16 of this Framework.

Paragraph 168. When determining planning applications for renewable and low carbon developments and their associated infrastructure, local planning authorities should:

- a. not require applicants to demonstrate the overall need for renewable or low carbon energy, and give significant weight to the benefits associated with renewable and low carbon energy generation and the proposal's contribution to a net zero future;
- b. recognise that small-scale and community-led projects provide a valuable contribution to cutting greenhouse gas emissions;
- c. in the case of applications for the repowering and life-extension of existing renewable sites, give significant weight to the benefits of utilising an established site.

Paragraph 169. Once suitable areas for renewable and low carbon energy have been identified in plans, local planning authorities should expect subsequent applications for commercial scale projects outside these areas to demonstrate that the proposed location meets the criteria used in identifying suitable areas.

## 4.2. LOCAL PLANNING POLICY

### 4.2.1. NORTH HERTFORDSHIRE LOCAL PLAN 2011-2031 (ADOPTED NOVEMBER 2022)

The adopted Local Plan 2011–2031 for the District seeks to ensure new development promotes sustainable design and construction. The relevant adopted policies to this Energy and Sustainability Statement are detailed below.

#### **Policy D1 Sustainable Design**

Planning permission will be granted provided that development proposals:

- a) Respond positively to the site's local context.
- b) Take all reasonable opportunities, consistent with the nature and scale of the scheme, to:
  - i. create or enhance public realm.
  - ii. optimise the potential of the site by incorporating Sustainable Drainage Systems (SuDS);
  - iii. reduce energy consumption and waste;
  - iv. retain existing vegetation and propose appropriate new planting;
  - v. maximise accessibility, legibility and physical and social connectivity both internally and with neighbouring areas;
  - vi. future proof for changes in technology and lifestyle;
  - vii. design-out opportunities for crime and anti-social behaviour; and
  - viii. minimise the visual impact of street furniture and parking provision;
- c) Have regard to the Design SPD, and any other relevant guidance;

- d) Within Letchworth Garden City have regard to the Letchworth Garden City Design Principles contained in Appendix 5; and
- e) For residential schemes, meet or exceed the nationally described space standards and optional water efficiency standards.

**Policy SP1****Sustainable development in North Hertfordshire**

This Plan supports the principles of sustainable development within North Hertfordshire. We will:

- a) Maintain the role of key settlements within and adjoining the District as the main focus for housing, employment and new development making use of previously developed land where possible;
- b) Ensure the long-term vitality of the District's villages by supporting growth which provides opportunities for existing and new residents and sustains key facilities;
- c) Grant planning permission for proposals that, individually or cumulatively:
  - i. deliver an appropriate mix of homes, jobs and facilities that contribute towards the targets and aspirations in this Plan;
  - ii. create high-quality developments that respect and improve their surroundings and provide opportunities for healthy lifestyle choices;
  - iii. provide the necessary infrastructure required to support an increasing population;
  - iv. protect key elements of North Hertfordshire's environment including biodiversity, important landscapes, heritage assets and green infrastructure (including the water environment); and
  - v. secure any necessary mitigation measures that reduce the impact of development, including on climate change; and
- d) Support neighbourhood plans and other local planning initiatives where they are in general conformity with the strategic policies of this Local Plan.

**Policy SP9****Design and Sustainability**

The Council considers good design to be a key aspect of sustainable development. We will:

- a) Support new development where it is well designed and located and responds positively to its local context.
- b) Require Strategic Masterplans to be produced for Strategic Housing Sites and other significant development. Significant development generally comprises residential development of 100 dwellings or more. Exceptionally, developments under 100 dwellings will be considered significant if there are site specific complexities and sensitivities that require a masterplan-led approach. In some circumstances a Strategic Masterplan may also be required to consider the cumulative impact of more than one site to support a co-ordinated and integrated approach to place-making and design.
- c) Require Strategic Masterplans and planning applications for Strategic Housing Sites and significant development to (as applicable):
  - i. create buildings, spaces and streets which positively reflect and respond to the local landscape, townscape and historic character
  - ii. create integrated, accessible and sustainable transport systems with walking, cycling and public transport designed to be the most attractive forms of transport and effectively linking into the surrounding areas;
  - iii. provide a clear structure and hierarchy of pedestrian friendly streets and well-connected footpaths and cycleways integrate with the wider built and natural environment and communities.
  - iv. plan for integrated and mixed-use communities with walkable locally accessible community, employment and retail facilities;
  - v. positively integrate with adjacent rural and urban communities and positively contribute to their character and the way the area functions, including addressing cumulative, cross boundary planning and infrastructure matters;
  - vi. create and accessible multi-functional green infrastructure network that provides:
    - a key structuring and functional place-making feature supporting healthy lifestyles, sport, play and recreation linking into the wider Green Infrastructure Network; and
    - a high-quality integrated network to support ecological connectivity, biodiversity net gain, climate adaptation and mitigation linking into the wider Ecological Network
  - vii. ensure the effective use of sustainable urban drainage and sustainable water management;

- viii. ensure a hierarchy of linked, high quality and attractive public spaces and public realm that is safe, attractive and supports social interaction for all age groups; and
- ix. design to last with a clear stewardship, management and maintenance strategy
- d) Ensure Strategic Masterplans are informed by a technical and design evidence base and include the following for Strategic Housing Sites and where applicable for other significant development:
  - i. site specific vision and place-making principles
  - ii. Masterplan setting out the quantum, scale, type, mix and distribution of land uses, housing and community facilities;
  - iii. Green Infrastructure Framework identifying the scale, distribution, type and design of green spaces, biodiversity net gain, strategic drainage and on and off-site linkages:
  - iv. Movement Framework setting out the key access points, strategic highways, street hierarchy and footways and cycleways (on and off site)
  - v. Urban Design Framework and design principles identifying how the site responds to local character and context and key structuring elements and layout principles (including heights and densities)
  - vi. Sustainability & Energy Framework identifying site-wide and building scale opportunities for low and zero carbon
  - vii. Illustrative Masterplan Layout
  - viii. Infrastructure Delivery, Phasing & Management Strategy
- e) Encourage the submission of Strategic Masterplans for the Council's consideration and agreement before the submission of a planning application. We will also confirm the scope and contents of individual Strategic Masterplans with applicants in pre-application discussions. Planning applications must be accompanied by a Strategic Masterplan. Where applications have already been submitted to the Council a Strategic Masterplan should be agreed with the Council prior to or as part of the grant of planning permission. Adherence to the Strategic Masterplan will be secured through planning conditions and/or legal agreement.
- f) Assess proposals against detailed policy requirements set out in this Plan and have regard to the Design SPD; and
- g) Adopt the Government's additional technical standards for the size of new homes, water efficiency and, in specified circumstances, accessibility.

## 4.3. SUPPORTING PLANNING DOCUMENTS

### 4.3.1. SUSTAINABILITY SUPPLEMENTARY PLANNING DOCUMENT (SPD) (ADOPTED SEPTEMBER 2024)

The North Hertfordshire District Council Sustainability Supplementary Planning Document (SPD) (adopted September 2024) provides detailed guidance to support policies within the Local Plan, including SP1 (Sustainable Development) and D1 (Sustainable Design). It is a material consideration in the determination of planning applications.

The SPD sets out sustainability expectations across key themes including:

- Energy efficiency and carbon reduction
- Passive design and fabric performance
- Renewable and low-carbon energy
- Water efficiency and sustainable drainage
- Biodiversity and green infrastructure
- Sustainable transport
- Health and climate resilience

#### **Bronze, Silver and Gold Framework**

The SPD introduces a three-tier performance framework:

- **Bronze** – Baseline compliance with Local Plan policy and Building Regulations. Demonstrates good practice design and an energy strategy that reduces demand and considers renewables.

- **Silver** – Enhanced performance beyond minimum standards. Typically includes improved fabric efficiency, measurable CO<sub>2</sub> reductions beyond Part L, and meaningful on-site renewable or low-carbon energy provision.
- **Gold** – Exemplary sustainability performance. May include very high fabric standards (approaching Passivhaus principles), significant on-site renewable energy generation, and substantial carbon reductions beyond regulatory requirements.

The framework allows applicants to demonstrate increasing levels of sustainability ambition. While Bronze represents policy compliance, developments are encouraged to achieve Silver or Gold where viable and appropriate to the scale and type of proposal.

#### 4.3.2. CLIMATE EMERGENCY AND LOCAL STRATEGIES

North Hertfordshire District Council has declared a Climate Emergency and adopted a Climate Change Strategy with an aim for the district to achieve net zero carbon emissions earlier than the national target. This strategic commitment informs the Local Plan approach and highlights the importance of energy efficient development and incorporation of low carbon technologies.

#### 4.4. PLANNING CONDITION

The following report sets out the intentions of the Applicant, in support of the discharging of North Hertfordshire District Council's Condition 33 of Outline Planning Permission (reference 17/01955/1 dated 11/03/2024).

The Conditions read as detailed below:

**Condition 33**

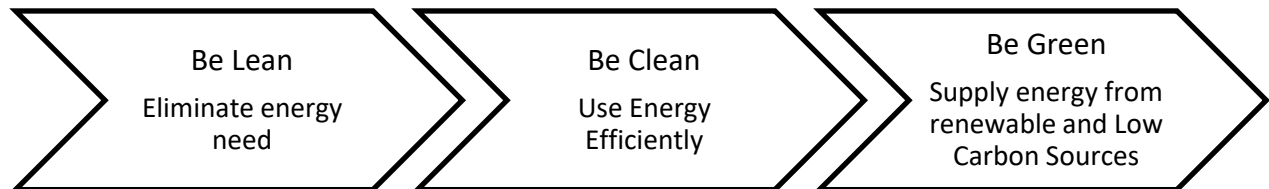
*Prior to the commencement of the development (other than demolition works), a pre-construction energy and sustainability statement to be submitted to and approved in writing by the Local Planning Authority setting out specific ways in which the energy usage of the development will be reduced. Thereafter, all measures set out and agreed shall be implemented in accordance with the approved plans.*

*Reason: to ensure that the development is energy efficient and minimises energy use.*

## 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<sub>2</sub> 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<sub>2</sub> 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<sub>2</sub> 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<sub>2</sub> 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<sub>2</sub> EMISSIONS

In order to assess the energy demand and CO<sub>2</sub> performance of the proposed energy strategy, a baseline needs to be established. This section sets out the approach taken to calculating the baseline CO<sub>2</sub> emissions for the development.

The total baseline CO<sub>2</sub> emissions for the proposed development is defined as regulated CO<sub>2</sub> emissions, which is covered by Building Regulations Part L. Regulated CO<sub>2</sub> emissions are calculated from the CO<sub>2</sub> emissions associated with space heating, hot water and fixed electrical demands (for lights, fans and pumps).

Unregulated CO<sub>2</sub> emissions are those that are associated with appliances. Unregulated CO<sub>2</sub> emissions are not covered by Part L and are therefore not included as part of the assessment detailed within this energy strategy.

CO<sub>2</sub> 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<sub>2</sub> performance is based on the Part L1 2021 Target Emission Rate (TER) performance of representative dwellings. The baseline CO<sub>2</sub> 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<sub>2</sub> 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 2: Representative Sample SAP Dwellings**

| Sample SAP Type Reference | No. of Units |
|---------------------------|--------------|
| 1 Bed Flat EF             | 1            |
| 1 Bed Flat MF             | 1            |
| 1 Bed Flat TF             | 1            |
| 2 Bed Flat GF             | 1            |
| 2 Bed Flat MF             | 2            |
| 2 Bed Flat TF             | 1            |
| AC-2B4P-1                 | 3            |
| AC-2B4P-3                 | 1            |
| AC-3B5P-1                 | 4            |
| AC-3B5P-2                 | 1            |
| AC-3B6P-1                 | 11           |
| AC-4B8P-8                 | 3            |
| AC-5B9P-1                 | 1            |
| AC-5B9P-3                 | 1            |
| AFF-2B4P-2                | 8            |
| AFF-3B6P-1                | 5            |
| BS-4B8P-1                 | 4            |
| BS-5B9P                   | 4            |
| BS-AFF-2B4P-1             | 1            |
| BS-AFF-4B6P-1             | 1            |
| <b>TOTAL:</b>             | <b>55</b>    |

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<sub>2</sub> EMISSIONS

The total baseline regulated CO<sub>2</sub> emissions for the development are summarised below.

**Table 3: Total Baseline CO<sub>2</sub> emissions**

| Stage of Energy Hierarchy | Regulated CO <sub>2</sub> Emissions<br>(tonnes/year) |
|---------------------------|------------------------------------------------------|
| Part L 2021 Baseline      | 65.75                                                |

## 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<sub>2</sub> emissions and increase resilience to climate change are proposed. These proposals are detailed within the following sections.

### 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 4: Proposed Fabric Specification**

| Element                           | Part L1 2021 Minimum Fabric Requirements | Proposed Specification                                                  |
|-----------------------------------|------------------------------------------|-------------------------------------------------------------------------|
| Ground Floor                      | 0.18 W/m <sup>2</sup> K                  | 0.12 W/m <sup>2</sup> K                                                 |
| Exposed Floor                     | 0.18 W/m <sup>2</sup> K                  | 0.12 W/m <sup>2</sup> K                                                 |
| External Wall                     | 0.26 W/m <sup>2</sup> K                  | 0.19 W/m <sup>2</sup> K                                                 |
| Communal Wall                     | 0.26 W/m <sup>2</sup> K                  | 0.26 W/m <sup>2</sup> K                                                 |
| Party Wall                        | 0.20 W/m <sup>2</sup> K                  | 0.00 W/m <sup>2</sup> K                                                 |
| Cold Roof (insulated at ceiling)  | 0.16 W/m <sup>2</sup> K                  | 0.11 W/m <sup>2</sup> K                                                 |
| Sloping Roof (insulated at slope) | 0.16 W/m <sup>2</sup> K                  | 0.15 W/m <sup>2</sup> K                                                 |
| Flat Roof                         | 0.16 W/m <sup>2</sup> K                  | 0.13 W/m <sup>2</sup> K                                                 |
| Windows                           | 1.60 W/m <sup>2</sup> K                  | U-Value = 1.20 W/m <sup>2</sup> K<br>G-Value = 0.40<br>BFRC Certificate |

|                     |                         |                                                                         |
|---------------------|-------------------------|-------------------------------------------------------------------------|
| Bi-Fold/Patio Doors | 1.60 W/m <sup>2</sup> K | U-Value = 1.20 W/m <sup>2</sup> K<br>G-Value = 0.33<br>BFRC Certificate |
| Entrance Doors      | 1.60 W/m <sup>2</sup> K | 1.20 W/m <sup>2</sup> K                                                 |

#### 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<sub>2</sub> 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 4.00m<sup>3</sup>/h/m<sup>2</sup>. This is a significant improvement upon the Part L 2021 minimum requirement of 8.00m<sup>3</sup>/h/m<sup>2</sup>. 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<sub>2</sub> emissions.

#### 6.2.1. SPACE HEATING AND HOT WATER

It is proposed that the dwellings will have their heating and hot water supplied through highly efficient individual air source heat pumps. These will be supplemented with highly insulated hot water cylinders to ensure that the heat loss per day is kept to a minimum, thereby using less energy and keeping carbon emissions reduced.

The apartments will also implement air source heat pump technology in the form of Nilan Compact P units. These units are a combined ventilation and heating system.

Due to the nature of the energy hierarchy being adhered to within this energy strategy, the CO<sub>2</sub> emissions improvements that are achieved as a result of heat pump technology should only be accounted for at the 'Be Green' stage of the energy hierarchy. This is because heat pumps are considered a renewable/low carbon energy source. Therefore, for the purpose of reporting the 'Be Lean' figures, the notional building system type will be used as specified in the Part L 2021 baseline.

#### 6.2.2. VENTILATION

The houses 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.

The apartments will improve their energy performance further with, mechanical ventilation with heat recovery (system 4). This is integral to the Nilan Compact P units that have been specified to these dwellings.

#### 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. CO<sub>2</sub> SAVINGS AFTER 'BE LEAN' MEASURES

After implementing all the passive and active energy efficiency measures for the 'Be Lean' stage of the energy hierarchy, the regulated carbon dioxide emissions for the proposed development are reduced by 1%. The total 'Be Lean' CO<sub>2</sub> emissions have been summarised below and compared against the baseline figure.

**Table 5: Total 'Be Lean' CO<sub>2</sub> emissions**

| Stage of Energy Hierarchy  | Regulated CO <sub>2</sub> Emissions (tonnes/year) |
|----------------------------|---------------------------------------------------|
| Total Part L 2021 Baseline | 65.74                                             |
| Total After 'Be Lean'      | 65.14                                             |
| <b>Total Saving</b>        | <b>0.60</b>                                       |
| <b>Total Improvement</b>   | <b>1%</b>                                         |

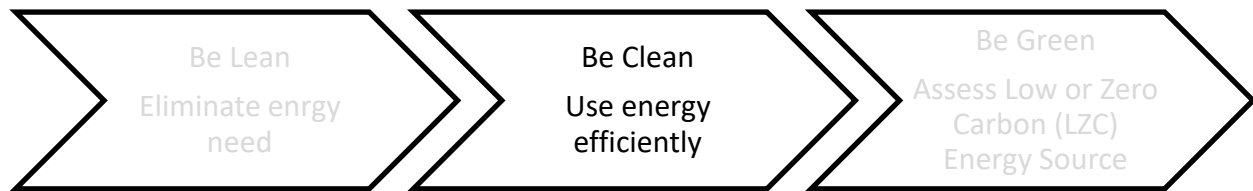
The Target Fabric Energy Efficiency rate is the minimum energy performance requirement, as stipulated by Building Regulations Part L1 2021, for all new residential dwellings. It is expressed as the amount of energy demand in units of kilowatt-hours per square metre of floor area per year. This performance 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/m <sup>2</sup> /year | Dwelling Fabric Energy Efficiency (DFEE) kWh/m <sup>2</sup> /year | Improvement (%) |
|-------------------|-----------------------------------------------------------------|-------------------------------------------------------------------|-----------------|
| Site Wide Average | 39.96                                                           | 38.07                                                             | 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<sub>2</sub> emissions savings. However, technology such as this is more significant for larger developments. The proposed development size of 55 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 disproportionately 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 air source heat pumps 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. 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.

The main components of an ASHP are:

- An outdoor heat exchanger coil, which extracts heat from ambient air.
- An indoor heat exchanger coil, which transfers the heat into hot air ducts, an indoor heating system such as water-filled radiators or underfloor circuits and a domestic hot water tank.

Some of the key advantages of ASHPs are listed below:

- ASHPs save carbon emissions. Unlike burning oil, gas, LPG or biomass, a heat pump produces no carbon emissions on-site (and no carbon emissions at all, if a renewable energy source is used to power them).
- They save space. There are no fuel storage requirements.
- They require less maintenance than combustion-based heating systems.
- Heat pumps can provide cooling in summer, as well as heating in winter.
- There is no combustion involved and no direct emission of harmful gases.

The use of individual Air Source Heat Pumps (ASHP) is proposed for this development to efficiently supply the houses with space heating and hot water. The ASHP are to be discreetly located within the boundary of each plot. Highly

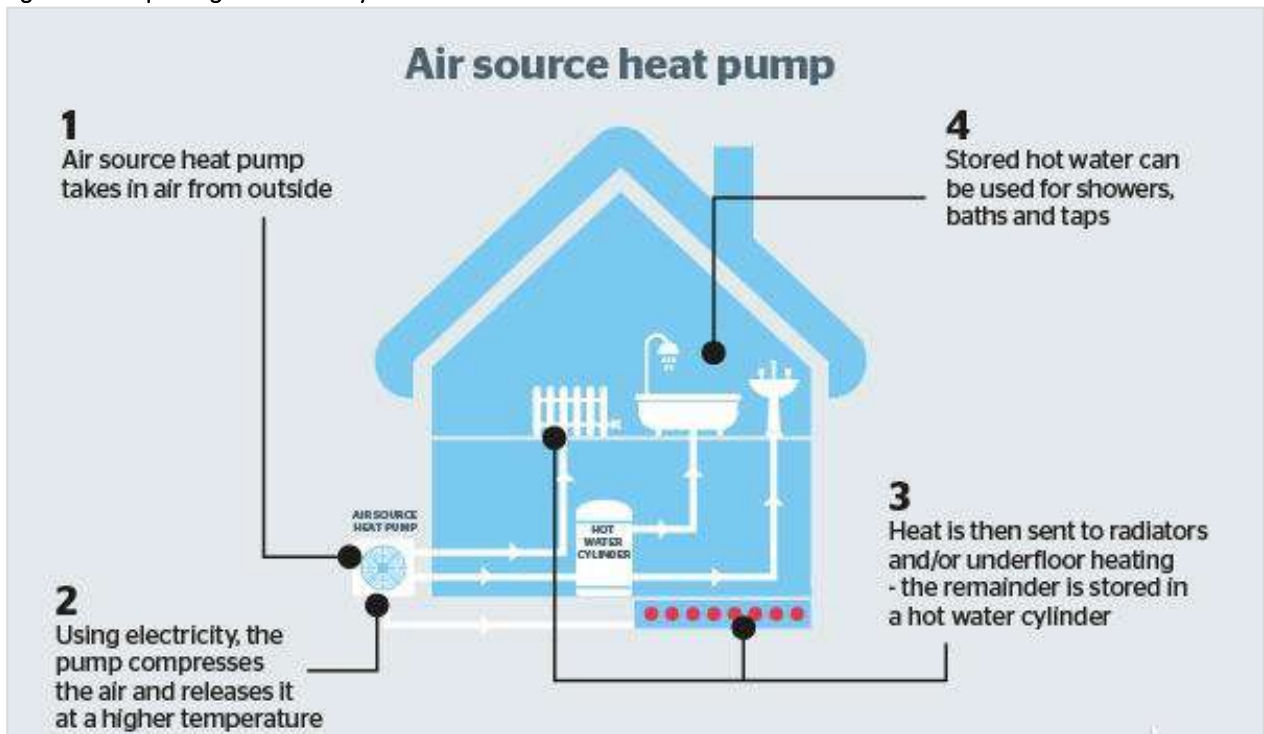
insulated hot water cylinders will be installed in conjunction with the ASHPs as part of the heating system of each dwelling.

ASHPs will require electricity to operate, however this electricity can be supplied by renewable sources. This will future proof the home against the decarbonisation of the electricity grid.

A datasheet for the ASHP specified within the sample SAP calculations has been included within the appendices. The full design of this system will be further developed during the detailed design stage.

The figure below demonstrates the typical operation of an ASHP system used to supply space heating and hot water to a property.

**Figure 2: Example diagram of ASHP System**



## 8.2. NILAN COMPACT P

The Nilan Compact P is a combined ventilation and heating system designed to provide fresh air and warmth to homes and buildings. This system is unique in that it can recover up to 95% of the energy as waste heat from the air and turn it into hot water, making it a highly energy-efficient option.

One of the key features of the Nilan Compact P is its ability to provide ventilation, heating and cooling as well as 170l of domestic hot water in one compact unit. This means there is no need for separate ventilation, heating and hot water systems, saving space and reducing the number of components that need to be installed.

Compact P recovers the energy from the extracted air using a highly efficient counter flow heat exchanger. The remaining energy that is not utilised by the counter flow heat exchanger is used by the heat pump to produce hot water, and to further heat the supply air.

The heat pump has a reversible cooling circuit, which means that, in the summer, the unit can cool the supply air by up to 10 °C. Due to the low air exchange, the cooling does not function as an air conditioning system. On cooling, the supply air is dehumidified, which gives a more pleasant indoor climate than is possible with an ordinary ventilation unit without a heat pump.

In addition to its energy-efficient design, the Nilan Compact P also has a number of other features that make it an attractive option for many different types of buildings. For example, it is very quiet in operation, making it ideal for use in residential homes. It also has a built-in humidifier, which can help to improve indoor air quality.

The use of the Nilan Compact P is proposed for the apartments on this development to efficiently supply the dwellings with ventilation, heating and hot water.

Although the Nilan Compact P units will require electricity to operate, the shift towards carbon neutrality will mean the electricity can eventually be generated solely through renewable sources. Therefore, there is less dependence on fossil fuels and this will future proof the homes against the ongoing decarbonisation of the electricity grid.

**Figure 3: Diagram of the Nilan Compact P**



### 8.3. SUMMARY OF PROPOSED BUILDING SERVICES

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

**Table 7: Summary of Proposed Building Services for the houses**

| Building Service Element              | Specification                                                                                                               |
|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| <b>Heating:</b>                       | Air Source Heat Pumps<br>Vaillant aroTHERM plus range (appropriate heat pump to be selected based on size of each property) |
| <b>Heating Emitter:</b>               | Radiators                                                                                                                   |
| <b>Secondary Heating:</b>             | None                                                                                                                        |
| <b>Heating Hot Water Controls:</b>    | Time and Temperature Zone Control<br>Delayed Start Stat<br>No Weather Compensation                                          |
| <b>Cylinder:</b><br><b>Heat Loss:</b> | Hot water cylinder (capacity to be confirmed)<br>1.0 – 1.6 kWh/24 Hr                                                        |
| <b>Mechanical Ventilation:</b>        | Mechanical Ventilation<br>System 3 dMEV fans to wet rooms and kitchens                                                      |
| <b>Waste Water Heat Recovery:</b>     | None                                                                                                                        |
| <b>Showers:</b>                       | Flow rate – 8 litres per minute                                                                                             |

**Table 8: Summary of Building Services for the apartments**

| Building Service Element           | Specification                                                                         |
|------------------------------------|---------------------------------------------------------------------------------------|
| <b>Heating:</b>                    | Air Source Heat Pumps<br>Nilan Compact P units                                        |
| <b>Hot Water:</b>                  | None                                                                                  |
| <b>Heating Hot Water Controls:</b> | Time and Temperature Zone Control                                                     |
| <b>Mechanical Ventilation:</b>     | Integral hot water cylinder (Nilan Compact P)<br>0.84 kWh/24 Hr                       |
| <b>Waste Water Heat Recovery:</b>  | Mechanical Ventilation<br>System 4 – Mechanical Ventilation with Heat Recovery (MVHR) |
| <b>Showers:</b>                    | Flow rate – 8 litres per minute                                                       |

#### 8.4. CO<sub>2</sub> SAVINGS AFTER 'BE GREEN' MEASURES

The following table presents the carbon savings achieved after the 'Be Green' stage of the energy hierarchy. This shows that a 69% improvement is achieved in comparison to the Building Regulations Part L baseline. This is in line with the 'Silver' level target (minimum 50% reduction) of North Hertfordshire District Council's Sustainability SPD (September 2024).

**Table 9: Total 'Be Green' CO<sub>2</sub> emissions**

| Stage of Energy Hierarchy  | Regulated CO <sub>2</sub> Emissions<br>(tonnes/year) |
|----------------------------|------------------------------------------------------|
| Total Part L 2021 Baseline | 65.75                                                |
| Total After 'Be Lean'      | 65.14                                                |
| Total After 'Be Green'     | 20.70                                                |
| <b>Total Saving</b>        | <b>45.05</b>                                         |
| <b>Total Improvement</b>   | <b>69%</b>                                           |

In addition to the above, once all of the measures within this energy strategy have been accounted for, all of the sample SAP calculations show that a predicted EPC rating of at least a 'B' will be achieved. This is in line with the 'Gold' level target of North Hertfordshire District Council's Sustainability SPD (September 2024).

The predicted EPC ratings are identified on the SAP summary sheets which have been included within the appendices.

## 9. OPERATIONAL ENERGY

Operational carbon refers to the carbon dioxide and other greenhouse gases which are emitted as a result of a building's energy use. This typically includes emissions associated with heating, hot water, cooling, ventilation and lighting systems, as well as energy used for cooking and by specialist equipment such as lifts. Operational emissions can vary over the lifetime of the building and are governed by several factors, including building fabric efficiency, heating, ventilation and air conditioning (HVAC) system efficiency, fuel type, carbon factors and the way the building is used by the occupiers.

The LETI Climate Emergency Design Guide (January 2020) considers a building's energy consumption to be the defining characteristic of an operational zero carbon building. Energy consumption can be measured using the Energy Use Intensity (EUI) with kWh/m<sup>2</sup>.yr as a unit. The EUI is an annual measure of the total energy consumed in a building.

The LETI Climate Emergency Design Guide (January 2020) states that LETI believes that setting an EUI requirement for new buildings is fundamental to meeting climate change targets. It is a good indicator for building performance as the metric is solely dependent on how the building performs in use; rather than carbon emissions, which also reflect the carbon intensity of the grid.

EUI is a metric that can be estimated at the design stage and very easily monitored in-use as energy bills are based on kWh of energy used by the building. This metric can be used to compare buildings of a similar type, to understand how well the building performs in-use. It includes all of the energy consumed in the building, such as regulated energy (heating, hot water, cooling, ventilation and lighting) and unregulated energy (plug loads and equipment e.g. kitchen white goods, ICT/AV equipment). It does not include charging of electric vehicles.

North Hertfordshire District Council's Sustainability SPD (September 2024) has adopted the principles of the LETI Climate Emergency Design Guide (January 2020), as they have set various EUI targets for residential development. In addition, there are separate targets to reduce space heating demand.

These performance metrics have been calculated for the proposed development. Regulated energy has been calculated based on the outputs from the sample SAP calculations which have been produced as part of the main energy assessment, whilst unregulated energy has been calculated in accordance with the BREDEM (BRE Domestic Energy Model) methodology.

A comparison of the calculated EUIs for the proposed development, along with the targets of North Hertfordshire District Council's Sustainability SPD (September 2024), are detailed in the table below:

**Table 10: Energy Use Intensity (EUI) Comparison**

| <b>Performance Metric</b>                               | <b>North Herts Sustainability SPD 'Silver' Targets</b> | <b>North Herts Sustainability SPD 'Gold' Targets</b> | <b>Calculated Average EUI (Regulated &amp; Unregulated Energy)</b> |
|---------------------------------------------------------|--------------------------------------------------------|------------------------------------------------------|--------------------------------------------------------------------|
| Energy Use Intensity (EUI) of Gross Internal Area (GIA) | <60.00 kWh/m <sup>2</sup> .yr                          | <35.00 kWh/m <sup>2</sup> .yr                        | <b>56.50 kWh/m<sup>2</sup>.yr</b>                                  |
| Energy Use Intensity (EUI) of Space Heating Demand      | <30.00 kWh/m <sup>2</sup> .yr                          | <15.00 kWh/m <sup>2</sup> .yr                        | <b>11.06 kWh/m<sup>2</sup>.yr</b>                                  |

As identified within the above table, the proposed development is predicted to achieve an EUI in line with the 'Silver' level of North Hertfordshire District Council's Sustainability SPD (September 2024). The calculated space heating demand is in line with the 'Gold' level target.

## 10. FUTURE HOMES & BUILDINGS STANDARD

The Future Homes Standard, renamed the Future Homes and Buildings Standard in December 2021, will complement the Building Regulations. When the Future Homes and Buildings Standard comes into effect, it will aim to reduce carbon emissions by 75-80% compared with homes delivered under the old regulations.

A timeframe for the Future Homes and Buildings Standard is yet to be agreed and finalised.

The Home Energy Model will be used in the Future Homes Standard assessment to demonstrate that new dwellings comply with the Future Homes Standard.

It will replace the SAP calculations currently used to assess the EPC (energy performance certificate) ratings.

The Home Energy Model is still under development but will be introduced with the finalised Future Homes and Buildings Standard.

It is possible that due to the anticipated construction programme of the proposed development, the dwellings may be built after the Future Homes and Buildings Standard comes into effect. The construction specifications will therefore need to be reviewed as the programme progresses to ensure that all dwellings remain compliant with the relevant regulatory requirements. It may be necessary for some specification upgrades, although it is unclear exactly what will be required until the standard is published.

This energy strategy has been developed using the assessment tools that are currently available and demonstrates full compliance with the current Building Regulations requirements, and the requirements of North Hertfordshire District Council. The energy strategy detailed herein should be reviewed when the scheme reaches detailed design to ensure that the proposals make best use of the technology available at the time, and are fully compliant with any updated regulatory requirements.

## 11. 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 11: 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                         | Houses – Individual Air Source Heat Pumps<br>Apartments – Nilan Compact P                                                                                                        |
| Hot Water                       | Hot Water Cylinders (water heated via ASHP)                                                                                                                                      |
| Ventilation                     | Low design air permeability (DAP)<br>Houses – Mechanical extract ventilation (system 3)<br>Apartments – Mechanical ventilation with heat recovery (system 4) via Nilan Compact P |
| Lighting                        | Energy efficient LED Lighting where applicable                                                                                                                                   |
| Renewable/Low Carbon Technology | Heat pump technology to be deployed (as detailed above)                                                                                                                          |

### 11.1. TOTAL REGULATED CO<sub>2</sub> SAVINGS

The summary of the overall reduction in regulated CO<sub>2</sub> emissions after each stage of the energy hierarchy is summarised in the table below.

**Table 12: Energy Strategy Carbon Emissions Summary**

| Stage of Energy Hierarchy  | Regulated CO <sub>2</sub> Emissions (tonnes/year) |
|----------------------------|---------------------------------------------------|
| Total Part L 2021 Baseline | 65.75                                             |
| Total After 'Be Lean'      | 65.14                                             |
| Total After 'Be Green'     | 20.70                                             |
| <b>Total Saving</b>        | <b>45.05</b>                                      |
| <b>Total Improvement</b>   | <b>69%</b>                                        |

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).
- Utilises a renewable/low carbon energy solution in the form of heat pump technology.
- Estimated to annually reduce 45.05 tonnes of regulated CO<sub>2</sub> emissions compared to the Building Regulations Part L 2021 baseline
- Achieves an overall reduction in regulated CO<sub>2</sub> emissions of 69% compared with the Building Regulations Part L 2021 baseline. This is in line with the 'Silver' level target (minimum 50% reduction) of North Hertfordshire District Council's Sustainability SPD (September 2024).
- All dwellings are predicted to achieve a minimum EPC rating of 'B'. This is in line with the 'Gold' level target of North Hertfordshire District Council's Sustainability SPD (September 2024).
- Projected to achieve an average EUI of 56.50 kWh/m<sup>2</sup>.yr. This is in line with the 'Silver' level target of North Hertfordshire District Council's Sustainability SPD (September 2024).
- Projected to achieve an average space heating demand of 11.06 kWh/m<sup>2</sup>.yr. This is in line with the 'Gold' level target of North Hertfordshire District Council's Sustainability SPD (September 2024).
- The energy strategy is in line with the adopted planning policy requirements at both national and local level.

## 12. SUSTAINABILITY STRATEGY

### 12.1. MATERIALS & WASTE

The selection of materials is determined by a number of factors, such as architectural context, design rationale, carbon embodiment and maintenance requirements. The proposed development will concentrate on sustainable design, with materials to be selected in line with local vernacular and landscape character.

The BRE Green Guide to Specification is a simple guide for design professionals. The guide provides environmental impact, cost and replacement interval information for a wide range of commonly used building specifications over a notional 60-year building life. The construction specification will prioritise materials within ratings A+, A or B. Preference will be given to the use of local materials & suppliers where viable to reduce the transport distances and to support the local economy.

Wherever feasible, there will be a commitment to using materials that are also from renewable sources and recycled e.g. secondary aggregates. The use of recycled materials (e.g. crushed concrete from waste used for hard-standing or recycled fibreglass insulation) has zero embodied energy impact, other than that expended in their processing or transport.

Timber would be sourced, where practical, certified by FSC, PEFC or an equivalent approved certification body and all site timber used within the construction process would be recycled.

All insulation materials will have a zero-ozone depleting potential.

Construction Waste will be managed during both the construction and operational phases according to the waste hierarchy detailed below.

**Figure 4: Waste Hierarchy**

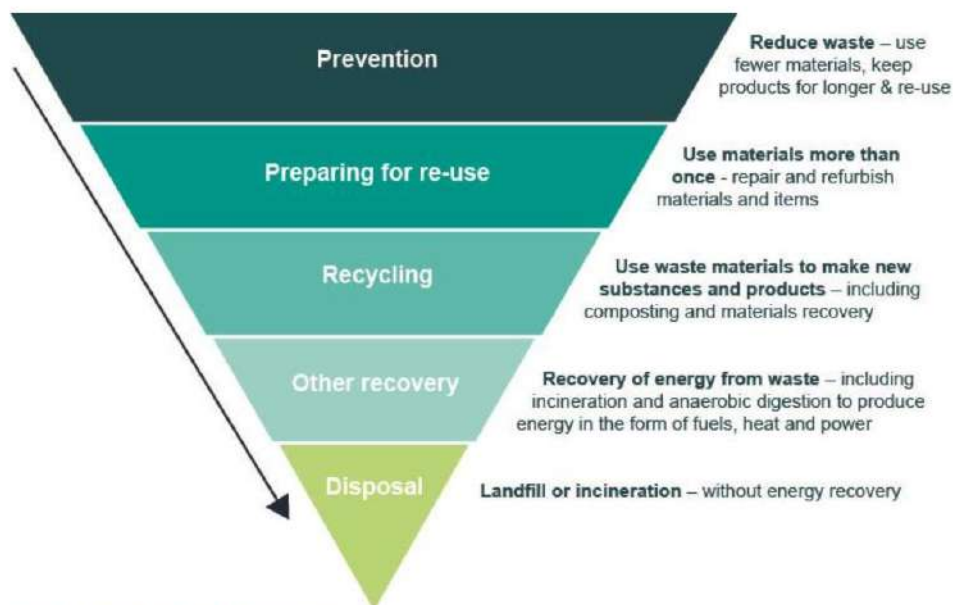


Figure 4.1: The Waste Hierarchy, Defra 2011

#### Step 1: Eliminate Waste

Construction practice and design should reduce waste wherever possible through measures including:

- Efficient procurement avoiding over-supply and excessive packaging; and
- Eliminating waste at the design stage.

**Step 2: Reuse waste materials**

Reuse waste materials, ideally in its current location, avoiding the energy costs associated with transport and recycling.

**Step 3: Recycle/compost waste materials**

Recover materials through recycling and substitute for primary materials. Compost organic material to produce rich soils that replace fertilisers, ideally in a closed system to avoid the emissions released by organic material in landfill.

**Step 4: Recover energy**

If it cannot be reused or recycled, use waste instead of fossil fuels in energy generation to recover embodied energy.

**Step 5: Disposal to landfill**

Usually the last resort. Disposal to landfill wastes materials and embodied energy.

Construction operations generate waste materials as a result of general handling losses and surpluses. These wastes can be reduced through appropriate selection of the construction method, good site management practices and spotting opportunities to avoid creating unnecessary waste.

Targets will be set to promote resource efficiency in accordance with guidance from WRAP, Envirowise, BRE and DEFRA.

During the construction phase, the principal contractor, will be required to implement the Site Waste Management Plan (SWMP) which will detail responsibilities for resource management, what types of waste will be generated, how the waste will be managed (e.g. reduced, reused or recycled), which contractors will be used and how the quantity of waste generated by the project will be measured. It will also cover handling and storage of materials to avoid damage, efficient purchasing arrangements to minimise over ordering and segregation of construction waste to maximise potential for reuse/recycling.

The development will be constructed using industry leading procedures for the on-site segregation of waste products and will look to segregate waste under following categories:

- Mixed Waste
- Light mixed and compactible
- Inert
- Timber
- Plasterboard
- Mixed Metals
- Hazardous
- Other

A designated area will be identified for waste management for each phase and clear signage will be provided to ensure correct segregation of waste.

Waste will be minimised using the following techniques:

- Managing materials efficiently
- Consideration taken for build dimensions to avoid cut bricks, offcuts plasterboard etc.
- Mass balancing exercise will be undertaken to retain as much material on site as possible therefore minimising waste to landfill
- Site layout and programme reviewed to maximise the reuse of site won materials
- Any demolition concrete waste will be crushed and re-used on site for hardcore

- Suppliers will be responsible for their own removal of packaging

Management reports will be produced at an agreed period where actual recycling quantities achieved will be reviewed against targets set.

#### 12.1.1. CIRCULAR ECONOMY

A circular economy is a model of production and consumption, which is based on the reuse and regeneration of materials or products, especially as a means of continuing production in a sustainable and environmentally friendly way.

New buildings on the site will follow best practice principles in their design and construction with the overarching aims of reducing material usage, minimising waste and embedding longevity, flexibility and adaptability. Advances in innovation and best practice over the phased delivery with effective feedback loop mechanisms are expected to lead to continuous improvement as the design and construction develops. The construction of this new development will allow the energy and operational efficiency of the building to be optimised without the fabric constraints of an unsuitable existing building.

The Site Waste Management Plan will identify targets for:

- Managing construction site waste and monitoring the amount of waste generated
- Minimising waste diverted to landfill
- Maximising the use of recycled/reused/reclaimed materials for construction (where practicable)
- Using efficient design practices to minimise the quantity of materials required for construction

A project specific Waste Management Strategy will be developed for the operation of the development (post-construction) making all the necessary allowances to ensure that waste arisings can be accommodated under a full occupancy scenario. The strategy will consider the flow of waste from waste generator (i.e. residents/tenants) through to storage and collection. The Waste Management Strategy will consider the potential impacts that may arise from waste generated during the operational phase, with the overall aim of developing a strategy for legislative compliance and good practice in the separation, storage, and collection of waste arising.

#### 12.1.2. EMBODIED CARBON

Embodied Carbon can be defined as the carbon emissions associated with the extraction and processing of materials and the energy and water consumption used by the factory in producing products and constructing the building. It also includes the 'in-use' stage (maintenance, replacement, and emissions associated with refrigerant leakage) and 'end of life' stage (demolition, disassembly, and disposal of any parts of product or building) and any transportation relating to the above.

Carbon dioxide and other greenhouse gases relating to Embodied Carbon are associated with the following stages:

- Product: extraction and processing of materials, energy and water consumption used by the factory and transport of materials and products.
- Construction: building the development.
- In-use: maintenance, repair, refurbishment, replacement and emissions associated with refrigerant leakage.
- End of life: demolition, disassembly waste processing and disposal of any parts of product or building and any transportation relating to the above.

The following primary actions in reducing embodied carbon have been considered for the development proposal:

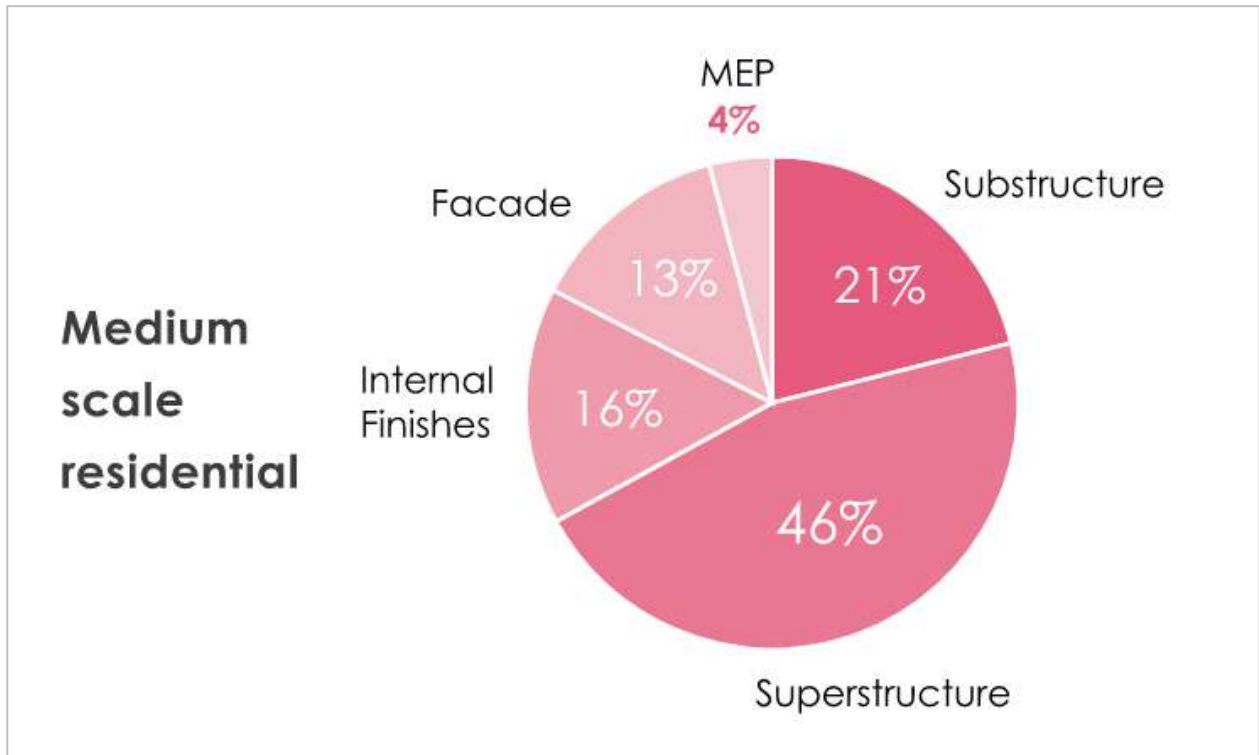
1. Build less: Refurb and re-use.
2. Build light: Consider the building structure.
3. Build wise: Longevity and local context.

4. Build low carbon: Review material specifications.
5. Build for the future: Assess end of life and adaptability.
6. Build collaboratively: Involve the whole team.

The LETI Climate Emergency Design Guide (January 2020) goes on to detail a number of reduction measures of embodied carbon by element. This development proposal seeks to include these reduction measures where practically possible.

The figure below details the relative proportions of embodied carbon by building element (for medium scale residential).

**Figure 5: Relative Proportions of Embodied Carbon by Building Element**



## 12.2. WATER EFFICIENCY

### 12.2.1. HOUSEHOLD WATER USE

Household water reduction measures will include the following where applicable:

- Water efficient taps.
- Water efficient cisterns.
- Low output showers.
- Flow restrictors to manage water pressures to achieve optimum levels.
- Water meters to all premises with guidance on water consumption and savings.
- Installation of water efficient appliances.

The following specification (or similar) will be adopted on the development to ensure that the water consumption of the residential dwellings is limited to 110 litres per person per day. This minimises water consumption in line with the 'Bronze' level target of North Hertfordshire District Council's Sustainability SPD (September 2024).

**Table 13: Specification of flow rates and volumes for water using appliances**

| Water using Appliance | Comment                                                    |
|-----------------------|------------------------------------------------------------|
| WC Cisterns           | Dual Flush to be limited to maximum of 6/3                 |
| Baths                 | Capacity no greater than 190 litres                        |
| Basin taps            | Flow rates to be no greater than 3 litres/minute at 3 bar  |
| Kitchen taps          | Flow rates to be no greater than 6 litres/minute at 3 bar  |
| Shower                | Flow rates to be no greater than 8 litres/minute           |
| Water softener        | Not to be installed                                        |
| Washing Machine       | Water usage to be limited to 8.17 Litres per KG            |
| Dishwasher            | Water Usage to be limited to 1.25 litres per place setting |

**Table 14: Water Calculations**

| Water Calculations    |                   |                        |            |                        |                        |
|-----------------------|-------------------|------------------------|------------|------------------------|------------------------|
| Installation Type     | Unit              | Capacity/<br>Flow Rate | Use Factor | Fixed use<br>(l/p/day) | Total Use<br>(l/p/day) |
| WC Single Flush       | Volume (l)        | 0.00                   | 4.42       | 0.00                   | 0.00                   |
| WC Dual Flush         | Full Flush (l)    | 6.00                   | 1.46       | 0.00                   | 8.76                   |
|                       | Pt Flush (l)      | 3.00                   | 2.96       | 0.00                   | 8.88                   |
| WC's (Multiple)       | Volume (l)        | 0.00                   | 4.42       | 0.00                   | 0.00                   |
| Taps Exc. Kitchen     | Flow Rate (l/min) | 3.00                   | 1.58       | 1.58                   | 6.32                   |
| Bath (shower present) | (l/min)           | 190.00                 | 0.11       | 0.00                   | 20.90                  |
| Shower (bath present) | (l/min)           | 8.00                   | 4.37       | 0.00                   | 34.96                  |

|                                             |            |      |      |       |               |
|---------------------------------------------|------------|------|------|-------|---------------|
| Bath Only                                   | (l)        | 0.00 | 0.50 | 0.00  | 0.00          |
| Shower Only                                 | (l/min)    | 0.00 | 5.60 | 0.00  | 0.00          |
| Kitchen Taps                                | (l/min)    | 6.00 | 0.44 | 10.36 | 13.00         |
| Washing Machines                            | (l/kg dry) | 8.17 | 2.10 | 0.00  | 17.16         |
| Dishwashers                                 | (l/place)  | 1.25 | 3.60 | 0.00  | 4.50          |
| Waste Disposal                              | (l/min)    | 0.00 | 3.08 | 0.00  | 0.00          |
| Water Softener                              | (l/min)    | 0.00 | 1.00 | 0.00  | 0.00          |
| <b>Total Calculated Water Use (l/p/day)</b> |            |      |      |       | <b>114.50</b> |
| Grey/Rain Water Reused (l)                  |            |      |      |       | 0.00          |
| Normalisation Factor                        | (Factor)   |      |      |       | 0.91          |
| <b>Total Internal Consumption (l/p/day)</b> |            |      |      |       | <b>104.20</b> |
| External Water Use Allowance (l)            |            |      |      |       | 5.00          |
| <b>Total Consumption Part G (l/p/day)</b>   |            |      |      |       | <b>109.20</b> |

#### 12.2.2. CONSTRUCTION PHASE

Water efficiency is considered during the construction process and the following practices on site will reduce usage and waste:

- High pressure low volume power hoses
- Installing water meters and monitoring, reporting and setting targets for water consumption

## 12.3. ENABLING SUSTAINABLE LIFESTYLES, HEALTH AND WELL-BEING

### 12.3.1. ELECTRIC VEHICLE (EV) CHARGING STRATEGY

The Applicant is committed to implementing EV charging facilities in accordance with the local planning policy requirements and Building Regulations Approved Document S (infrastructure for charging electric vehicles).

### 12.3.2. ACCESS TO NATURE

As part of the proposed Landscape Strategy, green infrastructure will be woven throughout the scheme. Open amenity space will be a key feature of the development. Private back gardens will be provided to the houses.

Through the provision of planting and soft landscaping in both private and public spaces across the scheme, future residents will have ample access to nature on their doorsteps. This will contribute to the health and well-being of the future residents by aiding in reducing stress and improving mental health.

### 12.3.3. AIR QUALITY

By providing EV charging infrastructure, future residents will be encouraged to reduce their reliance on conventional combustion-engine vehicles. The associated pollutants, such as sulphurous oxides (SOx) and nitrous oxides (NOx), will be reduced, thus contributing to improved local air quality.

The extensive planting, planned as part of the proposed Landscape Strategy, will also contribute to the improvement of local air quality. This will be supported through the delivery of additional green infrastructure, as well as extensive tree and vegetation planting.

### 12.3.4. COMMUNAL SPACE

Amenity open space will be provided at various locations throughout the development. This will aid in bringing green space into the developed area and softening the built form.

The delivery of well designed, accessible and inclusive public space will offer residents spaces to socialise and engage with each other, encouraging interaction and opportunities to benefit from healthy lifestyle choices.

### 12.3.5. DAYLIGHT & SUNLIGHT

Access to daylight and sunlight is associated with numerous health benefits, including improved sleep and mental health.

As is demonstrated within the proposed masterplan, the dwellings will be spaced accordingly to ensure that overshadowing is minimised, and the levels of natural daylight availability within the dwellings is maximised.

The proposed fenestration will be balanced to provide optimal levels of daylight, whilst also mitigating the risk of overheating.

Areas of open space, both public and private, have been configured to ensure the levels of sunlight received are sufficient for creating desirable external environments.

### 12.3.6. ENCOURAGING ACTIVE LIVING & SUSTAINABLE TRANSPORT

A Transport Statement, dated February 2026, has been prepared by KMC Transport Planning Limited in support of this planning application. This details how the future residents' use of safe, healthy and sustainable travel options will be encouraged.

The principle of development and its transport impacts were accepted at outline stage, with no objections raised by Hertfordshire County Council as Highway Authority. The reserved matters submission confirms that the scheme accords with the approved access arrangements from Arlesey Road, including pedestrian infrastructure improvements, sustainable transport measures, electric vehicle charging provision, and cycle parking secured through planning conditions.

The internal layout has been designed in accordance with Hertfordshire's Place & Movement Planning and Design Guidance (2024), prioritising pedestrian movement and creating a people-focused street environment. A clear street

hierarchy is incorporated, with traffic calming embedded through alignment, landscaping and materiality. The development includes a secondary emergency access, restricted to non-general vehicular use.

Vehicle swept path analysis demonstrates that refuse vehicles and fire tenders can safely access and manoeuvre throughout the site. Waste collection arrangements comply with accepted drag distance standards.

Car and cycle parking provision meets North Hertfordshire District Council's adopted parking standards. A total of 123 allocated car parking spaces are proposed, exceeding the minimum policy requirement, with additional visitor capacity accommodated both on-plot and within the street environment. Secure cycle parking is provided for all dwellings through garages, private garden storage, or dedicated communal cycle stores for flats.

Trip generation forecasts demonstrate that the proposed 55-dwelling scheme will generate fewer peak hour vehicle movements than the previously consented 71-dwelling outline scheme. Accordingly, the development results in a reduced traffic impact compared to that already assessed and accepted.

The scheme also supports sustainable transport objectives through pedestrian connectivity enhancements, crossing facilities and bus stop improvements secured via related applications. Overall, the development aligns with national and local transport policy by promoting sustainable travel choices, ensuring highway safety, and limiting residual cumulative impacts on the road network.

#### 12.3.7. SECURITY

Natural surveillance in the form of doors and windows overlooking streets, pedestrian routes and public open spaces will create activity throughout the day and evening and will be an essential element in creating a safe environment for all users, whilst discouraging criminal activity by increasing the risk of detection.

#### 12.3.8. RECYCLING AND WASTE MANAGEMENT

Sustainable behaviour will be encouraged and recycling and household waste facilities will be provided. Internal and external storage spaces will be designed to satisfy North Hertfordshire District Council's waste bin specification for the removal of general household waste, recyclable waste, food waste and garden waste (subscription required) respectively.

#### 12.3.9. PROVISION OF BROADBAND FOR HOME WORKING

The availability of broadband connections is essential in ensuring that people remain connected and are able to access a range of services effectively.

The dwellings will allow for broadband connection for the future occupants. This will facilitate the future occupants with the option for home working. The mechanical and electrical layouts will be such that services (power points, telephone cabling, etc) can be located in a suitable location within the property.

## 12.4. ECOLOGY

A comprehensive programme of ecological surveys has been undertaken of the proposed development. The combined findings from the Preliminary Ecological Appraisal, the Preliminary Roost Assessment, the Bat Emergence Survey, and the Otter and Water Vole Survey (MKA Ecology Limited, February 2026), and the Biodiversity Net Gain Assessment (MKA Ecology Limited, January 2026) provide a clear and up-to-date picture of the site's ecological sensitivities and the measures required to ensure a sustainable, policy compliant and legally compliant development.

The River Oughton, which bisects the site, remains the dominant ecological feature and supports a range of protected species, particularly bats and otter. The southern part of the site will remain undeveloped as Green Belt public open space, strengthening habitat protection and maintaining the integrity of the river corridor. In addition to safeguarding existing ecological value, the proposed scheme has been designed to deliver measurable biodiversity enhancements in accordance with Biodiversity Net Gain (BNG) principles.

Updated survey work completed in late 2025 and early 2026 has confirmed the site's value for riparian species. Otter activity was again recorded through fresh and older spraints and a feeding station, confirming active use of the river for foraging and commuting, although no holts or couches were located within the site boundary. Water vole was not detected, and habitat quality ranged from suboptimal to unsuitable along the riverbanks; however, as the survey was undertaken outside the optimal season, a follow up survey in mid April to June remains necessary to definitively rule out presence.

Bats remain a central ecological consideration. While most buildings were assessed as having low or moderate roost potential, the Bat Emergence Survey confirmed a single transitional roost of a common pipistrelle within Building B41, observed emerging on 28th October 2025. No other roosts were found, though the site continues to support high levels of foraging activity by several bat species. As demolition of B41 will result in the loss of a confirmed roost, a European Protected Species Licence (EPSL) will be required prior to works commencing.

In January 2026, MKA Ecology Ltd prepared a Biodiversity Net Gain Statement of Compliance for the site. Pre-application discussions were held with the Local Planning Authority, and it was agreed that, as the outline consent predates mandatory BNG requirements and establishes the site's baseline framework, the use of 2022 survey data alongside Defra Biodiversity Metric 3.0 provides a proportionate and appropriate basis for assessment. This approach enables objective comparison of pre- and post-development habitat value while reflecting the established planning context.

Application of the Defra Biodiversity Metric 3.0 demonstrates that the proposed redevelopment to deliver 55 residential dwellings will result in a measurable 1.98% net gain in area-based habitat units and a 198% net gain in linear habitat units. The substantial uplift in linear units reflects the retention of the existing tree line, enhancement of hedgerows, and creation of new vegetated corridors. Given the comparatively low ecological baseline value of much of the developed site, the proposed retention, enhancement and habitat creation measures collectively deliver a significant overall biodiversity benefit.

combined survey evidence therefore highlights both ecological constraints and clear opportunities for enhancement, which must be addressed within the demolition and construction programme, as summarised below.

### 12.4.1. KEY ECOLOGICAL CONSTRAINTS

The key ecological constraints to the proposed development are as follows:

- **Bats:**
  - Confirmed transitional roost of a single common pipistrelle in Building B41 (EPSL required before demolition).
  - High bat foraging and commuting activity across the site and along the River Oughton corridor.
  - Evidence of light-sensitive species (e.g., brown long-eared bat) requiring strict lighting controls.
  - Works must avoid hibernation (Nov–Feb) and maternity seasons (May–Aug) for compliance with bat protection legislation.
- **Otter:**
  - Confirmed otter presence, including spraints and feeding station, indicating regular use of the river corridor.

- No holts detected, but disturbance, lighting and pollution risks must be controlled.
- A 10-metre buffer from the top of the riverbank should be maintained where feasible.
- **Water Vole:**
  - No field signs detected, but suboptimal seasonal timing means presence cannot be ruled out.
  - Habitat quality is generally suboptimal or unsuitable, but a follow-up survey (mid-April–June) is required prior to works commencing.
- **Habitat Retention and BNG Delivery:**
  - Retention of the southern grassland and established tree line is integral to achieving the projected biodiversity net gain.
  - Enhancement and creation of native hedgerows and vegetated corridors are necessary to secure the 198% linear habitat uplift.
  - Habitat creation proposals must be implemented and managed in accordance with the Biodiversity Net Gain Statement to ensure the predicted 1.98% area-based net gain is realised.
- **Other Notable Constraints:**
  - Nesting birds likely to breed in buildings, trees and shrub vegetation—clearance must be scheduled outside March–August or checked beforehand.
  - Hedgehog may be present within grassland and woodland edge habitats; risk of entrapment or harm during site clearance.
  - Badger activity historically recorded; updated pre-commencement walkover recommended.
  - River Oughton is highly sensitive to pollution, sedimentation, and lighting impacts, requiring stringent construction-phase controls.

#### 12.4.2. RECOMMENDED ECOLOGICAL MITIGATION & SAFEGUARDS

The recommended ecological mitigation and safeguards are detailed below:

- **Bats:**
  - Obtain European Protected Species Licence prior to demolition of B41.
  - Conduct pre-works inspection and contractor briefing by a licensed ecologist.
  - Exclusion measures (e.g., one-way valves) where necessary prior to demolition.
  - Carry out supervised soft-demolition of roost-bearing structures.
  - Implement a sensitive lighting strategy, with dark corridors retained along the river and woodland edges.
  - Avoid demolition during hibernation or maternity periods unless otherwise agreed through licensing.
- **Riparian Protection (Otter & Water Vole):**
  - Maintain a minimum 10 m buffer from the riverbank where practical; apply enhanced measures where this is not achievable (e.g., near bridges).
  - Prevent any lighting directed towards the watercourse to preserve a continuous dark corridor.
  - Install robust pollution-prevention controls (silt fencing, spill kits, controlled refuelling zones).
  - Complete optimal-season water vole survey before demolition begins.
- **Biodiversity Net Gain Implementation:**
  - Deliver habitat creation and enhancement measures in accordance with the Biodiversity Net Gain Statement and Biodiversity Metric calculations.
  - Protect retained trees, hedgerows and grassland during construction through suitable fencing and buffer zones.

- Prepare and implement a Landscape and Ecological Management Plan (LEMP) to secure long-term management of created and enhanced habitats.
- **Other Mitigation:**
  - Pre-works nesting bird checks if any clearance is scheduled within March–August.
  - Hedgehog-safe practices, including hand-searching, escape ramps in excavations, and permeable landscaping and fencing.
  - Updated badger walkover prior to enabling works.

#### 12.4.3. RECOMMENDED BIODIVERSITY ENHANCEMENTS

To ensure measurable biodiversity gains and long-term ecological value, the following enhancements should be incorporated into the final design:

- 20 bat boxes (integrated and tree-mounted), as required under the outline planning consent.
- A range of bird boxes, including swift bricks where suitable.
- Native tree, shrub and wildflower planting, particularly along the river corridor and within public open space.
- Retention and enhancement of the southern grassland and established tree line.
- Creation and strengthening of native and ornamental hedgerows to contribute to linear habitat gains.
- Opportunities for river habitat enhancement, such as installing coir rolls, brash bundles, or diversifying marginal vegetation.
- Creation of habitat corridors and permeable boundaries, supporting hedgehog and other small mammals.
- Long-term management commitments covering riparian vegetation, woodland edges and wetland features through a secured management plan.

#### 12.4.4. ECOLOGY SUMMARY

In summary, the site contains several ecological constraints, most notably relating to bats and otter, which can be effectively managed through appropriate licensing, timing of works, and robust mitigation integrated into the Demolition and Construction Management Plan.

In parallel, the Biodiversity Net Gain assessment demonstrates that the proposed redevelopment will deliver a measurable 1.98% net gain in area-based habitat units and a substantial 198% net gain in linear habitat units. This uplift is achieved through habitat retention, enhancement and creation, particularly along the River Oughton corridor and southern grassland.

Subject to the implementation of the recommended mitigation, safeguards and long-term management measures, the development will not only safeguard existing ecological value but will deliver a clear and measurable biodiversity benefit, representing a sustainable and policy-aligned outcome for the site and the wider River Oughton corridor.

## 12.5. SUMMER OVERHEATING AND COOLING

With a continual drive for energy efficiency through both the Building Regulations and Local Planning Authority requirements, the risk of overheating to dwellings in the summer months is becoming more prevalent. Overheating can be a mild discomfort or a hazard to health if managed incorrectly, so it is vitally important that overheating risk be mitigated to ensure the dwelling will be both energy efficient and comfortable to live in.

Summer overheating is caused when there is excess build-up of heat within a dwelling. This can occur where there is excessive solar gain and limited means to absorb excess heat into the building fabric or purge this heat through ventilation. Summer overheating can be managed through a variety of measures and the chosen solution will vary from development to development. These measures can include:

### Limiting Solar Gains

1. Orientation and Shading:
  - Buildings should be designed to minimise solar gains during the summer months. This can be achieved by orienting the building to reduce exposure to direct sunlight and using shading devices such as overhangs, awnings, or brise-soleil.
  - Consideration should be given to the use of trees and vegetation for natural shading.
2. Glazing Strategy:
  - The amount, type, and position of glazing should be carefully considered. High-performance glazing with low solar transmittance values (g-values) can help limit solar heat gain
  - Use of external shading devices or blinds to reduce solar gain through windows.
3. Internal Layout:
  - Arrange internal spaces to position heat-sensitive rooms (such as bedrooms) away from areas of high solar gain.
  - Use buffer zones, such as corridors or storage areas, on the sunniest side of the building.

### Removing Excess Heat

1. Natural Ventilation:
  - Design for effective natural ventilation through the use of acoustically attenuated vents where external noise levels allow. Use cross ventilation by having openings on opposite sides of the building.
2. Mechanical Ventilation and Cooling:
  - Where natural ventilation is insufficient, mechanical ventilation systems may be used, potentially incorporating heat recovery to improve energy efficiency.
  - In extreme cases, mechanical cooling (such as air conditioning) may be necessary, but should be a last resort due to its energy consumption.
3. Thermal Mass:
  - Use thermal mass within the building to absorb heat during the day and release it during cooler periods (e.g., at night).
  - Materials like concrete, brick, or stone can provide effective thermal mass.

The development will be subject to Part O of the Building Regulations, which came into effect on 15<sup>th</sup> June 2022. Where possible, compliance with Part O can be demonstrated using the simplified method. Where this is not possible, dynamic thermal modelling will be required. CIBSE TM59 is an approved methodology of dynamic thermal modelling. It includes a set of overheating criteria specifically aimed at residential spaces. It is mandatory to perform the TM59 calculations using a Dynamic Simulation Modelling (DSM) software. The TM59 recommended DSY1 weather file was used for the main overheating analysis.

TM59 requires compliance by passing both of the following criteria for homes predominantly naturally ventilated:

1. All living rooms, kitchens areas must have  $\Delta T$  greater than or equal to one degree (K) during the period May to September (identical to TM52 criterion 01: hours of exceedance).

2. For bedrooms only, to guarantee comfort during the sleeping hours the operative temperature in the bedroom from 10pm to 7am shall not exceed 26°C for more than 1% of annual hours which will be 33 hours. The TM59 criteria for predominantly mechanically ventilated dwellings is as follows:

1. For homes with restricted window openings, the fixed temperature test must be followed – i.e., all occupied rooms should not exceed an operative temperature of 26°C for more than 3% of annual occupied hours.

The full Overheating Assessment, to demonstrate compliance with Part O, will be undertaken at the detailed design stage once the design and construction specifications have been fully established.

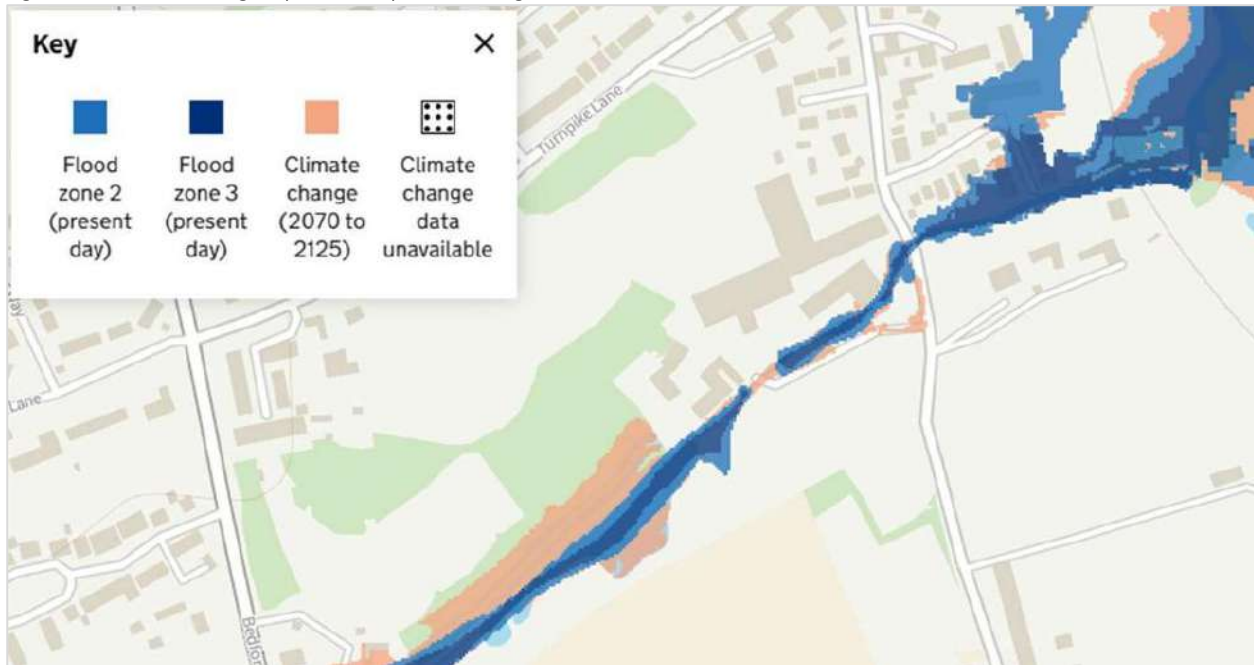
## 12.6. FLOOD RISK & DRAINAGE STRATEGY

In support of this application, a Flood Risk Assessment (Ref: SS25335), has been prepared by Superstructures, dated February 2026.

### 12.6.1. FLOOD RISK

The Environment Agency's indicative flood plain mapping indicates the site's developable area is not deemed to be situated within the undefended flood plain. Although nearby an ordinary watercourse, the associated flood risk is kept within the watercourses boundaries, as illustrated in the Figure below. The site is therefore classified as being within Flood Zone 1, which is defined as land having a low probability of tidal or fluvial flooding (less than 0.1% annual probability).

**Figure 6: Environment Agency Flood Map for Planning**



In addition to the above, the remaining flood risk to the proposed dwellings is minimal. Environment Agency mapping confirms that the site is also at very low risk from pluvial, surface water and reservoir flooding, and any isolated low-lying areas of surface water collection within existing hardstanding will be removed through redevelopment. Finished floor levels and external gradients will be appropriately managed within the layout to ensure surface water is directed away from homes, further reducing residual risk and reinforcing climate-resilient site design.

### 12.6.2. SURFACE AND FOUL WATER DRAINAGE STRATEGY

In accordance with the NPPF and National Standards for Sustainable Drainage Systems (NSSuDS), a comprehensive SuDS strategy has been developed. Infiltration has been discounted due to impermeable clay deposits and shallow groundwater; therefore, surface water will discharge to the River Oughton in accordance with the drainage hierarchy.

The following specific SuDS components will be implemented:

- Permeable Paving
- Detention Basin
- Downstream Defender
- Flow Control Devices

Surface water discharge will be restricted to the calculated greenfield runoff rate of 7.2 litres per second for all rainfall events, including the critical 1 in 100 year storm with a 40% climate change allowance.

The drainage network is divided into eastern and western catchments:

- Eastern catchment discharge: 1.2 l/s
- Western catchment discharge: 6.0 l/s
- Combined total discharge: 7.2 l/s

Hydraulic modelling confirms that the system can accommodate the 1 in 100 year + 40% climate change event without on-site flooding.

An additional 10% urban creep allowance has been incorporated into impermeable area calculations to future-proof the design.

All SuDS features will be subject to a formal maintenance regime secured through a management company arrangement. This will ensure long-term operational performance and flood risk protection.

Foul water will be privately pumped approximately 200m south to connect to the public sewer network, following consultation with Anglian Water, thereby avoiding capacity constraints in the nearest sewer and ensuring no adverse impact on existing infrastructure.

The scheme is therefore considered sustainable and fully compliant with national flood risk and drainage policy requirements.



to minimise visual impact on the open meadow character. Native planting and retained grassland establish a natural backdrop to this character area.

Dwellings are oriented to face the green space wherever possible, promoting passive surveillance and providing attractive outlooks. In areas south of the river where direct frontage is not achievable, open views across the landscape are maintained to preserve visual connectivity.

3. **Chalkstream:** The Riverside Walk along the northern bank of the chalkstream establishes a soft transition between the development and the natural landscape beyond. The river frontage will remain largely undisturbed, enhanced with additional native planting and intermittent seating to create a high-quality green and blue corridor for residents and visitors.

Connectivity is prioritised through strong east–west pedestrian and cycle routes. Existing bridges will be repurposed to accommodate pedestrian and cycle use only, reinforcing sustainable movement and improving accessibility throughout the site.

4. **Vegetated Street Scene:** The principal street runs north–south through the development, forming the structural spine of the scheme. Proposed hedgerows and trees along the street create varied enclosure and outlook, establishing a robust yet attractive landscaped environment within the developable area. The character gradually softens towards the Green Belt edge, responding sensitively to the wider landscape context.
5. **Mill Complex/Private Drive:** Shared surface streets branch from the main route, forming pedestrian-priority environments that encourage social interaction and a sense of community. These streets terminate with framed views towards the chalkstream or open space areas, maintaining visual connections to the surrounding landscape and reinforcing the site’s natural setting.

## 13. APPENDICIES

The following pages detail:

- Appendix A: Alternative Renewable Energy Options
- Appendix B: Vaillant aroTHERM Plus Technical Datasheet
- Appendix C: Nilan Compact P Technical Datasheet
- Appendix D: Sample SAP Summary Information Sheets (Be Lean)
- Appendix E: Sample SAP Summary Information Sheets (Be Green)

### 13.1. 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 as they are considered to be more complex, technically risky and costly, than the alternative ASHP option.

**Photovoltaic Panels (PV)**

Photovoltaic panels (PV) capture the sun's energy and convert it into electricity. This could be a solution to reduce CO<sub>2</sub> emissions to satisfy building regulations, however, the efficient building fabric and use of air source heat pumps ensures compliance is met without the need for PV. Subject to the anticipated construction programme, some dwellings may need to include PV panels in order to further reduce carbon emissions in accordance with the incoming Future Homes and Buildings Standard.

## 13.2. APPENDIX B: VAILLANT aroTHERM PLUS TECHNICAL DATASHEET

**Figure 8: Vaillant aroTHERM Plus Technical Datasheet**

| aroTHERM plus                                                                                     | Unit       | 3.5kW<br>VWL 35 / 6                | 5kW<br>VWL 55 / 6 | 7kW<br>VWL 75 / 6 | 10kW<br>VWL 105 / 6 | 12kW<br>VWL 125 / 6 |
|---------------------------------------------------------------------------------------------------|------------|------------------------------------|-------------------|-------------------|---------------------|---------------------|
| General                                                                                           |            |                                    |                   |                   |                     |                     |
| Width                                                                                             | mm         | 1,100                              |                   |                   |                     |                     |
| Height                                                                                            | mm         | 765                                |                   | 965               | 1,565               |                     |
| Depth                                                                                             | mm         | 450                                |                   |                   |                     |                     |
| Weight, ready for operation                                                                       | kg         | 114                                |                   | 128               | 194                 |                     |
| Connection, heating circuit                                                                       |            | G 1 1/4"                           |                   |                   |                     |                     |
| Rated voltage                                                                                     | V          | 230 V (+10%/- 15%), 50 Hz, 1~/N/PE |                   |                   |                     |                     |
| Rated current, maximum                                                                            | A          | 14.3                               |                   | 15.0              | 23.3                |                     |
| Fuse size                                                                                         |            | 16                                 |                   |                   | 25                  |                     |
| Fuse type                                                                                         | A          | C/D                                |                   |                   |                     |                     |
| RCD type                                                                                          |            | A                                  |                   |                   |                     |                     |
| eBUS (2-core communication cable)                                                                 | mm2        | 0.75                               |                   |                   |                     |                     |
| Maximum length eBUS cable (communication cable)                                                   | m          | 50                                 |                   |                   |                     |                     |
| IP rating                                                                                         |            | IP 15 B                            |                   |                   |                     |                     |
| Fan, power consumption                                                                            | W          | 40                                 |                   |                   | 50                  |                     |
| Fan quantity                                                                                      |            | 1                                  |                   |                   | 2                   |                     |
| Fan, air flow , maximum                                                                           | m³ /h      | 2,300                              |                   |                   | 5,100               |                     |
| Heating pump, power consumption                                                                   | W          | 2 - 50                             |                   |                   | 3 - 87              |                     |
| Heating circuit                                                                                   |            |                                    |                   |                   |                     |                     |
| Heating water temperature, minimum/maximum                                                        | ° C        | 20 - 75                            |                   |                   |                     |                     |
| Basic length of the heating water pipe, maximum, between the outdoor unit and indoor unit         | m          | 20                                 |                   |                   |                     |                     |
| Operating pressure, minimum                                                                       | bar        | 0.50                               |                   |                   |                     |                     |
| Operating pressure, maximum                                                                       | bar        | 3.00                               |                   |                   |                     |                     |
| Volume flow, minimum                                                                              | l/h        | 400                                |                   | 540               | 995                 |                     |
| Volume flow, maximum                                                                              | l/h        | 860                                |                   | 1,205             | 2,065               |                     |
| Water volume, in the outdoor unit                                                                 | l          | 1.5                                |                   | 2.0               | 2.5                 |                     |
| Water volume, in the heating circuit, minimum, thawing mode, activated/deactivated back-up heater | l          | 15 / 40                            |                   | 20 / 55           | 45 / 150            |                     |
| Remaining feed pressure, hydraulic                                                                | kPa (mbar) | 56.0 (560.0)                       |                   | 44.0 (440.0)      | 55.0 (550.0)        |                     |

| aroTHERM plus                               | Unit | 3.5kW<br>VWL 35 / 6                | 5kW<br>VWL 55 / 6 | 7kW<br>VWL 75 / 6 | 10kW<br>VWL 105 / 6 | 12kW<br>VWL 125 / 6 |
|---------------------------------------------|------|------------------------------------|-------------------|-------------------|---------------------|---------------------|
| Refrigerant circuit                         |      |                                    |                   |                   |                     |                     |
| Fluid type                                  |      | R290                               |                   |                   |                     |                     |
| Fluid fill quantity                         | kg   | 0.6                                |                   | 0.9               | 1.3                 |                     |
| Refrigerant, Global Warming Potential (GWP) |      | 3                                  |                   |                   |                     |                     |
| CO <sub>2</sub> equivalent                  | t    | 0.0018                             |                   | 0.0027            | 0.0039              |                     |
| Permissible operating pressure              | bar  | 31.5                               |                   |                   |                     |                     |
| Compressor type                             |      | Rotary piston                      |                   |                   | Scroll compressor   |                     |
| Compressor oil type                         |      | Specific polyalkylene glycol (PAG) |                   |                   |                     |                     |
| Compressor, control                         |      | Electronic                         |                   |                   |                     |                     |

| Noise emissions, heating mode               |       |    |    |    |
|---------------------------------------------|-------|----|----|----|
| Sound power, EN 12102, EN 14511 LWA, A7/W35 | dB(A) | 51 | 53 | 58 |
| Sound power, EN 12102, EN 14511 LWA, A7/W45 | dB(A) | 53 |    | 58 |
| Sound power, EN 12102, EN 14511 LWA, A7/W55 | dB(A) | 54 | 55 | 60 |

| Efficiency                   |             |      |
|------------------------------|-------------|------|
| Energy efficiency class 35°C | (A+++ to F) | A+++ |
| Energy efficiency class 55°C | (A+++ to F) | A++  |

| Combination with uniTOWER                    |             |     |
|----------------------------------------------|-------------|-----|
| Energy efficiency class                      | (A+++ to F) | A++ |
| Energy efficiency class for hot water supply | (A+ to F)   | A   |

#### SCOP and heating output

| aroTHERM output |      | 35°C flow |      | 40°C flow |      | 45°C flow |      | 50°C flow |      | 55°C flow |      |
|-----------------|------|-----------|------|-----------|------|-----------|------|-----------|------|-----------|------|
|                 |      | Output    | SCOP | Output    | SCOP | Output    | SCOP | Output    | SCOP | Output    | SCOP |
| 3.5kW           | -5°C | 4.2       | 4.41 | 4.1       | 4.03 | 4         | 3.65 | 3.9       | 3.37 | 3.8       | 3.10 |
|                 | -3°C | 4.6       |      | 4.4       |      | 4.3       |      | 4.2       |      | 4         |      |
|                 | 0°C  | 4.7       |      | 4.7       |      | 4.6       |      | 4.5       |      | 4.4       |      |
|                 | 2°C  | 4.9       |      | 4.9       |      | 4.9       |      | 4.7       |      | 4.6       |      |
| 5kW             | -5°C | 6.3       | 4.48 | 6         | 4.13 | 5.6       | 3.77 | 5.5       | 3.41 | 5.4       | 3.06 |
|                 | -3°C | 6.8       |      | 6.4       |      | 6.1       |      | 5.9       |      | 5.8       |      |
|                 | 0°C  | 6.9       |      | 6.7       |      | 6.6       |      | 6.4       |      | 6.2       |      |
|                 | 2°C  | 7.1       |      | 7         |      | 6.9       |      | 6.7       |      | 6.5       |      |
| 7kW             | -5°C | 8.2       | 4.36 | 8.1       | 4.13 | 8         | 3.91 | 7.5       | 3.65 | 7         | 3.39 |
|                 | -3°C | 8.8       |      | 8.6       |      | 8.4       |      | 7.9       |      | 7.4       |      |
|                 | 0°C  | 9.5       |      | 9.3       |      | 9.1       |      | 8.6       |      | 8.1       |      |
|                 | 2°C  | 10        |      | 9.8       |      | 9.6       |      | 9         |      | 8.5       |      |
| 10kW            | -5°C | 9.9       | 5.03 | 9.7       | 4.58 | 9.4       | 4.13 | 9.1       | 3.85 | 8.8       | 3.58 |
|                 | -3°C | 10.7      |      | 10.3      |      | 10        |      | 9.6       |      | 9.2       |      |
|                 | 0°C  | 11.9      |      | 11.6      |      | 11.3      |      | 10.7      |      | 10.2      |      |
|                 | 2°C  | 12.8      |      | 12.5      |      | 12.1      |      | 11.5      |      | 10.9      |      |
| 12kW            | -5°C | 13.1      | 4.88 | 12.8      | 4.55 | 12.5      | 4.21 | 11.7      | 3.92 | 10.8      | 3.63 |
|                 | -3°C | 13.9      |      | 13.4      |      | 12.9      |      | 12.1      |      | 11.2      |      |
|                 | 0°C  | 15.2      |      | 14.6      |      | 14.1      |      | 13.2      |      | 12.3      |      |
|                 | 2°C  | 16        |      | 15.5      |      | 14.9      |      | 13.9      |      | 13        |      |

### 13.3. APPENDIX C: NILAN COMPACT P TECHNICAL DATASHEET

Figure 9: Nilan Compact P Technical Datasheet

## TECHNICAL DATA

### Compact P

|                                                       |                                                     |
|-------------------------------------------------------|-----------------------------------------------------|
| Dimensions (W x D x H)                                | 900 x 610 x 2065 mm                                 |
| Weight                                                | 202 kg                                              |
| Plate type casing                                     | Aluzinc steel plate, white powder coating RAL 9016  |
| Heat exchanger type                                   | Polyethyleneterephthalat counterflow heat exchanger |
| Fan type                                              | EC, constant rotation                               |
| Filter class                                          | ISO Coarse >90% (G4)                                |
| Duct connections                                      | Ø 160 mm                                            |
| Condensate drain                                      | PVC, Ø 20x1,5 mm                                    |
| Refrigerant                                           | R134a                                               |
| Refrigerant filling                                   | 2 kg                                                |
| Capacity SHW tank                                     | 180 L                                               |
| Supplementary electrical heating (sanitary hot water) | 1,5 kW                                              |
| Connection dimension                                  | 3/4"                                                |

|                                                       |                         |
|-------------------------------------------------------|-------------------------|
| Supply voltage                                        | 230 V (+10 %), 50/60 HZ |
| Max. input/power (*1)                                 | 2,2 kW/ 9,6 A           |
| Max. input/power (*2)                                 | 3,4 kW/14,8 A           |
| Tightness class                                       | IP31                    |
| Standby power                                         | 3 W                     |
| Ambient temperature                                   | -20/ +40 °C             |
| Power consumption build-in preheating element (Polar) | 1,2 kW                  |
| External leakage (*3)                                 | < 1,4%                  |
| Internal leakage (*4)                                 | < 1,1%                  |

\*1 Input without heating element (accessory).

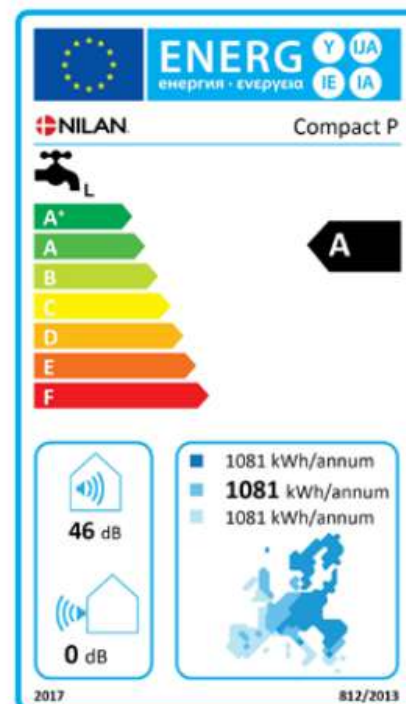
\*2 Input Compact Polar

\*3 At ± 250 Pa and 265 m³/h according EN 308/EN 13141-7.

\*4 At ± 100 Pa and 265 m³/h according EN 308/EN 13141-7.

### Hot water production

|                                                                      |                               |
|----------------------------------------------------------------------|-------------------------------|
| Consumer profile, water heater                                       | L (large)                     |
| Energy efficiency class                                              | A                             |
| Energy efficiency for water heating - average climate                | 94 %                          |
| Annual electricity consumption - average climate                     | 1081 kWh/annum                |
| Temperature settings on the thermostat                               | 10 - 65 °C                    |
| Sound power level L <sub>WA</sub>                                    | 46 dB(A)                      |
| The water heater can function outside peak load periods (Smart-grid) | No                            |
| Guidelines for assembly, installation and maintenance                | See installation instructions |
| Energy efficiency for water heating - cold climate                   | 94%                           |
| Energy efficiency for water heating - warm climate                   | 94%                           |
| Annual electricity production - cold climate                         | 1081 kWh/annum                |
| Annual electricity consumption - warm climate                        | 1081 kWh/annum                |



#### 13.4. APPENDIX D: SAMPLE SAP SUMMARY INFORMATION SHEETS (BE LEAN)

# Summary for Input Data

|                      |               |               |                |            |
|----------------------|---------------|---------------|----------------|------------|
| Plot Reference       | 1 Bed Flat EF |               | Issued on Date | 27/02/2026 |
| Assessment Reference | 001           | Plot Type Ref | 1 Bed Flat EF  |            |
| Plot Address         | 1 Bed Flat EF |               | SAP Version    | 10.2       |

|                                    |          |               |        |      |        |
|------------------------------------|----------|---------------|--------|------|--------|
| SAP Rating                         | 82 B     | DER           | 19.11  | TER  | 17.36  |
| Environmental                      | 87 B     | % DER < TER   |        |      | -10.08 |
| CO <sub>2</sub> Emissions (t/year) | 0.88     | DFEE          | 40.51  | TFEE | 43.08  |
| Compliance Check                   | See BREL | % DFEE < TFEE |        |      | 5.97   |
| % DPER < TPER                      | -14.93   | DPER          | 106.51 | TPER | 92.67  |

|                  |                          |             |           |
|------------------|--------------------------|-------------|-----------|
| Assessor Details | Mr. Matthew Fitzpatrick  | Assessor ID | 7601-0001 |
| Client           | HP 01, Hill Partnerships |             |           |

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

|                                |                            |
|--------------------------------|----------------------------|
| Orientation                    | North                      |
| Property Tenture               | ND                         |
| Transaction Type               | 6                          |
| Terrain Type                   | Suburban                   |
| 1.0 Property Type              | Flat, End-Terrace          |
| Position of Flat               | Mid-floor flat             |
| Which Floor                    | 2                          |
| 2.0 Number of Storeys          | 1                          |
| 3.0 Date Built                 | 2026                       |
| 4.0 Sheltered Sides            | 2                          |
| 5.0 Sunlight/Shade             | Average or unknown         |
| 6.0 Thermal Mass Parameter     | Precise calculation        |
| Thermal Mass                   | 171.57 kJ/m <sup>2</sup> K |
| 7.0 Electricity Tariff         | Standard                   |
| Smart electricity meter fitted | Yes                        |
| Smart gas meter fitted         | Yes                        |

|                  |               |                                |                                             |                                 |
|------------------|---------------|--------------------------------|---------------------------------------------|---------------------------------|
| 7.0 Measurements | Ground floor: | Heat Loss Perimeter<br>20.81 m | Internal Floor Area<br>50.08 m <sup>2</sup> | Average Storey Height<br>2.40 m |
|------------------|---------------|--------------------------------|---------------------------------------------|---------------------------------|

|                 |                      |
|-----------------|----------------------|
| 8.0 Living Area | 23.61 m <sup>2</sup> |
|-----------------|----------------------|

| Description   | Type        | Construction                                                                                                    | U-Value<br>(W/m <sup>2</sup> K) | Kappa<br>(kJ/m <sup>2</sup> K) | Gross<br>Area(m <sup>2</sup> ) | Nett Area<br>(m <sup>2</sup> ) | Shelter<br>Res | Shelter               | Openings | Area Calculation<br>Type |
|---------------|-------------|-----------------------------------------------------------------------------------------------------------------|---------------------------------|--------------------------------|--------------------------------|--------------------------------|----------------|-----------------------|----------|--------------------------|
| External Wall | Cavity Wall | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.19                            | 110.00                         | 49.94                          | 40.75                          | 0.00           | None                  | 9.19     | Enter Gross Area         |
| Communal Wall | Cavity Wall | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.26                            | 110.00                         | 18.15                          | 16.03                          | 2.50           | Stairwell Stairwell 2 | 2.12     | Enter Gross Area         |

| Description           | Construction                 | Kappa<br>(kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|-----------------------|------------------------------|--------------------------------|------------------------|
| Timber stud Partition | Plasterboard on timber frame | 9.00                           | 93.65                  |

| Description     | Construction                                    | Kappa<br>(kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|-----------------|-------------------------------------------------|--------------------------------|------------------------|
| Party Ceiling 1 | Precast concrete planks floor, screed, carpeted | 30.00                          | 50.08                  |

| Description   | Type                  | Storey Index    | Construction | U-Value<br>(W/m <sup>2</sup> K) | Shelter Code | Shelter<br>Factor | Kappa<br>(kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|---------------|-----------------------|-----------------|--------------|---------------------------------|--------------|-------------------|--------------------------------|------------------------|
| Exposed Floor | Exposed Floor - Solid | Lowest occupied | Other        | 0.12                            | None         | 0.00              | 0.00                           | 50.08                  |

| Description | Data Source  | Type       | Glazing | Glazing<br>Gap | Filling<br>Type | G-value | Frame<br>Type | Frame<br>Factor | U Value<br>(W/m <sup>2</sup> K) |
|-------------|--------------|------------|---------|----------------|-----------------|---------|---------------|-----------------|---------------------------------|
| Solid Door  | Manufacturer | Solid Door |         |                |                 | 0.63    |               |                 | 1.20                            |

# Summary for Input Data

|             |                           |            |                       |      |      |      |
|-------------|---------------------------|------------|-----------------------|------|------|------|
| Window      | BFRC, BSI or CERTASS data | Window     | Double Low-E Soft 0.1 | 0.40 |      | 1.20 |
| Rooflight   | Manufacturer              | Roof Light | Double Low-E Soft 0.1 | 0.63 | 0.70 | 1.20 |
| Patio Doors | BFRC, BSI or CERTASS data | Window     | Double Low-E Soft 0.1 | 0.33 |      | 1.20 |

## 13.0 Openings

| Name       | Opening Type | Location      | Orientation | Area (m <sup>2</sup> ) | Pitch |
|------------|--------------|---------------|-------------|------------------------|-------|
| Front Door | Solid Door   | Communal Wall | North       | 2.12                   |       |
| Windows 1  | Window       | External Wall | South       | 3.06                   |       |
| Windows 2  | Window       | External Wall | West        | 3.06                   |       |
| Windows 3  | Window       | External Wall | North       | 3.06                   |       |

## 14.0 Conservatory

## 15.0 Draught Proofing

 %

## 16.0 Draught Lobby

## 17.0 Thermal Bridging

## 17.1 List of Bridges

| Bridge Type                                           | Source Type            | Length | Psi  | Adjusted Reference: | Imported |
|-------------------------------------------------------|------------------------|--------|------|---------------------|----------|
| E2 Other lintels (including other steel lintels)      | Independently assessed | 7.82   | 0.05 | 0.05 HiTherm        | No       |
| E3 Sill                                               | Independently assessed | 6.81   | 0.02 | 0.02 Hill Std.      | No       |
| E4 Jamb                                               | Independently assessed | 20.40  | 0.03 | 0.03 Hill Std.      | No       |
| E16 Corner (normal)                                   | Independently assessed | 9.60   | 0.05 | 0.05 Hill Std.      | No       |
| E7 Party floor between dwellings (in blocks of flats) | Independently assessed | 20.81  | 0.04 | 0.04 RCD            | No       |
| E20 Exposed floor (normal)                            | Table K1 - Default     | 20.81  | 0.32 | 0.32                | No       |

Y-value  W/m<sup>2</sup>K

## 19.0 Mechanical Ventilation

### Mechanical Ventilation

|                                       |                                                                             |
|---------------------------------------|-----------------------------------------------------------------------------|
| Mechanical Ventilation System Present | <input type="text" value="Yes"/>                                            |
| Approved Installation                 | <input type="text" value="Yes"/>                                            |
| Mechanical Ventilation data Type      | <input type="text" value="Database"/>                                       |
| Type                                  | <input type="text" value="Mechanical extract ventilation - decentralised"/> |
| MV Reference Number                   | <input type="text" value="500776"/>                                         |
| Duct Type                             | <input type="text" value="Rigid"/>                                          |
| Wet Rooms                             | <input type="text" value="2"/>                                              |

## 19.1 Mechanical extract ventilation - Decentralised

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

## 20.0 Fans, Open Fireplaces, Flues

|                                                  |                                |
|--------------------------------------------------|--------------------------------|
| Number of open chimneys                          | <input type="text" value="0"/> |
| Number of open flues                             | <input type="text" value="0"/> |
| Number of chimneys/flues attached to closed fire | <input type="text" value="0"/> |
| Number of flues attached to solid fuel boiler    | <input type="text" value="0"/> |
| Number of flues attached to other heater         | <input type="text" value="0"/> |
| Number of blocked chimneys                       | <input type="text" value="0"/> |
| Number of intermittent extract fans              | <input type="text" value="0"/> |
| Number of passive vents                          | <input type="text" value="0"/> |
| Number of flueless gas fires                     | <input type="text" value="0"/> |

## 21.0 Fixed Cooling System

## 22.0 Pressure Testing

Designed AP<sub>50</sub>  m<sup>3</sup>/(h.m<sup>2</sup>) @ 50 Pa

# Summary for Input Data

|             |             |  |  |  |  |
|-------------|-------------|--|--|--|--|
| Test Method | Blower Door |  |  |  |  |
|-------------|-------------|--|--|--|--|

---

**22.0 Lighting**

|                   |                         |                          |                       |                           |                    |
|-------------------|-------------------------|--------------------------|-----------------------|---------------------------|--------------------|
| No Fixed Lighting | No                      |                          |                       |                           |                    |
|                   | <b>Name</b><br>Lighting | <b>Efficacy</b><br>75.00 | <b>Power</b><br>10.00 | <b>Capacity</b><br>750.00 | <b>Count</b><br>10 |

---

**24.0 Main Heating 1**

|                        |                                                  |  |  |  |   |
|------------------------|--------------------------------------------------|--|--|--|---|
| Manufacturer           | Manufacturer                                     |  |  |  |   |
| Percentage of Heat     | 100.00                                           |  |  |  | % |
| Fuel Type              | Mains gas                                        |  |  |  |   |
| SAP Code               | 104                                              |  |  |  |   |
| In Winter              | 88.90                                            |  |  |  |   |
| In Summer              | 80.30                                            |  |  |  |   |
| Model Name             | Gas                                              |  |  |  |   |
| Manufacturer           | Gas                                              |  |  |  |   |
| Controls SAP Code      | 2110                                             |  |  |  |   |
| Controls description   | Time and temperature zone control by arrangement |  |  |  |   |
| Delayed Start Stat     | Yes                                              |  |  |  |   |
| Burner Control         | Modulating                                       |  |  |  |   |
| 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             |  |  |  |  |
| 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<br>[l/min] | Rated Power<br>[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 |  |  |  |  |
|--|------|--|--|--|--|

---

# Summary for Input Data



## 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

|                      |               |               |                |            |
|----------------------|---------------|---------------|----------------|------------|
| Plot Reference       | 1 Bed Flat MF |               | Issued on Date | 27/02/2026 |
| Assessment Reference | 001           | Plot Type Ref | 1 Bed Flat MF  |            |
| Plot Address         | 1 Bed Flat MF |               | SAP Version    | 10.2       |

|                                    |          |               |       |      |        |
|------------------------------------|----------|---------------|-------|------|--------|
| SAP Rating                         | 84 B     | DER           | 16.26 | TER  | 14.62  |
| Environmental                      | 89 B     | % DER < TER   |       |      | -11.22 |
| CO <sub>2</sub> Emissions (t/year) | 0.76     | DFEE          | 27.81 | TFEE | 30.64  |
| Compliance Check                   | See BREL | % DFEE < TFEE |       |      | 9.23   |
| % DPER < TPER                      | -16.96   | DPER          | 91.17 | TPER | 77.95  |

|                  |                          |             |           |
|------------------|--------------------------|-------------|-----------|
| Assessor Details | Mr. Matthew Fitzpatrick  | Assessor ID | 7601-0001 |
| Client           | HP 01, Hill Partnerships |             |           |

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

|                                |                     |        |
|--------------------------------|---------------------|--------|
| Orientation                    | North               |        |
| Property Tenture               | ND                  |        |
| Transaction Type               | 6                   |        |
| Terrain Type                   | Suburban            |        |
| 1.0 Property Type              | Flat, End-Terrace   |        |
| Position of Flat               | Mid-floor flat      |        |
| Which Floor                    | 3                   |        |
| 2.0 Number of Storeys          | 1                   |        |
| 3.0 Date Built                 | 2026                |        |
| 4.0 Sheltered Sides            | 2                   |        |
| 5.0 Sunlight/Shade             | Average or unknown  |        |
| 6.0 Thermal Mass Parameter     | Precise calculation |        |
| Thermal Mass                   | 211.57              | kJ/m²K |
|                                |                     |        |
| 7.0 Electricity Tariff         | Standard            |        |
| Smart electricity meter fitted | Yes                 |        |
| Smart gas meter fitted         | Yes                 |        |

|                  |               |                     |                      |                       |
|------------------|---------------|---------------------|----------------------|-----------------------|
| 7.0 Measurements |               | Heat Loss Perimeter | Internal Floor Area  | Average Storey Height |
|                  | Ground floor: | 20.81 m             | 50.08 m <sup>2</sup> | 2.40 m                |

|                 |       |                |
|-----------------|-------|----------------|
| 8.0 Living Area | 23.61 | m <sup>2</sup> |
|-----------------|-------|----------------|

| Description   | Type        | Construction                                                                                                    | U-Value (W/m <sup>2</sup> K) | Kappa (kJ/m <sup>2</sup> K) | Gross Area(m <sup>2</sup> ) | Nett Area (m <sup>2</sup> ) | Shelter Res | Shelter               | Openings | Area Calculation Type |
|---------------|-------------|-----------------------------------------------------------------------------------------------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|-------------|-----------------------|----------|-----------------------|
| External Wall | Cavity Wall | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.19                         | 110.00                      | 49.94                       | 40.75                       | 0.00        | None                  | 9.19     | Enter Gross Area      |
| Communal Wall | Cavity Wall | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.26                         | 110.00                      | 18.15                       | 16.03                       | 2.50        | Stairwell Stairwell 2 | 2.12     | Enter Gross Area      |

| Description           | Construction                 | Kappa (kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|-----------------------|------------------------------|-----------------------------|------------------------|
| Timber stud Partition | Plasterboard on timber frame | 9.00                        | 93.65                  |

| Description     | Construction                                    | Kappa (kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|-----------------|-------------------------------------------------|-----------------------------|------------------------|
| Party Ceiling 1 | Precast concrete planks floor, screed, carpeted | 30.00                       | 50.08                  |

| Description   | Storey Index    | Construction                                    | Kappa (kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|---------------|-----------------|-------------------------------------------------|-----------------------------|------------------------|
| Party Floor 1 | Lowest occupied | Precast concrete planks floor, screed, carpeted | 40.00                       | 50.08                  |

| Description | Data Source | Type | Glazing | Glazing Gap | Filling Type | G-value | Frame Type | Frame Factor | U Value (W/m <sup>2</sup> K) |
|-------------|-------------|------|---------|-------------|--------------|---------|------------|--------------|------------------------------|
|-------------|-------------|------|---------|-------------|--------------|---------|------------|--------------|------------------------------|

# Summary for Input Data

|                       |                                       |                   |                       |      |      |      |
|-----------------------|---------------------------------------|-------------------|-----------------------|------|------|------|
| Solid Door Window     | Manufacturer BFR, BSI or CERTASS data | Solid Door Window | Double Low-E Soft 0.1 | 0.63 |      | 1.20 |
|                       |                                       |                   |                       | 0.40 |      | 1.20 |
| Rooflight Patio Doors | Manufacturer BFR, BSI or CERTASS data | Roof Light Window | Double Low-E Soft 0.1 | 0.63 | 0.70 | 1.20 |
|                       |                                       |                   | Double Low-E Soft 0.1 | 0.33 |      | 1.20 |

## 13.0 Openings

| Name       | Opening Type | Location      | Orientation | Area (m²) | Pitch |
|------------|--------------|---------------|-------------|-----------|-------|
| Front Door | Solid Door   | Communal Wall | North       | 2.12      |       |
| Windows 1  | Window       | External Wall | South       | 3.06      |       |
| Windows 2  | Window       | External Wall | West        | 3.06      |       |
| Windows 3  | Window       | External Wall | North       | 3.06      |       |

## 14.0 Conservatory

## 15.0 Draught Proofing

 %

## 16.0 Draught Lobby

## 17.0 Thermal Bridging

### 17.1 List of Bridges

| Bridge Type                                           | Source Type            | Length | Psi  | Adjusted Reference: | Imported |
|-------------------------------------------------------|------------------------|--------|------|---------------------|----------|
| E2 Other lintels (including other steel lintels)      | Independently assessed | 7.82   | 0.05 | 0.05 HiTherm        | No       |
| E3 Sill                                               | Independently assessed | 6.81   | 0.02 | 0.02 Hill Std.      | No       |
| E4 Jamb                                               | Independently assessed | 20.40  | 0.03 | 0.03 Hill Std.      | No       |
| E16 Corner (normal)                                   | Independently assessed | 9.60   | 0.05 | 0.05 Hill Std.      | No       |
| E7 Party floor between dwellings (in blocks of flats) | Independently assessed | 41.62  | 0.04 | 0.04 RCD            | No       |

Y-value  W/m²K

## 19.0 Mechanical Ventilation

### Mechanical Ventilation

|                                       |                                                                             |
|---------------------------------------|-----------------------------------------------------------------------------|
| Mechanical Ventilation System Present | <input type="text" value="Yes"/>                                            |
| Approved Installation                 | <input type="text" value="Yes"/>                                            |
| Mechanical Ventilation data Type      | <input type="text" value="Database"/>                                       |
| Type                                  | <input type="text" value="Mechanical extract ventilation - decentralised"/> |
| MV Reference Number                   | <input type="text" value="500776"/>                                         |
| Duct Type                             | <input type="text" value="Rigid"/>                                          |
| Wet Rooms                             | <input type="text" value="2"/>                                              |

### 19.1 Mechanical extract ventilation - Decentralised

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

## 20.0 Fans, Open Fireplaces, Flues

|                                                  |                                |
|--------------------------------------------------|--------------------------------|
| Number of open chimneys                          | <input type="text" value="0"/> |
| Number of open flues                             | <input type="text" value="0"/> |
| Number of chimneys/flues attached to closed fire | <input type="text" value="0"/> |
| Number of flues attached to solid fuel boiler    | <input type="text" value="0"/> |
| Number of flues attached to other heater         | <input type="text" value="0"/> |
| Number of blocked chimneys                       | <input type="text" value="0"/> |
| Number of intermittent extract fans              | <input type="text" value="0"/> |
| Number of passive vents                          | <input type="text" value="0"/> |
| Number of flueless gas fires                     | <input type="text" value="0"/> |

## 21.0 Fixed Cooling System

## 22.0 Pressure Testing

Designed AP<sub>50</sub>  m³/(h.m²) @ 50 Pa

# Summary for Input Data

|             |             |  |  |  |  |
|-------------|-------------|--|--|--|--|
| Test Method | Blower Door |  |  |  |  |
|-------------|-------------|--|--|--|--|

---

**22.0 Lighting**

|                   |                         |                          |                       |                           |                    |
|-------------------|-------------------------|--------------------------|-----------------------|---------------------------|--------------------|
| No Fixed Lighting | No                      |                          |                       |                           |                    |
|                   | <b>Name</b><br>Lighting | <b>Efficacy</b><br>75.00 | <b>Power</b><br>10.00 | <b>Capacity</b><br>750.00 | <b>Count</b><br>10 |

---

**24.0 Main Heating 1**

|                        |                                                  |  |  |  |   |
|------------------------|--------------------------------------------------|--|--|--|---|
| Manufacturer           | Manufacturer                                     |  |  |  |   |
| Percentage of Heat     | 100.00                                           |  |  |  | % |
| Fuel Type              | Mains gas                                        |  |  |  |   |
| SAP Code               | 104                                              |  |  |  |   |
| In Winter              | 88.90                                            |  |  |  |   |
| In Summer              | 80.30                                            |  |  |  |   |
| Model Name             | Gas                                              |  |  |  |   |
| Manufacturer           | Gas                                              |  |  |  |   |
| Controls SAP Code      | 2110                                             |  |  |  |   |
| Controls description   | Time and temperature zone control by arrangement |  |  |  |   |
| Delayed Start Stat     | Yes                                              |  |  |  |   |
| Burner Control         | Modulating                                       |  |  |  |   |
| 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             |  |  |  |  |
| 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<br>[l/min] | Rated Power<br>[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 |  |  |  |  |
|--|------|--|--|--|--|

---

# Summary for Input Data



## 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



|                      |               |               |                |            |
|----------------------|---------------|---------------|----------------|------------|
| Plot Reference       | 1 Bed Flat TF |               | Issued on Date | 27/02/2026 |
| Assessment Reference | 001           | Plot Type Ref | 1 Bed Flat TF  |            |
| Plot Address         | 1 Bed Flat TF |               | SAP Version    | 10.2       |

|                                    |          |               |       |      |        |
|------------------------------------|----------|---------------|-------|------|--------|
| SAP Rating                         | 83 B     | DER           | 17.76 | TER  | 15.99  |
| Environmental                      | 88 B     | % DER < TER   |       |      | -11.07 |
| CO <sub>2</sub> Emissions (t/year) | 0.82     | DFEE          | 34.51 | TFEE | 36.84  |
| Compliance Check                   | See BREL | % DFEE < TFEE |       |      | 6.32   |
| % DPER < TPER                      | -16.31   | DPER          | 99.23 | TPER | 85.31  |

|                  |                          |             |           |
|------------------|--------------------------|-------------|-----------|
| Assessor Details | Mr. Matthew Fitzpatrick  | Assessor ID | 7601-0001 |
| Client           | HP 01, Hill Partnerships |             |           |

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

|                                |                            |
|--------------------------------|----------------------------|
| Orientation                    | North                      |
| Property Tenture               | ND                         |
| Transaction Type               | 6                          |
| Terrain Type                   | Suburban                   |
| 1.0 Property Type              | Flat, End-Terrace          |
| Position of Flat               | Top-floor flat             |
| Which Floor                    | 4                          |
| 2.0 Number of Storeys          | 1                          |
| 3.0 Date Built                 | 2026                       |
| 4.0 Sheltered Sides            | 2                          |
| 5.0 Sunlight/Shade             | Average or unknown         |
| 6.0 Thermal Mass Parameter     | Precise calculation        |
| Thermal Mass                   | 190.57 kJ/m <sup>2</sup> K |
| 7.0 Electricity Tariff         | Standard                   |
| Smart electricity meter fitted | Yes                        |
| Smart gas meter fitted         | Yes                        |

|                  |               |                                |                                             |                                 |
|------------------|---------------|--------------------------------|---------------------------------------------|---------------------------------|
| 7.0 Measurements | Ground floor: | Heat Loss Perimeter<br>20.81 m | Internal Floor Area<br>50.08 m <sup>2</sup> | Average Storey Height<br>2.40 m |
|------------------|---------------|--------------------------------|---------------------------------------------|---------------------------------|

|                 |                      |
|-----------------|----------------------|
| 8.0 Living Area | 23.61 m <sup>2</sup> |
|-----------------|----------------------|

| Description   | Type        | Construction                                                                                                    | U-Value<br>(W/m <sup>2</sup> K) | Kappa<br>(kJ/m <sup>2</sup> K) | Gross<br>Area(m <sup>2</sup> ) | Nett Area<br>(m <sup>2</sup> ) | Shelter<br>Res | Shelter               | Openings | Area Calculation<br>Type |
|---------------|-------------|-----------------------------------------------------------------------------------------------------------------|---------------------------------|--------------------------------|--------------------------------|--------------------------------|----------------|-----------------------|----------|--------------------------|
| External Wall | Cavity Wall | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.19                            | 110.00                         | 49.94                          | 40.75                          | 0.00           | None                  | 9.19     | Enter Gross Area         |
| Communal Wall | Cavity Wall | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.26                            | 110.00                         | 18.15                          | 16.03                          | 2.50           | Stairwell Stairwell 2 | 2.12     | Enter Gross Area         |

| Description           | Construction                 | Kappa<br>(kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|-----------------------|------------------------------|--------------------------------|------------------------|
| Timber stud Partition | Plasterboard on timber frame | 9.00                           | 93.65                  |

| Description | Type                | Construction                             | U-Value<br>(W/m <sup>2</sup> K) | Kappa<br>(kJ/m <sup>2</sup> K) | Gross<br>Area(m <sup>2</sup> ) | Nett<br>Area<br>(m <sup>2</sup> ) | Shelter<br>Code | Shelter<br>Factor | Calculation<br>Type | Openings |
|-------------|---------------------|------------------------------------------|---------------------------------|--------------------------------|--------------------------------|-----------------------------------|-----------------|-------------------|---------------------|----------|
| Cold Roof   | External Plane Roof | Plasterboard, insulated at ceiling level | 0.11                            | 9.00                           | 50.08                          | 50.08                             | None            | 0.00              | Enter Gross Area    | 0.00     |

| Description   | Storey<br>Index | Construction                                    | Kappa<br>(kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|---------------|-----------------|-------------------------------------------------|--------------------------------|------------------------|
| Party Floor 1 | Lowest occupied | Precast concrete planks floor, screed, carpeted | 40.00                          | 50.08                  |

## 12.0 Opening Types

# Summary for Input Data

| Description | Data Source               | Type       | Glazing               | Glazing Gap | Filling Type | G-value | Frame Type | Frame Factor | U Value (W/m²K) |
|-------------|---------------------------|------------|-----------------------|-------------|--------------|---------|------------|--------------|-----------------|
| Solid Door  | Manufacturer              | Solid Door |                       |             |              | 0.63    |            |              | 1.20            |
| Window      | BFRC, BSI or CERTASS data | Window     | Double Low-E Soft 0.1 |             |              | 0.40    |            |              | 1.20            |
| Rooflight   | Manufacturer              | Roof Light | Double Low-E Soft 0.1 |             |              | 0.63    |            | 0.70         | 1.20            |
| Patio Doors | BFRC, BSI or CERTASS data | Window     | Double Low-E Soft 0.1 |             |              | 0.33    |            |              | 1.20            |

## 13.0 Openings

| Name       | Opening Type | Location      | Orientation | Area (m²) | Pitch |
|------------|--------------|---------------|-------------|-----------|-------|
| Front Door | Solid Door   | Communal Wall | North       | 2.12      |       |
| Windows 1  | Window       | External Wall | South       | 3.06      |       |
| Windows 2  | Window       | External Wall | West        | 3.06      |       |
| Windows 3  | Window       | External Wall | North       | 3.06      |       |

## 14.0 Conservatory

## 15.0 Draught Proofing

 %

## 16.0 Draught Lobby

## 17.0 Thermal Bridging

### 17.1 List of Bridges

| Bridge Type                                           | Source Type            | Length | Psi  | Adjusted | Reference: | Imported |
|-------------------------------------------------------|------------------------|--------|------|----------|------------|----------|
| E2 Other lintels (including other steel lintels)      | Independently assessed | 7.82   | 0.05 | 0.05     | HiTherm    | No       |
| E3 Sill                                               | Independently assessed | 6.81   | 0.02 | 0.02     | Hill Std.  | No       |
| E4 Jamb                                               | Independently assessed | 20.40  | 0.03 | 0.03     | Hill Std.  | No       |
| E10 Eaves (insulation at ceiling level)               | Independently assessed | 13.25  | 0.05 | 0.05     | Hill Std.  | No       |
| E12 Gable (insulation at ceiling level)               | Independently assessed | 15.12  | 0.06 | 0.06     | Hill Std.  | No       |
| E16 Corner (normal)                                   | Independently assessed | 9.60   | 0.05 | 0.05     | Hill Std.  | No       |
| E7 Party floor between dwellings (in blocks of flats) | Independently assessed | 20.81  | 0.04 | 0.04     | RCD        | No       |

Y-value  W/m²K

## 19.0 Mechanical Ventilation

### Mechanical Ventilation

Mechanical Ventilation System Present

Approved Installation

Mechanical Ventilation data Type

Type

MV Reference Number

Duct Type

Wet Rooms

### 19.1 Mechanical extract ventilation - Decentralised

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

## 20.0 Fans, Open Fireplaces, Flues

Number of open chimneys

Number of open flues

Number of chimneys/flues attached to closed fire

Number of flues attached to solid fuel boiler

Number of flues attached to other heater

Number of blocked chimneys

Number of intermittent extract fans

Number of passive vents

Number of flueless gas fires

## 21.0 Fixed Cooling System

# Summary for Input Data

## 22.0 Pressure Testing

|                           |             |                                             |
|---------------------------|-------------|---------------------------------------------|
|                           | Yes         |                                             |
| Designed AP <sub>50</sub> | 4.00        | m <sup>3</sup> /(h.m <sup>2</sup> ) @ 50 Pa |
| Test Method               | Blower Door |                                             |

## 22.0 Lighting

|                   |                         |                          |                       |                           |                    |
|-------------------|-------------------------|--------------------------|-----------------------|---------------------------|--------------------|
| No Fixed Lighting | No                      |                          |                       |                           |                    |
|                   | <b>Name</b><br>Lighting | <b>Efficacy</b><br>75.00 | <b>Power</b><br>10.00 | <b>Capacity</b><br>750.00 | <b>Count</b><br>10 |

## 24.0 Main Heating 1

|                        |                                                  |   |
|------------------------|--------------------------------------------------|---|
|                        | Manufacturer                                     |   |
| Percentage of Heat     | 100.00                                           | % |
| Fuel Type              | Mains gas                                        |   |
| SAP Code               | 104                                              |   |
| In Winter              | 88.90                                            |   |
| In Summer              | 80.30                                            |   |
| Model Name             | Gas                                              |   |
| Manufacturer           | Gas                                              |   |
| Controls SAP Code      | 2110                                             |   |
| Controls description   | Time and temperature zone control by arrangement |   |
| Delayed Start Stat     | Yes                                              |   |
| Burner Control         | Modulating                                       |   |
| 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             |
| 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<br>[l/min] | Rated Power<br>[kW] | Connected | Connected To |
|-------------|-------------------------------------------|----------------------|---------------------|-----------|--------------|
| Bathroom    | Combi boiler or unvented hot water system | 8.00                 |                     | No        |              |

## 28.3 Waste Water Heat Recovery System

# Summary for Input Data



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

|                      |               |               |                |            |
|----------------------|---------------|---------------|----------------|------------|
| Plot Reference       | 2 Bed Flat GF |               | Issued on Date | 27/02/2026 |
| Assessment Reference | 001           | Plot Type Ref | 2 Bed Flat GF  |            |
| Plot Address         | 2 Bed Flat GF |               | SAP Version    | 10.2       |

|                                    |          |               |       |      |       |
|------------------------------------|----------|---------------|-------|------|-------|
| SAP Rating                         | 84 B     | DER           | 15.04 | TER  | 14.06 |
| Environmental                      | 88 B     | % DER < TER   |       |      | -6.97 |
| CO <sub>2</sub> Emissions (t/year) | 0.97     | DFEE          | 31.38 | TFEE | 36.03 |
| Compliance Check                   | See BREL | % DFEE < TFEE |       |      | 12.91 |
| % DPER < TPER                      | -12.83   | DPER          | 84.29 | TPER | 74.70 |

|                  |                          |             |           |
|------------------|--------------------------|-------------|-----------|
| Assessor Details | Mr. Matthew Fitzpatrick  | Assessor ID | 7601-0001 |
| Client           | HP 01, Hill Partnerships |             |           |

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

|                                |                     |        |
|--------------------------------|---------------------|--------|
| Orientation                    | North               |        |
| Property Tenture               | ND                  |        |
| Transaction Type               | 6                   |        |
| Terrain Type                   | Suburban            |        |
| 1.0 Property Type              | Flat, End-Terrace   |        |
| Position of Flat               | Ground-floor flat   |        |
| Which Floor                    | 1                   |        |
| 2.0 Number of Storeys          | 1                   |        |
| 3.0 Date Built                 | 2026                |        |
| 4.0 Sheltered Sides            | 2                   |        |
| 5.0 Sunlight/Shade             | Average or unknown  |        |
| 6.0 Thermal Mass Parameter     | Precise calculation |        |
| Thermal Mass                   | 230.34              | kJ/m²K |
|                                |                     |        |
| 7.0 Electricity Tariff         | Standard            |        |
| Smart electricity meter fitted | Yes                 |        |
| Smart gas meter fitted         | Yes                 |        |

|                  |               |                     |                      |                       |
|------------------|---------------|---------------------|----------------------|-----------------------|
| 7.0 Measurements |               | Heat Loss Perimeter | Internal Floor Area  | Average Storey Height |
|                  | Ground floor: | 26.26 m             | 70.58 m <sup>2</sup> | 2.40 m                |

|                 |       |                |
|-----------------|-------|----------------|
| 8.0 Living Area | 27.26 | m <sup>2</sup> |
|-----------------|-------|----------------|

| Description   | Type        | Construction                                                                                                    | U-Value (W/m <sup>2</sup> K) | Kappa (kJ/m <sup>2</sup> K) | Gross Area(m <sup>2</sup> ) | Nett Area (m <sup>2</sup> ) | Shelter Res | Shelter               | Openings | Area Calculation Type |
|---------------|-------------|-----------------------------------------------------------------------------------------------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|-------------|-----------------------|----------|-----------------------|
| External Wall | Cavity Wall | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.19                         | 110.00                      | 63.02                       | 53.83                       | 0.00        | None                  | 9.19     | Enter Gross Area      |
| Communal Wall | Cavity Wall | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.26                         | 110.00                      | 18.02                       | 15.90                       | 2.50        | Stairwell Stairwell 2 | 2.12     | Enter Gross Area      |

| Description           | Construction                 | Kappa (kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|-----------------------|------------------------------|-----------------------------|------------------------|
| Timber stud Partition | Plasterboard on timber frame | 9.00                        | 130.56                 |

| Description     | Construction                                    | Kappa (kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|-----------------|-------------------------------------------------|-----------------------------|------------------------|
| Party Ceiling 1 | Precast concrete planks floor, screed, carpeted | 30.00                       | 70.58                  |

| Description  | Type                 | Storey Index    | Construction                       | U-Value (W/m <sup>2</sup> K) | Shelter Code | Shelter Factor | Kappa (kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|--------------|----------------------|-----------------|------------------------------------|------------------------------|--------------|----------------|-----------------------------|------------------------|
| Ground Floor | Ground Floor - Solid | Lowest occupied | Suspended concrete floor, carpeted | 0.12                         | None         | 0.00           | 75.00                       | 70.58                  |

| Description | Data Source  | Type       | Glazing | Glazing Gap | Filling Type | G-value | Frame Type | Frame Factor | U Value (W/m <sup>2</sup> K) |
|-------------|--------------|------------|---------|-------------|--------------|---------|------------|--------------|------------------------------|
| Solid Door  | Manufacturer | Solid Door |         |             |              | 0.63    |            |              | 1.20                         |

# Summary for Input Data

|             |                           |            |                       |      |      |      |
|-------------|---------------------------|------------|-----------------------|------|------|------|
| Window      | BFRC, BSI or CERTASS data | Window     | Double Low-E Soft 0.1 | 0.40 |      | 1.20 |
| Rooflight   | Manufacturer              | Roof Light | Double Low-E Soft 0.1 | 0.63 | 0.70 | 1.20 |
| Patio Doors | BFRC, BSI or CERTASS data | Window     | Double Low-E Soft 0.1 | 0.33 |      | 1.20 |

## 13.0 Openings

| Name       | Opening Type | Location      | Orientation | Area (m²) | Pitch |
|------------|--------------|---------------|-------------|-----------|-------|
| Front Door | Solid Door   | Communal Wall | North       | 2.12      |       |
| Windows 1  | Window       | External Wall | South       | 3.06      |       |
| Windows 2  | Window       | External Wall | East        | 3.06      |       |
| Windows 3  | Window       | External Wall | North       | 3.06      |       |

## 14.0 Conservatory

## 15.0 Draught Proofing

 %

## 16.0 Draught Lobby

## 17.0 Thermal Bridging

## 17.1 List of Bridges

| Bridge Type                                           | Source Type            | Length | Psi  | Adjusted Reference: | Imported |
|-------------------------------------------------------|------------------------|--------|------|---------------------|----------|
| E2 Other lintels (including other steel lintels)      | Independently assessed | 7.82   | 0.05 | 0.05 HiTherm        | No       |
| E3 Sill                                               | Independently assessed | 6.81   | 0.02 | 0.02 Hill Std.      | No       |
| E4 Jamb                                               | Independently assessed | 20.40  | 0.03 | 0.03 Hill Std.      | No       |
| E16 Corner (normal)                                   | Independently assessed | 9.60   | 0.05 | 0.05 Hill Std.      | No       |
| E7 Party floor between dwellings (in blocks of flats) | Independently assessed | 26.26  | 0.04 | 0.04 RCD            | No       |
| E5 Ground floor (normal)                              | Independently assessed | 26.26  | 0.06 | 0.06 Hill Std.      | No       |

Y-value  W/m²K

## 19.0 Mechanical Ventilation

### Mechanical Ventilation

|                                       |                                                                             |
|---------------------------------------|-----------------------------------------------------------------------------|
| Mechanical Ventilation System Present | <input type="text" value="Yes"/>                                            |
| Approved Installation                 | <input type="text" value="Yes"/>                                            |
| Mechanical Ventilation data Type      | <input type="text" value="Database"/>                                       |
| Type                                  | <input type="text" value="Mechanical extract ventilation - decentralised"/> |
| MV Reference Number                   | <input type="text" value="500776"/>                                         |
| Duct Type                             | <input type="text" value="Rigid"/>                                          |
| Wet Rooms                             | <input type="text" value="2"/>                                              |

## 19.1 Mechanical extract ventilation - Decentralised

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

## 20.0 Fans, Open Fireplaces, Flues

|                                                  |                                |
|--------------------------------------------------|--------------------------------|
| Number of open chimneys                          | <input type="text" value="0"/> |
| Number of open flues                             | <input type="text" value="0"/> |
| Number of chimneys/flues attached to closed fire | <input type="text" value="0"/> |
| Number of flues attached to solid fuel boiler    | <input type="text" value="0"/> |
| Number of flues attached to other heater         | <input type="text" value="0"/> |
| Number of blocked chimneys                       | <input type="text" value="0"/> |
| Number of intermittent extract fans              | <input type="text" value="0"/> |
| Number of passive vents                          | <input type="text" value="0"/> |
| Number of flueless gas fires                     | <input type="text" value="0"/> |

## 21.0 Fixed Cooling System

## 22.0 Pressure Testing

Designed AP<sub>50</sub>  m³/(h.m²) @ 50 Pa

# Summary for Input Data

|             |             |  |  |  |  |
|-------------|-------------|--|--|--|--|
| Test Method | Blower Door |  |  |  |  |
|-------------|-------------|--|--|--|--|

---

**22.0 Lighting**

|                   |                         |                          |                       |                           |                    |
|-------------------|-------------------------|--------------------------|-----------------------|---------------------------|--------------------|
| No Fixed Lighting | No                      |                          |                       |                           |                    |
|                   | <b>Name</b><br>Lighting | <b>Efficacy</b><br>75.00 | <b>Power</b><br>10.00 | <b>Capacity</b><br>750.00 | <b>Count</b><br>10 |

---

**24.0 Main Heating 1**

|                        |                                                  |  |  |  |   |
|------------------------|--------------------------------------------------|--|--|--|---|
| Manufacturer           | Manufacturer                                     |  |  |  |   |
| Percentage of Heat     | 100.00                                           |  |  |  | % |
| Fuel Type              | Mains gas                                        |  |  |  |   |
| SAP Code               | 104                                              |  |  |  |   |
| In Winter              | 88.90                                            |  |  |  |   |
| In Summer              | 80.30                                            |  |  |  |   |
| Model Name             | Gas                                              |  |  |  |   |
| Manufacturer           | Gas                                              |  |  |  |   |
| Controls SAP Code      | 2110                                             |  |  |  |   |
| Controls description   | Time and temperature zone control by arrangement |  |  |  |   |
| Delayed Start Stat     | Yes                                              |  |  |  |   |
| Burner Control         | Modulating                                       |  |  |  |   |
| 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             |  |  |  |  |
| 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<br>[l/min] | Rated Power<br>[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 |  |  |  |  |
|--|------|--|--|--|--|

---

# Summary for Input Data



## 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

|                      |               |               |                |            |
|----------------------|---------------|---------------|----------------|------------|
| Plot Reference       | 2 Bed Flat MF |               | Issued on Date | 27/02/2026 |
| Assessment Reference | 001           | Plot Type Ref | 2 Bed Flat MF  |            |
| Plot Address         | 2 Bed Flat MF |               | SAP Version    | 10.2       |

|                                    |          |               |       |      |        |
|------------------------------------|----------|---------------|-------|------|--------|
| SAP Rating                         | 85 B     | DER           | 13.57 | TER  | 12.10  |
| Environmental                      | 89 B     | % DER < TER   |       |      | -12.15 |
| CO <sub>2</sub> Emissions (t/year) | 0.89     | DFEE          | 24.59 | TFEE | 27.09  |
| Compliance Check                   | See BREL | % DFEE < TFEE |       |      | 9.23   |
| % DPER < TPER                      | -19.04   | DPER          | 76.39 | TPER | 64.17  |

|                  |                          |             |           |
|------------------|--------------------------|-------------|-----------|
| Assessor Details | Mr. Matthew Fitzpatrick  | Assessor ID | 7601-0001 |
| Client           | HP 01, Hill Partnerships |             |           |

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

|                                |                     |        |
|--------------------------------|---------------------|--------|
| Orientation                    | North               |        |
| Property Tenture               | ND                  |        |
| Transaction Type               | 6                   |        |
| Terrain Type                   | Suburban            |        |
| 1.0 Property Type              | Flat, End-Terrace   |        |
| Position of Flat               | Mid-floor flat      |        |
| Which Floor                    | 2                   |        |
| 2.0 Number of Storeys          | 1                   |        |
| 3.0 Date Built                 | 2026                |        |
| 4.0 Sheltered Sides            | 2                   |        |
| 5.0 Sunlight/Shade             | Average or unknown  |        |
| 6.0 Thermal Mass Parameter     | Precise calculation |        |
| Thermal Mass                   | 195.34              | kJ/m²K |
|                                |                     |        |
| 7.0 Electricity Tariff         | Standard            |        |
| Smart electricity meter fitted | Yes                 |        |
| Smart gas meter fitted         | Yes                 |        |

|                  |               |                                |                                             |                                 |
|------------------|---------------|--------------------------------|---------------------------------------------|---------------------------------|
| 7.0 Measurements | Ground floor: | Heat Loss Perimeter<br>26.26 m | Internal Floor Area<br>70.58 m <sup>2</sup> | Average Storey Height<br>2.40 m |
|------------------|---------------|--------------------------------|---------------------------------------------|---------------------------------|

|                 |       |                |
|-----------------|-------|----------------|
| 8.0 Living Area | 27.26 | m <sup>2</sup> |
|-----------------|-------|----------------|

| Description   | Type        | Construction                                                                                                    | U-Value<br>(W/m <sup>2</sup> K) | Kappa<br>(kJ/m <sup>2</sup> K) | Gross<br>Area(m <sup>2</sup> ) | Nett Area<br>(m <sup>2</sup> ) | Shelter<br>Res | Shelter               | Openings | Area Calculation<br>Type |
|---------------|-------------|-----------------------------------------------------------------------------------------------------------------|---------------------------------|--------------------------------|--------------------------------|--------------------------------|----------------|-----------------------|----------|--------------------------|
| External Wall | Cavity Wall | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.19                            | 110.00                         | 63.02                          | 53.83                          | 0.00           | None                  | 9.19     | Enter Gross Area         |
| Communal Wall | Cavity Wall | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.26                            | 110.00                         | 18.02                          | 15.90                          | 2.50           | Stairwell Stairwell 2 | 2.12     | Enter Gross Area         |

| Description           | Construction                 | Kappa<br>(kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|-----------------------|------------------------------|--------------------------------|------------------------|
| Timber stud Partition | Plasterboard on timber frame | 9.00                           | 130.56                 |

| Description     | Construction                                    | Kappa<br>(kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|-----------------|-------------------------------------------------|--------------------------------|------------------------|
| Party Ceiling 1 | Precast concrete planks floor, screed, carpeted | 30.00                          | 70.58                  |

| Description   | Storey Index    | Construction                                    | Kappa<br>(kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|---------------|-----------------|-------------------------------------------------|--------------------------------|------------------------|
| Party Floor 1 | Lowest occupied | Precast concrete planks floor, screed, carpeted | 40.00                          | 70.58                  |

| Description | Data Source | Type | Glazing | Glazing Gap | Filling Type | G-value | Frame Type | Frame Factor | U Value<br>(W/m <sup>2</sup> K) |
|-------------|-------------|------|---------|-------------|--------------|---------|------------|--------------|---------------------------------|
|-------------|-------------|------|---------|-------------|--------------|---------|------------|--------------|---------------------------------|

# Summary for Input Data

|                       |                                       |                   |                       |      |      |      |
|-----------------------|---------------------------------------|-------------------|-----------------------|------|------|------|
| Solid Door Window     | Manufacturer BFR, BSI or CERTASS data | Solid Door Window | Double Low-E Soft 0.1 | 0.63 |      | 1.20 |
|                       |                                       |                   |                       | 0.40 |      | 1.20 |
| Rooflight Patio Doors | Manufacturer BFR, BSI or CERTASS data | Roof Light Window | Double Low-E Soft 0.1 | 0.63 | 0.70 | 1.20 |
|                       |                                       |                   | Double Low-E Soft 0.1 | 0.33 |      | 1.20 |

## 13.0 Openings

| Name       | Opening Type | Location      | Orientation | Area (m²) | Pitch |
|------------|--------------|---------------|-------------|-----------|-------|
| Front Door | Solid Door   | Communal Wall | North       | 2.12      |       |
| Windows 1  | Window       | External Wall | South       | 3.06      |       |
| Windows 2  | Window       | External Wall | East        | 3.06      |       |
| Windows 3  | Window       | External Wall | North       | 3.06      |       |

## 14.0 Conservatory

## 15.0 Draught Proofing

 %

## 16.0 Draught Lobby

## 17.0 Thermal Bridging

### 17.1 List of Bridges

| Bridge Type                                           | Source Type            | Length | Psi  | Adjusted Reference: | Imported |
|-------------------------------------------------------|------------------------|--------|------|---------------------|----------|
| E2 Other lintels (including other steel lintels)      | Independently assessed | 7.82   | 0.05 | 0.05 HiTherm        | No       |
| E3 Sill                                               | Independently assessed | 6.81   | 0.02 | 0.02 Hill Std.      | No       |
| E4 Jamb                                               | Independently assessed | 20.40  | 0.03 | 0.03 Hill Std.      | No       |
| E16 Corner (normal)                                   | Independently assessed | 9.60   | 0.05 | 0.05 Hill Std.      | No       |
| E7 Party floor between dwellings (in blocks of flats) | Independently assessed | 52.52  | 0.04 | 0.04 RCD            | No       |

Y-value  W/m²K

## 19.0 Mechanical Ventilation

### Mechanical Ventilation

|                                       |                                                                             |
|---------------------------------------|-----------------------------------------------------------------------------|
| Mechanical Ventilation System Present | <input type="text" value="Yes"/>                                            |
| Approved Installation                 | <input type="text" value="Yes"/>                                            |
| Mechanical Ventilation data Type      | <input type="text" value="Database"/>                                       |
| Type                                  | <input type="text" value="Mechanical extract ventilation - decentralised"/> |
| MV Reference Number                   | <input type="text" value="500776"/>                                         |
| Duct Type                             | <input type="text" value="Rigid"/>                                          |
| Wet Rooms                             | <input type="text" value="2"/>                                              |

### 19.1 Mechanical extract ventilation - Decentralised

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

## 20.0 Fans, Open Fireplaces, Flues

|                                                  |                                |
|--------------------------------------------------|--------------------------------|
| Number of open chimneys                          | <input type="text" value="0"/> |
| Number of open flues                             | <input type="text" value="0"/> |
| Number of chimneys/flues attached to closed fire | <input type="text" value="0"/> |
| Number of flues attached to solid fuel boiler    | <input type="text" value="0"/> |
| Number of flues attached to other heater         | <input type="text" value="0"/> |
| Number of blocked chimneys                       | <input type="text" value="0"/> |
| Number of intermittent extract fans              | <input type="text" value="0"/> |
| Number of passive vents                          | <input type="text" value="0"/> |
| Number of flueless gas fires                     | <input type="text" value="0"/> |

## 21.0 Fixed Cooling System

## 22.0 Pressure Testing

Designed AP<sub>50</sub>  m³/(h.m²) @ 50 Pa

# Summary for Input Data

|             |             |  |  |  |  |
|-------------|-------------|--|--|--|--|
| Test Method | Blower Door |  |  |  |  |
|-------------|-------------|--|--|--|--|

---

**22.0 Lighting**

|                   |                         |                          |                       |                           |                    |
|-------------------|-------------------------|--------------------------|-----------------------|---------------------------|--------------------|
| No Fixed Lighting | No                      |                          |                       |                           |                    |
|                   | <b>Name</b><br>Lighting | <b>Efficacy</b><br>75.00 | <b>Power</b><br>10.00 | <b>Capacity</b><br>750.00 | <b>Count</b><br>10 |

---

**24.0 Main Heating 1**

|                        |                                                  |  |  |  |   |
|------------------------|--------------------------------------------------|--|--|--|---|
| Manufacturer           | Manufacturer                                     |  |  |  |   |
| Percentage of Heat     | 100.00                                           |  |  |  | % |
| Fuel Type              | Mains gas                                        |  |  |  |   |
| SAP Code               | 104                                              |  |  |  |   |
| In Winter              | 88.90                                            |  |  |  |   |
| In Summer              | 80.30                                            |  |  |  |   |
| Model Name             | Gas                                              |  |  |  |   |
| Manufacturer           | Gas                                              |  |  |  |   |
| Controls SAP Code      | 2110                                             |  |  |  |   |
| Controls description   | Time and temperature zone control by arrangement |  |  |  |   |
| Delayed Start Stat     | Yes                                              |  |  |  |   |
| Burner Control         | Modulating                                       |  |  |  |   |
| 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             |  |  |  |  |
| 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<br>[l/min] | Rated Power<br>[kW] | Connected | Connected To |
|-------------|-------------------------------------------|----------------------|---------------------|-----------|--------------|
| Bathroom    | Combi boiler or unvented hot water system | 8.00                 |                     | No        |              |

---

**28.3 Waste Water Heat Recovery System**

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**29.0 Hot Water Cylinder**

|  |      |  |  |  |  |
|--|------|--|--|--|--|
|  | None |  |  |  |  |
|--|------|--|--|--|--|

---

# Summary for Input Data



## 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



|                      |               |               |                |            |
|----------------------|---------------|---------------|----------------|------------|
| Plot Reference       | 2 Bed Flat TF |               | Issued on Date | 27/02/2026 |
| Assessment Reference | 001           | Plot Type Ref | 2 Bed Flat TF  |            |
| Plot Address         | 2 Bed Flat TF |               | SAP Version    | 10.2       |

|                                    |          |               |       |      |        |
|------------------------------------|----------|---------------|-------|------|--------|
| SAP Rating                         | 84 B     | DER           | 15.05 | TER  | 13.45  |
| Environmental                      | 88 B     | % DER < TER   |       |      | -11.90 |
| CO <sub>2</sub> Emissions (t/year) | 0.98     | DFEE          | 31.22 | TFEE | 33.26  |
| Compliance Check                   | See BREL | % DFEE < TFEE |       |      | 6.14   |
| % DPER < TPER                      | -18.04   | DPER          | 84.33 | TPER | 71.44  |

|                  |                          |             |           |
|------------------|--------------------------|-------------|-----------|
| Assessor Details | Mr. Matthew Fitzpatrick  | Assessor ID | 7601-0001 |
| Client           | HP 01, Hill Partnerships |             |           |

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

|                                |                     |        |
|--------------------------------|---------------------|--------|
| Orientation                    | North               |        |
| Property Tenture               | ND                  |        |
| Transaction Type               | 6                   |        |
| Terrain Type                   | Suburban            |        |
| 1.0 Property Type              | Flat, End-Terrace   |        |
| Position of Flat               | Top-floor flat      |        |
| Which Floor                    | 4                   |        |
| 2.0 Number of Storeys          | 1                   |        |
| 3.0 Date Built                 | 2026                |        |
| 4.0 Sheltered Sides            | 2                   |        |
| 5.0 Sunlight/Shade             | Average or unknown  |        |
| 6.0 Thermal Mass Parameter     | Precise calculation |        |
| Thermal Mass                   | 174.34              | kJ/m²K |
|                                |                     |        |
| 7.0 Electricity Tariff         | Standard            |        |
| Smart electricity meter fitted | Yes                 |        |
| Smart gas meter fitted         | Yes                 |        |

|                  |               |                     |                      |                       |
|------------------|---------------|---------------------|----------------------|-----------------------|
| 7.0 Measurements |               | Heat Loss Perimeter | Internal Floor Area  | Average Storey Height |
|                  | Ground floor: | 26.26 m             | 70.58 m <sup>2</sup> | 2.40 m                |

|                 |       |                |
|-----------------|-------|----------------|
| 8.0 Living Area | 27.26 | m <sup>2</sup> |
|-----------------|-------|----------------|

| Description   | Type        | Construction                                                                                                    | U-Value (W/m <sup>2</sup> K) | Kappa (kJ/m <sup>2</sup> K) | Gross Area(m <sup>2</sup> ) | Nett Area (m <sup>2</sup> ) | Shelter Res | Shelter               | Openings | Area Calculation Type |
|---------------|-------------|-----------------------------------------------------------------------------------------------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|-------------|-----------------------|----------|-----------------------|
| External Wall | Cavity Wall | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.19                         | 110.00                      | 63.02                       | 53.83                       | 0.00        | None                  | 9.19     | Enter Gross Area      |
| Communal Wall | Cavity Wall | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.26                         | 110.00                      | 18.02                       | 15.90                       | 2.50        | Stairwell Stairwell 2 | 2.12     | Enter Gross Area      |

| Description           | Construction                 | Kappa (kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|-----------------------|------------------------------|-----------------------------|------------------------|
| Timber stud Partition | Plasterboard on timber frame | 9.00                        | 130.56                 |

| Description | Type                | Construction                             | U-Value (W/m <sup>2</sup> K) | Kappa (kJ/m <sup>2</sup> K) | Gross Area(m <sup>2</sup> ) | Nett Area (m <sup>2</sup> ) | Shelter Code | Shelter Factor | Calculation Type | Openings |
|-------------|---------------------|------------------------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|--------------|----------------|------------------|----------|
| Cold Roof   | External Plane Roof | Plasterboard, insulated at ceiling level | 0.11                         | 9.00                        | 70.58                       | 70.58                       | None         | 0.00           | Enter Gross Area | 0.00     |

| Description   | Storey Index    | Construction                                    | Kappa (kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|---------------|-----------------|-------------------------------------------------|-----------------------------|------------------------|
| Party Floor 1 | Lowest occupied | Precast concrete planks floor, screed, carpeted | 40.00                       | 70.58                  |

## 12.0 Opening Types

# Summary for Input Data

| Description | Data Source               | Type       | Glazing               | Glazing Gap | Filling Type | G-value | Frame Type | Frame Factor | U Value (W/m²K) |
|-------------|---------------------------|------------|-----------------------|-------------|--------------|---------|------------|--------------|-----------------|
| Solid Door  | Manufacturer              | Solid Door |                       |             |              | 0.63    |            |              | 1.20            |
| Window      | BFRC, BSI or CERTASS data | Window     | Double Low-E Soft 0.1 |             |              | 0.40    |            |              | 1.20            |
| Rooflight   | Manufacturer              | Roof Light | Double Low-E Soft 0.1 |             |              | 0.63    |            | 0.70         | 1.20            |
| Patio Doors | BFRC, BSI or CERTASS data | Window     | Double Low-E Soft 0.1 |             |              | 0.33    |            |              | 1.20            |

## 13.0 Openings

| Name       | Opening Type | Location      | Orientation | Area (m²) | Pitch |
|------------|--------------|---------------|-------------|-----------|-------|
| Front Door | Solid Door   | Communal Wall | North       | 2.12      |       |
| Windows 1  | Window       | External Wall | South       | 3.06      |       |
| Windows 2  | Window       | External Wall | East        | 3.06      |       |
| Windows 3  | Window       | External Wall | North       | 3.06      |       |

## 14.0 Conservatory

## 15.0 Draught Proofing

 %

## 16.0 Draught Lobby

## 17.0 Thermal Bridging

### 17.1 List of Bridges

| Bridge Type                                           | Source Type            | Length | Psi  | Adjusted Reference: | Imported |
|-------------------------------------------------------|------------------------|--------|------|---------------------|----------|
| E2 Other lintels (including other steel lintels)      | Independently assessed | 7.82   | 0.05 | 0.05 HiTherm        | No       |
| E3 Sill                                               | Independently assessed | 6.81   | 0.02 | 0.02 Hill Std.      | No       |
| E4 Jamb                                               | Independently assessed | 20.40  | 0.03 | 0.03 Hill Std.      | No       |
| E10 Eaves (insulation at ceiling level)               | Independently assessed | 18.72  | 0.05 | 0.05 Hill Std.      | No       |
| E12 Gable (insulation at ceiling level)               | Independently assessed | 15.08  | 0.06 | 0.06 Hill Std.      | No       |
| E16 Corner (normal)                                   | Independently assessed | 9.60   | 0.05 | 0.05 Hill Std.      | No       |
| E7 Party floor between dwellings (in blocks of flats) | Independently assessed | 26.26  | 0.04 | 0.04 RCD            | No       |

Y-value  W/m²K

## 19.0 Mechanical Ventilation

### Mechanical Ventilation

|                                       |                                                                             |
|---------------------------------------|-----------------------------------------------------------------------------|
| Mechanical Ventilation System Present | <input type="text" value="Yes"/>                                            |
| Approved Installation                 | <input type="text" value="Yes"/>                                            |
| Mechanical Ventilation data Type      | <input type="text" value="Database"/>                                       |
| Type                                  | <input type="text" value="Mechanical extract ventilation - decentralised"/> |
| MV Reference Number                   | <input type="text" value="500776"/>                                         |
| Duct Type                             | <input type="text" value="Rigid"/>                                          |
| Wet Rooms                             | <input type="text" value="2"/>                                              |

### 19.1 Mechanical extract ventilation - Decentralised

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

## 20.0 Fans, Open Fireplaces, Flues

|                                                  |                                |
|--------------------------------------------------|--------------------------------|
| Number of open chimneys                          | <input type="text" value="0"/> |
| Number of open flues                             | <input type="text" value="0"/> |
| Number of chimneys/flues attached to closed fire | <input type="text" value="0"/> |
| Number of flues attached to solid fuel boiler    | <input type="text" value="0"/> |
| Number of flues attached to other heater         | <input type="text" value="0"/> |
| Number of blocked chimneys                       | <input type="text" value="0"/> |
| Number of intermittent extract fans              | <input type="text" value="0"/> |
| Number of passive vents                          | <input type="text" value="0"/> |
| Number of flueless gas fires                     | <input type="text" value="0"/> |

## 21.0 Fixed Cooling System

# Summary for Input Data

## 22.0 Pressure Testing

|                           |             |                                             |
|---------------------------|-------------|---------------------------------------------|
| Designed AP <sub>50</sub> | Yes         |                                             |
| Test Method               | 4.00        | m <sup>3</sup> /(h.m <sup>2</sup> ) @ 50 Pa |
|                           | Blower Door |                                             |

## 22.0 Lighting

|                   |                  |                   |                |                    |             |
|-------------------|------------------|-------------------|----------------|--------------------|-------------|
| No Fixed Lighting | No               |                   |                |                    |             |
|                   | Name<br>Lighting | Efficacy<br>75.00 | Power<br>10.00 | Capacity<br>750.00 | Count<br>10 |

## 24.0 Main Heating 1

|                        |                                                  |           |
|------------------------|--------------------------------------------------|-----------|
| Manufacturer           | 100.00                                           | %         |
| Percentage of Heat     | Fuel Type                                        | Mains gas |
| SAP Code               | 104                                              |           |
| In Winter              | 88.90                                            |           |
| In Summer              | 80.30                                            |           |
| Model Name             | Gas                                              |           |
| Manufacturer           | Gas                                              |           |
| Controls SAP Code      | 2110                                             |           |
| Controls description   | Time and temperature zone control by arrangement |           |
| Delayed Start Stat     | Yes                                              |           |
| Burner Control         | Modulating                                       |           |
| 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             |
| 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<br>[l/min] | Rated Power<br>[kW] | Connected | Connected To |
|-------------|-------------------------------------------|----------------------|---------------------|-----------|--------------|
| Bathroom    | Combi boiler or unvented hot water system | 8.00                 |                     | No        |              |

## 28.3 Waste Water Heat Recovery System

# Summary for Input Data



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



|                      |           |                |            |
|----------------------|-----------|----------------|------------|
| Plot Reference       | AC-2B4P-1 | Issued on Date | 27/02/2026 |
| Assessment Reference | 001       | Plot Type Ref  | AC-2B4P-1  |
| Plot Address         | AC-2B4P-1 | SAP Version    | 10.2       |

|                                    |          |               |       |      |        |
|------------------------------------|----------|---------------|-------|------|--------|
| SAP Rating                         | 84 B     | DER           | 14.79 | TER  | 11.55  |
| Environmental                      | 88 B     | % DER < TER   |       |      | -28.05 |
| CO <sub>2</sub> Emissions (t/year) | 1.09     | DFEE          | 34.23 | TFEE | 35.97  |
| Compliance Check                   | See BREL | % DFEE < TFEE |       |      | 4.85   |
| % DPER < TPER                      | -37.03   | DPER          | 82.59 | TPER | 60.27  |

|                  |                          |             |           |
|------------------|--------------------------|-------------|-----------|
| Assessor Details | Mr. Matthew Fitzpatrick  | Assessor ID | 7601-0001 |
| Client           | HP 01, Hill Partnerships |             |           |

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

|                                |                            |
|--------------------------------|----------------------------|
| Orientation                    | North                      |
| Property Tenure                | ND                         |
| Transaction Type               | 6                          |
| Terrain Type                   | Suburban                   |
| 1.0 Property Type              | House, Semi-Detached       |
| 2.0 Number of Storeys          | 2                          |
| 3.0 Date Built                 | 2026                       |
| 4.0 Sheltered Sides            | 2                          |
| 5.0 Sunlight/Shade             | Average or unknown         |
| 6.0 Thermal Mass Parameter     | Precise calculation        |
| Thermal Mass                   | 224.85 kJ/m <sup>2</sup> K |
| 7.0 Electricity Tariff         | Standard                   |
| Smart electricity meter fitted | Yes                        |
| Smart gas meter fitted         | Yes                        |

| 7.0 Measurements | Ground floor: | Heat Loss Perimeter | Internal Floor Area  | Average Storey Height |
|------------------|---------------|---------------------|----------------------|-----------------------|
|                  | 1st Storey:   | 18.26 m             | 40.46 m <sup>2</sup> | 2.50 m                |
|                  |               | 18.26 m             | 40.46 m <sup>2</sup> | 2.70 m                |

|                 |                      |
|-----------------|----------------------|
| 8.0 Living Area | 30.79 m <sup>2</sup> |
|-----------------|----------------------|

| 9.0 External Walls | Description   | Type        | Construction                                                                                                    | U-Value (W/m <sup>2</sup> K) | Kappa (kJ/m <sup>2</sup> K) | Gross Area(m <sup>2</sup> ) | Nett Area (m <sup>2</sup> ) | Shelter Res | Shelter | Openings | Area Calculation Type |
|--------------------|---------------|-------------|-----------------------------------------------------------------------------------------------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|-------------|---------|----------|-----------------------|
|                    | External Wall | Cavity Wall | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.19                         | 110.00                      | 94.97                       | 72.23                       | 0.00        | None    | 22.74    | Enter Gross Area      |

| 9.1 Party Walls | Description | Type                            | Construction                                                                                | U-Value (W/m <sup>2</sup> K) | Kappa (kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) | Shelter Res | Shelter |
|-----------------|-------------|---------------------------------|---------------------------------------------------------------------------------------------|------------------------------|-----------------------------|------------------------|-------------|---------|
|                 | Party Wall  | Filled Cavity with Edge Sealing | Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill | 0.00                         | 110.00                      | 39.32                  | 0.00        | None    |

| 9.2 Internal Walls | Description     | Construction                 | Kappa (kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|--------------------|-----------------|------------------------------|-----------------------------|------------------------|
|                    | Stud Partitions | Plasterboard on timber frame | 9.00                        | 159.27                 |

| 10.0 External Roofs | Description | Type                | Construction                             | U-Value (W/m <sup>2</sup> K) | Kappa (kJ/m <sup>2</sup> K) | Gross Area(m <sup>2</sup> ) | Nett Area (m <sup>2</sup> ) | Shelter Code | Shelter Factor | Calculation Type | Openings |
|---------------------|-------------|---------------------|------------------------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|--------------|----------------|------------------|----------|
|                     | Cold Roof   | External Plane Roof | Plasterboard, insulated at ceiling level | 0.11                         | 9.00                        | 40.46                       | 40.46                       | None         | 0.00           | Enter Gross Area | 0.00     |

| 10.2 Internal Ceilings | Description        | Storey          | Construction                                   | Kappa | Area (m <sup>2</sup> ) |
|------------------------|--------------------|-----------------|------------------------------------------------|-------|------------------------|
|                        | Internal Ceiling 1 | Lowest occupied | Plasterboard ceiling, carpeted chipboard floor | 9.00  | 40.46                  |

## 11.0 Heat Loss Floors

# Summary for Input Data



| Description  | Type                 | Storey Index    | Construction                       | U-Value (W/m²K) | Shelter Code | Shelter Factor | Kappa (kJ/m²K) | Area (m²) |
|--------------|----------------------|-----------------|------------------------------------|-----------------|--------------|----------------|----------------|-----------|
| Ground Floor | Ground Floor - Solid | Lowest occupied | Suspended concrete floor, carpeted | 0.12            | None         | 0.00           | 75.00          | 40.46     |

## 11.2 Internal Floors

| Description      | Storey Index    | Construction                                   | Kappa (kJ/m²K) | Area (m²) |
|------------------|-----------------|------------------------------------------------|----------------|-----------|
| Internal Floor 1 | Lowest occupied | Plasterboard ceiling, carpeted chipboard floor | 18.00          | 40.46     |

## 12.0 Opening Types

| Description               | Data Source               | Type             | Glazing                | Glazing Gap | Filling Type | G-value | Frame Type | Frame Factor | U Value (W/m²K) |
|---------------------------|---------------------------|------------------|------------------------|-------------|--------------|---------|------------|--------------|-----------------|
| Windows                   | BFRC, BSI or CERTASS data | Window           | Double Low-E Soft 0.1  |             |              | 0.40    |            |              | 1.20            |
| Bi-Fold/Patio Door        | BFRC, BSI or CERTASS data | Window           | Double Low-E Soft 0.05 |             |              | 0.33    |            |              | 1.20            |
| Entrance Door             | Manufacturer              | Solid Door       |                        |             |              | 0.00    |            |              | 1.20            |
| Half Glazed Entrance Door | Manufacturer              | Half Glazed Door | Double Low-E Soft 0.1  |             |              | 0.63    |            | 0.70         | 1.20            |

## 13.0 Openings

| Name          | Opening Type       | Location      | Orientation | Area (m²) | Pitch |
|---------------|--------------------|---------------|-------------|-----------|-------|
| Front Door    | Entrance Door      | External Wall | North       | 2.12      |       |
| Front Windows | Windows            | External Wall | North       | 5.95      |       |
| Rear Windows  | Windows            | External Wall | South       | 3.33      |       |
| Patio Doors   | Bi-Fold/Patio Door | External Wall | South       | 11.34     |       |

## 14.0 Conservatory

## 15.0 Draught Proofing

 %

## 16.0 Draught Lobby

## 17.0 Thermal Bridging

### 17.1 List of Bridges

| Bridge Type                                          | Source Type              | Length | Psi   | Adjusted Reference: | Imported |
|------------------------------------------------------|--------------------------|--------|-------|---------------------|----------|
| E2 Other lintels (including other steel lintels)     | Independently assessed   | 12.08  | 0.05  | 0.05 HiTherm        | No       |
| E3 Sill                                              | Independently assessed   | 6.78   | 0.02  | 0.02 Hill Std.      | No       |
| E4 Jamb                                              | Independently assessed   | 25.20  | 0.03  | 0.03 Hill Std.      | No       |
| E5 Ground floor (normal)                             | Independently assessed   | 18.26  | 0.06  | 0.06 Hill Std.      | No       |
| E10 Eaves (insulation at ceiling level)              | Independently assessed   | 10.70  | 0.05  | 0.05 Hill Std.      | No       |
| E16 Corner (normal)                                  | Independently assessed   | 10.40  | 0.05  | 0.05 Hill Std.      | No       |
| E6 Intermediate floor within a dwelling              | Independently assessed   | 18.26  | 0.05  | 0.05 Hill Std.      | No       |
| E12 Gable (insulation at ceiling level)              | Independently assessed   | 7.56   | 0.06  | 0.06 Hill Std.      | No       |
| E18 Party wall between dwellings                     | Independently assessed   | 10.40  | -0.06 | -0.06 Hill Std.     | No       |
| P1 Party wall - Ground floor                         | Non Gov Approved Schemes | 7.56   | 0.04  | 0.04 RCD            | No       |
| P2 Party wall - Intermediate floor within a dwelling | Table K1 - Default       | 7.56   | 0.00  | 0.00                | No       |
| P4 Party wall - Roof (insulation at ceiling level)   | Non Gov Approved Schemes | 7.56   | 0.03  | 0.03 RCD            | No       |

Y-value  W/m²K

## 19.0 Mechanical Ventilation

### Mechanical Ventilation

|                                       |                                                                             |
|---------------------------------------|-----------------------------------------------------------------------------|
| Mechanical Ventilation System Present | <input type="text" value="Yes"/>                                            |
| Approved Installation                 | <input type="text" value="Yes"/>                                            |
| Mechanical Ventilation data Type      | <input type="text" value="Database"/>                                       |
| Type                                  | <input type="text" value="Mechanical extract ventilation - decentralised"/> |
| MV Reference Number                   | <input type="text" value="500776"/>                                         |
| Configuration                         | <input type="text" value="1"/>                                              |
| Duct Type                             | <input type="text" value="Rigid"/>                                          |
| Wet Rooms                             | <input type="text" value="4"/>                                              |

### 19.1 Mechanical extract ventilation - Decentralised

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

## 20.0 Fans, Open Fireplaces, Flues

Number of open chimneys

# Summary for Input Data

|                                                  |                                |  |  |  |  |
|--------------------------------------------------|--------------------------------|--|--|--|--|
| Number of open flues                             | <input type="text" value="0"/> |  |  |  |  |
| Number of chimneys/flues attached to closed fire | <input type="text" value="0"/> |  |  |  |  |
| Number of flues attached to solid fuel boiler    | <input type="text" value="0"/> |  |  |  |  |
| Number of flues attached to other heater         | <input type="text" value="0"/> |  |  |  |  |
| Number of blocked chimneys                       | <input type="text" value="0"/> |  |  |  |  |
| Number of intermittent extract fans              | <input type="text" value="0"/> |  |  |  |  |
| Number of passive vents                          | <input type="text" value="0"/> |  |  |  |  |
| Number of flueless gas fires                     | <input type="text" value="0"/> |  |  |  |  |

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

---

|                              |                                          |                   |  |  |  |
|------------------------------|------------------------------------------|-------------------|--|--|--|
| <b>22.0 Pressure Testing</b> | <input type="text" value="Yes"/>         |                   |  |  |  |
| Designed AP <sub>50</sub>    | <input type="text" value="4.00"/>        | m³/(h.m²) @ 50 Pa |  |  |  |
| Test Method                  | <input type="text" value="Blower Door"/> |                   |  |  |  |

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|                      |                                 |                 |              |                 |              |
|----------------------|---------------------------------|-----------------|--------------|-----------------|--------------|
| <b>22.0 Lighting</b> | <input type="text" value="No"/> |                 |              |                 |              |
| No Fixed Lighting    | <input type="text" value="No"/> |                 |              |                 |              |
|                      | <b>Name</b>                     | <b>Efficacy</b> | <b>Power</b> | <b>Capacity</b> | <b>Count</b> |
|                      | Pendant light                   | 75.00           | 10.00        | 750.00          | 10           |
|                      | Batten light                    | 75.00           | 10.00        | 750.00          | 10           |

---

|                            |                                                                               |   |  |  |  |
|----------------------------|-------------------------------------------------------------------------------|---|--|--|--|
| <b>24.0 Main Heating 1</b> | <input type="text" value="Manufacturer"/>                                     |   |  |  |  |
| Percentage of Heat         | <input type="text" value="100.00"/>                                           | % |  |  |  |
| Fuel Type                  | <input type="text" value="Mains gas"/>                                        |   |  |  |  |
| SAP Code                   | <input type="text" value="104"/>                                              |   |  |  |  |
| In Winter                  | <input type="text" value="88.90"/>                                            |   |  |  |  |
| In Summer                  | <input type="text" value="80.30"/>                                            |   |  |  |  |
| Model Name                 | <input type="text" value="Gas"/>                                              |   |  |  |  |
| Manufacturer               | <input type="text" value="Gas"/>                                              |   |  |  |  |
| Controls SAP Code          | <input type="text" value="2110"/>                                             |   |  |  |  |
| Controls description       | <input type="text" value="Time and temperature zone control by arrangement"/> |   |  |  |  |
| Delayed Start Stat         | <input type="text" value="Yes"/>                                              |   |  |  |  |
| Burner Control             | <input type="text" value="Modulating"/>                                       |   |  |  |  |
| Flue Type                  | <input type="text" value="Balanced"/>                                         |   |  |  |  |
| Fan Assisted Flue          | <input type="text" value="Yes"/>                                              |   |  |  |  |
| Is MHS Pumped              | <input type="text" value="Pump in heated space"/>                             |   |  |  |  |
| Heating Pump Age           | <input type="text" value="2013 or later"/>                                    |   |  |  |  |
| Heat Emitter               | <input type="text" value="Radiators"/>                                        |   |  |  |  |
| Flow Temperature           | <input type="text" value="Enter value"/>                                      |   |  |  |  |
| Flow Temperature Value     | <input type="text" value="55.00"/>                                            |   |  |  |  |
| Boiler Interlock           | <input type="text" value="Yes"/>                                              |   |  |  |  |
| Combi boiler type          | <input type="text" value="Standard Combi"/>                                   |   |  |  |  |
| Combi keep hot type        | <input type="text" value="None"/>                                             |   |  |  |  |

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|                            |                                   |  |  |  |  |
|----------------------------|-----------------------------------|--|--|--|--|
| <b>25.0 Main Heating 2</b> | <input type="text" value="None"/> |  |  |  |  |
|----------------------------|-----------------------------------|--|--|--|--|

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|                           |                                   |  |  |  |  |
|---------------------------|-----------------------------------|--|--|--|--|
| <b>26.0 Heat Networks</b> | <input type="text" value="None"/> |  |  |  |  |
|---------------------------|-----------------------------------|--|--|--|--|

---

|                               |                                   |  |  |  |  |
|-------------------------------|-----------------------------------|--|--|--|--|
| <b>27.0 Secondary Heating</b> | <input type="text" value="None"/> |  |  |  |  |
|-------------------------------|-----------------------------------|--|--|--|--|

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|                                                  |                                             |  |  |  |  |
|--------------------------------------------------|---------------------------------------------|--|--|--|--|
| <b>28.0 Water Heating</b>                        | <input type="text" value="Main Heating 1"/> |  |  |  |  |
| Water Heating                                    | <input type="text" value="Main Heating 1"/> |  |  |  |  |
| SAP Code                                         | <input type="text" value="901"/>            |  |  |  |  |
| Flue Gas Heat Recovery System                    | <input type="text" value="No"/>             |  |  |  |  |
| Waste Water Heat Recovery Instantaneous System 1 | <input type="text" value="No"/>             |  |  |  |  |

# Summary for Input Data

|                                                  |                                         |
|--------------------------------------------------|-----------------------------------------|
| Waste Water Heat Recovery Instantaneous System 2 | <input type="text" value="No"/>         |
| Waste Water Heat Recovery Storage System         | <input type="text" value="No"/>         |
| Solar Panel                                      | <input type="text" value="No"/>         |
| Water use <= 125 litres/person/day               | <input type="text" value="Yes"/>        |
| Cold Water Source                                | <input type="text" value="From mains"/> |
| Bath Count                                       | <input type="text" value="1"/>          |
| Hot Water Controls Model                         | <input type="text" value="HIU"/>        |

## 28.1 Showers

| Description | Shower Type                               | Flow Rate<br>[l/min] | Rated Power<br>[kW] | Connected | Connected To |
|-------------|-------------------------------------------|----------------------|---------------------|-----------|--------------|
| 1           | Combi boiler or unvented hot water system | 8.00                 |                     | No        |              |
| 2           | Combi boiler or unvented hot water system | 8.00                 |                     | No        |              |

## 28.3 Waste Water Heat Recovery System

|                         |                                   |
|-------------------------|-----------------------------------|
| 29.0 Hot Water Cylinder | <input type="text" value="None"/> |
|-------------------------|-----------------------------------|

## 34.0 Small-scale Hydro

|                                   |     |     |     |     |     |     |     |     |     |     |     |     |
|-----------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <input type="text" value="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

|                      |           |                |            |
|----------------------|-----------|----------------|------------|
| Plot Reference       | AC-2B4P-3 | Issued on Date | 27/02/2026 |
| Assessment Reference | 001       | Plot Type Ref  | AC-2B4P-3  |
| Plot Address         | AC-2B4P-3 | SAP Version    | 10.2       |

|                                    |          |               |       |      |        |
|------------------------------------|----------|---------------|-------|------|--------|
| SAP Rating                         | 83 B     | DER           | 16.36 | TER  | 13.05  |
| Environmental                      | 86 B     | % DER < TER   |       |      | -25.36 |
| CO <sub>2</sub> Emissions (t/year) | 1.24     | DFEE          | 41.86 | TFEE | 43.53  |
| Compliance Check                   | See BREL | % DFEE < TFEE |       |      | 3.84   |
| % DPER < TPER                      | -33.16   | DPER          | 90.99 | TPER | 68.33  |

|                  |                          |             |           |
|------------------|--------------------------|-------------|-----------|
| Assessor Details | Mr. Matthew Fitzpatrick  | Assessor ID | 7601-0001 |
| Client           | HP 01, Hill Partnerships |             |           |

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

|                            |                     |       |
|----------------------------|---------------------|-------|
| Orientation                | North               |       |
| Property Tenture           | ND                  |       |
| Transaction Type           | 6                   |       |
| Terrain Type               | Suburban            |       |
| 1.0 Property Type          | House, Detached     |       |
| 2.0 Number of Storeys      | 2                   |       |
| 3.0 Date Built             | 2026                |       |
| 4.0 Sheltered Sides        | 2                   |       |
| 5.0 Sunlight/Shade         | Average or unknown  |       |
| 6.0 Thermal Mass Parameter | Precise calculation |       |
| Thermal Mass               | 240.64              | kJ/m² |

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

| 7.0 Measurements | Ground floor:<br>1st Storey: | Heat Loss Perimeter<br>27.03 m<br>27.03 m | Internal Floor Area<br>42.00 m²<br>42.00 m² | Average Storey Height<br>2.50 m<br>2.70 m |
|------------------|------------------------------|-------------------------------------------|---------------------------------------------|-------------------------------------------|
|------------------|------------------------------|-------------------------------------------|---------------------------------------------|-------------------------------------------|

|                 |       |    |
|-----------------|-------|----|
| 8.0 Living Area | 16.92 | m² |
|-----------------|-------|----|

| 9.0 External Walls | Description   | Type        | Construction                                                                                                    | U-Value<br>(W/m²K) | Kappa<br>(kJ/m²K) | Gross<br>Area(m²) | Nett<br>Area<br>(m²) | Shelter<br>Res<br>0.00 | Shelter<br>None | Openings<br>18.99 | Area Calculation<br>Type<br>Enter Gross Area |
|--------------------|---------------|-------------|-----------------------------------------------------------------------------------------------------------------|--------------------|-------------------|-------------------|----------------------|------------------------|-----------------|-------------------|----------------------------------------------|
|                    | External Wall | Cavity Wall | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.19               | 110.00            | 145.95            | 126.96               |                        |                 |                   |                                              |

| 9.2 Internal Walls | Description           | Construction                 | Kappa<br>(kJ/m²K) | Area (m²) |
|--------------------|-----------------------|------------------------------|-------------------|-----------|
|                    | Timber stud Partition | Plasterboard on timber frame | 9.00              | 176.24    |

| 10.0 External Roofs | Description | Type                | Construction                             | U-Value<br>(W/m²K) | Kappa<br>(kJ/m²K) | Gross<br>Area(m²) | Nett<br>Area<br>(m²) | Shelter<br>Code<br>None | Shelter<br>Factor<br>0.00 | Calculation<br>Type<br>Enter Gross Area | Openings<br>0.00 |
|---------------------|-------------|---------------------|------------------------------------------|--------------------|-------------------|-------------------|----------------------|-------------------------|---------------------------|-----------------------------------------|------------------|
|                     | Cold Roof   | External Plane Roof | Plasterboard, insulated at ceiling level | 0.11               | 9.00              | 42.00             | 42.00                |                         |                           |                                         |                  |

| 10.2 Internal Ceilings | Description      | Storey<br>Lowest occupied | Construction                                   | Kappa<br>9.00 | Area (m²)<br>42.00 |
|------------------------|------------------|---------------------------|------------------------------------------------|---------------|--------------------|
|                        | Internal Ceiling |                           | Plasterboard ceiling, carpeted chipboard floor |               |                    |

| 11.0 Heat Loss Floors | Description  | Type                 | Storey Index    | Construction                       | U-Value<br>(W/m²K) | Shelter Code<br>None | Shelter Factor<br>0.00 | Kappa<br>(kJ/m²K) | Area (m²)<br>42.00 |
|-----------------------|--------------|----------------------|-----------------|------------------------------------|--------------------|----------------------|------------------------|-------------------|--------------------|
|                       | Ground Floor | Ground Floor - Solid | Lowest occupied | Suspended concrete floor, carpeted | 0.12               |                      |                        | 75.00             |                    |

| 11.2 Internal Floors | Description | Storey Index | Construction | Kappa<br>(kJ/m²K) | Area (m²) |
|----------------------|-------------|--------------|--------------|-------------------|-----------|
|                      |             |              |              |                   |           |

# Summary for Input Data

Internal Floor 1 +1 Plasterboard ceiling, carpeted chipboard floor 18.00 42.00

## 12.0 Opening Types

| Description              | Data Source                            | Type                    | Glazing                                        | Glazing Gap | Filling Type | G-value      | Frame Type | Frame Factor | U Value (W/m²K) |
|--------------------------|----------------------------------------|-------------------------|------------------------------------------------|-------------|--------------|--------------|------------|--------------|-----------------|
| Glazed front Door Window | Manufacturer BFCR, BSI or CERTASS data | Half Glazed Door Window | Double Low-E Soft 0.1<br>Double Low-E Soft 0.1 |             |              | 0.63<br>0.40 |            | 0.70         | 1.20<br>1.20    |
| Rooflight Patio Doors    | Manufacturer BFCR, BSI or CERTASS data | Roof Light Window       | Double Low-E Soft 0.1<br>Double Low-E Soft 0.1 |             |              | 0.63<br>0.33 |            | 0.70         | 1.20<br>1.20    |

## 13.0 Openings

| Name            | Opening Type      | Location      | Orientation | Area (m²) | Pitch |
|-----------------|-------------------|---------------|-------------|-----------|-------|
| Front Door      | Glazed front Door | External Wall | North       | 2.14      |       |
| Front Elevation | Window            | External Wall | North       | 8.94      |       |
| Rear Elevation  | Window            | External Wall | South       | 3.51      |       |
| Patio Doors     | Patio Doors       | External Wall | South       | 3.80      |       |
| RHS Windows     | Window            | External Wall | East        | 0.60      |       |

## 14.0 Conservatory

None

## 15.0 Draught Proofing

100 %

## 16.0 Draught Lobby

No

## 17.0 Thermal Bridging

Calculate Bridges

## 17.1 List of Bridges

| Bridge Type                                      | Source Type            | Length | Psi  | Adjusted Reference: | Imported |
|--------------------------------------------------|------------------------|--------|------|---------------------|----------|
| E2 Other lintels (including other steel lintels) | Independently assessed | 13.52  | 0.05 | 0.05 HiTherm        | No       |
| E3 Sill                                          | Independently assessed | 12.50  | 0.02 | 0.02 Hill Std.      | No       |
| E4 Jamb                                          | Independently assessed | 27.68  | 0.03 | 0.03 Hill Std.      | No       |
| E5 Ground floor (normal)                         | Independently assessed | 27.03  | 0.06 | 0.06 Hill Std.      | No       |
| E6 Intermediate floor within a dwelling          | Independently assessed | 27.03  | 0.05 | 0.05 Hill Std.      | No       |
| E10 Eaves (insulation at ceiling level)          | Independently assessed | 17.34  | 0.05 | 0.05 Hill Std.      | No       |
| E12 Gable (insulation at ceiling level)          | Independently assessed | 9.69   | 0.06 | 0.06 Hill Std.      | No       |
| E16 Corner (normal)                              | Independently assessed | 20.80  | 0.05 | 0.05 Hill Std.      | 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                   | 500776                                         |
| Duct Type                             | Rigid                                          |
| Wet Rooms                             | 4                                              |

## 19.1 Mechanical extract ventilation - Decentralised

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

## 20.0 Fans, Open Fireplaces, Flues

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

# Summary for Input Data

|                                                  |                                                                               |                                             |                       |                           |                    |
|--------------------------------------------------|-------------------------------------------------------------------------------|---------------------------------------------|-----------------------|---------------------------|--------------------|
| Number of flueless gas fires                     | <input type="text" value="0"/>                                                |                                             |                       |                           |                    |
| <b>21.0 Fixed Cooling System</b>                 | <input type="text" value="No"/>                                               |                                             |                       |                           |                    |
| <b>22.0 Pressure Testing</b>                     | <input type="text" value="Yes"/>                                              |                                             |                       |                           |                    |
| Designed AP <sub>50</sub>                        | <input type="text" value="4.00"/>                                             | m <sup>3</sup> /(h.m <sup>2</sup> ) @ 50 Pa |                       |                           |                    |
| Test Method                                      | <input type="text" value="Blower Door"/>                                      |                                             |                       |                           |                    |
| <b>22.0 Lighting</b>                             | <input type="text" value="No"/>                                               |                                             |                       |                           |                    |
| No Fixed Lighting                                | <input type="text" value="No"/>                                               |                                             |                       |                           |                    |
|                                                  | <b>Name</b><br>Lighting                                                       | <b>Efficacy</b><br>75.00                    | <b>Power</b><br>10.00 | <b>Capacity</b><br>750.00 | <b>Count</b><br>30 |
| <b>24.0 Main Heating 1</b>                       | <input type="text" value="Manufacturer"/>                                     |                                             |                       |                           |                    |
| Percentage of Heat                               | <input type="text" value="100.00"/>                                           |                                             |                       |                           | %                  |
| Fuel Type                                        | <input type="text" value="Mains gas"/>                                        |                                             |                       |                           |                    |
| SAP Code                                         | <input type="text" value="104"/>                                              |                                             |                       |                           |                    |
| In Winter                                        | <input type="text" value="88.90"/>                                            |                                             |                       |                           |                    |
| In Summer                                        | <input type="text" value="80.30"/>                                            |                                             |                       |                           |                    |
| Model Name                                       | <input type="text" value="Gas"/>                                              |                                             |                       |                           |                    |
| Manufacturer                                     | <input type="text" value="Gas"/>                                              |                                             |                       |                           |                    |
| Controls SAP Code                                | <input type="text" value="2110"/>                                             |                                             |                       |                           |                    |
| Controls description                             | <input type="text" value="Time and temperature zone control by arrangement"/> |                                             |                       |                           |                    |
| Delayed Start Stat                               | <input type="text" value="Yes"/>                                              |                                             |                       |                           |                    |
| Burner Control                                   | <input type="text" value="Modulating"/>                                       |                                             |                       |                           |                    |
| Flue Type                                        | <input type="text" value="Balanced"/>                                         |                                             |                       |                           |                    |
| Fan Assisted Flue                                | <input type="text" value="Yes"/>                                              |                                             |                       |                           |                    |
| Is MHS Pumped                                    | <input type="text" value="Pump in heated space"/>                             |                                             |                       |                           |                    |
| Heating Pump Age                                 | <input type="text" value="2013 or later"/>                                    |                                             |                       |                           |                    |
| Heat Emitter                                     | <input type="text" value="Radiators"/>                                        |                                             |                       |                           |                    |
| Flow Temperature                                 | <input type="text" value="Enter value"/>                                      |                                             |                       |                           |                    |
| Flow Temperature Value                           | <input type="text" value="55.00"/>                                            |                                             |                       |                           |                    |
| Boiler Interlock                                 | <input type="text" value="Yes"/>                                              |                                             |                       |                           |                    |
| Combi boiler type                                | <input type="text" value="Standard Combi"/>                                   |                                             |                       |                           |                    |
| Combi keep hot type                              | <input type="text" value="None"/>                                             |                                             |                       |                           |                    |
| <b>25.0 Main Heating 2</b>                       | <input type="text" value="None"/>                                             |                                             |                       |                           |                    |
| <b>26.0 Heat Networks</b>                        | <input type="text" value="None"/>                                             |                                             |                       |                           |                    |
| <b>27.0 Secondary Heating</b>                    | <input type="text" value="None"/>                                             |                                             |                       |                           |                    |
| <b>28.0 Water Heating</b>                        | <input type="text" value="Main Heating 1"/>                                   |                                             |                       |                           |                    |
| Water Heating                                    | <input type="text" value="Main Heating 1"/>                                   |                                             |                       |                           |                    |
| SAP Code                                         | <input type="text" value="901"/>                                              |                                             |                       |                           |                    |
| Flue Gas Heat Recovery System                    | <input type="text" value="No"/>                                               |                                             |                       |                           |                    |
| Waste Water Heat Recovery Instantaneous System 1 | <input type="text" value="No"/>                                               |                                             |                       |                           |                    |
| Waste Water Heat Recovery Instantaneous System 2 | <input type="text" value="No"/>                                               |                                             |                       |                           |                    |
| Waste Water Heat Recovery Storage System         | <input type="text" value="No"/>                                               |                                             |                       |                           |                    |
| Solar Panel                                      | <input type="text" value="No"/>                                               |                                             |                       |                           |                    |
| Water use <= 125 litres/person/day               | <input type="text" value="Yes"/>                                              |                                             |                       |                           |                    |
| Cold Water Source                                | <input type="text" value="From mains"/>                                       |                                             |                       |                           |                    |
| Bath Count                                       | <input type="text" value="1"/>                                                |                                             |                       |                           |                    |

## 28.1 Showers

# Summary for Input Data



| Description | Shower Type                               | Flow Rate<br>[l/min] | Rated Power<br>[kW] | Connected | Connected To |
|-------------|-------------------------------------------|----------------------|---------------------|-----------|--------------|
| Bathroom    | Combi boiler or unvented hot water system | 8.00                 |                     | No        |              |
| En-suite    | 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

|                      |           |                |            |
|----------------------|-----------|----------------|------------|
| Plot Reference       | AC-3B5P-1 | Issued on Date | 27/02/2026 |
| Assessment Reference | 001       | Plot Type Ref  | AC-3B5P-1  |
| Plot Address         | AC-3B5P-1 | SAP Version    | 10.2       |

|                                    |          |               |       |      |        |
|------------------------------------|----------|---------------|-------|------|--------|
| SAP Rating                         | 85 B     | DER           | 13.42 | TER  | 10.36  |
| Environmental                      | 88 B     | % DER < TER   |       |      | -29.54 |
| CO <sub>2</sub> Emissions (t/year) | 1.24     | DFEE          | 34.03 | TFEE | 35.96  |
| Compliance Check                   | See BREL | % DFEE < TFEE |       |      | 5.37   |
| % DPER < TPER                      | -38.91   | DPER          | 74.90 | TPER | 53.92  |

|                  |                          |             |           |
|------------------|--------------------------|-------------|-----------|
| Assessor Details | Mr. Matthew Fitzpatrick  | Assessor ID | 7601-0001 |
| Client           | HP 01, Hill Partnerships |             |           |

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

|                                |                      |        |
|--------------------------------|----------------------|--------|
| Orientation                    | North                |        |
| Property Tenture               | ND                   |        |
| Transaction Type               | 6                    |        |
| Terrain Type                   | Suburban             |        |
| 1.0 Property Type              | House, Semi-Detached |        |
| 2.0 Number of Storeys          | 2                    |        |
| 3.0 Date Built                 | 2026                 |        |
| 4.0 Sheltered Sides            | 2                    |        |
| 5.0 Sunlight/Shade             | Average or unknown   |        |
| 6.0 Thermal Mass Parameter     | Precise calculation  |        |
| Thermal Mass                   | 211.95               | kJ/m²K |
| <hr/>                          |                      |        |
| 7.0 Electricity Tariff         | Standard             |        |
| Smart electricity meter fitted | Yes                  |        |
| Smart gas meter fitted         | Yes                  |        |

| 7.0 Measurements | Ground floor:<br>1st Storey: | Heat Loss Perimeter<br>20.16 m<br>20.16 m | Internal Floor Area<br>50.86 m <sup>2</sup><br>50.86 m <sup>2</sup> | Average Storey Height<br>2.50 m<br>2.70 m |
|------------------|------------------------------|-------------------------------------------|---------------------------------------------------------------------|-------------------------------------------|
|------------------|------------------------------|-------------------------------------------|---------------------------------------------------------------------|-------------------------------------------|

|                 |       |                |
|-----------------|-------|----------------|
| 8.0 Living Area | 37.44 | m <sup>2</sup> |
|-----------------|-------|----------------|

| 9.0 External Walls | Description   | Type        | Construction                                                                                                    | U-Value<br>(W/m <sup>2</sup> K) | Kappa<br>(kJ/m <sup>2</sup> K) | Gross<br>Area(m <sup>2</sup> ) | Nett Area<br>(m <sup>2</sup> ) | Shelter<br>Res | Shelter | Openings | Area Calculation<br>Type |
|--------------------|---------------|-------------|-----------------------------------------------------------------------------------------------------------------|---------------------------------|--------------------------------|--------------------------------|--------------------------------|----------------|---------|----------|--------------------------|
|                    | External Wall | Cavity Wall | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.19                            | 110.00                         | 104.94                         | 78.38                          | 0.00           | None    | 26.56    | Enter Gross Area         |

| 9.1 Party Walls | Description | Type                            | Construction                                                                                | U-Value<br>(W/m <sup>2</sup> K) | Kappa<br>(kJ/m <sup>2</sup> K) | Area<br>(m <sup>2</sup> ) | Shelter<br>Res | Shelter |
|-----------------|-------------|---------------------------------|---------------------------------------------------------------------------------------------|---------------------------------|--------------------------------|---------------------------|----------------|---------|
|                 | Party Wall  | Filled Cavity with Edge Sealing | Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill | 0.00                            | 110.00                         | 49.84                     | 0.00           | None    |

| 9.2 Internal Walls | Description     | Construction                 | Kappa<br>(kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|--------------------|-----------------|------------------------------|--------------------------------|------------------------|
|                    | Stud Partitions | Plasterboard on timber frame | 9.00                           | 201.07                 |

| 10.0 External Roofs | Description | Type                | Construction                             | U-Value<br>(W/m <sup>2</sup> K) | Kappa<br>(kJ/m <sup>2</sup> K) | Gross<br>Area(m <sup>2</sup> ) | Nett<br>Area<br>(m <sup>2</sup> ) | Shelter<br>Code | Shelter<br>Factor | Calculation<br>Type | Openings |
|---------------------|-------------|---------------------|------------------------------------------|---------------------------------|--------------------------------|--------------------------------|-----------------------------------|-----------------|-------------------|---------------------|----------|
|                     | Cold Roof   | External Plane Roof | Plasterboard, insulated at ceiling level | 0.11                            | 9.00                           | 50.86                          | 50.86                             | None            | 0.00              | Enter Gross Area    | 0.00     |

| 10.2 Internal Ceilings | Description        | Storey          | Construction                                   | Kappa | Area (m <sup>2</sup> ) |
|------------------------|--------------------|-----------------|------------------------------------------------|-------|------------------------|
|                        | Internal Ceiling 1 | Lowest occupied | Plasterboard ceiling, carpeted chipboard floor | 9.00  | 50.86                  |

## 11.0 Heat Loss Floors

# Summary for Input Data

| Description  | Type                 | Storey Index    | Construction                       | U-Value (W/m²K) | Shelter Code | Shelter Factor | Kappa (kJ/m²K) | Area (m²) |
|--------------|----------------------|-----------------|------------------------------------|-----------------|--------------|----------------|----------------|-----------|
| Ground Floor | Ground Floor - Solid | Lowest occupied | Suspended concrete floor, carpeted | 0.12            | None         | 0.00           | 75.00          | 50.86     |

## 11.2 Internal Floors

| Description      | Storey Index    | Construction                                   | Kappa (kJ/m²K) | Area (m²) |
|------------------|-----------------|------------------------------------------------|----------------|-----------|
| Internal Floor 1 | Lowest occupied | Plasterboard ceiling, carpeted chipboard floor | 18.00          | 50.86     |

## 12.0 Opening Types

| Description               | Data Source               | Type             | Glazing                | Glazing Gap | Filling Type | G-value | Frame Type | Frame Factor | U Value (W/m²K) |
|---------------------------|---------------------------|------------------|------------------------|-------------|--------------|---------|------------|--------------|-----------------|
| Windows                   | BFRC, BSI or CERTASS data | Window           | Double Low-E Soft 0.1  |             |              | 0.40    |            |              | 1.20            |
| Bi-Fold/Patio Door        | BFRC, BSI or CERTASS data | Window           | Double Low-E Soft 0.05 |             |              | 0.33    |            |              | 1.20            |
| Entrance Door             | Manufacturer              | Solid Door       |                        |             |              | 0.00    |            |              | 1.20            |
| Half Glazed Entrance Door | Manufacturer              | Half Glazed Door | Double Low-E Soft 0.1  |             |              | 0.63    |            | 0.70         | 1.20            |

## 13.0 Openings

| Name          | Opening Type       | Location      | Orientation | Area (m²) | Pitch |
|---------------|--------------------|---------------|-------------|-----------|-------|
| Front Door    | Entrance Door      | External Wall | North       | 2.12      |       |
| Front Windows | Windows            | External Wall | North       | 5.95      |       |
| Rear Windows  | Windows            | External Wall | South       | 4.28      |       |
| Patio Doors   | Bi-Fold/Patio Door | External Wall | South       | 11.34     |       |
| Side Windows  | Windows            | External Wall | East        | 2.87      |       |

## 14.0 Conservatory

## 15.0 Draught Proofing

 %

## 16.0 Draught Lobby

## 17.0 Thermal Bridging

## 17.1 List of Bridges

| Bridge Type                                          | Source Type              | Length | Psi   | Adjusted Reference: | Imported |
|------------------------------------------------------|--------------------------|--------|-------|---------------------|----------|
| E2 Other lintels (including other steel lintels)     | Independently assessed   | 14.81  | 0.05  | 0.05 HiTherm        | No       |
| E3 Sill                                              | Independently assessed   | 8.61   | 0.02  | 0.02 Hill Std.      | No       |
| E4 Jamb                                              | Independently assessed   | 33.60  | 0.03  | 0.03 Hill Std.      | No       |
| E5 Ground floor (normal)                             | Independently assessed   | 20.16  | 0.06  | 0.06 Hill Std.      | No       |
| E10 Eaves (insulation at ceiling level)              | Independently assessed   | 9.59   | 0.05  | 0.05 Hill Std.      | No       |
| E16 Corner (normal)                                  | Independently assessed   | 10.40  | 0.05  | 0.05 Hill Std.      | No       |
| E6 Intermediate floor within a dwelling              | Independently assessed   | 20.16  | 0.05  | 0.05 Hill Std.      | No       |
| E12 Gable (insulation at ceiling level)              | Independently assessed   | 10.61  | 0.06  | 0.06 Hill Std.      | No       |
| E18 Party wall between dwellings                     | Independently assessed   | 10.40  | -0.06 | -0.06 Hill Std.     | No       |
| P1 Party wall - Ground floor                         | Non Gov Approved Schemes | 9.58   | 0.04  | 0.04 RCD            | No       |
| P2 Party wall - Intermediate floor within a dwelling | Table K1 - Default       | 9.58   | 0.00  | 0.00                | No       |
| P4 Party wall - Roof (insulation at ceiling level)   | Non Gov Approved Schemes | 9.58   | 0.03  | 0.03 RCD            | No       |

Y-value  W/m²K

## 19.0 Mechanical Ventilation

### Mechanical Ventilation

|                                       |                                                                             |
|---------------------------------------|-----------------------------------------------------------------------------|
| Mechanical Ventilation System Present | <input type="text" value="Yes"/>                                            |
| Approved Installation                 | <input type="text" value="Yes"/>                                            |
| Mechanical Ventilation data Type      | <input type="text" value="Database"/>                                       |
| Type                                  | <input type="text" value="Mechanical extract ventilation - decentralised"/> |
| MV Reference Number                   | <input type="text" value="500776"/>                                         |
| Configuration                         | <input type="text" value="1"/>                                              |
| Duct Type                             | <input type="text" value="Rigid"/>                                          |
| Wet Rooms                             | <input type="text" value="4"/>                                              |

## 19.1 Mechanical extract ventilation - Decentralised

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

## 20.0 Fans, Open Fireplaces, Flues

Number of open chimneys

# Summary for Input Data

|                                                  |                                |  |  |  |  |
|--------------------------------------------------|--------------------------------|--|--|--|--|
| Number of open flues                             | <input type="text" value="0"/> |  |  |  |  |
| Number of chimneys/flues attached to closed fire | <input type="text" value="0"/> |  |  |  |  |
| Number of flues attached to solid fuel boiler    | <input type="text" value="0"/> |  |  |  |  |
| Number of flues attached to other heater         | <input type="text" value="0"/> |  |  |  |  |
| Number of blocked chimneys                       | <input type="text" value="0"/> |  |  |  |  |
| Number of intermittent extract fans              | <input type="text" value="0"/> |  |  |  |  |
| Number of passive vents                          | <input type="text" value="0"/> |  |  |  |  |
| Number of flueless gas fires                     | <input type="text" value="0"/> |  |  |  |  |

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

---

|                              |                                          |                   |  |  |  |
|------------------------------|------------------------------------------|-------------------|--|--|--|
| <b>22.0 Pressure Testing</b> | <input type="text" value="Yes"/>         |                   |  |  |  |
| Designed AP <sub>50</sub>    | <input type="text" value="4.00"/>        | m³/(h.m²) @ 50 Pa |  |  |  |
| Test Method                  | <input type="text" value="Blower Door"/> |                   |  |  |  |

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|                      |                                 |                 |              |                 |              |
|----------------------|---------------------------------|-----------------|--------------|-----------------|--------------|
| <b>22.0 Lighting</b> | <input type="text" value="No"/> |                 |              |                 |              |
| No Fixed Lighting    | <input type="text" value="No"/> |                 |              |                 |              |
|                      | <b>Name</b>                     | <b>Efficacy</b> | <b>Power</b> | <b>Capacity</b> | <b>Count</b> |
|                      | Pendant light                   | 75.00           | 10.00        | 750.00          | 10           |
|                      | Batten light                    | 75.00           | 10.00        | 750.00          | 10           |

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|                            |                                                                               |   |  |  |  |
|----------------------------|-------------------------------------------------------------------------------|---|--|--|--|
| <b>24.0 Main Heating 1</b> | <input type="text" value="Manufacturer"/>                                     |   |  |  |  |
| Percentage of Heat         | <input type="text" value="100.00"/>                                           | % |  |  |  |
| Fuel Type                  | <input type="text" value="Mains gas"/>                                        |   |  |  |  |
| SAP Code                   | <input type="text" value="104"/>                                              |   |  |  |  |
| In Winter                  | <input type="text" value="88.90"/>                                            |   |  |  |  |
| In Summer                  | <input type="text" value="80.30"/>                                            |   |  |  |  |
| Model Name                 | <input type="text" value="Gas"/>                                              |   |  |  |  |
| Manufacturer               | <input type="text" value="Gas"/>                                              |   |  |  |  |
| Controls SAP Code          | <input type="text" value="2110"/>                                             |   |  |  |  |
| Controls description       | <input type="text" value="Time and temperature zone control by arrangement"/> |   |  |  |  |
| Delayed Start Stat         | <input type="text" value="Yes"/>                                              |   |  |  |  |
| Burner Control             | <input type="text" value="Modulating"/>                                       |   |  |  |  |
| Flue Type                  | <input type="text" value="Balanced"/>                                         |   |  |  |  |
| Fan Assisted Flue          | <input type="text" value="Yes"/>                                              |   |  |  |  |
| Is MHS Pumped              | <input type="text" value="Pump in heated space"/>                             |   |  |  |  |
| Heating Pump Age           | <input type="text" value="2013 or later"/>                                    |   |  |  |  |
| Heat Emitter               | <input type="text" value="Radiators"/>                                        |   |  |  |  |
| Flow Temperature           | <input type="text" value="Enter value"/>                                      |   |  |  |  |
| Flow Temperature Value     | <input type="text" value="55.00"/>                                            |   |  |  |  |
| Boiler Interlock           | <input type="text" value="Yes"/>                                              |   |  |  |  |
| Combi boiler type          | <input type="text" value="Standard Combi"/>                                   |   |  |  |  |
| Combi keep hot type        | <input type="text" value="None"/>                                             |   |  |  |  |

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|                            |                                   |  |  |  |  |
|----------------------------|-----------------------------------|--|--|--|--|
| <b>25.0 Main Heating 2</b> | <input type="text" value="None"/> |  |  |  |  |
|----------------------------|-----------------------------------|--|--|--|--|

---

|                           |                                   |  |  |  |  |
|---------------------------|-----------------------------------|--|--|--|--|
| <b>26.0 Heat Networks</b> | <input type="text" value="None"/> |  |  |  |  |
|---------------------------|-----------------------------------|--|--|--|--|

---

|                               |                                   |  |  |  |  |
|-------------------------------|-----------------------------------|--|--|--|--|
| <b>27.0 Secondary Heating</b> | <input type="text" value="None"/> |  |  |  |  |
|-------------------------------|-----------------------------------|--|--|--|--|

---

|                                                  |                                             |  |  |  |  |
|--------------------------------------------------|---------------------------------------------|--|--|--|--|
| <b>28.0 Water Heating</b>                        | <input type="text" value="Main Heating 1"/> |  |  |  |  |
| Water Heating                                    | <input type="text" value="Main Heating 1"/> |  |  |  |  |
| SAP Code                                         | <input type="text" value="901"/>            |  |  |  |  |
| Flue Gas Heat Recovery System                    | <input type="text" value="No"/>             |  |  |  |  |
| Waste Water Heat Recovery Instantaneous System 1 | <input type="text" value="No"/>             |  |  |  |  |

# Summary for Input Data

|                                                  |                                         |
|--------------------------------------------------|-----------------------------------------|
| Waste Water Heat Recovery Instantaneous System 2 | <input type="text" value="No"/>         |
| Waste Water Heat Recovery Storage System         | <input type="text" value="No"/>         |
| Solar Panel                                      | <input type="text" value="No"/>         |
| Water use <= 125 litres/person/day               | <input type="text" value="Yes"/>        |
| Cold Water Source                                | <input type="text" value="From mains"/> |
| Bath Count                                       | <input type="text" value="1"/>          |
| Hot Water Controls Model                         | <input type="text" value="HIU"/>        |

## 28.1 Showers

| Description | Shower Type                               | Flow Rate<br>[l/min] | Rated Power<br>[kW] | Connected | Connected To |
|-------------|-------------------------------------------|----------------------|---------------------|-----------|--------------|
| 1           | Combi boiler or unvented hot water system | 8.00                 |                     | No        |              |
| 2           | Combi boiler or unvented hot water system | 8.00                 |                     | No        |              |

## 28.3 Waste Water Heat Recovery System

|                         |                                   |
|-------------------------|-----------------------------------|
| 29.0 Hot Water Cylinder | <input type="text" value="None"/> |
|-------------------------|-----------------------------------|

## 34.0 Small-scale Hydro

|                                   |     |     |     |     |     |     |     |     |     |     |     |     |
|-----------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <input type="text" value="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

|                      |           |                |            |
|----------------------|-----------|----------------|------------|
| Plot Reference       | AC-3B5P-2 | Issued on Date | 27/02/2026 |
| Assessment Reference | 001       | Plot Type Ref  | AC-3B5P-2  |
| Plot Address         | AC-3B5P-2 | SAP Version    | 10.2       |

|                                    |          |               |       |      |        |
|------------------------------------|----------|---------------|-------|------|--------|
| SAP Rating                         | 84 B     | DER           | 15.64 | TER  | 12.39  |
| Environmental                      | 86 B     | % DER < TER   |       |      | -26.23 |
| CO <sub>2</sub> Emissions (t/year) | 1.38     | DFEE          | 42.82 | TFEE | 44.50  |
| Compliance Check                   | See BREL | % DFEE < TFEE |       |      | 3.78   |
| % DPER < TPER                      | -34.02   | DPER          | 86.90 | TPER | 64.84  |

|                  |                          |             |           |
|------------------|--------------------------|-------------|-----------|
| Assessor Details | Mr. Matthew Fitzpatrick  | Assessor ID | 7601-0001 |
| Client           | HP 01, Hill Partnerships |             |           |

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

|                            |                     |       |
|----------------------------|---------------------|-------|
| Orientation                | North               |       |
| Property Tenture           | ND                  |       |
| Transaction Type           | 6                   |       |
| Terrain Type               | Suburban            |       |
| 1.0 Property Type          | House, Detached     |       |
| 2.0 Number of Storeys      | 2                   |       |
| 3.0 Date Built             | 2026                |       |
| 4.0 Sheltered Sides        | 2                   |       |
| 5.0 Sunlight/Shade         | Average or unknown  |       |
| 6.0 Thermal Mass Parameter | Precise calculation |       |
| Thermal Mass               | 249.54              | kJ/m² |

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

| 7.0 Measurements | Ground floor: | Heat Loss Perimeter | Internal Floor Area  | Average Storey Height |
|------------------|---------------|---------------------|----------------------|-----------------------|
|                  | 1st Storey:   | 28.95 m             | 49.13 m <sup>2</sup> | 2.50 m                |
|                  |               | 28.95 m             | 49.13 m <sup>2</sup> | 2.70 m                |

|                 |       |                |
|-----------------|-------|----------------|
| 8.0 Living Area | 17.16 | m <sup>2</sup> |
|-----------------|-------|----------------|

| 9.0 External Walls | Description   | Type        | Construction                                                                                                    | U-Value (W/m <sup>2</sup> K) | Kappa (kJ/m <sup>2</sup> K) | Gross Area(m <sup>2</sup> ) | Nett Area (m <sup>2</sup> ) | Shelter Res | Shelter | Openings | Area Calculation Type |
|--------------------|---------------|-------------|-----------------------------------------------------------------------------------------------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|-------------|---------|----------|-----------------------|
|                    | External Wall | Cavity Wall | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.19                         | 110.00                      | 150.38                      | 123.83                      | 0.00        | None    | 26.55    | Enter Gross Area      |

| 9.2 Internal Walls | Description      | Construction                      | Kappa (kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|--------------------|------------------|-----------------------------------|-----------------------------|------------------------|
|                    | Stud Partitions  | Plasterboard on timber frame      | 9.00                        | 153.05                 |
|                    | Block Partitions | Dense block, plasterboard on dabs | 75.00                       | 54.23                  |

| 10.0 External Roofs | Description | Type                | Construction                             | U-Value (W/m <sup>2</sup> K) | Kappa (kJ/m <sup>2</sup> K) | Gross Area(m <sup>2</sup> ) | Nett Area (m <sup>2</sup> ) | Shelter Code | Shelter Factor | Calculation Type | Openings |
|---------------------|-------------|---------------------|------------------------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|--------------|----------------|------------------|----------|
|                     | Cold Roof   | External Plane Roof | Plasterboard, insulated at ceiling level | 0.11                         | 9.00                        | 49.13                       | 49.13                       | None         | 0.00           | Enter Gross Area | 0.00     |

| 10.2 Internal Ceilings | Description        | Storey          | Construction                                   | Kappa | Area (m <sup>2</sup> ) |
|------------------------|--------------------|-----------------|------------------------------------------------|-------|------------------------|
|                        | Internal Ceiling 1 | Lowest occupied | Plasterboard ceiling, carpeted chipboard floor | 9.00  | 49.13                  |

| 11.0 Heat Loss Floors | Description  | Type                 | Storey Index    | Construction                       | U-Value (W/m <sup>2</sup> K) | Shelter Code | Shelter Factor | Kappa (kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|-----------------------|--------------|----------------------|-----------------|------------------------------------|------------------------------|--------------|----------------|-----------------------------|------------------------|
|                       | Ground Floor | Ground Floor - Solid | Lowest occupied | Suspended concrete floor, carpeted | 0.12                         | None         | 0.00           | 75.00                       | 49.13                  |

## 11.2 Internal Floors

# Summary for Input Data

| Description      | Storey Index    | Construction                                   | Kappa (kJ/m²K) | Area (m²) |
|------------------|-----------------|------------------------------------------------|----------------|-----------|
| Internal Floor 1 | Lowest occupied | Plasterboard ceiling, carpeted chipboard floor | 18.00          | 49.13     |

## 12.0 Opening Types

| Description               | Data Source               | Type             | Glazing                | Glazing Gap | Filling Type | G-value | Frame Type | Frame Factor | U Value (W/m²K) |
|---------------------------|---------------------------|------------------|------------------------|-------------|--------------|---------|------------|--------------|-----------------|
| Windows                   | BFRC, BSI or CERTASS data | Window           | Double Low-E Soft 0.1  |             |              | 0.40    |            |              | 1.20            |
| Bi-Fold/Patio Door        | BFRC, BSI or CERTASS data | Window           | Double Low-E Soft 0.05 |             |              | 0.33    |            |              | 1.20            |
| Entrance Door             | Manufacturer              | Solid Door       |                        |             |              | 0.00    |            |              | 1.20            |
| Half Glazed Entrance Door | Manufacturer              | Half Glazed Door | Double Low-E Soft 0.1  |             |              | 0.63    |            | 0.70         | 1.20            |

## 13.0 Openings

| Name               | Opening Type       | Location      | Orientation | Area (m²) | Pitch |
|--------------------|--------------------|---------------|-------------|-----------|-------|
| Front Door         | Entrance Door      | External Wall | North       | 2.12      |       |
| Front Windows      | Windows            | External Wall | North       | 11.89     |       |
| Rear Windows       | Windows            | External Wall | South       | 2.87      |       |
| Patio Doors        | Bi-Fold/Patio Door | External Wall | West        | 3.80      |       |
| Right Side Windows | Windows            | External Wall | East        | 4.78      |       |
| Left Side Windows  | Windows            | External Wall | West        | 1.09      |       |

## 14.0 Conservatory

## 15.0 Draught Proofing

 %

## 16.0 Draught Lobby

## 17.0 Thermal Bridging

### 17.1 List of Bridges

| Bridge Type                                      | Source Type            | Length | Psi  | Adjusted Reference: | Imported |
|--------------------------------------------------|------------------------|--------|------|---------------------|----------|
| E2 Other lintels (including other steel lintels) | Independently assessed | 18.25  | 0.05 | 0.05 HiTherm        | No       |
| E3 Sill                                          | Independently assessed | 8.63   | 0.02 | 0.02 Hill Std.      | No       |
| E4 Jamb                                          | Independently assessed | 47.70  | 0.03 | 0.03 Hill Std.      | No       |
| E5 Ground floor (normal)                         | Independently assessed | 28.95  | 0.06 | 0.06 Hill Std.      | No       |
| E10 Eaves (insulation at ceiling level)          | Independently assessed | 18.08  | 0.05 | 0.05 Hill Std.      | No       |
| E16 Corner (normal)                              | Independently assessed | 20.80  | 0.05 | 0.05 Hill Std.      | No       |
| E6 Intermediate floor within a dwelling          | Independently assessed | 28.95  | 0.05 | 0.05 Hill Std.      | No       |
| E12 Gable (insulation at ceiling level)          | Independently assessed | 10.87  | 0.06 | 0.06 Hill Std.      | No       |

Y-value  W/m²K

## 19.0 Mechanical Ventilation

### Mechanical Ventilation

|                                       |                                                                             |
|---------------------------------------|-----------------------------------------------------------------------------|
| Mechanical Ventilation System Present | <input type="text" value="Yes"/>                                            |
| Approved Installation                 | <input type="text" value="Yes"/>                                            |
| Mechanical Ventilation data Type      | <input type="text" value="Database"/>                                       |
| Type                                  | <input type="text" value="Mechanical extract ventilation - decentralised"/> |
| MV Reference Number                   | <input type="text" value="500776"/>                                         |
| Configuration                         | <input type="text" value="1"/>                                              |
| Duct Type                             | <input type="text" value="Rigid"/>                                          |
| Wet Rooms                             | <input type="text" value="4"/>                                              |

### 19.1 Mechanical extract ventilation - Decentralised

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

## 20.0 Fans, Open Fireplaces, Flues

|                                                  |                                |
|--------------------------------------------------|--------------------------------|
| Number of open chimneys                          | <input type="text" value="0"/> |
| Number of open flues                             | <input type="text" value="0"/> |
| Number of chimneys/flues attached to closed fire | <input type="text" value="0"/> |
| Number of flues attached to solid fuel boiler    | <input type="text" value="0"/> |
| Number of flues attached to other heater         | <input type="text" value="0"/> |

# Summary for Input Data

|                                     |                                |
|-------------------------------------|--------------------------------|
| Number of blocked chimneys          | <input type="text" value="0"/> |
| Number of intermittent extract fans | <input type="text" value="0"/> |
| Number of passive vents             | <input type="text" value="0"/> |
| Number of flueless gas fires        | <input type="text" value="0"/> |

---

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

---

|                              |                                                                               |
|------------------------------|-------------------------------------------------------------------------------|
| <b>22.0 Pressure Testing</b> | <input type="text" value="Yes"/>                                              |
| Designed AP <sub>50</sub>    | <input type="text" value="4.00"/> m <sup>3</sup> /(h.m <sup>2</sup> ) @ 50 Pa |
| Test Method                  | <input type="text" value="Blower Door"/>                                      |

---

|                      |                                 |
|----------------------|---------------------------------|
| <b>22.0 Lighting</b> | <input type="text" value="No"/> |
| No Fixed Lighting    | <input type="text" value="No"/> |

| Name          | Efficacy | Power | Capacity | Count |
|---------------|----------|-------|----------|-------|
| Pendant light | 75.00    | 10.00 | 750.00   | 10    |
| Batten light  | 75.00    | 10.00 | 750.00   | 10    |

---

|                            |                                                                               |
|----------------------------|-------------------------------------------------------------------------------|
| <b>24.0 Main Heating 1</b> | <input type="text" value="Manufacturer"/>                                     |
| Percentage of Heat         | <input type="text" value="100.00"/> %                                         |
| Fuel Type                  | <input type="text" value="Mains gas"/>                                        |
| SAP Code                   | <input type="text" value="104"/>                                              |
| In Winter                  | <input type="text" value="88.90"/>                                            |
| In Summer                  | <input type="text" value="80.30"/>                                            |
| Model Name                 | <input type="text" value="Gas"/>                                              |
| Manufacturer               | <input type="text" value="Gas"/>                                              |
| Controls SAP Code          | <input type="text" value="2110"/>                                             |
| Controls description       | <input type="text" value="Time and temperature zone control by arrangement"/> |
| Delayed Start Stat         | <input type="text" value="Yes"/>                                              |
| Burner Control             | <input type="text" value="Modulating"/>                                       |
| Flue Type                  | <input type="text" value="Balanced"/>                                         |
| Fan Assisted Flue          | <input type="text" value="Yes"/>                                              |
| Is MHS Pumped              | <input type="text" value="Pump in heated space"/>                             |
| Heating Pump Age           | <input type="text" value="2013 or later"/>                                    |
| Heat Emitter               | <input type="text" value="Radiators"/>                                        |
| Flow Temperature           | <input type="text" value="Enter value"/>                                      |
| Flow Temperature Value     | <input type="text" value="55.00"/>                                            |
| Boiler Interlock           | <input type="text" value="Yes"/>                                              |
| Combi boiler type          | <input type="text" value="Standard Combi"/>                                   |
| Combi keep hot type        | <input type="text" value="None"/>                                             |

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|                            |                                   |
|----------------------------|-----------------------------------|
| <b>25.0 Main Heating 2</b> | <input type="text" value="None"/> |
|----------------------------|-----------------------------------|

---

|                           |                                   |
|---------------------------|-----------------------------------|
| <b>26.0 Heat Networks</b> | <input type="text" value="None"/> |
|---------------------------|-----------------------------------|

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|                               |                                   |
|-------------------------------|-----------------------------------|
| <b>27.0 Secondary Heating</b> | <input type="text" value="None"/> |
|-------------------------------|-----------------------------------|

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|                                                  |                                             |
|--------------------------------------------------|---------------------------------------------|
| <b>28.0 Water Heating</b>                        | <input type="text" value="Main Heating 1"/> |
| Water Heating                                    | <input type="text" value="Main Heating 1"/> |
| SAP Code                                         | <input type="text" value="901"/>            |
| Flue Gas Heat Recovery System                    | <input type="text" value="No"/>             |
| Waste Water Heat Recovery Instantaneous System 1 | <input type="text" value="No"/>             |
| Waste Water Heat Recovery Instantaneous System 2 | <input type="text" value="No"/>             |
| Waste Water Heat Recovery Storage System         | <input type="text" value="No"/>             |
| Solar Panel                                      | <input type="text" value="No"/>             |
| Water use <= 125 litres/person/day               | <input type="text" value="Yes"/>            |

# Summary for Input Data

|                          |                                         |
|--------------------------|-----------------------------------------|
| Cold Water Source        | <input type="text" value="From mains"/> |
| Bath Count               | <input type="text" value="1"/>          |
| Hot Water Controls Model | <input type="text" value="HIU"/>        |

## 28.1 Showers

| Description | Shower Type                               | Flow Rate<br>[l/min] | Rated Power<br>[kW] | Connected | Connected To |
|-------------|-------------------------------------------|----------------------|---------------------|-----------|--------------|
| 1           | Combi boiler or unvented hot water system | 8.00                 |                     | No        |              |
| 2           | Combi boiler or unvented hot water system | 8.00                 |                     | No        |              |

## 28.3 Waste Water Heat Recovery System

|                         |                                   |
|-------------------------|-----------------------------------|
| 29.0 Hot Water Cylinder | <input type="text" value="None"/> |
|-------------------------|-----------------------------------|

## 34.0 Small-scale Hydro

| <input type="text" value="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

|                      |           |               |                |            |
|----------------------|-----------|---------------|----------------|------------|
| Plot Reference       | AC-3B6P-1 |               | Issued on Date | 27/02/2026 |
| Assessment Reference | 001       | Plot Type Ref | AC-3B6P-1      |            |
| Plot Address         | AC-3B6P-1 |               | SAP Version    | 10.2       |

|                                    |          |               |       |      |        |
|------------------------------------|----------|---------------|-------|------|--------|
| SAP Rating                         | 85 B     | DER           | 14.28 | TER  | 11.17  |
| Environmental                      | 87 B     | % DER < TER   |       |      | -27.84 |
| CO <sub>2</sub> Emissions (t/year) | 1.38     | DFEE          | 38.81 | TFEE | 40.54  |
| Compliance Check                   | See BREL | % DFEE < TFEE |       |      | 4.27   |
| % DPER < TPER                      | -36.21   | DPER          | 79.48 | TPER | 58.35  |

|                  |                          |             |           |
|------------------|--------------------------|-------------|-----------|
| Assessor Details | Mr. Matthew Fitzpatrick  | Assessor ID | 7601-0001 |
| Client           | HP 01, Hill Partnerships |             |           |

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

|                            |                     |       |
|----------------------------|---------------------|-------|
| Orientation                | North               |       |
| Property Tenture           | ND                  |       |
| Transaction Type           | 6                   |       |
| Terrain Type               | Suburban            |       |
| 1.0 Property Type          | House, Detached     |       |
| 2.0 Number of Storeys      | 2                   |       |
| 3.0 Date Built             | 2026                |       |
| 4.0 Sheltered Sides        | 2                   |       |
| 5.0 Sunlight/Shade         | Average or unknown  |       |
| 6.0 Thermal Mass Parameter | Precise calculation |       |
| Thermal Mass               | 206.97              | kJ/m² |

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

| 7.0 Measurements | Ground floor:<br>1st Storey: | Heat Loss Perimeter<br>29.80 m<br>29.80 m | Internal Floor Area<br>53.69 m <sup>2</sup><br>53.69 m <sup>2</sup> | Average Storey Height<br>2.50 m<br>2.70 m |
|------------------|------------------------------|-------------------------------------------|---------------------------------------------------------------------|-------------------------------------------|
|------------------|------------------------------|-------------------------------------------|---------------------------------------------------------------------|-------------------------------------------|

|                 |       |                |
|-----------------|-------|----------------|
| 8.0 Living Area | 40.12 | m <sup>2</sup> |
|-----------------|-------|----------------|

| 9.0 External Walls | Description   | Type        | Construction                                                                                                    | U-Value<br>(W/m <sup>2</sup> K) | Kappa<br>(kJ/m <sup>2</sup> K) | Gross<br>Area(m <sup>2</sup> ) | Nett<br>Area<br>(m <sup>2</sup> ) | Shelter<br>Res | Shelter | Openings | Area Calculation<br>Type |
|--------------------|---------------|-------------|-----------------------------------------------------------------------------------------------------------------|---------------------------------|--------------------------------|--------------------------------|-----------------------------------|----------------|---------|----------|--------------------------|
|                    | External Wall | Cavity Wall | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.19                            | 110.00                         | 154.97                         | 131.27                            | 0.00           | None    | 23.70    | Enter Gross Area         |

| 9.2 Internal Walls | Description     | Construction                 | Kappa<br>(kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|--------------------|-----------------|------------------------------|--------------------------------|------------------------|
|                    | Stud Partitions | Plasterboard on timber frame | 9.00                           | 202.96                 |

| 10.0 External Roofs | Description | Type                | Construction                             | U-Value<br>(W/m <sup>2</sup> K) | Kappa<br>(kJ/m <sup>2</sup> K) | Gross<br>Area(m <sup>2</sup> ) | Nett<br>Area<br>(m <sup>2</sup> ) | Shelter<br>Code | Shelter<br>Factor | Calculation<br>Type | Openings |
|---------------------|-------------|---------------------|------------------------------------------|---------------------------------|--------------------------------|--------------------------------|-----------------------------------|-----------------|-------------------|---------------------|----------|
|                     | Cold Roof   | External Plane Roof | Plasterboard, insulated at ceiling level | 0.11                            | 9.00                           | 53.69                          | 53.69                             | None            | 0.00              | Enter Gross Area    | 0.00     |

| 10.2 Internal Ceilings | Description        | Storey          | Construction                                   | Kappa | Area (m <sup>2</sup> ) |
|------------------------|--------------------|-----------------|------------------------------------------------|-------|------------------------|
|                        | Internal Ceiling 1 | Lowest occupied | Plasterboard ceiling, carpeted chipboard floor | 9.00  | 53.69                  |

| 11.0 Heat Loss Floors | Description  | Type                 | Storey Index    | Construction                       | U-Value<br>(W/m <sup>2</sup> K) | Shelter Code | Shelter<br>Factor | Kappa<br>(kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|-----------------------|--------------|----------------------|-----------------|------------------------------------|---------------------------------|--------------|-------------------|--------------------------------|------------------------|
|                       | Ground Floor | Ground Floor - Solid | Lowest occupied | Suspended concrete floor, carpeted | 0.12                            | None         | 0.00              | 75.00                          | 53.69                  |

| 11.2 Internal Floors | Description | Storey Index | Construction | Kappa<br>(kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|----------------------|-------------|--------------|--------------|--------------------------------|------------------------|
|----------------------|-------------|--------------|--------------|--------------------------------|------------------------|

# Summary for Input Data

Internal Floor 1      Lowest occupied      Plasterboard ceiling, carpeted chipboard floor      18.00      53.69

## 12.0 Opening Types

| Description               | Data Source               | Type             | Glazing                | Glazing Gap | Filling Type | G-value | Frame Type | Frame Factor | U Value (W/m²K) |
|---------------------------|---------------------------|------------------|------------------------|-------------|--------------|---------|------------|--------------|-----------------|
| Windows                   | BFRC, BSI or CERTASS data | Window           | Double Low-E Soft 0.1  |             |              | 0.40    |            |              | 1.20            |
| Bi-Fold/Patio Door        | BFRC, BSI or CERTASS data | Window           | Double Low-E Soft 0.05 |             |              | 0.33    |            |              | 1.20            |
| Entrance Door             | Manufacturer              | Solid Door       |                        |             |              | 0.00    |            |              | 1.20            |
| Half Glazed Entrance Door | Manufacturer              | Half Glazed Door | Double Low-E Soft 0.1  |             |              | 0.63    |            | 0.70         | 1.20            |

## 13.0 Openings

| Name               | Opening Type       | Location      | Orientation | Area (m²) | Pitch |
|--------------------|--------------------|---------------|-------------|-----------|-------|
| Front Door         | Entrance Door      | External Wall | North       | 2.12      |       |
| Front Windows      | Windows            | External Wall | North       | 5.62      |       |
| Rear Windows       | Windows            | External Wall | South       | 8.34      |       |
| Patio Doors        | Bi-Fold/Patio Door | External Wall | South       | 3.80      |       |
| Right Side Windows | Windows            | External Wall | East        | 2.87      |       |
| Left Side Windows  | Windows            | External Wall | West        | 0.96      |       |

## 14.0 Conservatory

None

## 15.0 Draught Proofing

100 %

## 16.0 Draught Lobby

No

## 17.0 Thermal Bridging

Calculate Bridges

## 17.1 List of Bridges

| Bridge Type                                      | Source Type            | Length | Psi  | Adjusted Reference: | Imported |
|--------------------------------------------------|------------------------|--------|------|---------------------|----------|
| E2 Other lintels (including other steel lintels) | Independently assessed | 13.78  | 0.05 | 0.05 HiTherm        | No       |
| E3 Sill                                          | Independently assessed | 6.88   | 0.02 | 0.02 Hill Std.      | No       |
| E4 Jamb                                          | Independently assessed | 37.82  | 0.03 | 0.03 Hill Std.      | No       |
| E5 Ground floor (normal)                         | Independently assessed | 29.80  | 0.06 | 0.06 Hill Std.      | No       |
| E10 Eaves (insulation at ceiling level)          | Independently assessed | 17.60  | 0.05 | 0.05 Hill Std.      | No       |
| E16 Corner (normal)                              | Independently assessed | 20.80  | 0.05 | 0.05 Hill Std.      | No       |
| E6 Intermediate floor within a dwelling          | Independently assessed | 29.80  | 0.05 | 0.05 Hill Std.      | No       |
| E12 Gable (insulation at ceiling level)          | Independently assessed | 12.19  | 0.06 | 0.06 Hill Std.      | 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                   | 500776                                         |
| Configuration                         | 1                                              |
| Duct Type                             | Rigid                                          |
| Wet Rooms                             | 4                                              |

## 19.1 Mechanical extract ventilation - Decentralised

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

## 20.0 Fans, Open Fireplaces, Flues

|                                                  |   |
|--------------------------------------------------|---|
| Number of open chimneys                          | 0 |
| Number of open flues                             | 0 |
| Number of chimneys/flues attached to closed fire | 0 |
| Number of flues attached to solid fuel boiler    | 0 |
| Number of flues attached to other heater         | 0 |
| Number of blocked chimneys                       | 0 |

# Summary for Input Data

|                                     |                                |
|-------------------------------------|--------------------------------|
| Number of intermittent extract fans | <input type="text" value="0"/> |
| Number of passive vents             | <input type="text" value="0"/> |
| Number of flueless gas fires        | <input type="text" value="0"/> |

**21.0 Fixed Cooling System**

**22.0 Pressure Testing**

Designed AP<sub>50</sub>  m<sup>3</sup>/(h.m<sup>2</sup>) @ 50 Pa

Test Method

**22.0 Lighting**  
No Fixed Lighting

| Name          | Efficacy | Power | Capacity | Count |
|---------------|----------|-------|----------|-------|
| Pendant light | 75.00    | 10.00 | 750.00   | 10    |
| Batten light  | 75.00    | 10.00 | 750.00   | 10    |

**24.0 Main Heating 1**

Percentage of Heat  %

Fuel Type

SAP Code

In Winter

In Summer

Model Name

Manufacturer

Controls SAP Code

Controls description

Delayed Start Stat

Burner Control

Flue Type

Fan Assisted Flue

Is MHS Pumped

Heating Pump Age

Heat Emitter

Flow Temperature

Flow Temperature Value

Boiler Interlock

Combi boiler type

Combi keep hot type

**25.0 Main Heating 2**

**26.0 Heat Networks**

**27.0 Secondary Heating**

**28.0 Water Heating**

Water Heating

SAP Code

Flue Gas Heat Recovery System

Waste Water Heat Recovery Instantaneous System 1

Waste Water Heat Recovery Instantaneous System 2

Waste Water Heat Recovery Storage System

Solar Panel

Water use <= 125 litres/person/day

Cold Water Source

# Summary for Input Data



Bath Count

Hot Water Controls Model

## 28.1 Showers

| Description | Shower Type                               | Flow Rate<br>[l/min] | Rated Power<br>[kW] | Connected | Connected To |
|-------------|-------------------------------------------|----------------------|---------------------|-----------|--------------|
| 1           | Combi boiler or unvented hot water system | 8.00                 |                     | No        |              |
| 2           | Combi boiler or unvented hot water system | 8.00                 |                     | No        |              |

## 28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder

34.0 Small-scale Hydro

| 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

|                      |           |                |            |
|----------------------|-----------|----------------|------------|
| Plot Reference       | AC-4B8P-8 | Issued on Date | 27/02/2026 |
| Assessment Reference | 001       | Plot Type Ref  | AC-4B8P-8  |
| Plot Address         | AC-4B8P-8 | SAP Version    | 10.2       |

|                                    |          |               |       |      |        |
|------------------------------------|----------|---------------|-------|------|--------|
| SAP Rating                         | 85 B     | DER           | 12.97 | TER  | 9.77   |
| Environmental                      | 87 B     | % DER < TER   |       |      | -32.75 |
| CO <sub>2</sub> Emissions (t/year) | 1.64     | DFEE          | 38.33 | TFEE | 39.49  |
| Compliance Check                   | See BREL | % DFEE < TFEE |       |      | 2.94   |
| % DPER < TPER                      | -41.08   | DPER          | 72.15 | TPER | 51.14  |

|                  |                          |             |           |
|------------------|--------------------------|-------------|-----------|
| Assessor Details | Mr. Matthew Fitzpatrick  | Assessor ID | 7601-0001 |
| Client           | HP 01, Hill Partnerships |             |           |

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

|                            |                     |       |
|----------------------------|---------------------|-------|
| Orientation                | North               |       |
| Property Tenture           | ND                  |       |
| Transaction Type           | 6                   |       |
| Terrain Type               | Suburban            |       |
| 1.0 Property Type          | House, Detached     |       |
| 2.0 Number of Storeys      | 2                   |       |
| 3.0 Date Built             | 2026                |       |
| 4.0 Sheltered Sides        | 2                   |       |
| 5.0 Sunlight/Shade         | Average or unknown  |       |
| 6.0 Thermal Mass Parameter | Precise calculation |       |
| Thermal Mass               | 219.39              | kJ/m² |

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

| 7.0 Measurements | Ground floor: | Heat Loss Perimeter | Internal Floor Area  | Average Storey Height |
|------------------|---------------|---------------------|----------------------|-----------------------|
|                  | 1st Storey:   | 33.79 m             | 70.55 m <sup>2</sup> | 2.50 m                |
|                  |               | 33.79 m             | 70.55 m <sup>2</sup> | 2.70 m                |

|                 |       |                |
|-----------------|-------|----------------|
| 8.0 Living Area | 15.45 | m <sup>2</sup> |
|-----------------|-------|----------------|

| 9.0 External Walls | Description   | Type        | Construction                                                                                                    | U-Value (W/m <sup>2</sup> K) | Kappa (kJ/m <sup>2</sup> K) | Gross Area(m <sup>2</sup> ) | Nett Area (m <sup>2</sup> ) | Shelter Res | Shelter | Openings | Area Calculation Type |
|--------------------|---------------|-------------|-----------------------------------------------------------------------------------------------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|-------------|---------|----------|-----------------------|
|                    | External Wall | Cavity Wall | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.19                         | 110.00                      | 182.45                      | 157.88                      | 0.00        | None    | 24.57    | Enter Gross Area      |

| 9.2 Internal Walls | Description           | Construction                      | Kappa (kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|--------------------|-----------------------|-----------------------------------|-----------------------------|------------------------|
|                    | Timber stud Partition | Plasterboard on timber frame      | 9.00                        | 250.55                 |
|                    | Block Partitions      | Dense block, plasterboard on dabs | 75.00                       | 46.71                  |

| 10.0 External Roofs | Description | Type                | Construction                             | U-Value (W/m <sup>2</sup> K) | Kappa (kJ/m <sup>2</sup> K) | Gross Area(m <sup>2</sup> ) | Nett Area (m <sup>2</sup> ) | Shelter Code | Shelter Factor | Calculation Type | Openings |
|---------------------|-------------|---------------------|------------------------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|--------------|----------------|------------------|----------|
|                     | Cold Roof   | External Plane Roof | Plasterboard, insulated at ceiling level | 0.11                         | 9.00                        | 70.55                       | 70.55                       | None         | 0.00           | Enter Gross Area | 0.00     |

| 10.2 Internal Ceilings | Description      | Storey          | Construction                                   | Kappa | Area (m <sup>2</sup> ) |
|------------------------|------------------|-----------------|------------------------------------------------|-------|------------------------|
|                        | Internal Ceiling | Lowest occupied | Plasterboard ceiling, carpeted chipboard floor | 9.00  | 70.55                  |

| 11.0 Heat Loss Floors | Description  | Type                 | Storey Index    | Construction                       | U-Value (W/m <sup>2</sup> K) | Shelter Code | Shelter Factor | Kappa (kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|-----------------------|--------------|----------------------|-----------------|------------------------------------|------------------------------|--------------|----------------|-----------------------------|------------------------|
|                       | Ground Floor | Ground Floor - Solid | Lowest occupied | Suspended concrete floor, carpeted | 0.12                         | None         | 0.00           | 75.00                       | 70.55                  |

## 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          | 70.55     |

## 12.0 Opening Types

| Description       | Data Source               | Type             | Glazing               | Glazing Gap | Filling Type | G-value | Frame Type | Frame Factor | U Value (W/m²K) |
|-------------------|---------------------------|------------------|-----------------------|-------------|--------------|---------|------------|--------------|-----------------|
| Glazed 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 |             |              | 0.40    |            |              | 1.20            |
| Rooflight         | Manufacturer              | Roof Light       | Double Low-E Soft 0.1 |             |              | 0.63    |            | 0.70         | 1.20            |
| Patio Doors       | BFRC, BSI or CERTASS data | Window           | Double Low-E Soft 0.1 |             |              | 0.33    |            |              | 1.20            |

## 13.0 Openings

| Name            | Opening Type      | Location      | Orientation | Area (m²) | Pitch |
|-----------------|-------------------|---------------|-------------|-----------|-------|
| Front Door      | Glazed front Door | External Wall | North       | 2.12      |       |
| Front Elevation | Window            | External Wall | North       | 8.48      |       |
| Rear Elevation  | Window            | External Wall | South       | 6.16      |       |
| Rear Door       | Glazed front Door | External Wall | East        | 2.12      |       |
| Patio Doors     | Patio Doors       | External Wall | South       | 5.69      |       |

## 14.0 Conservatory

## 15.0 Draught Proofing

 %

## 16.0 Draught Lobby

## 17.0 Thermal Bridging

## 17.1 List of Bridges

| Bridge Type                                      | Source Type            | Length | Psi  | Adjusted Reference: | Imported |
|--------------------------------------------------|------------------------|--------|------|---------------------|----------|
| E2 Other lintels (including other steel lintels) | Independently assessed | 16.98  | 0.05 | 0.05 HiTherm        | No       |
| E3 Sill                                          | Independently assessed | 14.95  | 0.02 | 0.02 Hill Std.      | No       |
| E4 Jamb                                          | Independently assessed | 36.20  | 0.03 | 0.03 Hill Std.      | No       |
| E5 Ground floor (normal)                         | Independently assessed | 33.79  | 0.06 | 0.06 Hill Std.      | No       |
| E6 Intermediate floor within a dwelling          | Independently assessed | 33.79  | 0.05 | 0.05 Hill Std.      | No       |
| E10 Eaves (insulation at ceiling level)          | Independently assessed | 18.68  | 0.05 | 0.05 Hill Std.      | No       |
| E12 Gable (insulation at ceiling level)          | Independently assessed | 15.10  | 0.06 | 0.06 Hill Std.      | No       |
| E16 Corner (normal)                              | Independently assessed | 20.80  | 0.05 | 0.05 Hill Std.      | No       |

Y-value  W/m²K

## 19.0 Mechanical Ventilation

### Mechanical Ventilation

|                                       |                                                                             |
|---------------------------------------|-----------------------------------------------------------------------------|
| Mechanical Ventilation System Present | <input type="text" value="Yes"/>                                            |
| Approved Installation                 | <input type="text" value="Yes"/>                                            |
| Mechanical Ventilation data Type      | <input type="text" value="Database"/>                                       |
| Type                                  | <input type="text" value="Mechanical extract ventilation - decentralised"/> |
| MV Reference Number                   | <input type="text" value="500776"/>                                         |
| Duct Type                             | <input type="text" value="Rigid"/>                                          |
| Wet Rooms                             | <input type="text" value="5"/>                                              |

## 19.1 Mechanical extract ventilation - Decentralised

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

## 20.0 Fans, Open Fireplaces, Flues

|                                                  |                                |
|--------------------------------------------------|--------------------------------|
| Number of open chimneys                          | <input type="text" value="0"/> |
| Number of open flues                             | <input type="text" value="0"/> |
| Number of chimneys/flues attached to closed fire | <input type="text" value="0"/> |
| Number of flues attached to solid fuel boiler    | <input type="text" value="0"/> |
| Number of flues attached to other heater         | <input type="text" value="0"/> |
| Number of blocked chimneys                       | <input type="text" value="0"/> |
| Number of intermittent extract fans              | <input type="text" value="0"/> |

# Summary for Input Data

|                                                  |                                                                               |                                             |                       |                           |                    |
|--------------------------------------------------|-------------------------------------------------------------------------------|---------------------------------------------|-----------------------|---------------------------|--------------------|
| Number of passive vents                          | <input type="text" value="0"/>                                                |                                             |                       |                           |                    |
| Number of flueless gas fires                     | <input type="text" value="0"/>                                                |                                             |                       |                           |                    |
| <b>21.0 Fixed Cooling System</b>                 | <input type="text" value="No"/>                                               |                                             |                       |                           |                    |
| <b>22.0 Pressure Testing</b>                     | <input type="text" value="Yes"/>                                              |                                             |                       |                           |                    |
| Designed AP <sub>50</sub>                        | <input type="text" value="4.00"/>                                             | m <sup>3</sup> /(h.m <sup>2</sup> ) @ 50 Pa |                       |                           |                    |
| Test Method                                      | <input type="text" value="Blower Door"/>                                      |                                             |                       |                           |                    |
| <b>22.0 Lighting</b>                             | <input type="text" value="No"/>                                               |                                             |                       |                           |                    |
| No Fixed Lighting                                | <input type="text" value="No"/>                                               |                                             |                       |                           |                    |
|                                                  | <b>Name</b><br>Lighting                                                       | <b>Efficacy</b><br>75.00                    | <b>Power</b><br>10.00 | <b>Capacity</b><br>750.00 | <b>Count</b><br>30 |
| <b>24.0 Main Heating 1</b>                       | <input type="text" value="Manufacturer"/>                                     |                                             |                       |                           |                    |
| Percentage of Heat                               | <input type="text" value="100.00"/> %                                         |                                             |                       |                           |                    |
| Fuel Type                                        | <input type="text" value="Mains gas"/>                                        |                                             |                       |                           |                    |
| SAP Code                                         | <input type="text" value="104"/>                                              |                                             |                       |                           |                    |
| In Winter                                        | <input type="text" value="88.90"/>                                            |                                             |                       |                           |                    |
| In Summer                                        | <input type="text" value="80.30"/>                                            |                                             |                       |                           |                    |
| Model Name                                       | <input type="text" value="Gas"/>                                              |                                             |                       |                           |                    |
| Manufacturer                                     | <input type="text" value="Gas"/>                                              |                                             |                       |                           |                    |
| Controls SAP Code                                | <input type="text" value="2110"/>                                             |                                             |                       |                           |                    |
| Controls description                             | <input type="text" value="Time and temperature zone control by arrangement"/> |                                             |                       |                           |                    |
| Delayed Start Stat                               | <input type="text" value="Yes"/>                                              |                                             |                       |                           |                    |
| Burner Control                                   | <input type="text" value="Modulating"/>                                       |                                             |                       |                           |                    |
| Flue Type                                        | <input type="text" value="Balanced"/>                                         |                                             |                       |                           |                    |
| Fan Assisted Flue                                | <input type="text" value="Yes"/>                                              |                                             |                       |                           |                    |
| Is MHS Pumped                                    | <input type="text" value="Pump in heated space"/>                             |                                             |                       |                           |                    |
| Heating Pump Age                                 | <input type="text" value="2013 or later"/>                                    |                                             |                       |                           |                    |
| Heat Emitter                                     | <input type="text" value="Radiators"/>                                        |                                             |                       |                           |                    |
| Flow Temperature                                 | <input type="text" value="Enter value"/>                                      |                                             |                       |                           |                    |
| Flow Temperature Value                           | <input type="text" value="55.00"/>                                            |                                             |                       |                           |                    |
| Boiler Interlock                                 | <input type="text" value="Yes"/>                                              |                                             |                       |                           |                    |
| Combi boiler type                                | <input type="text" value="Standard Combi"/>                                   |                                             |                       |                           |                    |
| Combi keep hot type                              | <input type="text" value="None"/>                                             |                                             |                       |                           |                    |
| <b>25.0 Main Heating 2</b>                       | <input type="text" value="None"/>                                             |                                             |                       |                           |                    |
| <b>26.0 Heat Networks</b>                        | <input type="text" value="None"/>                                             |                                             |                       |                           |                    |
| <b>27.0 Secondary Heating</b>                    | <input type="text" value="None"/>                                             |                                             |                       |                           |                    |
| <b>28.0 Water Heating</b>                        | <input type="text" value="Main Heating 1"/>                                   |                                             |                       |                           |                    |
| Water Heating                                    | <input type="text" value="Main Heating 1"/>                                   |                                             |                       |                           |                    |
| SAP Code                                         | <input type="text" value="901"/>                                              |                                             |                       |                           |                    |
| Flue Gas Heat Recovery System                    | <input type="text" value="No"/>                                               |                                             |                       |                           |                    |
| Waste Water Heat Recovery Instantaneous System 1 | <input type="text" value="No"/>                                               |                                             |                       |                           |                    |
| Waste Water Heat Recovery Instantaneous System 2 | <input type="text" value="No"/>                                               |                                             |                       |                           |                    |
| Waste Water Heat Recovery Storage System         | <input type="text" value="No"/>                                               |                                             |                       |                           |                    |
| Solar Panel                                      | <input type="text" value="No"/>                                               |                                             |                       |                           |                    |
| Water use <= 125 litres/person/day               | <input type="text" value="Yes"/>                                              |                                             |                       |                           |                    |
| Cold Water Source                                | <input type="text" value="From mains"/>                                       |                                             |                       |                           |                    |
| Bath Count                                       | <input type="text" value="1"/>                                                |                                             |                       |                           |                    |

# Summary for Input Data



## 28.1 Showers

| Description | Shower Type                               | Flow Rate<br>[l/min] | Rated Power<br>[kW] | Connected | Connected To |
|-------------|-------------------------------------------|----------------------|---------------------|-----------|--------------|
| Bathroom    | Combi boiler or unvented hot water system | 8.00                 |                     | No        |              |
| En-suite    | Combi boiler or unvented hot water system | 8.00                 |                     | No        |              |

## 28.3 Waste Water Heat Recovery System

### 29.0 Hot Water Cylinder

### 34.0 Small-scale Hydro

| 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

|                      |           |               |                |            |
|----------------------|-----------|---------------|----------------|------------|
| Plot Reference       | AC-5B9P-1 |               | Issued on Date | 27/02/2026 |
| Assessment Reference | 001       | Plot Type Ref | AC-5B9P-1      |            |
| Plot Address         | AC-5B9P-1 |               | SAP Version    | 10.2       |

|                                    |          |               |       |      |        |
|------------------------------------|----------|---------------|-------|------|--------|
| SAP Rating                         | 86 B     | DER           | 12.31 | TER  | 9.29   |
| Environmental                      | 87 B     | % DER < TER   |       |      | -32.51 |
| CO <sub>2</sub> Emissions (t/year) | 2.11     | DFEE          | 41.08 | TFEE | 42.98  |
| Compliance Check                   | See BREL | % DFEE < TFEE |       |      | 4.43   |
| % DPER < TPER                      | -39.41   | DPER          | 68.24 | TPER | 48.95  |

|                  |                          |             |           |
|------------------|--------------------------|-------------|-----------|
| Assessor Details | Mr. Matthew Fitzpatrick  | Assessor ID | 7601-0001 |
| Client           | HP 01, Hill Partnerships |             |           |

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

|                            |                     |       |
|----------------------------|---------------------|-------|
| Orientation                | North               |       |
| Property Tenture           | ND                  |       |
| Transaction Type           | 6                   |       |
| Terrain Type               | Suburban            |       |
| 1.0 Property Type          | House, Detached     |       |
| 2.0 Number of Storeys      | 2                   |       |
| 3.0 Date Built             | 2026                |       |
| 4.0 Sheltered Sides        | 2                   |       |
| 5.0 Sunlight/Shade         | Average or unknown  |       |
| 6.0 Thermal Mass Parameter | Precise calculation |       |
| Thermal Mass               | 208.60              | kJ/m² |

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

| 7.0 Measurements | Ground floor: | Heat Loss Perimeter | Internal Floor Area  | Average Storey Height |
|------------------|---------------|---------------------|----------------------|-----------------------|
|                  | 1st Storey:   | 46.18 m             | 96.93 m <sup>2</sup> | 2.50 m                |
|                  |               | 44.64 m             | 95.29 m <sup>2</sup> | 2.70 m                |

|                 |       |                |
|-----------------|-------|----------------|
| 8.0 Living Area | 17.85 | m <sup>2</sup> |
|-----------------|-------|----------------|

| 9.0 External Walls | Description   | Type        | Construction                                                                                                    | U-Value (W/m <sup>2</sup> K) | Kappa (kJ/m <sup>2</sup> K) | Gross Area(m <sup>2</sup> ) | Nett Area (m <sup>2</sup> ) | Shelter Res | Shelter | Openings | Area Calculation Type |
|--------------------|---------------|-------------|-----------------------------------------------------------------------------------------------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|-------------|---------|----------|-----------------------|
|                    | External Wall | Cavity Wall | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.19                         | 110.00                      | 235.99                      | 197.54                      | 0.00        | None    | 38.45    | Enter Gross Area      |

| 9.2 Internal Walls | Description           | Construction                      | Kappa (kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|--------------------|-----------------------|-----------------------------------|-----------------------------|------------------------|
|                    | Timber stud Partition | Plasterboard on timber frame      | 9.00                        | 285.72                 |
|                    | Block Partitions      | Dense block, plasterboard on dabs | 75.00                       | 67.73                  |

| 10.0 External Roofs | Description | Type                | Construction                             | U-Value (W/m <sup>2</sup> K) | Kappa (kJ/m <sup>2</sup> K) | Gross Area(m <sup>2</sup> ) | Nett Area (m <sup>2</sup> ) | Shelter Code | Shelter Factor | Calculation Type | Openings |
|---------------------|-------------|---------------------|------------------------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|--------------|----------------|------------------|----------|
|                     | Cold Roof   | External Plane Roof | Plasterboard, insulated at ceiling level | 0.11                         | 9.00                        | 95.29                       | 95.29                       | None         | 0.00           | Enter Gross Area | 0.00     |
|                     | Bay Roof    | External Plane Roof | Plasterboard, insulated at ceiling level | 0.11                         | 9.00                        | 1.66                        | 1.66                        | None         | 0.00           | Enter Gross Area | 0.00     |

| 10.2 Internal Ceilings | Description      | Storey          | Construction                                   | Kappa | Area (m <sup>2</sup> ) |
|------------------------|------------------|-----------------|------------------------------------------------|-------|------------------------|
|                        | Internal Ceiling | Lowest occupied | Plasterboard ceiling, carpeted chipboard floor | 9.00  | 95.29                  |

| 11.0 Heat Loss Floors | Description  | Type                 | Storey Index    | Construction                       | U-Value (W/m <sup>2</sup> K) | Shelter Code | Shelter Factor | Kappa (kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|-----------------------|--------------|----------------------|-----------------|------------------------------------|------------------------------|--------------|----------------|-----------------------------|------------------------|
|                       | Ground Floor | Ground Floor - Solid | Lowest occupied | Suspended concrete floor, carpeted | 0.12                         | None         | 0.00           | 75.00                       | 96.93                  |

## 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          | 95.29     |

## 12.0 Opening Types

| Description       | Data Source               | Type             | Glazing               | Glazing Gap | Filling Type | G-value | Frame Type | Frame Factor | U Value (W/m²K) |
|-------------------|---------------------------|------------------|-----------------------|-------------|--------------|---------|------------|--------------|-----------------|
| Glazed 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 |             |              | 0.40    |            |              | 1.20            |
| Rooflight         | Manufacturer              | Roof Light       | Double Low-E Soft 0.1 |             |              | 0.63    |            | 0.70         | 1.20            |
| Patio Doors       | BFRC, BSI or CERTASS data | Window           | Double Low-E Soft 0.1 |             |              | 0.33    |            |              | 1.20            |

## 13.0 Openings

| Name            | Opening Type      | Location      | Orientation | Area (m²) | Pitch |
|-----------------|-------------------|---------------|-------------|-----------|-------|
| Front Door      | Glazed front Door | External Wall | North       | 2.12      |       |
| Front Elevation | Window            | External Wall | North       | 13.09     |       |
| Rear Elevation  | Window            | External Wall | South       | 5.64      |       |
| Rear Door       | Glazed front Door | External Wall | South       | 2.12      |       |
| Patio Doors     | Window            | External Wall | East        | 11.34     |       |
| RHS Windows     | Window            | External Wall | East        | 0.71      |       |
| LHS Windows     | Window            | External Wall | West        | 3.42      |       |

## 14.0 Conservatory

## 15.0 Draught Proofing

 %

## 16.0 Draught Lobby

## 17.0 Thermal Bridging

### 17.1 List of Bridges

| Bridge Type                                                      | Source Type            | Length | Psi   | Adjusted | Reference: | Imported |
|------------------------------------------------------------------|------------------------|--------|-------|----------|------------|----------|
| E2 Other lintels (including other steel lintels)                 | Independently assessed | 25.64  | 0.05  | 0.05     | HiTherm    | No       |
| E3 Sill                                                          | Independently assessed | 17.22  | 0.02  | 0.02     | Hill Std.  | No       |
| E4 Jamb                                                          | Independently assessed | 54.10  | 0.03  | 0.03     | Hill Std.  | No       |
| E5 Ground floor (normal)                                         | Independently assessed | 46.18  | 0.06  | 0.06     | Hill Std.  | No       |
| E6 Intermediate floor within a dwelling                          | Independently assessed | 44.64  | 0.05  | 0.05     | Hill Std.  | No       |
| E10 Eaves (insulation at ceiling level)                          | Independently assessed | 30.72  | 0.05  | 0.05     | Hill Std.  | No       |
| E12 Gable (insulation at ceiling level)                          | Independently assessed | 17.62  | 0.06  | 0.06     | Hill Std.  | No       |
| E16 Corner (normal)                                              | Independently assessed | 36.20  | 0.05  | 0.05     | Hill Std.  | No       |
| E17 Corner (inverted – internal area greater than external area) | Independently assessed | 15.40  | -0.08 | -0.08    | Hill Std.  | No       |

Y-value  W/m²K

## 19.0 Mechanical Ventilation

### Mechanical Ventilation

|                                       |                                                                             |
|---------------------------------------|-----------------------------------------------------------------------------|
| Mechanical Ventilation System Present | <input type="text" value="Yes"/>                                            |
| Approved Installation                 | <input type="text" value="Yes"/>                                            |
| Mechanical Ventilation data Type      | <input type="text" value="Database"/>                                       |
| Type                                  | <input type="text" value="Mechanical extract ventilation - decentralised"/> |
| MV Reference Number                   | <input type="text" value="500776"/>                                         |
| Duct Type                             | <input type="text" value="Rigid"/>                                          |
| Wet Rooms                             | <input type="text" value="6"/>                                              |

### 19.1 Mechanical extract ventilation - Decentralised

| SFP  | Fan/Room Type                   | Count |
|------|---------------------------------|-------|
| 0.14 | In Room Fan Kitchen             | 1     |
| 0.11 | In Room Fan Other Wet Room      | 5     |
| 0.00 | In Duct Fan Kitchen             | 0     |
| 0.00 | In Duct Fan Other Wet Room      | 0     |
| 0.08 | Through Wall Fan Kitchen        | 0     |
| 0.08 | Through Wall Fan Other Wet Room | 0     |

## 20.0 Fans, Open Fireplaces, Flues

|                                                  |                                |
|--------------------------------------------------|--------------------------------|
| Number of open chimneys                          | <input type="text" value="0"/> |
| Number of open flues                             | <input type="text" value="0"/> |
| Number of chimneys/flues attached to closed fire | <input type="text" value="0"/> |
| Number of flues attached to solid fuel boiler    | <input type="text" value="0"/> |
| Number of flues attached to other heater         | <input type="text" value="0"/> |

# Summary for Input Data

|                                     |                                |  |
|-------------------------------------|--------------------------------|--|
| Number of blocked chimneys          | <input type="text" value="0"/> |  |
| Number of intermittent extract fans | <input type="text" value="0"/> |  |
| Number of passive vents             | <input type="text" value="0"/> |  |
| Number of flueless gas fires        | <input type="text" value="0"/> |  |

---

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

---

|                              |                                          |                                             |
|------------------------------|------------------------------------------|---------------------------------------------|
| <b>22.0 Pressure Testing</b> | <input type="text" value="Yes"/>         |                                             |
| Designed AP <sub>50</sub>    | <input type="text" value="4.00"/>        | m <sup>3</sup> /(h.m <sup>2</sup> ) @ 50 Pa |
| Test Method                  | <input type="text" value="Blower Door"/> |                                             |

---

|                      |                                 |  |
|----------------------|---------------------------------|--|
| <b>22.0 Lighting</b> | <input type="text" value="No"/> |  |
| No Fixed Lighting    | <input type="text" value="No"/> |  |

| Name     | Efficacy | Power | Capacity | Count |
|----------|----------|-------|----------|-------|
| Lighting | 75.00    | 10.00 | 750.00   | 30    |

---

|                            |                                                                               |   |
|----------------------------|-------------------------------------------------------------------------------|---|
| <b>24.0 Main Heating 1</b> | <input type="text" value="Manufacturer"/>                                     |   |
| Percentage of Heat         | <input type="text" value="100.00"/>                                           | % |
| Fuel Type                  | <input type="text" value="Mains gas"/>                                        |   |
| SAP Code                   | <input type="text" value="104"/>                                              |   |
| In Winter                  | <input type="text" value="88.90"/>                                            |   |
| In Summer                  | <input type="text" value="80.30"/>                                            |   |
| Model Name                 | <input type="text" value="Gas"/>                                              |   |
| Manufacturer               | <input type="text" value="Gas"/>                                              |   |
| Controls SAP Code          | <input type="text" value="2110"/>                                             |   |
| Controls description       | <input type="text" value="Time and temperature zone control by arrangement"/> |   |
| Delayed Start Stat         | <input type="text" value="Yes"/>                                              |   |
| Burner Control             | <input type="text" value="Modulating"/>                                       |   |
| Flue Type                  | <input type="text" value="Balanced"/>                                         |   |
| Fan Assisted Flue          | <input type="text" value="Yes"/>                                              |   |
| Is MHS Pumped              | <input type="text" value="Pump in heated space"/>                             |   |
| Heating Pump Age           | <input type="text" value="2013 or later"/>                                    |   |
| Heat Emitter               | <input type="text" value="Radiators"/>                                        |   |
| Flow Temperature           | <input type="text" value="Enter value"/>                                      |   |
| Flow Temperature Value     | <input type="text" value="55.00"/>                                            |   |
| Boiler Interlock           | <input type="text" value="Yes"/>                                              |   |
| Combi boiler type          | <input type="text" value="Standard Combi"/>                                   |   |
| Combi keep hot type        | <input type="text" value="None"/>                                             |   |

---

|                            |                                   |  |
|----------------------------|-----------------------------------|--|
| <b>25.0 Main Heating 2</b> | <input type="text" value="None"/> |  |
|----------------------------|-----------------------------------|--|

---

|                           |                                   |  |
|---------------------------|-----------------------------------|--|
| <b>26.0 Heat Networks</b> | <input type="text" value="None"/> |  |
|---------------------------|-----------------------------------|--|

---

|                               |                                   |  |
|-------------------------------|-----------------------------------|--|
| <b>27.0 Secondary Heating</b> | <input type="text" value="None"/> |  |
|-------------------------------|-----------------------------------|--|

---

|                                                  |                                             |  |
|--------------------------------------------------|---------------------------------------------|--|
| <b>28.0 Water Heating</b>                        | <input type="text" value="Main Heating 1"/> |  |
| Water Heating                                    | <input type="text" value="Main Heating 1"/> |  |
| SAP Code                                         | <input type="text" value="901"/>            |  |
| Flue Gas Heat Recovery System                    | <input type="text" value="No"/>             |  |
| Waste Water Heat Recovery Instantaneous System 1 | <input type="text" value="No"/>             |  |
| Waste Water Heat Recovery Instantaneous System 2 | <input type="text" value="No"/>             |  |
| Waste Water Heat Recovery Storage System         | <input type="text" value="No"/>             |  |
| Solar Panel                                      | <input type="text" value="No"/>             |  |
| Water use <= 125 litres/person/day               | <input type="text" value="Yes"/>            |  |

# Summary for Input Data

Cold Water Source

Bath Count

## 28.1 Showers

| Description | Shower Type                               | Flow Rate<br>[l/min] | Rated Power<br>[kW] | Connected | Connected To |
|-------------|-------------------------------------------|----------------------|---------------------|-----------|--------------|
| Bathroom    | Combi boiler or unvented hot water system | 8.00                 |                     | No        |              |
| En-suite 1  | Combi boiler or unvented hot water system | 8.00                 |                     | No        |              |
| En-suite 2  | Combi boiler or unvented hot water system | 8.00                 |                     | No        |              |

## 28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder

34.0 Small-scale Hydro

|     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 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

|                      |           |               |                |            |
|----------------------|-----------|---------------|----------------|------------|
| Plot Reference       | AC-5B9P-3 |               | Issued on Date | 27/02/2026 |
| Assessment Reference | 001       | Plot Type Ref | AC-5B9P-3      |            |
| Plot Address         | AC-5B9P-3 |               | SAP Version    | 10.2       |

|                                    |          |               |       |      |        |
|------------------------------------|----------|---------------|-------|------|--------|
| SAP Rating                         | 86 B     | DER           | 11.95 | TER  | 8.74   |
| Environmental                      | 87 B     | % DER < TER   |       |      | -36.73 |
| CO <sub>2</sub> Emissions (t/year) | 2.13     | DFEE          | 40.18 | TFEE | 41.31  |
| Compliance Check                   | See BREL | % DFEE < TFEE |       |      | 2.73   |
| % DPER < TPER                      | -43.82   | DPER          | 66.23 | TPER | 46.05  |

|                  |                          |             |           |
|------------------|--------------------------|-------------|-----------|
| Assessor Details | Mr. Matthew Fitzpatrick  | Assessor ID | 7601-0001 |
| Client           | HP 01, Hill Partnerships |             |           |

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

|                            |                     |       |
|----------------------------|---------------------|-------|
| Orientation                | North               |       |
| Property Tenture           | ND                  |       |
| Transaction Type           | 6                   |       |
| Terrain Type               | Suburban            |       |
| 1.0 Property Type          | House, Detached     |       |
| 2.0 Number of Storeys      | 2                   |       |
| 3.0 Date Built             | 2026                |       |
| 4.0 Sheltered Sides        | 2                   |       |
| 5.0 Sunlight/Shade         | Average or unknown  |       |
| 6.0 Thermal Mass Parameter | Precise calculation |       |
| Thermal Mass               | 201.66              | kJ/m² |

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

| 7.0 Measurements | Ground floor:<br>1st Storey: | Heat Loss Perimeter<br>46.65 m<br>45.09 m | Internal Floor Area<br>100.88 m²<br>99.23 m² | Average Storey Height<br>2.50 m<br>2.70 m |
|------------------|------------------------------|-------------------------------------------|----------------------------------------------|-------------------------------------------|
|------------------|------------------------------|-------------------------------------------|----------------------------------------------|-------------------------------------------|

|                 |       |    |
|-----------------|-------|----|
| 8.0 Living Area | 18.44 | m² |
|-----------------|-------|----|

| 9.0 External Walls | Description   | Type        | Construction                                                                                                    | U-Value<br>(W/m²K) | Kappa<br>(kJ/m²K) | Gross<br>Area(m²) | Nett Area<br>(m²) | Shelter<br>Res | Shelter | Openings | Area Calculation<br>Type |
|--------------------|---------------|-------------|-----------------------------------------------------------------------------------------------------------------|--------------------|-------------------|-------------------|-------------------|----------------|---------|----------|--------------------------|
|                    | External Wall | Cavity Wall | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.19               | 110.00            | 238.39            | 193.86            | 0.00           | None    | 44.53    | Enter Gross Area         |

| 9.2 Internal Walls | Description           | Construction                      | Kappa<br>(kJ/m²K) | Area (m²) |
|--------------------|-----------------------|-----------------------------------|-------------------|-----------|
|                    | Timber stud Partition | Plasterboard on timber frame      | 9.00              | 291.86    |
|                    | Block Partitions      | Dense block, plasterboard on dabs | 75.00             | 69.98     |

| 10.0 External Roofs | Description | Type                | Construction                             | U-Value<br>(W/m²K) | Kappa<br>(kJ/m²K) | Gross<br>Area(m²) | Nett<br>Area<br>(m²) | Shelter<br>Code | Shelter<br>Factor | Calculation<br>Type | Openings |
|---------------------|-------------|---------------------|------------------------------------------|--------------------|-------------------|-------------------|----------------------|-----------------|-------------------|---------------------|----------|
|                     | Cold Roof   | External Plane Roof | Plasterboard, insulated at ceiling level | 0.11               | 9.00              | 99.23             | 99.23                | None            | 0.00              | Enter Gross Area    | 0.00     |
|                     | Bay Roof    | External Plane Roof | Plasterboard, insulated at ceiling level | 0.11               | 9.00              | 1.66              | 1.66                 | None            | 0.00              | Enter Gross Area    | 0.00     |

| 10.2 Internal Ceilings | Description      | Storey          | Construction                                   | Kappa | Area (m²) |
|------------------------|------------------|-----------------|------------------------------------------------|-------|-----------|
|                        | Internal Ceiling | Lowest occupied | Plasterboard ceiling, carpeted chipboard floor | 9.00  | 99.23     |

| 11.0 Heat Loss Floors | Description  | Type                 | Storey Index    | Construction                       | U-Value<br>(W/m²K) | Shelter Code | Shelter Factor | Kappa<br>(kJ/m²K) | Area (m²) |
|-----------------------|--------------|----------------------|-----------------|------------------------------------|--------------------|--------------|----------------|-------------------|-----------|
|                       | Ground Floor | Ground Floor - Solid | Lowest occupied | Suspended concrete floor, carpeted | 0.12               | None         | 0.00           | 75.00             | 100.88    |

## 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          | 99.23     |

### 12.0 Opening Types

| Description       | Data Source               | Type             | Glazing               | Glazing Gap | Filling Type | G-value | Frame Type | Frame Factor | U Value (W/m²K) |
|-------------------|---------------------------|------------------|-----------------------|-------------|--------------|---------|------------|--------------|-----------------|
| Glazed 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 |             |              | 0.40    |            |              | 1.20            |
| Rooflight         | Manufacturer              | Roof Light       | Double Low-E Soft 0.1 |             |              | 0.63    |            | 0.70         | 1.20            |
| Patio Doors       | BFRC, BSI or CERTASS data | Window           | Double Low-E Soft 0.1 |             |              | 0.33    |            |              | 1.20            |

### 13.0 Openings

| Name             | Opening Type      | Location      | Orientation | Area (m²) | Pitch |
|------------------|-------------------|---------------|-------------|-----------|-------|
| Front Door       | Glazed front Door | External Wall | North       | 2.12      |       |
| Front Elevation  | Window            | External Wall | North       | 14.13     |       |
| Rear Elevation   | Window            | External Wall | South       | 4.95      |       |
| Rear Door        | Glazed front Door | External Wall | South       | 2.12      |       |
| Rear Patio Doors | Patio Doors       | External Wall | South       | 11.38     |       |
| RHS Windows      | Window            | External Wall | East        | 0.74      |       |
| LHS Windows      | Window            | External Wall | West        | 9.08      |       |

### 14.0 Conservatory

None

### 15.0 Draught Proofing

100

 %
  

### 16.0 Draught Lobby

No

### 17.0 Thermal Bridging

Calculate Bridges

### 17.1 List of Bridges

| Bridge Type                                                      | Source Type            | Length | Psi   | Adjusted Reference: | Imported |
|------------------------------------------------------------------|------------------------|--------|-------|---------------------|----------|
| E2 Other lintels (including other steel lintels)                 | Independently assessed | 30.35  | 0.05  | 0.05 HiTherm        | No       |
| E3 Sill                                                          | Independently assessed | 21.90  | 0.02  | 0.02 Hill Std.      | No       |
| E4 Jamb                                                          | Independently assessed | 64.22  | 0.03  | 0.03 Hill Std.      | No       |
| E5 Ground floor (normal)                                         | Independently assessed | 46.50  | 0.06  | 0.06 Hill Std.      | No       |
| E6 Intermediate floor within a dwelling                          | Independently assessed | 45.09  | 0.05  | 0.05 Hill Std.      | No       |
| E10 Eaves (insulation at ceiling level)                          | Independently assessed | 28.82  | 0.05  | 0.05 Hill Std.      | No       |
| E12 Gable (insulation at ceiling level)                          | Independently assessed | 19.97  | 0.06  | 0.06 Hill Std.      | No       |
| E16 Corner (normal)                                              | Independently assessed | 28.50  | 0.05  | 0.05 Hill Std.      | No       |
| E17 Corner (inverted – internal area greater than external area) | Independently assessed | 10.20  | -0.08 | -0.08 Hill Std.     | No       |
| E24 Eaves (insulation at ceiling level - inverted)               | Table K1 - Default     | 2.14   | 0.15  | 0.15                | 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

 500776

Duct Type

 Rigid

Wet Rooms

 6
  

### 19.1 Mechanical extract ventilation - Decentralised

| SFP  | Fan/Room Type                   | Count |
|------|---------------------------------|-------|
| 0.14 | In Room Fan Kitchen             | 1     |
| 0.11 | In Room Fan Other Wet Room      | 5     |
| 0.00 | In Duct Fan Kitchen             | 0     |
| 0.00 | In Duct Fan Other Wet Room      | 0     |
| 0.08 | Through Wall Fan Kitchen        | 0     |
| 0.08 | Through Wall Fan Other Wet Room | 0     |

### 20.0 Fans, Open Fireplaces, Flues

Number of open chimneys

 0

Number of open flues

 0

Number of chimneys/flues attached to closed fire

 0

Number of flues attached to solid fuel boiler

 0

# Summary for Input Data

|                                          |                                |
|------------------------------------------|--------------------------------|
| Number of flues attached to other heater | <input type="text" value="0"/> |
| Number of blocked chimneys               | <input type="text" value="0"/> |
| Number of intermittent extract fans      | <input type="text" value="0"/> |
| Number of passive vents                  | <input type="text" value="0"/> |
| Number of flueless gas fires             | <input type="text" value="0"/> |

**21.0 Fixed Cooling System**

**22.0 Pressure Testing**

Designed AP<sub>50</sub>  m<sup>2</sup>/(h.m<sup>2</sup>) @ 50 Pa

Test Method

## 22.0 Lighting

No Fixed Lighting

| Name<br>Lighting | Efficacy<br>75.00 | Power<br>10.00 | Capacity<br>750.00 | Count<br>30 |
|------------------|-------------------|----------------|--------------------|-------------|
|------------------|-------------------|----------------|--------------------|-------------|

## 24.0 Main Heating 1

Percentage of Heat  %

Fuel Type

SAP Code

In Winter

In Summer

Model Name

Manufacturer

Controls SAP Code

Controls description

Delayed Start Stat

Burner Control

Flue Type

Fan Assisted Flue

Is MHS Pumped

Heating Pump Age

Heat Emitter

Flow Temperature

Flow Temperature Value

Boiler Interlock

Combi boiler type

Combi keep hot type

**25.0 Main Heating 2**

**26.0 Heat Networks**

**27.0 Secondary Heating**

## 28.0 Water Heating

Water Heating

SAP Code

Flue Gas Heat Recovery System

Waste Water Heat Recovery Instantaneous System 1

Waste Water Heat Recovery Instantaneous System 2

Waste Water Heat Recovery Storage System

Solar Panel

# Summary for Input Data

|                                    |                                         |
|------------------------------------|-----------------------------------------|
| Water use <= 125 litres/person/day | <input type="text" value="Yes"/>        |
| Cold Water Source                  | <input type="text" value="From mains"/> |
| Bath Count                         | <input type="text" value="1"/>          |

## 28.1 Showers

| Description | Shower Type                               | Flow Rate<br>[l/min] | Rated Power<br>[kW] | Connected | Connected To |
|-------------|-------------------------------------------|----------------------|---------------------|-----------|--------------|
| Bathroom    | Combi boiler or unvented hot water system | 8.00                 |                     | No        |              |
| En-suite 1  | Combi boiler or unvented hot water system | 8.00                 |                     | No        |              |
| En-suite 2  | Combi boiler or unvented hot water system | 8.00                 |                     | No        |              |

## 28.3 Waste Water Heat Recovery System

|                         |                                   |
|-------------------------|-----------------------------------|
| 29.0 Hot Water Cylinder | <input type="text" value="None"/> |
|-------------------------|-----------------------------------|

|                        |                                   |
|------------------------|-----------------------------------|
| 34.0 Small-scale Hydro | <input type="text" value="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

|                      |            |               |                |            |
|----------------------|------------|---------------|----------------|------------|
| Plot Reference       | AFF-2B4P-2 |               | Issued on Date | 27/02/2026 |
| Assessment Reference | 001        | Plot Type Ref | AFF-2B4P-2     |            |
| Plot Address         | AFF-2B4P-2 |               | SAP Version    | 10.2       |

|                                    |          |               |       |      |        |
|------------------------------------|----------|---------------|-------|------|--------|
| SAP Rating                         | 84 B     | DER           | 14.48 | TER  | 11.49  |
| Environmental                      | 88 B     | % DER < TER   |       |      | -26.02 |
| CO <sub>2</sub> Emissions (t/year) | 1.08     | DFEE          | 32.39 | TFEE | 35.26  |
| Compliance Check                   | See BREL | % DFEE < TFEE |       |      | 8.16   |
| % DPER < TPER                      | -34.96   | DPER          | 80.99 | TPER | 60.01  |

|                  |                          |             |           |
|------------------|--------------------------|-------------|-----------|
| Assessor Details | Mr. Matthew Fitzpatrick  | Assessor ID | 7601-0001 |
| Client           | HP 01, Hill Partnerships |             |           |

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

|                                |                            |
|--------------------------------|----------------------------|
| Orientation                    | North                      |
| Property Tenure                | ND                         |
| Transaction Type               | 6                          |
| Terrain Type                   | Suburban                   |
| 1.0 Property Type              | House, End-Terrace         |
| 2.0 Number of Storeys          | 2                          |
| 3.0 Date Built                 | 2026                       |
| 4.0 Sheltered Sides            | 2                          |
| 5.0 Sunlight/Shade             | Average or unknown         |
| 6.0 Thermal Mass Parameter     | Precise calculation        |
| Thermal Mass                   | 225.51 kJ/m <sup>2</sup> K |
| 7.0 Electricity Tariff         | Standard                   |
| Smart electricity meter fitted | Yes                        |
| Smart gas meter fitted         | Yes                        |

| 7.0 Measurements | Ground floor: | Heat Loss Perimeter | Internal Floor Area  | Average Storey Height |
|------------------|---------------|---------------------|----------------------|-----------------------|
|                  | 1st Storey:   | 18.44 m             | 41.00 m <sup>2</sup> | 2.38 m                |
|                  |               | 18.44 m             | 41.00 m <sup>2</sup> | 2.69 m                |

|                 |                      |
|-----------------|----------------------|
| 8.0 Living Area | 30.96 m <sup>2</sup> |
|-----------------|----------------------|

| 9.0 External Walls | Description   | Type        | Construction                                                                                                    | U-Value (W/m <sup>2</sup> K) | Kappa (kJ/m <sup>2</sup> K) | Gross Area(m <sup>2</sup> ) | Nett Area (m <sup>2</sup> ) | Shelter Res | Shelter | Openings | Area Calculation Type |
|--------------------|---------------|-------------|-----------------------------------------------------------------------------------------------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|-------------|---------|----------|-----------------------|
|                    | External Wall | Cavity Wall | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.19                         | 110.00                      | 93.57                       | 78.78                       | 0.00        | None    | 14.79    | Enter Gross Area      |

| 9.1 Party Walls | Description | Type                            | Construction                                                                                | U-Value (W/m <sup>2</sup> K) | Kappa (kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) | Shelter Res | Shelter |
|-----------------|-------------|---------------------------------|---------------------------------------------------------------------------------------------|------------------------------|-----------------------------|------------------------|-------------|---------|
|                 | Party Wall  | Filled Cavity with Edge Sealing | Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill | 0.00                         | 110.00                      | 38.43                  | 0.00        | None    |

| 9.2 Internal Walls | Description           | Construction                 | Kappa (kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|--------------------|-----------------------|------------------------------|-----------------------------|------------------------|
|                    | Timber stud Partition | Plasterboard on timber frame | 9.00                        | 116.38                 |

| 10.0 External Roofs | Description | Type                | Construction                             | U-Value (W/m <sup>2</sup> K) | Kappa (kJ/m <sup>2</sup> K) | Gross Area(m <sup>2</sup> ) | Nett Area (m <sup>2</sup> ) | Shelter Code | Shelter Factor | Calculation Type | Openings |
|---------------------|-------------|---------------------|------------------------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|--------------|----------------|------------------|----------|
|                     | Cold Roof   | External Plane Roof | Plasterboard, insulated at ceiling level | 0.11                         | 9.00                        | 41.00                       | 41.00                       | None         | 0.00           | Enter Gross Area | 0.00     |

| 10.2 Internal Ceilings | Description      | Storey          | Construction                                   | Kappa | Area (m <sup>2</sup> ) |
|------------------------|------------------|-----------------|------------------------------------------------|-------|------------------------|
|                        | Internal Ceiling | Lowest occupied | Plasterboard ceiling, carpeted chipboard floor | 9.00  | 41.00                  |

## 11.0 Heat Loss Floors

# Summary for Input Data

| Description  | Type                 | Storey Index    | Construction                       | U-Value (W/m²K) | Shelter Code | Shelter Factor | Kappa (kJ/m²K) | Area (m²) |
|--------------|----------------------|-----------------|------------------------------------|-----------------|--------------|----------------|----------------|-----------|
| Ground Floor | Ground Floor - Solid | Lowest occupied | Suspended concrete floor, carpeted | 0.12            | None         | 0.00           | 75.00          | 41.00     |

## 11.2 Internal Floors

| Description      | Storey Index | Construction                                   | Kappa (kJ/m²K) | Area (m²) |
|------------------|--------------|------------------------------------------------|----------------|-----------|
| Internal Floor 1 | +1           | Plasterboard ceiling, carpeted chipboard floor | 18.00          | 41.00     |

## 12.0 Opening Types

| Description       | Data Source               | Type             | Glazing               | Glazing Gap | Filling Type | G-value | Frame Type | Frame Factor | U Value (W/m²K) |
|-------------------|---------------------------|------------------|-----------------------|-------------|--------------|---------|------------|--------------|-----------------|
| Glazed 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 |             |              | 0.40    |            |              | 1.20            |
| Patio Door        | BFRC, BSI or CERTASS data | Window           | Double Low-E Soft 0.1 |             |              | 0.33    |            |              | 1.20            |

## 13.0 Openings

| Name            | Opening Type      | Location      | Orientation | Area (m²) | Pitch |
|-----------------|-------------------|---------------|-------------|-----------|-------|
| Front Door      | Glazed front Door | External Wall | North       | 2.15      |       |
| Front Elevation | Window            | External Wall | North       | 4.96      |       |
| Rear Elevation  | Patio Door        | External Wall | South       | 5.69      |       |
| Rear Elevation  | Window            | External Wall | South       | 1.99      |       |

## 14.0 Conservatory

## 15.0 Draught Proofing

 %

## 16.0 Draught Lobby

## 17.0 Thermal Bridging

### 17.1 List of Bridges

| Bridge Type                                          | Source Type              | Length | Psi   | Adjusted Reference: | Imported |
|------------------------------------------------------|--------------------------|--------|-------|---------------------|----------|
| E2 Other lintels (including other steel lintels)     | Independently assessed   | 9.74   | 0.05  | 0.05 HiTherm        | No       |
| E3 Sill                                              | Independently assessed   | 8.72   | 0.02  | 0.02 Hill Std.      | No       |
| E4 Jamb                                              | Independently assessed   | 17.45  | 0.03  | 0.03 Hill Std.      | No       |
| E5 Ground floor (normal)                             | Independently assessed   | 18.44  | 0.06  | 0.06 Hill Std.      | No       |
| E6 Intermediate floor within a dwelling              | Independently assessed   | 18.44  | 0.05  | 0.05 Hill Std.      | No       |
| E10 Eaves (insulation at ceiling level)              | Independently assessed   | 10.82  | 0.05  | 0.05 Hill Std.      | No       |
| E12 Gable (insulation at ceiling level)              | Independently assessed   | 7.56   | 0.06  | 0.06 Hill Std.      | No       |
| E16 Corner (normal)                                  | Independently assessed   | 10.14  | 0.05  | 0.05 Hill Std.      | No       |
| P1 Party wall - Ground floor                         | Non Gov Approved Schemes | 7.58   | 0.04  | 0.04 RCD            | No       |
| P2 Party wall - Intermediate floor within a dwelling | Table K1 - Default       | 7.56   | 0.00  | 0.00                | No       |
| P4 Party wall - Roof (insulation at ceiling level)   | Non Gov Approved Schemes | 7.58   | 0.03  | 0.03 RCD            | No       |
| E18 Party wall between dwellings                     | Independently assessed   | 10.14  | -0.13 | -0.13 Hill Std.     | No       |

Y-value  W/m²K

## 19.0 Mechanical Ventilation

### Mechanical Ventilation

|                                       |                                                                             |
|---------------------------------------|-----------------------------------------------------------------------------|
| Mechanical Ventilation System Present | <input type="text" value="Yes"/>                                            |
| Approved Installation                 | <input type="text" value="No"/>                                             |
| Mechanical Ventilation data Type      | <input type="text" value="Database"/>                                       |
| Type                                  | <input type="text" value="Mechanical extract ventilation - decentralised"/> |
| MV Reference Number                   | <input type="text" value="500776"/>                                         |
| Duct Type                             | <input type="text" value="Rigid"/>                                          |
| Wet Rooms                             | <input type="text" value="3"/>                                              |

### 19.1 Mechanical extract ventilation - Decentralised

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

## 20.0 Fans, Open Fireplaces, Flues

|                                                  |                                |
|--------------------------------------------------|--------------------------------|
| Number of open chimneys                          | <input type="text" value="0"/> |
| Number of open flues                             | <input type="text" value="0"/> |
| Number of chimneys/flues attached to closed fire | <input type="text" value="0"/> |

# Summary for Input Data

|                                               |                                |
|-----------------------------------------------|--------------------------------|
| Number of flues attached to solid fuel boiler | <input type="text" value="0"/> |
| Number of flues attached to other heater      | <input type="text" value="0"/> |
| Number of blocked chimneys                    | <input type="text" value="0"/> |
| Number of intermittent extract fans           | <input type="text" value="0"/> |
| Number of passive vents                       | <input type="text" value="0"/> |
| Number of flueless gas fires                  | <input type="text" value="0"/> |

**21.0 Fixed Cooling System**

**22.0 Pressure Testing**

|                           |                                          |                                             |
|---------------------------|------------------------------------------|---------------------------------------------|
| Designed AP <sub>50</sub> | <input type="text" value="4.00"/>        | m <sup>3</sup> /(h.m <sup>2</sup> ) @ 50 Pa |
| Test Method               | <input type="text" value="Blower Door"/> |                                             |

**22.0 Lighting**  
No Fixed Lighting

| Name            | Efficacy | Power | Capacity | Count |
|-----------------|----------|-------|----------|-------|
| Downlighters    | 75.00    | 10.00 | 750.00   | 17    |
| Pendants        | 75.00    | 10.00 | 750.00   | 4     |
| Bulkhead Lights | 75.00    | 10.00 | 750.00   | 4     |

|                            |                                                                               |
|----------------------------|-------------------------------------------------------------------------------|
| <b>24.0 Main Heating 1</b> | <input type="text" value="Manufacturer"/>                                     |
| Description                | <input type="text" value="ASHP"/>                                             |
| Percentage of Heat         | <input type="text" value="100.00"/> %                                         |
| Fuel Type                  | <input type="text" value="Mains gas"/>                                        |
| SAP Code                   | <input type="text" value="104"/>                                              |
| In Winter                  | <input type="text" value="88.90"/>                                            |
| In Summer                  | <input type="text" value="80.30"/>                                            |
| Model Name                 | <input type="text" value="Gas"/>                                              |
| Manufacturer               | <input type="text" value="Gas"/>                                              |
| Controls SAP Code          | <input type="text" value="2110"/>                                             |
| Controls description       | <input type="text" value="Time and temperature zone control by arrangement"/> |
| Delayed Start Stat         | <input type="text" value="Yes"/>                                              |
| Burner Control             | <input type="text" value="Modulating"/>                                       |
| Flue Type                  | <input type="text" value="Balanced"/>                                         |
| Fan Assisted Flue          | <input type="text" value="Yes"/>                                              |
| Is MHS Pumped              | <input type="text" value="Pump in heated space"/>                             |
| Heating Pump Age           | <input type="text" value="2013 or later"/>                                    |
| Heat Emitter               | <input type="text" value="Radiators"/>                                        |
| Flow Temperature           | <input type="text" value="Enter value"/>                                      |
| Flow Temperature Value     | <input type="text" value="55.00"/>                                            |
| Boiler Interlock           | <input type="text" value="Yes"/>                                              |
| Combi boiler type          | <input type="text" value="Standard Combi"/>                                   |
| Combi keep hot type        | <input type="text" value="None"/>                                             |

**25.0 Main Heating 2**

**26.0 Heat Networks**

**27.0 Secondary Heating**

|                                                  |                                             |
|--------------------------------------------------|---------------------------------------------|
| <b>28.0 Water Heating</b>                        | <input type="text" value="Main Heating 1"/> |
| Water Heating                                    | <input type="text" value="Main Heating 1"/> |
| SAP Code                                         | <input type="text" value="901"/>            |
| Flue Gas Heat Recovery System                    | <input type="text" value="No"/>             |
| Waste Water Heat Recovery Instantaneous System 1 | <input type="text" value="No"/>             |

# Summary for Input Data

|                                                  |                                         |
|--------------------------------------------------|-----------------------------------------|
| Waste Water Heat Recovery Instantaneous System 2 | <input type="text" value="No"/>         |
| Waste Water Heat Recovery Storage System         | <input type="text" value="No"/>         |
| Solar Panel                                      | <input type="text" value="No"/>         |
| Water use <= 125 litres/person/day               | <input type="text" value="Yes"/>        |
| Cold Water Source                                | <input type="text" value="From mains"/> |
| Bath Count                                       | <input type="text" value="1"/>          |

## 28.1 Showers

| Description | Shower Type                               | Flow Rate<br>[l/min] | Rated Power<br>[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 | <input type="text" value="None"/> |
|-------------------------|-----------------------------------|

|                        |                                   |
|------------------------|-----------------------------------|
| 34.0 Small-scale Hydro | <input type="text" value="None"/> |
|------------------------|-----------------------------------|

| Jan                   | Feb        | Mar         | Apr       | May         | Jun                      | Jul                       | Aug  | Sep  | Oct  | Nov  | Dec  |      |      |      |      |      |      |      |
|-----------------------|------------|-------------|-----------|-------------|--------------------------|---------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| 35.0 Special Features |            |             |           |             |                          |                           |      |      |      |      |      |      |      |      |      |      |      |      |
| Energy Saved          | Fuel Saved | Energy Used | Fuel Used | Description | Monthly Air Change Rates | Special Technologies Type | Jan  | Feb  | Mar  | Apr  | May  | Jun  | Jul  | Aug  | Sep  | Oct  | Nov  | Dec  |
| 0.00                  |            | 0.00        |           |             |                          | CO2 saving feature        | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

## Recommendations

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

# Summary for Input Data

|                      |            |                |            |
|----------------------|------------|----------------|------------|
| Plot Reference       | AFF-3B6P-1 | Issued on Date | 27/02/2026 |
| Assessment Reference | 001        | Plot Type Ref  | AFF-3B6P-1 |
| Plot Address         | AFF-3B6P-1 | SAP Version    | 10.2       |

|                                    |          |               |       |      |        |
|------------------------------------|----------|---------------|-------|------|--------|
| SAP Rating                         | 85 B     | DER           | 14.06 | TER  | 11.45  |
| Environmental                      | 87 B     | % DER < TER   |       |      | -22.79 |
| CO <sub>2</sub> Emissions (t/year) | 1.28     | DFEE          | 35.67 | TFEE | 36.53  |
| Compliance Check                   | See BREL | % DFEE < TFEE |       |      | 2.35   |
| % DPER < TPER                      | -30.97   | DPER          | 78.54 | TPER | 59.97  |

|                  |                          |             |           |
|------------------|--------------------------|-------------|-----------|
| Assessor Details | Mr. Matthew Fitzpatrick  | Assessor ID | 7601-0001 |
| Client           | HP 01, Hill Partnerships |             |           |

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

|                                |                      |        |
|--------------------------------|----------------------|--------|
| Orientation                    | North                |        |
| Property Tenture               | ND                   |        |
| Transaction Type               | 6                    |        |
| Terrain Type                   | Suburban             |        |
| 1.0 Property Type              | House, Semi-Detached |        |
| 2.0 Number of Storeys          | 3                    |        |
| 3.0 Date Built                 | 2026                 |        |
| 4.0 Sheltered Sides            | 2                    |        |
| 5.0 Sunlight/Shade             | Average or unknown   |        |
| 6.0 Thermal Mass Parameter     | Precise calculation  |        |
| Thermal Mass                   | 220.83               | kJ/m²K |
|                                |                      |        |
| 7.0 Electricity Tariff         | Standard             |        |
| Smart electricity meter fitted | Yes                  |        |
| Smart gas meter fitted         | Yes                  |        |

| 7.0 Measurements | Ground floor: | Heat Loss Perimeter | Internal Floor Area  | Average Storey Height |
|------------------|---------------|---------------------|----------------------|-----------------------|
|                  | 1st Storey:   | 18.13 m             | 39.59 m <sup>2</sup> | 2.50 m                |
|                  | 2nd Storey:   | 16.41 m             | 21.29 m <sup>2</sup> | 2.40 m                |

|                 |       |                |
|-----------------|-------|----------------|
| 8.0 Living Area | 20.79 | m <sup>2</sup> |
|-----------------|-------|----------------|

| 9.0 External Walls | Description                   | Type         | Construction                                                                                                    | U-Value (W/m <sup>2</sup> K) | Kappa (kJ/m <sup>2</sup> K) | Gross Area(m <sup>2</sup> ) | Nett Area (m <sup>2</sup> ) | Shelter Res | Shelter      | Openings | Area Calculation Type |
|--------------------|-------------------------------|--------------|-----------------------------------------------------------------------------------------------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|-------------|--------------|----------|-----------------------|
|                    | External Wall                 | Cavity Wall  | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.19                         | 110.00                      | 102.03                      | 89.07                       | 0.00        | None         | 12.96    | Enter Gross Area      |
|                    | Timber Stud Wall to Loft Room | Timber Frame | Timber framed wall (one layer of plasterboard)                                                                  | 0.19                         | 9.00                        | 23.65                       | 23.65                       | 0.50        | Room In Roof | 0.00     | Enter Gross Area      |
|                    | Dormer Cheek                  | Timber Frame | Timber framed wall (one layer of plasterboard)                                                                  | 0.19                         | 9.00                        | 4.30                        | 2.94                        | 0.00        | None         | 1.36     | Enter Gross Area      |

| 9.1 Party Walls | Description | Type                            | Construction                                                                                | U-Value (W/m <sup>2</sup> K) | Kappa (kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) | Shelter Res | Shelter |
|-----------------|-------------|---------------------------------|---------------------------------------------------------------------------------------------|------------------------------|-----------------------------|------------------------|-------------|---------|
|                 | Party Wall  | Filled Cavity with Edge Sealing | Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill | 0.00                         | 110.00                      | 47.28                  | 0.00        | None    |

| 9.2 Internal Walls | Description           | Construction                 | Kappa (kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|--------------------|-----------------------|------------------------------|-----------------------------|------------------------|
|                    | Timber stud Partition | Plasterboard on timber frame | 9.00                        | 168.84                 |

| 10.0 External Roofs | Description  | Type                | Construction                             | U-Value (W/m <sup>2</sup> K) | Kappa (kJ/m <sup>2</sup> K) | Gross Area(m <sup>2</sup> ) | Nett Area (m <sup>2</sup> ) | Shelter Code | Shelter Factor | Calculation Type | Openings |
|---------------------|--------------|---------------------|------------------------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|--------------|----------------|------------------|----------|
|                     | Cold Roof    | External Plane Roof | Plasterboard, insulated at ceiling level | 0.11                         | 9.00                        | 10.50                       | 10.50                       | None         | 0.00           | Enter Gross Area | 0.00     |
|                     | Exposed Roof | External Plane Roof | Plasterboard, insulated at ceiling level | 0.11                         | 9.00                        | 18.37                       | 18.37                       | Room In Roof | 0.50           | Enter Gross Area | 0.00     |
|                     | Sloping Roof | External Slope Roof | Plasterboard, insulated slope            | 0.15                         | 9.00                        | 8.70                        | 8.70                        | None         | 0.00           | Enter Gross Area | 0.00     |

# Summary for Input Data



|             |                    |                                   |      |      |      |      |      |      |                  |      |
|-------------|--------------------|-----------------------------------|------|------|------|------|------|------|------------------|------|
| Dormer Roof | External Flat Roof | Plasterboard, insulated flat roof | 0.13 | 9.00 | 2.12 | 2.12 | None | 0.00 | Enter Gross Area | 0.00 |
|-------------|--------------------|-----------------------------------|------|------|------|------|------|------|------------------|------|

## 10.2 Internal Ceilings

| Description      | Storey          | Construction                                   | Kappa | Area (m²) |
|------------------|-----------------|------------------------------------------------|-------|-----------|
| Internal Ceiling | Lowest occupied | Plasterboard ceiling, carpeted chipboard floor | 9.00  | 78.37     |

## 11.0 Heat Loss Floors

| Description  | Type                 | Storey Index    | Construction                       | U-Value (W/m²K) | Shelter Code | Shelter Factor | Kappa (kJ/m²K) | Area (m²) |
|--------------|----------------------|-----------------|------------------------------------|-----------------|--------------|----------------|----------------|-----------|
| Ground Floor | Ground Floor - Solid | Lowest occupied | Suspended concrete floor, carpeted | 0.12            | None         | 0.00           | 75.00          | 39.41     |

## 11.2 Internal Floors

| Description      | Storey Index | Construction                                   | Kappa (kJ/m²K) | Area (m²) |
|------------------|--------------|------------------------------------------------|----------------|-----------|
| Internal Floor 1 | +1           | Plasterboard ceiling, carpeted chipboard floor | 18.00          | 78.37     |

## 12.0 Opening Types

| Description       | Data Source               | Type             | Glazing               | Glazing Gap | Filling Type | G-value | Frame Type | Frame Factor | U Value (W/m²K) |
|-------------------|---------------------------|------------------|-----------------------|-------------|--------------|---------|------------|--------------|-----------------|
| Glazed 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 |             |              | 0.40    |            |              | 1.20            |
| Rooflight         | Manufacturer              | Roof Light       | Double Low-E Soft 0.1 |             |              | 0.63    |            | 0.70         | 1.20            |
| Patio Doors       | BFRC, BSI or CERTASS data | Window           | Double Low-E Soft 0.1 |             |              | 0.33    |            |              | 1.20            |

## 13.0 Openings

| Name            | Opening Type      | Location      | Orientation | Area (m²) | Pitch |
|-----------------|-------------------|---------------|-------------|-----------|-------|
| Front Door      | Glazed front Door | External Wall | North       | 2.12      |       |
| Front Elevation | Window            | External Wall | North       | 3.92      |       |
| Rear Elevation  | Window            | External Wall | South       | 2.17      |       |
| Patio Door      | Patio Doors       | External Wall | South       | 4.75      |       |
| Dormer Window   | Window            | Dormer Cheek  | North       | 1.36      |       |

## 14.0 Conservatory

## 15.0 Draught Proofing

 %

## 16.0 Draught Lobby

## 17.0 Thermal Bridging

### 17.1 List of Bridges

| Bridge Type                                                      | Source Type              | Length | Psi   | Adjusted Reference: | Imported |
|------------------------------------------------------------------|--------------------------|--------|-------|---------------------|----------|
| E2 Other lintels (including other steel lintels)                 | Independently assessed   | 9.63   | 0.05  | 0.05 HiTherm        | No       |
| E3 Sill                                                          | Independently assessed   | 6.36   | 0.02  | 0.02 Hill Std.      | No       |
| E4 Jamb                                                          | Independently assessed   | 22.20  | 0.03  | 0.03 Hill Std.      | No       |
| E5 Ground floor (normal)                                         | Independently assessed   | 18.13  | 0.06  | 0.06 Hill Std.      | No       |
| E6 Intermediate floor within a dwelling                          | Independently assessed   | 34.54  | 0.05  | 0.05 Hill Std.      | No       |
| E10 Eaves (insulation at ceiling level)                          | Independently assessed   | 10.80  | 0.05  | 0.05 Hill Std.      | No       |
| E12 Gable (insulation at ceiling level)                          | Independently assessed   | 5.97   | 0.06  | 0.06 Hill Std.      | No       |
| E16 Corner (normal)                                              | Independently assessed   | 20.90  | 0.05  | 0.05 Hill Std.      | No       |
| E18 Party wall between dwellings                                 | Independently assessed   | 16.72  | -0.06 | -0.06 Hill Std.     | No       |
| P1 Party wall - Ground floor                                     | Non Gov Approved Schemes | 7.32   | 0.04  | 0.04 RCD            | No       |
| P2 Party wall - Intermediate floor within a dwelling             | Table K1 - Default       | 11.16  | 0.00  | 0.00                | No       |
| P4 Party wall - Roof (insulation at ceiling level)               | Non Gov Approved Schemes | 5.41   | 0.03  | 0.03 RCD            | No       |
| E13 Gable (insulation at rafter level)                           | Non Gov Approved Schemes | 1.36   | 0.04  | 0.04 RCD            | No       |
| E17 Corner (inverted – internal area greater than external area) | Independently assessed   | 6.30   | -0.08 | -0.08 Hill Std.     | No       |
| P5 Party wall - Roof (insulation at rafter level)                | Non Gov Approved Schemes | 1.88   | 0.04  | 0.04 RCD            | No       |
| R6 Flat ceiling                                                  | Table K1 - Default       | 10.85  | 0.12  | 0.12                | No       |
| R7 Flat ceiling (inverted)                                       | Table K1 - Default       | 1.34   | 0.12  | 0.12                | No       |
| R8 Roof to wall (rafter)                                         | Table K1 - Default       | 10.04  | 0.12  | 0.12                | No       |
| R9 Roof to wall (flat ceiling)                                   | Table K1 - Default       | 4.53   | 0.32  | 0.32                | No       |

Y-value  W/m²K

## 19.0 Mechanical Ventilation

### Mechanical Ventilation

|                                       |                                                                             |
|---------------------------------------|-----------------------------------------------------------------------------|
| Mechanical Ventilation System Present | <input type="text" value="Yes"/>                                            |
| Approved Installation                 | <input type="text" value="Yes"/>                                            |
| Mechanical Ventilation data Type      | <input type="text" value="Database"/>                                       |
| Type                                  | <input type="text" value="Mechanical extract ventilation - decentralised"/> |
| MV Reference Number                   | <input type="text" value="500776"/>                                         |
| Duct Type                             | <input type="text" value="Rigid"/>                                          |
| Wet Rooms                             | <input type="text" value="3"/>                                              |

### 19.1 Mechanical extract ventilation - Decentralised

| SFP | Fan/Room Type | Count |
|-----|---------------|-------|
|-----|---------------|-------|

# Summary for Input Data

|      |                     |   |
|------|---------------------|---|
| 0.14 | In Room Fan         | 1 |
|      | Kitchen             |   |
| 0.11 | In Room Fan Other   | 2 |
|      | Wet Room            |   |
| 0.00 | In Duct Fan Kitchen | 0 |
| 0.00 | In Duct Fan Other   | 0 |
|      | Wet Room            |   |
| 0.08 | Through Wall Fan    | 0 |
|      | Kitchen             |   |
| 0.08 | Through Wall Fan    | 0 |
|      | Other Wet Room      |   |

## 20.0 Fans, Open Fireplaces, Flues

|                                                  |                                |
|--------------------------------------------------|--------------------------------|
| Number of open chimneys                          | <input type="text" value="0"/> |
| Number of open flues                             | <input type="text" value="0"/> |
| Number of chimneys/flues attached to closed fire | <input type="text" value="0"/> |
| Number of flues attached to solid fuel boiler    | <input type="text" value="0"/> |
| Number of flues attached to other heater         | <input type="text" value="0"/> |
| Number of blocked chimneys                       | <input type="text" value="0"/> |
| Number of intermittent extract fans              | <input type="text" value="0"/> |
| Number of passive vents                          | <input type="text" value="0"/> |
| Number of flueless gas fires                     | <input type="text" value="0"/> |

## 21.0 Fixed Cooling System

## 22.0 Pressure Testing

|                           |                                          |                                             |
|---------------------------|------------------------------------------|---------------------------------------------|
| Designed AP <sub>50</sub> | <input type="text" value="4.00"/>        | m <sup>2</sup> /(h.m <sup>2</sup> ) @ 50 Pa |
| Test Method               | <input type="text" value="Blower Door"/> |                                             |

## 22.0 Lighting

No Fixed Lighting

| Name     | Efficacy | Power | Capacity | Count |
|----------|----------|-------|----------|-------|
| Lighting | 75.00    | 10.00 | 750.00   | 30    |

## 24.0 Main Heating 1

|                        |                                                                               |   |
|------------------------|-------------------------------------------------------------------------------|---|
| Manufacturer           | <input type="text" value="Manufacturer"/>                                     |   |
| Percentage of Heat     | <input type="text" value="100.00"/>                                           | % |
| Fuel Type              | <input type="text" value="Mains gas"/>                                        |   |
| SAP Code               | <input type="text" value="104"/>                                              |   |
| In Winter              | <input type="text" value="88.90"/>                                            |   |
| In Summer              | <input type="text" value="80.30"/>                                            |   |
| Model Name             | <input type="text" value="Gas"/>                                              |   |
| Manufacturer           | <input type="text" value="Gas"/>                                              |   |
| Controls SAP Code      | <input type="text" value="2110"/>                                             |   |
| Controls description   | <input type="text" value="Time and temperature zone control by arrangement"/> |   |
| Delayed Start Stat     | <input type="text" value="Yes"/>                                              |   |
| Burner Control         | <input type="text" value="Modulating"/>                                       |   |
| Flue Type              | <input type="text" value="Balanced"/>                                         |   |
| Fan Assisted Flue      | <input type="text" value="Yes"/>                                              |   |
| Is MHS Pumped          | <input type="text" value="Pump in heated space"/>                             |   |
| Heating Pump Age       | <input type="text" value="2013 or later"/>                                    |   |
| Heat Emitter           | <input type="text" value="Radiators"/>                                        |   |
| Flow Temperature       | <input type="text" value="Enter value"/>                                      |   |
| Flow Temperature Value | <input type="text" value="55.00"/>                                            |   |
| Boiler Interlock       | <input type="text" value="Yes"/>                                              |   |
| Combi boiler type      | <input type="text" value="Standard Combi"/>                                   |   |
| Combi keep hot type    | <input type="text" value="None"/>                                             |   |

## 25.0 Main Heating 2

# Summary for Input Data

26.0 Heat Networks

27.0 Secondary Heating

## 28.0 Water Heating

Water Heating

SAP Code

Flue Gas Heat Recovery System

Waste Water Heat Recovery Instantaneous System 1

Waste Water Heat Recovery Instantaneous System 2

Waste Water Heat Recovery Storage System

Solar Panel

Water use <= 125 litres/person/day

Cold Water Source

Bath Count

## 28.1 Showers

| Description | Shower Type                               | Flow Rate<br>[l/min] | Rated Power<br>[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

## 34.0 Small-scale Hydro

| 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



|                      |           |               |                |            |
|----------------------|-----------|---------------|----------------|------------|
| Plot Reference       | BS-4B8P-1 |               | Issued on Date | 27/02/2026 |
| Assessment Reference | 001       | Plot Type Ref | BS-4B8P-1      |            |
| Plot Address         | BS-4B8P-1 |               | SAP Version    | 10.2       |

|                                    |          |               |       |      |        |
|------------------------------------|----------|---------------|-------|------|--------|
| SAP Rating                         | 84 B     | DER           | 14.71 | TER  | 10.91  |
| Environmental                      | 85 B     | % DER < TER   |       |      | -34.83 |
| CO <sub>2</sub> Emissions (t/year) | 1.99     | DFEE          | 47.35 | TFEE | 50.99  |
| Compliance Check                   | See BREL | % DFEE < TFEE |       |      | 7.15   |
| % DPER < TPER                      | -40.19   | DPER          | 81.40 | TPER | 58.06  |

|                  |                          |             |           |
|------------------|--------------------------|-------------|-----------|
| Assessor Details | Mr. Matthew Fitzpatrick  | Assessor ID | 7601-0001 |
| Client           | HP 01, Hill Partnerships |             |           |

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

|                                |                     |        |
|--------------------------------|---------------------|--------|
| Orientation                    | North               |        |
| Property Tenture               | ND                  |        |
| Transaction Type               | 6                   |        |
| Terrain Type                   | Suburban            |        |
| 1.0 Property Type              | House, Detached     |        |
| 2.0 Number of Storeys          | 2                   |        |
| 3.0 Date Built                 | 2026                |        |
| 4.0 Sheltered Sides            | 2                   |        |
| 5.0 Sunlight/Shade             | Average or unknown  |        |
| 6.0 Thermal Mass Parameter     | Precise calculation |        |
| Thermal Mass                   | 232.82              | kJ/m²K |
| <hr/>                          |                     |        |
| 7.0 Electricity Tariff         | Standard            |        |
| Smart electricity meter fitted | Yes                 |        |
| Smart gas meter fitted         | Yes                 |        |

| 7.0 Measurements | Heat Loss Perimeter | Internal Floor Area  | Unheated Space Floor Area | Average Storey Height |
|------------------|---------------------|----------------------|---------------------------|-----------------------|
| Ground floor:    | 43.49 m             | 77.25 m <sup>2</sup> | 25.34 m <sup>2</sup>      | 2.50 m                |
| 1st Storey:      | 36.99 m             | 74.25 m <sup>2</sup> |                           | 2.70 m                |

|                 |       |                |
|-----------------|-------|----------------|
| 8.0 Living Area | 43.90 | m <sup>2</sup> |
|-----------------|-------|----------------|

| 9.0 External Walls | Description   | Type        | Construction                                                                                                    | U-Value (W/m <sup>2</sup> K) | Kappa (kJ/m <sup>2</sup> K) | Gross Area(m <sup>2</sup> ) | Nett Area (m <sup>2</sup> ) | Shelter Res | Shelter | Openings | Area Calculation Type |
|--------------------|---------------|-------------|-----------------------------------------------------------------------------------------------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|-------------|---------|----------|-----------------------|
|                    | External Wall | Cavity Wall | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.19                         | 110.00                      | 208.60                      | 182.54                      | 0.00        | None    | 26.06    | Enter Gross Area      |

| 9.2 Internal Walls | Description           | Construction                      | Kappa (kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|--------------------|-----------------------|-----------------------------------|-----------------------------|------------------------|
|                    | Timber stud Partition | Plasterboard on timber frame      | 9.00                        | 218.75                 |
|                    | Block Partitions      | Dense block, plasterboard on dabs | 75.00                       | 53.05                  |

| 10.0 External Roofs | Description | Type                | Construction                             | U-Value (W/m <sup>2</sup> K) | Kappa (kJ/m <sup>2</sup> K) | Gross Area(m <sup>2</sup> ) | Nett Area (m <sup>2</sup> ) | Shelter Code | Shelter Factor | Calculation Type | Openings |
|---------------------|-------------|---------------------|------------------------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|--------------|----------------|------------------|----------|
|                     | Cold Roof   | External Plane Roof | Plasterboard, insulated at ceiling level | 0.11                         | 9.00                        | 74.25                       | 74.25                       | None         | 0.00           | Enter Gross Area | 0.00     |
|                     | Flat Roof   | External Flat Roof  | Plasterboard, insulated flat roof        | 0.13                         | 9.00                        | 30.15                       | 30.15                       | None         | 0.00           | Enter Gross Area | 0.00     |

| 10.2 Internal Ceilings | Description      | Storey          | Construction                                   | Kappa | Area (m <sup>2</sup> ) |
|------------------------|------------------|-----------------|------------------------------------------------|-------|------------------------|
|                        | Internal Ceiling | Lowest occupied | Plasterboard ceiling, carpeted chipboard floor | 9.00  | 74.25                  |

| 11.0 Heat Loss Floors | Description  | Type                 | Storey Index    | Construction                       | U-Value (W/m <sup>2</sup> K) | Shelter Code | Shelter Factor | Kappa (kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|-----------------------|--------------|----------------------|-----------------|------------------------------------|------------------------------|--------------|----------------|-----------------------------|------------------------|
|                       | Ground Floor | Ground Floor - Solid | Lowest occupied | Suspended concrete floor, carpeted | 0.12                         | None         | 0.00           | 75.00                       | 77.25                  |

# Summary for Input Data

Floor Over Garage      Exposed Floor - Timber      +1      Timber exposed floor, insulation between joists      0.12      None      0.00      20.00      25.34

## 11.2 Internal Floors

| Description      | Storey Index | Construction                                   | Kappa (kJ/m²K) | Area (m²) |
|------------------|--------------|------------------------------------------------|----------------|-----------|
| Internal Floor 1 | +1           | Plasterboard ceiling, carpeted chipboard floor | 18.00          | 74.25     |

## 12.0 Opening Types

| Description              | Data Source                           | Type                    | Glazing                                        | Glazing Gap | Filling Type | G-value      | Frame Type | Frame Factor | U Value (W/m²K) |
|--------------------------|---------------------------------------|-------------------------|------------------------------------------------|-------------|--------------|--------------|------------|--------------|-----------------|
| Glazed front Door Window | Manufacturer BFR, BSI or CERTASS data | Half Glazed Door Window | Double Low-E Soft 0.1<br>Double Low-E Soft 0.1 |             |              | 0.63<br>0.40 |            | 0.70         | 1.20<br>1.20    |
| Rooflight Patio Doors    | Manufacturer BFR, BSI or CERTASS data | Roof Light Window       | Double Low-E Soft 0.1<br>Double Low-E Soft 0.1 |             |              | 0.63<br>0.33 |            | 0.70         | 1.20<br>1.20    |

## 13.0 Openings

| Name            | Opening Type      | Location      | Orientation | Area (m²) | Pitch |
|-----------------|-------------------|---------------|-------------|-----------|-------|
| Front Door      | Glazed front Door | External Wall | North       | 2.12      |       |
| Front Elevation | Window            | External Wall | North       | 8.23      |       |
| Rear Elevation  | Window            | External Wall | South       | 5.64      |       |
| Patio Doors     | Window            | External Wall | South       | 8.53      |       |
| RHS Windows     | Window            | External Wall | East        | 0.77      |       |
| LHS Windows     | Window            | External Wall | West        | 0.77      |       |

## 14.0 Conservatory

None

## 15.0 Draught Proofing

100 %

## 16.0 Draught Lobby

No

## 17.0 Thermal Bridging

Calculate Bridges

### 17.1 List of Bridges

| Bridge Type                                                      | Source Type            | Length | Psi   | Adjusted Reference: | Imported |
|------------------------------------------------------------------|------------------------|--------|-------|---------------------|----------|
| E2 Other lintels (including other steel lintels)                 | Independently assessed | 17.60  | 0.05  | 0.05 HiTherm        | No       |
| E3 Sill                                                          | Independently assessed | 11.99  | 0.02  | 0.02 Hill Std.      | No       |
| E4 Jamb                                                          | Independently assessed | 30.40  | 0.03  | 0.03 Hill Std.      | No       |
| E5 Ground floor (normal)                                         | Independently assessed | 43.49  | 0.06  | 0.06 Hill Std.      | No       |
| E6 Intermediate floor within a dwelling                          | Independently assessed | 36.99  | 0.05  | 0.05 Hill Std.      | No       |
| E10 Eaves (insulation at ceiling level)                          | Independently assessed | 22.62  | 0.05  | 0.05 Hill Std.      | No       |
| E12 Gable (insulation at ceiling level)                          | Independently assessed | 14.36  | 0.06  | 0.06 Hill Std.      | No       |
| E16 Corner (normal)                                              | Independently assessed | 33.50  | 0.05  | 0.05 Hill Std.      | No       |
| E17 Corner (inverted – internal area greater than external area) | Independently assessed | 10.20  | -0.08 | -0.08 Hill Std.     | No       |
| E20 Exposed floor (normal)                                       | Table K1 - Default     | 19.69  | 0.32  | 0.32                | No       |
| E21 Exposed floor (inverted)                                     | Table K1 - Default     | 12.53  | 0.32  | 0.32                | No       |
| E14 Flat roof                                                    | Table K1 - Default     | 3.64   | 0.16  | 0.16                | No       |
| E15 Flat roof with parapet                                       | Table K1 - Default     | 15.61  | 0.30  | 0.30                | No       |
| E24 Eaves (insulation at ceiling level - inverted)               | Table K1 - Default     | 5.56   | 0.15  | 0.15                | No       |

Y-value      0.06      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                   | 500776                                         |
| Duct Type                             | Rigid                                          |
| Wet Rooms                             | 5                                              |

### 19.1 Mechanical extract ventilation - Decentralised

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

## 20.0 Fans, Open Fireplaces, Flues

# Summary for Input Data

|                                                  |                                |  |  |  |  |
|--------------------------------------------------|--------------------------------|--|--|--|--|
| Number of open chimneys                          | <input type="text" value="0"/> |  |  |  |  |
| Number of open flues                             | <input type="text" value="0"/> |  |  |  |  |
| Number of chimneys/flues attached to closed fire | <input type="text" value="0"/> |  |  |  |  |
| Number of flues attached to solid fuel boiler    | <input type="text" value="0"/> |  |  |  |  |
| Number of flues attached to other heater         | <input type="text" value="0"/> |  |  |  |  |
| Number of blocked chimneys                       | <input type="text" value="0"/> |  |  |  |  |
| Number of intermittent extract fans              | <input type="text" value="0"/> |  |  |  |  |
| Number of passive vents                          | <input type="text" value="0"/> |  |  |  |  |
| Number of flueless gas fires                     | <input type="text" value="0"/> |  |  |  |  |

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

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|                              |                                          |                   |  |  |  |
|------------------------------|------------------------------------------|-------------------|--|--|--|
| <b>22.0 Pressure Testing</b> | <input type="text" value="Yes"/>         |                   |  |  |  |
| Designed AP <sub>50</sub>    | <input type="text" value="4.00"/>        | m³/(h.m²) @ 50 Pa |  |  |  |
| Test Method                  | <input type="text" value="Blower Door"/> |                   |  |  |  |

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|                      |                                 |                          |                       |                           |                    |
|----------------------|---------------------------------|--------------------------|-----------------------|---------------------------|--------------------|
| <b>22.0 Lighting</b> | <input type="text" value="No"/> |                          |                       |                           |                    |
| No Fixed Lighting    | <input type="text" value="No"/> |                          |                       |                           |                    |
|                      | <b>Name</b><br>Lighting         | <b>Efficacy</b><br>75.00 | <b>Power</b><br>10.00 | <b>Capacity</b><br>750.00 | <b>Count</b><br>30 |

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|                            |                                                                               |   |  |  |  |
|----------------------------|-------------------------------------------------------------------------------|---|--|--|--|
| <b>24.0 Main Heating 1</b> | <input type="text" value="Manufacturer"/>                                     |   |  |  |  |
| Percentage of Heat         | <input type="text" value="100.00"/>                                           | % |  |  |  |
| Fuel Type                  | <input type="text" value="Mains gas"/>                                        |   |  |  |  |
| SAP Code                   | <input type="text" value="104"/>                                              |   |  |  |  |
| In Winter                  | <input type="text" value="88.90"/>                                            |   |  |  |  |
| In Summer                  | <input type="text" value="80.30"/>                                            |   |  |  |  |
| Model Name                 | <input type="text" value="Gas"/>                                              |   |  |  |  |
| Manufacturer               | <input type="text" value="Gas"/>                                              |   |  |  |  |
| Controls SAP Code          | <input type="text" value="2110"/>                                             |   |  |  |  |
| Controls description       | <input type="text" value="Time and temperature zone control by arrangement"/> |   |  |  |  |
| Delayed Start Stat         | <input type="text" value="Yes"/>                                              |   |  |  |  |
| Burner Control             | <input type="text" value="Modulating"/>                                       |   |  |  |  |
| Flue Type                  | <input type="text" value="Balanced"/>                                         |   |  |  |  |
| Fan Assisted Flue          | <input type="text" value="Yes"/>                                              |   |  |  |  |
| Is MHS Pumped              | <input type="text" value="Pump in heated space"/>                             |   |  |  |  |
| Heating Pump Age           | <input type="text" value="2013 or later"/>                                    |   |  |  |  |
| Heat Emitter               | <input type="text" value="Radiators"/>                                        |   |  |  |  |
| Flow Temperature           | <input type="text" value="Enter value"/>                                      |   |  |  |  |
| Flow Temperature Value     | <input type="text" value="55.00"/>                                            |   |  |  |  |
| Boiler Interlock           | <input type="text" value="Yes"/>                                              |   |  |  |  |
| Combi boiler type          | <input type="text" value="Standard Combi"/>                                   |   |  |  |  |
| Combi keep hot type        | <input type="text" value="None"/>                                             |   |  |  |  |

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|                            |                                   |  |  |  |  |
|----------------------------|-----------------------------------|--|--|--|--|
| <b>25.0 Main Heating 2</b> | <input type="text" value="None"/> |  |  |  |  |
|----------------------------|-----------------------------------|--|--|--|--|

---

|                           |                                   |  |  |  |  |
|---------------------------|-----------------------------------|--|--|--|--|
| <b>26.0 Heat Networks</b> | <input type="text" value="None"/> |  |  |  |  |
|---------------------------|-----------------------------------|--|--|--|--|

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|                               |                                   |  |  |  |  |
|-------------------------------|-----------------------------------|--|--|--|--|
| <b>27.0 Secondary Heating</b> | <input type="text" value="None"/> |  |  |  |  |
|-------------------------------|-----------------------------------|--|--|--|--|

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|                               |                                             |  |  |  |  |
|-------------------------------|---------------------------------------------|--|--|--|--|
| <b>28.0 Water Heating</b>     | <input type="text" value="Main Heating 1"/> |  |  |  |  |
| Water Heating                 | <input type="text" value="Main Heating 1"/> |  |  |  |  |
| SAP Code                      | <input type="text" value="901"/>            |  |  |  |  |
| Flue Gas Heat Recovery System | <input type="text" value="No"/>             |  |  |  |  |

# Summary for Input Data

|                                                  |                                         |
|--------------------------------------------------|-----------------------------------------|
| Waste Water Heat Recovery Instantaneous System 1 | <input type="text" value="No"/>         |
| Waste Water Heat Recovery Instantaneous System 2 | <input type="text" value="No"/>         |
| Waste Water Heat Recovery Storage System         | <input type="text" value="No"/>         |
| Solar Panel                                      | <input type="text" value="No"/>         |
| Water use <= 125 litres/person/day               | <input type="text" value="Yes"/>        |
| Cold Water Source                                | <input type="text" value="From mains"/> |
| Bath Count                                       | <input type="text" value="1"/>          |

## 28.1 Showers

| Description | Shower Type                               | Flow Rate<br>[l/min] | Rated Power<br>[kW] | Connected | Connected To |
|-------------|-------------------------------------------|----------------------|---------------------|-----------|--------------|
| Bathroom    | Combi boiler or unvented hot water system | 8.00                 |                     | No        |              |
| En-suite    | Combi boiler or unvented hot water system | 8.00                 |                     | No        |              |

## 28.3 Waste Water Heat Recovery System

|                         |                                   |
|-------------------------|-----------------------------------|
| 29.0 Hot Water Cylinder | <input type="text" value="None"/> |
|-------------------------|-----------------------------------|

|                        |                                   |
|------------------------|-----------------------------------|
| 34.0 Small-scale Hydro | <input type="text" value="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

|                      |         |               |                |            |
|----------------------|---------|---------------|----------------|------------|
| Plot Reference       | BS-5B9P |               | Issued on Date | 27/02/2026 |
| Assessment Reference | 001     | Plot Type Ref | BS-5B9P        |            |
| Plot Address         | BS-5B9P |               | SAP Version    | 10.2       |

|                                    |          |               |       |      |        |
|------------------------------------|----------|---------------|-------|------|--------|
| SAP Rating                         | 86 B     | DER           | 11.99 | TER  | 8.77   |
| Environmental                      | 87 B     | % DER < TER   |       |      | -36.72 |
| CO <sub>2</sub> Emissions (t/year) | 2.24     | DFEE          | 40.82 | TFEE | 41.88  |
| Compliance Check                   | See BREL | % DFEE < TFEE |       |      | 2.53   |
| % DPER < TPER                      | -43.53   | DPER          | 66.41 | TPER | 46.27  |

|                  |                          |             |           |
|------------------|--------------------------|-------------|-----------|
| Assessor Details | Mr. Matthew Fitzpatrick  | Assessor ID | 7601-0001 |
| Client           | HP 01, Hill Partnerships |             |           |

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

|                            |                            |
|----------------------------|----------------------------|
| Orientation                | North                      |
| Property Tenure            | ND                         |
| Transaction Type           | 6                          |
| Terrain Type               | Suburban                   |
| 1.0 Property Type          | House, Detached            |
| 2.0 Number of Storeys      | 2                          |
| 3.0 Date Built             | 2026                       |
| 4.0 Sheltered Sides        | 2                          |
| 5.0 Sunlight/Shade         | Average or unknown         |
| 6.0 Thermal Mass Parameter | Precise calculation        |
| Thermal Mass               | 207.69 kJ/m <sup>2</sup> K |

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

|                  |               |                     |                       |                       |
|------------------|---------------|---------------------|-----------------------|-----------------------|
| 7.0 Measurements |               |                     |                       |                       |
|                  | Ground floor: | Heat Loss Perimeter | Internal Floor Area   | Average Storey Height |
|                  | 1st Storey:   | 48.80 m             | 105.74 m <sup>2</sup> | 2.50 m                |
|                  |               | 47.35 m             | 104.19 m <sup>2</sup> | 2.70 m                |

|                 |                      |
|-----------------|----------------------|
| 8.0 Living Area | 18.44 m <sup>2</sup> |
|-----------------|----------------------|

| Description   | Type        | Construction                                                                                                    | U-Value (W/m <sup>2</sup> K) | Kappa (kJ/m <sup>2</sup> K) | Gross Area(m <sup>2</sup> ) | Nett Area (m <sup>2</sup> ) | Shelter Res | Shelter | Openings | Area Calculation Type |
|---------------|-------------|-----------------------------------------------------------------------------------------------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|-------------|---------|----------|-----------------------|
| External Wall | Cavity Wall | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.19                         | 110.00                      | 249.84                      | 205.84                      | 0.00        | None    | 44.00    | Enter Gross Area      |

| Description           | Construction                      | Kappa (kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|-----------------------|-----------------------------------|-----------------------------|------------------------|
| Timber stud Partition | Plasterboard on timber frame      | 9.00                        | 287.91                 |
| Block Partitions      | Dense block, plasterboard on dabs | 75.00                       | 88.92                  |

| Description | Type                | Construction                             | U-Value (W/m <sup>2</sup> K) | Kappa (kJ/m <sup>2</sup> K) | Gross Area(m <sup>2</sup> ) | Nett Area (m <sup>2</sup> ) | Shelter Code | Shelter Factor | Calculation Type | Openings |
|-------------|---------------------|------------------------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|--------------|----------------|------------------|----------|
| Cold Roof   | External Plane Roof | Plasterboard, insulated at ceiling level | 0.11                         | 9.00                        | 104.19                      | 104.19                      | None         | 0.00           | Enter Gross Area | 0.00     |
| Bay Roof    | External Plane Roof | Plasterboard, insulated at ceiling level | 0.11                         | 9.00                        | 1.68                        | 1.68                        | None         | 0.00           | Enter Gross Area | 0.00     |

| Description      | Storey          | Construction                                   | Kappa | Area (m <sup>2</sup> ) |
|------------------|-----------------|------------------------------------------------|-------|------------------------|
| Internal Ceiling | Lowest occupied | Plasterboard ceiling, carpeted chipboard floor | 9.00  | 104.19                 |

| Description  | Type                 | Storey Index    | Construction                       | U-Value (W/m <sup>2</sup> K) | Shelter Code | Shelter Factor | Kappa (kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|--------------|----------------------|-----------------|------------------------------------|------------------------------|--------------|----------------|-----------------------------|------------------------|
| Ground Floor | Ground Floor - Solid | Lowest occupied | Suspended concrete floor, carpeted | 0.12                         | None         | 0.00           | 75.00                       | 105.74                 |

## 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          | 104.19    |

## 12.0 Opening Types

| Description       | Data Source               | Type             | Glazing               | Glazing Gap | Filling Type | G-value | Frame Type | Frame Factor | U Value (W/m²K) |
|-------------------|---------------------------|------------------|-----------------------|-------------|--------------|---------|------------|--------------|-----------------|
| Glazed 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 |             |              | 0.40    |            |              | 1.20            |
| Rooflight         | Manufacturer              | Roof Light       | Double Low-E Soft 0.1 |             |              | 0.63    |            | 0.70         | 1.20            |
| Patio Doors       | BFRC, BSI or CERTASS data | Window           | Double Low-E Soft 0.1 |             |              | 0.33    |            |              | 1.20            |

## 13.0 Openings

| Name             | Opening Type      | Location      | Orientation | Area (m²) | Pitch |
|------------------|-------------------|---------------|-------------|-----------|-------|
| Front Door       | Glazed front Door | External Wall | North       | 2.12      |       |
| Front Elevation  | Window            | External Wall | North       | 14.28     |       |
| Rear Elevation   | Window            | External Wall | South       | 2.78      |       |
| Rear Door        | Glazed front Door | External Wall | South       | 2.12      |       |
| Side Patio Doors | Patio Doors       | External Wall | East        | 2.81      |       |
| RHS Windows      | Window            | External Wall | East        | 7.75      |       |
| LHS Windows      | Window            | External Wall | West        | 0.75      |       |
| Rear Patio Doors | Patio Doors       | External Wall | South       | 11.38     |       |

## 14.0 Conservatory

## 15.0 Draught Proofing

 %

## 16.0 Draught Lobby

## 17.0 Thermal Bridging

## 17.1 List of Bridges

| Bridge Type                                                      | Source Type            | Length | Psi   | Adjusted Reference: | Imported |
|------------------------------------------------------------------|------------------------|--------|-------|---------------------|----------|
| E2 Other lintels (including other steel lintels)                 | Independently assessed | 28.79  | 0.05  | 0.05 HiTherm        | No       |
| E3 Sill                                                          | Independently assessed | 19.01  | 0.02  | 0.02 Hill Std.      | No       |
| E4 Jamb                                                          | Independently assessed | 63.74  | 0.03  | 0.03 Hill Std.      | No       |
| E5 Ground floor (normal)                                         | Independently assessed | 48.80  | 0.06  | 0.06 Hill Std.      | No       |
| E6 Intermediate floor within a dwelling                          | Independently assessed | 47.35  | 0.05  | 0.05 Hill Std.      | No       |
| E10 Eaves (insulation at ceiling level)                          | Independently assessed | 33.70  | 0.05  | 0.05 Hill Std.      | No       |
| E12 Gable (insulation at ceiling level)                          | Independently assessed | 17.37  | 0.06  | 0.06 Hill Std.      | No       |
| E16 Corner (normal)                                              | Independently assessed | 36.20  | 0.05  | 0.05 Hill Std.      | No       |
| E17 Corner (inverted – internal area greater than external area) | Independently assessed | 12.70  | -0.08 | -0.08 Hill Std.     | No       |
| E24 Eaves (insulation at ceiling level - inverted)               | Table K1 - Default     | 2.18   | 0.15  | 0.15                | No       |

Y-value  W/m²K

## 19.0 Mechanical Ventilation

### Mechanical Ventilation

|                                       |                                                                             |
|---------------------------------------|-----------------------------------------------------------------------------|
| Mechanical Ventilation System Present | <input type="text" value="Yes"/>                                            |
| Approved Installation                 | <input type="text" value="Yes"/>                                            |
| Mechanical Ventilation data Type      | <input type="text" value="Database"/>                                       |
| Type                                  | <input type="text" value="Mechanical extract ventilation - decentralised"/> |
| MV Reference Number                   | <input type="text" value="500776"/>                                         |
| Duct Type                             | <input type="text" value="Rigid"/>                                          |
| Wet Rooms                             | <input type="text" value="6"/>                                              |

## 19.1 Mechanical extract ventilation - Decentralised

| SFP  | Fan/Room Type       | Count |
|------|---------------------|-------|
| 0.14 | In Room Fan         | 1     |
|      | Kitchen             |       |
| 0.11 | In Room Fan Other   | 5     |
|      | Wet Room            |       |
| 0.00 | In Duct Fan Kitchen | 0     |
| 0.00 | In Duct Fan Other   | 0     |
|      | Wet Room            |       |
| 0.08 | Through Wall Fan    | 0     |
|      | Kitchen             |       |
| 0.08 | Through Wall Fan    | 0     |
|      | Other Wet Room      |       |

## 20.0 Fans, Open Fireplaces, Flues

|                                                  |                                |
|--------------------------------------------------|--------------------------------|
| Number of open chimneys                          | <input type="text" value="0"/> |
| Number of open flues                             | <input type="text" value="0"/> |
| Number of chimneys/flues attached to closed fire | <input type="text" value="0"/> |
| Number of flues attached to solid fuel boiler    | <input type="text" value="0"/> |

# Summary for Input Data

|                                          |                                |
|------------------------------------------|--------------------------------|
| Number of flues attached to other heater | <input type="text" value="0"/> |
| Number of blocked chimneys               | <input type="text" value="0"/> |
| Number of intermittent extract fans      | <input type="text" value="0"/> |
| Number of passive vents                  | <input type="text" value="0"/> |
| Number of flueless gas fires             | <input type="text" value="0"/> |

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

|                              |                                          |                                             |
|------------------------------|------------------------------------------|---------------------------------------------|
| <b>22.0 Pressure Testing</b> | <input type="text" value="Yes"/>         |                                             |
| Designed AP <sub>50</sub>    | <input type="text" value="4.00"/>        | m <sup>2</sup> /(h.m <sup>2</sup> ) @ 50 Pa |
| Test Method                  | <input type="text" value="Blower Door"/> |                                             |

|                      |                                 |                          |                       |                           |                    |
|----------------------|---------------------------------|--------------------------|-----------------------|---------------------------|--------------------|
| <b>22.0 Lighting</b> | <input type="text" value="No"/> |                          |                       |                           |                    |
| No Fixed Lighting    | <input type="text" value="No"/> |                          |                       |                           |                    |
|                      | <b>Name</b><br>Lighting         | <b>Efficacy</b><br>75.00 | <b>Power</b><br>10.00 | <b>Capacity</b><br>750.00 | <b>Count</b><br>30 |

|                            |                                                                               |   |
|----------------------------|-------------------------------------------------------------------------------|---|
| <b>24.0 Main Heating 1</b> | <input type="text" value="Manufacturer"/>                                     |   |
| Percentage of Heat         | <input type="text" value="100.00"/>                                           | % |
| Fuel Type                  | <input type="text" value="Mains gas"/>                                        |   |
| SAP Code                   | <input type="text" value="104"/>                                              |   |
| In Winter                  | <input type="text" value="88.90"/>                                            |   |
| In Summer                  | <input type="text" value="80.30"/>                                            |   |
| Model Name                 | <input type="text" value="Gas"/>                                              |   |
| Manufacturer               | <input type="text" value="Gas"/>                                              |   |
| Controls SAP Code          | <input type="text" value="2110"/>                                             |   |
| Controls description       | <input type="text" value="Time and temperature zone control by arrangement"/> |   |
| Delayed Start Stat         | <input type="text" value="Yes"/>                                              |   |
| Burner Control             | <input type="text" value="Modulating"/>                                       |   |
| Flue Type                  | <input type="text" value="Balanced"/>                                         |   |
| Fan Assisted Flue          | <input type="text" value="Yes"/>                                              |   |
| Is MHS Pumped              | <input type="text" value="Pump in heated space"/>                             |   |
| Heating Pump Age           | <input type="text" value="2013 or later"/>                                    |   |
| Heat Emitter               | <input type="text" value="Radiators"/>                                        |   |
| Flow Temperature           | <input type="text" value="Enter value"/>                                      |   |
| Flow Temperature Value     | <input type="text" value="55.00"/>                                            |   |
| Boiler Interlock           | <input type="text" value="Yes"/>                                              |   |
| Combi boiler type          | <input type="text" value="Standard Combi"/>                                   |   |
| Combi keep hot type        | <input type="text" value="None"/>                                             |   |

|                            |                                   |
|----------------------------|-----------------------------------|
| <b>25.0 Main Heating 2</b> | <input type="text" value="None"/> |
|----------------------------|-----------------------------------|

|                           |                                   |
|---------------------------|-----------------------------------|
| <b>26.0 Heat Networks</b> | <input type="text" value="None"/> |
|---------------------------|-----------------------------------|

|                               |                                   |
|-------------------------------|-----------------------------------|
| <b>27.0 Secondary Heating</b> | <input type="text" value="None"/> |
|-------------------------------|-----------------------------------|

|                                                  |                                             |
|--------------------------------------------------|---------------------------------------------|
| <b>28.0 Water Heating</b>                        |                                             |
| Water Heating                                    | <input type="text" value="Main Heating 1"/> |
| SAP Code                                         | <input type="text" value="901"/>            |
| Flue Gas Heat Recovery System                    | <input type="text" value="No"/>             |
| Waste Water Heat Recovery Instantaneous System 1 | <input type="text" value="No"/>             |
| Waste Water Heat Recovery Instantaneous System 2 | <input type="text" value="No"/>             |
| Waste Water Heat Recovery Storage System         | <input type="text" value="No"/>             |
| Solar Panel                                      | <input type="text" value="No"/>             |

# Summary for Input Data

|                                    |                                         |
|------------------------------------|-----------------------------------------|
| Water use <= 125 litres/person/day | <input type="text" value="Yes"/>        |
| Cold Water Source                  | <input type="text" value="From mains"/> |
| Bath Count                         | <input type="text" value="1"/>          |

## 28.1 Showers

| Description | Shower Type                               | Flow Rate<br>[l/min] | Rated Power<br>[kW] | Connected | Connected To |
|-------------|-------------------------------------------|----------------------|---------------------|-----------|--------------|
| Bathroom    | Combi boiler or unvented hot water system | 8.00                 |                     | No        |              |
| En-suite 1  | Combi boiler or unvented hot water system | 8.00                 |                     | No        |              |
| En-suite 2  | Combi boiler or unvented hot water system | 8.00                 |                     | No        |              |

## 28.3 Waste Water Heat Recovery System

|                         |                                   |
|-------------------------|-----------------------------------|
| 29.0 Hot Water Cylinder | <input type="text" value="None"/> |
|-------------------------|-----------------------------------|

|                        |                                   |
|------------------------|-----------------------------------|
| 34.0 Small-scale Hydro | <input type="text" value="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

|                      |               |               |                |            |
|----------------------|---------------|---------------|----------------|------------|
| Plot Reference       | BS-AFF-2B4P-1 |               | Issued on Date | 27/02/2026 |
| Assessment Reference | 001           | Plot Type Ref | BS-AFF-2B4P-1  |            |
| Plot Address         | BS-AFF-2B4P-1 |               | SAP Version    | 10.2       |

|                                    |          |               |       |      |        |
|------------------------------------|----------|---------------|-------|------|--------|
| SAP Rating                         | 83 B     | DER           | 16.25 | TER  | 12.85  |
| Environmental                      | 87 B     | % DER < TER   |       |      | -26.46 |
| CO <sub>2</sub> Emissions (t/year) | 1.17     | DFEE          | 40.22 | TFEE | 41.63  |
| Compliance Check                   | See BREL | % DFEE < TFEE |       |      | 3.40   |
| % DPER < TPER                      | -34.44   | DPER          | 90.44 | TPER | 67.27  |

|                  |                          |             |           |
|------------------|--------------------------|-------------|-----------|
| Assessor Details | Mr. Matthew Fitzpatrick  | Assessor ID | 7601-0001 |
| Client           | HP 01, Hill Partnerships |             |           |

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

|                            |                     |       |
|----------------------------|---------------------|-------|
| Orientation                | North               |       |
| Property Tenture           | ND                  |       |
| Transaction Type           | 6                   |       |
| Terrain Type               | Suburban            |       |
| 1.0 Property Type          | House, Detached     |       |
| 2.0 Number of Storeys      | 2                   |       |
| 3.0 Date Built             | 2026                |       |
| 4.0 Sheltered Sides        | 2                   |       |
| 5.0 Sunlight/Shade         | Average or unknown  |       |
| 6.0 Thermal Mass Parameter | Precise calculation |       |
| Thermal Mass               | 230.75              | kJ/m² |

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

| 7.0 Measurements | Ground floor:<br>1st Storey: | Heat Loss Perimeter<br>25.52 m<br>25.52 m | Internal Floor Area<br>39.78 m²<br>39.78 m² | Average Storey Height<br>2.50 m<br>2.70 m |
|------------------|------------------------------|-------------------------------------------|---------------------------------------------|-------------------------------------------|
|------------------|------------------------------|-------------------------------------------|---------------------------------------------|-------------------------------------------|

|                 |       |    |
|-----------------|-------|----|
| 8.0 Living Area | 17.25 | m² |
|-----------------|-------|----|

| 9.0 External Walls | Description   | Type        | Construction                                                                                                    | U-Value<br>(W/m²K) | Kappa<br>(kJ/m²K) | Gross<br>Area(m²) | Nett Area<br>(m²) | Shelter<br>Res | Shelter | Openings | Area Calculation<br>Type |
|--------------------|---------------|-------------|-----------------------------------------------------------------------------------------------------------------|--------------------|-------------------|-------------------|-------------------|----------------|---------|----------|--------------------------|
|                    | External Wall | Cavity Wall | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.19               | 110.00            | 132.69            | 113.11            | 0.00           | None    | 19.58    | Enter Gross Area         |

| 9.2 Internal Walls | Description           | Construction                 | Kappa<br>(kJ/m²K) | Area (m²) |
|--------------------|-----------------------|------------------------------|-------------------|-----------|
|                    | Timber stud Partition | Plasterboard on timber frame | 9.00              | 166.85    |

| 10.0 External Roofs | Description | Type                | Construction                             | U-Value<br>(W/m²K) | Kappa<br>(kJ/m²K) | Gross<br>Area(m²) | Nett Area<br>(m²) | Shelter<br>Code | Shelter<br>Factor | Calculation<br>Type | Openings |
|---------------------|-------------|---------------------|------------------------------------------|--------------------|-------------------|-------------------|-------------------|-----------------|-------------------|---------------------|----------|
|                     | Cold Roof   | External Plane Roof | Plasterboard, insulated at ceiling level | 0.11               | 9.00              | 39.78             | 39.78             | None            | 0.00              | Enter Gross Area    | 0.00     |

| 10.2 Internal Ceilings | Description      | Storey          | Construction                                   | Kappa | Area (m²) |
|------------------------|------------------|-----------------|------------------------------------------------|-------|-----------|
|                        | Internal Ceiling | Lowest occupied | Plasterboard ceiling, carpeted chipboard floor | 9.00  | 39.78     |

| 11.0 Heat Loss Floors | Description  | Type                 | Storey Index    | Construction                       | U-Value<br>(W/m²K) | Shelter Code | Shelter Factor | Kappa<br>(kJ/m²K) | Area (m²) |
|-----------------------|--------------|----------------------|-----------------|------------------------------------|--------------------|--------------|----------------|-------------------|-----------|
|                       | Ground Floor | Ground Floor - Solid | Lowest occupied | Suspended concrete floor, carpeted | 0.12               | None         | 0.00           | 75.00             | 39.78     |

| 11.2 Internal Floors | Description | Storey Index | Construction | Kappa<br>(kJ/m²K) | Area (m²) |
|----------------------|-------------|--------------|--------------|-------------------|-----------|
|----------------------|-------------|--------------|--------------|-------------------|-----------|

# Summary for Input Data

Internal Floor 1 +1 Plasterboard ceiling, carpeted chipboard floor 18.00 39.78

## 12.0 Opening Types

| Description              | Data Source                           | Type                    | Glazing                                        | Glazing Gap | Filling Type | G-value      | Frame Type | Frame Factor | U Value (W/m²K) |
|--------------------------|---------------------------------------|-------------------------|------------------------------------------------|-------------|--------------|--------------|------------|--------------|-----------------|
| Glazed front Door Window | Manufacturer BFR, BSI or CERTASS data | Half Glazed Door Window | Double Low-E Soft 0.1<br>Double Low-E Soft 0.1 |             |              | 0.63<br>0.40 |            | 0.70         | 1.20<br>1.20    |
| Rooflight Patio Doors    | Manufacturer BFR, BSI or CERTASS data | Roof Light Window       | Double Low-E Soft 0.1<br>Double Low-E Soft 0.1 |             |              | 0.63<br>0.33 |            | 0.70         | 1.20<br>1.20    |

## 13.0 Openings

| Name            | Opening Type      | Location      | Orientation | Area (m²) | Pitch |
|-----------------|-------------------|---------------|-------------|-----------|-------|
| Front Door      | Glazed front Door | External Wall | North       | 2.14      |       |
| Front Elevation | Window            | External Wall | North       | 6.14      |       |
| Rear Elevation  | Window            | External Wall | South       | 3.33      |       |
| Patio Doors     | Patio Doors       | External Wall | South       | 6.62      |       |
| RHS Windows     | Window            | External Wall | East        | 1.36      |       |

## 14.0 Conservatory

None

## 15.0 Draught Proofing

100 %

## 16.0 Draught Lobby

No

## 17.0 Thermal Bridging

Calculate Bridges

### 17.1 List of Bridges

| Bridge Type                                      | Source Type            | Length | Psi  | Adjusted Reference: | Imported |
|--------------------------------------------------|------------------------|--------|------|---------------------|----------|
| E2 Other lintels (including other steel lintels) | Independently assessed | 13.27  | 0.05 | 0.05 HiTherm        | No       |
| E3 Sill                                          | Independently assessed | 12.25  | 0.02 | 0.02 Hill Std.      | No       |
| E4 Jamb                                          | Independently assessed | 33.90  | 0.03 | 0.03 Hill Std.      | No       |
| E5 Ground floor (normal)                         | Independently assessed | 25.52  | 0.06 | 0.06 Hill Std.      | No       |
| E6 Intermediate floor within a dwelling          | Independently assessed | 25.52  | 0.05 | 0.05 Hill Std.      | No       |
| E10 Eaves (insulation at ceiling level)          | Independently assessed | 14.67  | 0.05 | 0.05 Hill Std.      | No       |
| E12 Gable (insulation at ceiling level)          | Independently assessed | 10.85  | 0.06 | 0.06 Hill Std.      | No       |
| E16 Corner (normal)                              | Independently assessed | 20.80  | 0.05 | 0.05 Hill Std.      | 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                   | 500776                                         |
| Duct Type                             | Rigid                                          |
| Wet Rooms                             | 3                                              |

### 19.1 Mechanical extract ventilation - Decentralised

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

## 20.0 Fans, Open Fireplaces, Flues

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

# Summary for Input Data

|                                                  |                                                                               |                                             |                       |                           |                    |
|--------------------------------------------------|-------------------------------------------------------------------------------|---------------------------------------------|-----------------------|---------------------------|--------------------|
| Number of flueless gas fires                     | <input type="text" value="0"/>                                                |                                             |                       |                           |                    |
| <b>21.0 Fixed Cooling System</b>                 | <input type="text" value="No"/>                                               |                                             |                       |                           |                    |
| <b>22.0 Pressure Testing</b>                     | <input type="text" value="Yes"/>                                              |                                             |                       |                           |                    |
| Designed AP <sub>50</sub>                        | <input type="text" value="4.00"/>                                             | m <sup>3</sup> /(h.m <sup>2</sup> ) @ 50 Pa |                       |                           |                    |
| Test Method                                      | <input type="text" value="Blower Door"/>                                      |                                             |                       |                           |                    |
| <b>22.0 Lighting</b>                             | <input type="text" value="No"/>                                               |                                             |                       |                           |                    |
| No Fixed Lighting                                | <input type="text" value="No"/>                                               |                                             |                       |                           |                    |
|                                                  | <b>Name</b><br>Lighting                                                       | <b>Efficacy</b><br>75.00                    | <b>Power</b><br>10.00 | <b>Capacity</b><br>750.00 | <b>Count</b><br>30 |
| <b>24.0 Main Heating 1</b>                       | <input type="text" value="Manufacturer"/>                                     |                                             |                       |                           |                    |
| Percentage of Heat                               | <input type="text" value="100.00"/>                                           |                                             |                       |                           | %                  |
| Fuel Type                                        | <input type="text" value="Mains gas"/>                                        |                                             |                       |                           |                    |
| SAP Code                                         | <input type="text" value="104"/>                                              |                                             |                       |                           |                    |
| In Winter                                        | <input type="text" value="88.90"/>                                            |                                             |                       |                           |                    |
| In Summer                                        | <input type="text" value="80.30"/>                                            |                                             |                       |                           |                    |
| Model Name                                       | <input type="text" value="Gas"/>                                              |                                             |                       |                           |                    |
| Manufacturer                                     | <input type="text" value="Gas"/>                                              |                                             |                       |                           |                    |
| Controls SAP Code                                | <input type="text" value="2110"/>                                             |                                             |                       |                           |                    |
| Controls description                             | <input type="text" value="Time and temperature zone control by arrangement"/> |                                             |                       |                           |                    |
| Delayed Start Stat                               | <input type="text" value="Yes"/>                                              |                                             |                       |                           |                    |
| Burner Control                                   | <input type="text" value="Modulating"/>                                       |                                             |                       |                           |                    |
| Flue Type                                        | <input type="text" value="Balanced"/>                                         |                                             |                       |                           |                    |
| Fan Assisted Flue                                | <input type="text" value="Yes"/>                                              |                                             |                       |                           |                    |
| Is MHS Pumped                                    | <input type="text" value="Pump in heated space"/>                             |                                             |                       |                           |                    |
| Heating Pump Age                                 | <input type="text" value="2013 or later"/>                                    |                                             |                       |                           |                    |
| Heat Emitter                                     | <input type="text" value="Radiators"/>                                        |                                             |                       |                           |                    |
| Flow Temperature                                 | <input type="text" value="Enter value"/>                                      |                                             |                       |                           |                    |
| Flow Temperature Value                           | <input type="text" value="55.00"/>                                            |                                             |                       |                           |                    |
| Boiler Interlock                                 | <input type="text" value="Yes"/>                                              |                                             |                       |                           |                    |
| Combi boiler type                                | <input type="text" value="Standard Combi"/>                                   |                                             |                       |                           |                    |
| Combi keep hot type                              | <input type="text" value="None"/>                                             |                                             |                       |                           |                    |
| <b>25.0 Main Heating 2</b>                       | <input type="text" value="None"/>                                             |                                             |                       |                           |                    |
| <b>26.0 Heat Networks</b>                        | <input type="text" value="None"/>                                             |                                             |                       |                           |                    |
| <b>27.0 Secondary Heating</b>                    | <input type="text" value="None"/>                                             |                                             |                       |                           |                    |
| <b>28.0 Water Heating</b>                        | <input type="text" value="Main Heating 1"/>                                   |                                             |                       |                           |                    |
| Water Heating                                    | <input type="text" value="Main Heating 1"/>                                   |                                             |                       |                           |                    |
| SAP Code                                         | <input type="text" value="901"/>                                              |                                             |                       |                           |                    |
| Flue Gas Heat Recovery System                    | <input type="text" value="No"/>                                               |                                             |                       |                           |                    |
| Waste Water Heat Recovery Instantaneous System 1 | <input type="text" value="No"/>                                               |                                             |                       |                           |                    |
| Waste Water Heat Recovery Instantaneous System 2 | <input type="text" value="No"/>                                               |                                             |                       |                           |                    |
| Waste Water Heat Recovery Storage System         | <input type="text" value="No"/>                                               |                                             |                       |                           |                    |
| Solar Panel                                      | <input type="text" value="No"/>                                               |                                             |                       |                           |                    |
| Water use <= 125 litres/person/day               | <input type="text" value="Yes"/>                                              |                                             |                       |                           |                    |
| Cold Water Source                                | <input type="text" value="From mains"/>                                       |                                             |                       |                           |                    |
| Bath Count                                       | <input type="text" value="1"/>                                                |                                             |                       |                           |                    |
| <b>28.1 Showers</b>                              |                                                                               |                                             |                       |                           |                    |

# Summary for Input Data



| Description                                       | Shower Type                               | Flow Rate<br>[l/min] | Rated Power<br>[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                           |                                           | <div>None</div>      |                     |           |              |     |     |     |     |     |     |
|                                                   |                                           |                      |                     |           |              |     |     |     |     |     |     |
| 34.0 Small-scale Hydro                            |                                           | <div>None</div>      |                     |           |              |     |     |     |     |     |     |
| 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

|                      |               |               |                |            |
|----------------------|---------------|---------------|----------------|------------|
| Plot Reference       | BS-AFF-4B6P-1 |               | Issued on Date | 27/02/2026 |
| Assessment Reference | 001           | Plot Type Ref | BS-AFF-4B6P-1  |            |
| Plot Address         | BS-AFF-4B6P-1 |               | SAP Version    | 10.2       |

|                                    |          |               |       |      |        |
|------------------------------------|----------|---------------|-------|------|--------|
| SAP Rating                         | 85 B     | DER           | 13.90 | TER  | 10.62  |
| Environmental                      | 87 B     | % DER < TER   |       |      | -30.89 |
| CO <sub>2</sub> Emissions (t/year) | 1.42     | DFEE          | 38.41 | TFEE | 39.41  |
| Compliance Check                   | See BREL | % DFEE < TFEE |       |      | 2.54   |
| % DPER < TPER                      | -39.56   | DPER          | 77.37 | TPER | 55.44  |

|                  |                          |             |           |
|------------------|--------------------------|-------------|-----------|
| Assessor Details | Mr. Matthew Fitzpatrick  | Assessor ID | 7601-0001 |
| Client           | HP 01, Hill Partnerships |             |           |

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

|                                |                     |        |
|--------------------------------|---------------------|--------|
| Orientation                    | North               |        |
| Property Tenture               | ND                  |        |
| Transaction Type               | 6                   |        |
| Terrain Type                   | Suburban            |        |
| 1.0 Property Type              | House, Detached     |        |
| 2.0 Number of Storeys          | 2                   |        |
| 3.0 Date Built                 | 2026                |        |
| 4.0 Sheltered Sides            | 2                   |        |
| 5.0 Sunlight/Shade             | Average or unknown  |        |
| 6.0 Thermal Mass Parameter     | Precise calculation |        |
| Thermal Mass                   | 246.88              | kJ/m²K |
|                                |                     |        |
| 7.0 Electricity Tariff         | Standard            |        |
| Smart electricity meter fitted | Yes                 |        |
| Smart gas meter fitted         | Yes                 |        |

| 7.0 Measurements | Ground floor: | Heat Loss Perimeter | Internal Floor Area  | Average Storey Height |
|------------------|---------------|---------------------|----------------------|-----------------------|
|                  | 1st Storey:   | 31.14 m             | 56.96 m <sup>2</sup> | 2.50 m                |
|                  |               | 31.14 m             | 56.96 m <sup>2</sup> | 2.70 m                |

|                 |       |                |
|-----------------|-------|----------------|
| 8.0 Living Area | 20.10 | m <sup>2</sup> |
|-----------------|-------|----------------|

| 9.0 External Walls | Description   | Type        | Construction                                                                                                    | U-Value (W/m <sup>2</sup> K) | Kappa (kJ/m <sup>2</sup> K) | Gross Area(m <sup>2</sup> ) | Nett Area (m <sup>2</sup> ) | Shelter Res | Shelter | Openings | Area Calculation Type |
|--------------------|---------------|-------------|-----------------------------------------------------------------------------------------------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|-------------|---------|----------|-----------------------|
|                    | External Wall | Cavity Wall | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.19                         | 110.00                      | 168.17                      | 144.26                      | 0.00        | None    | 23.91    | Enter Gross Area      |

| 9.2 Internal Walls | Description           | Construction                      | Kappa (kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|--------------------|-----------------------|-----------------------------------|-----------------------------|------------------------|
|                    | Timber stud Partition | Plasterboard on timber frame      | 9.00                        | 169.88                 |
|                    | Block partitions      | Dense block, plasterboard on dabs | 75.00                       | 58.73                  |

| 10.0 External Roofs | Description | Type                | Construction                             | U-Value (W/m <sup>2</sup> K) | Kappa (kJ/m <sup>2</sup> K) | Gross Area(m <sup>2</sup> ) | Nett Area (m <sup>2</sup> ) | Shelter Code | Shelter Factor | Calculation Type | Openings |
|---------------------|-------------|---------------------|------------------------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|--------------|----------------|------------------|----------|
|                     | Cold Roof   | External Plane Roof | Plasterboard, insulated at ceiling level | 0.11                         | 9.00                        | 56.96                       | 56.96                       | None         | 0.00           | Enter Gross Area | 0.00     |

| 10.2 Internal Ceilings | Description      | Storey          | Construction                                   | Kappa | Area (m <sup>2</sup> ) |
|------------------------|------------------|-----------------|------------------------------------------------|-------|------------------------|
|                        | Internal Ceiling | Lowest occupied | Plasterboard ceiling, carpeted chipboard floor | 9.00  | 56.96                  |

| 11.0 Heat Loss Floors | Description  | Type                 | Storey Index    | Construction                       | U-Value (W/m <sup>2</sup> K) | Shelter Code | Shelter Factor | Kappa (kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|-----------------------|--------------|----------------------|-----------------|------------------------------------|------------------------------|--------------|----------------|-----------------------------|------------------------|
|                       | Ground Floor | Ground Floor - Solid | Lowest occupied | Suspended concrete floor, carpeted | 0.12                         | None         | 0.00           | 75.00                       | 56.96                  |

## 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          | 56.96     |

## 12.0 Opening Types

| Description              | Data Source                           | Type                    | Glazing                                        | Glazing Gap | Filling Type | G-value      | Frame Type | Frame Factor | U Value (W/m²K) |
|--------------------------|---------------------------------------|-------------------------|------------------------------------------------|-------------|--------------|--------------|------------|--------------|-----------------|
| Glazed front Door Window | Manufacturer BFR, BSI or CERTASS data | Half Glazed Door Window | Double Low-E Soft 0.1<br>Double Low-E Soft 0.1 |             |              | 0.63<br>0.40 |            | 0.70         | 1.20<br>1.20    |
| Rooflight                | Manufacturer                          | Roof Light              | Double Low-E Soft 0.1                          |             |              | 0.63         |            | 0.70         | 1.20            |
| Patio Doors              | BFR, BSI or CERTASS data              | Window                  | Double Low-E Soft 0.1                          |             |              | 0.33         |            |              | 1.20            |

## 13.0 Openings

| Name            | Opening Type      | Location      | Orientation | Area (m²) | Pitch |
|-----------------|-------------------|---------------|-------------|-----------|-------|
| Front Door      | Glazed front Door | External Wall | North       | 2.14      |       |
| Front Elevation | Window            | External Wall | North       | 4.34      |       |
| Rear Elevation  | Window            | External Wall | South       | 4.09      |       |
| Patio Doors     | Patio Doors       | External Wall | South       | 9.00      |       |
| RHS Windows     | Window            | External Wall | East        | 4.34      |       |

## 14.0 Conservatory

## 15.0 Draught Proofing

 %

## 16.0 Draught Lobby

## 17.0 Thermal Bridging

## 17.1 List of Bridges

| Bridge Type                                      | Source Type            | Length | Psi  | Adjusted Reference: | Imported |
|--------------------------------------------------|------------------------|--------|------|---------------------|----------|
| E2 Other lintels (including other steel lintels) | Independently assessed | 15.95  | 0.05 | 0.05 HiTherm        | No       |
| E3 Sill                                          | Independently assessed | 10.64  | 0.02 | 0.02 Hill Std.      | No       |
| E4 Jamb                                          | Independently assessed | 29.40  | 0.03 | 0.03 Hill Std.      | No       |
| E5 Ground floor (normal)                         | Independently assessed | 31.14  | 0.06 | 0.06 Hill Std.      | No       |
| E6 Intermediate floor within a dwelling          | Independently assessed | 31.14  | 0.05 | 0.05 Hill Std.      | No       |
| E10 Eaves (insulation at ceiling level)          | Independently assessed | 19.40  | 0.05 | 0.05 Hill Std.      | No       |
| E12 Gable (insulation at ceiling level)          | Independently assessed | 11.75  | 0.06 | 0.06 Hill Std.      | No       |
| E16 Corner (normal)                              | Independently assessed | 20.80  | 0.05 | 0.05 Hill Std.      | No       |

Y-value  W/m²K

## 19.0 Mechanical Ventilation

### Mechanical Ventilation

|                                       |                                                                             |
|---------------------------------------|-----------------------------------------------------------------------------|
| Mechanical Ventilation System Present | <input type="text" value="Yes"/>                                            |
| Approved Installation                 | <input type="text" value="Yes"/>                                            |
| Mechanical Ventilation data Type      | <input type="text" value="Database"/>                                       |
| Type                                  | <input type="text" value="Mechanical extract ventilation - decentralised"/> |
| MV Reference Number                   | <input type="text" value="500776"/>                                         |
| Duct Type                             | <input type="text" value="Rigid"/>                                          |
| Wet Rooms                             | <input type="text" value="3"/>                                              |

## 19.1 Mechanical extract ventilation - Decentralised

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

## 20.0 Fans, Open Fireplaces, Flues

|                                                  |                                |
|--------------------------------------------------|--------------------------------|
| Number of open chimneys                          | <input type="text" value="0"/> |
| Number of open flues                             | <input type="text" value="0"/> |
| Number of chimneys/flues attached to closed fire | <input type="text" value="0"/> |
| Number of flues attached to solid fuel boiler    | <input type="text" value="0"/> |
| Number of flues attached to other heater         | <input type="text" value="0"/> |
| Number of blocked chimneys                       | <input type="text" value="0"/> |
| Number of intermittent extract fans              | <input type="text" value="0"/> |

# Summary for Input Data

|                                                  |                                                                               |                                             |                       |                           |                    |
|--------------------------------------------------|-------------------------------------------------------------------------------|---------------------------------------------|-----------------------|---------------------------|--------------------|
| Number of passive vents                          | <input type="text" value="0"/>                                                |                                             |                       |                           |                    |
| Number of flueless gas fires                     | <input type="text" value="0"/>                                                |                                             |                       |                           |                    |
| <b>21.0 Fixed Cooling System</b>                 | <input type="text" value="No"/>                                               |                                             |                       |                           |                    |
| <b>22.0 Pressure Testing</b>                     | <input type="text" value="Yes"/>                                              |                                             |                       |                           |                    |
| Designed AP <sub>50</sub>                        | <input type="text" value="4.00"/>                                             | m <sup>3</sup> /(h.m <sup>2</sup> ) @ 50 Pa |                       |                           |                    |
| Test Method                                      | <input type="text" value="Blower Door"/>                                      |                                             |                       |                           |                    |
| <b>22.0 Lighting</b>                             | <input type="text" value="No"/>                                               |                                             |                       |                           |                    |
| No Fixed Lighting                                | <input type="text" value="No"/>                                               |                                             |                       |                           |                    |
|                                                  | <b>Name</b><br>Lighting                                                       | <b>Efficacy</b><br>75.00                    | <b>Power</b><br>10.00 | <b>Capacity</b><br>750.00 | <b>Count</b><br>30 |
| <b>24.0 Main Heating 1</b>                       | <input type="text" value="Manufacturer"/>                                     |                                             |                       |                           |                    |
| Percentage of Heat                               | <input type="text" value="100.00"/> %                                         |                                             |                       |                           |                    |
| Fuel Type                                        | <input type="text" value="Mains gas"/>                                        |                                             |                       |                           |                    |
| SAP Code                                         | <input type="text" value="104"/>                                              |                                             |                       |                           |                    |
| In Winter                                        | <input type="text" value="88.90"/>                                            |                                             |                       |                           |                    |
| In Summer                                        | <input type="text" value="80.30"/>                                            |                                             |                       |                           |                    |
| Model Name                                       | <input type="text" value="Gas"/>                                              |                                             |                       |                           |                    |
| Manufacturer                                     | <input type="text" value="Gas"/>                                              |                                             |                       |                           |                    |
| Controls SAP Code                                | <input type="text" value="2110"/>                                             |                                             |                       |                           |                    |
| Controls description                             | <input type="text" value="Time and temperature zone control by arrangement"/> |                                             |                       |                           |                    |
| Delayed Start Stat                               | <input type="text" value="Yes"/>                                              |                                             |                       |                           |                    |
| Burner Control                                   | <input type="text" value="Modulating"/>                                       |                                             |                       |                           |                    |
| Flue Type                                        | <input type="text" value="Balanced"/>                                         |                                             |                       |                           |                    |
| Fan Assisted Flue                                | <input type="text" value="Yes"/>                                              |                                             |                       |                           |                    |
| Is MHS Pumped                                    | <input type="text" value="Pump in heated space"/>                             |                                             |                       |                           |                    |
| Heating Pump Age                                 | <input type="text" value="2013 or later"/>                                    |                                             |                       |                           |                    |
| Heat Emitter                                     | <input type="text" value="Radiators"/>                                        |                                             |                       |                           |                    |
| Flow Temperature                                 | <input type="text" value="Enter value"/>                                      |                                             |                       |                           |                    |
| Flow Temperature Value                           | <input type="text" value="55.00"/>                                            |                                             |                       |                           |                    |
| Boiler Interlock                                 | <input type="text" value="Yes"/>                                              |                                             |                       |                           |                    |
| Combi boiler type                                | <input type="text" value="Standard Combi"/>                                   |                                             |                       |                           |                    |
| Combi keep hot type                              | <input type="text" value="None"/>                                             |                                             |                       |                           |                    |
| <b>25.0 Main Heating 2</b>                       | <input type="text" value="None"/>                                             |                                             |                       |                           |                    |
| <b>26.0 Heat Networks</b>                        | <input type="text" value="None"/>                                             |                                             |                       |                           |                    |
| <b>27.0 Secondary Heating</b>                    | <input type="text" value="None"/>                                             |                                             |                       |                           |                    |
| <b>28.0 Water Heating</b>                        | <input type="text" value="Main Heating 1"/>                                   |                                             |                       |                           |                    |
| Water Heating                                    | <input type="text" value="Main Heating 1"/>                                   |                                             |                       |                           |                    |
| SAP Code                                         | <input type="text" value="901"/>                                              |                                             |                       |                           |                    |
| Flue Gas Heat Recovery System                    | <input type="text" value="No"/>                                               |                                             |                       |                           |                    |
| Waste Water Heat Recovery Instantaneous System 1 | <input type="text" value="No"/>                                               |                                             |                       |                           |                    |
| Waste Water Heat Recovery Instantaneous System 2 | <input type="text" value="No"/>                                               |                                             |                       |                           |                    |
| Waste Water Heat Recovery Storage System         | <input type="text" value="No"/>                                               |                                             |                       |                           |                    |
| Solar Panel                                      | <input type="text" value="No"/>                                               |                                             |                       |                           |                    |
| Water use <= 125 litres/person/day               | <input type="text" value="Yes"/>                                              |                                             |                       |                           |                    |
| Cold Water Source                                | <input type="text" value="From mains"/>                                       |                                             |                       |                           |                    |
| Bath Count                                       | <input type="text" value="1"/>                                                |                                             |                       |                           |                    |

# Summary for Input Data



## 28.1 Showers

| Description | Shower Type                               | Flow Rate<br>[l/min] | Rated Power<br>[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

## 13.5. APPENDIX E: SAMPLE SAP SUMMARY INFORMATION SHEETS (BE GREEN)

# Summary for Input Data

|                      |               |               |                |            |
|----------------------|---------------|---------------|----------------|------------|
| Plot Reference       | 1 Bed Flat EF |               | Issued on Date | 04/03/2026 |
| Assessment Reference | 001           | Plot Type Ref | 1 Bed Flat EF  |            |
| Plot Address         | 1 Bed Flat EF |               | SAP Version    | 10.2       |

|                                    |          |               |       |      |       |
|------------------------------------|----------|---------------|-------|------|-------|
| SAP Rating                         | 83 B     | DER           | 4.97  | TER  | 16.81 |
| Environmental                      | 97 A     | % DER < TER   |       |      | 70.43 |
| CO <sub>2</sub> Emissions (t/year) | 0.23     | DFEE          | 40.51 | TFEE | 43.08 |
| Compliance Check                   | See BREL | % DFEE < TFEE |       |      | 5.97  |
| % DPER < TPER                      | 41.63    | DPER          | 52.37 | TPER | 89.72 |

|                  |                          |             |           |
|------------------|--------------------------|-------------|-----------|
| Assessor Details | Mr. Matthew Fitzpatrick  | Assessor ID | 7601-0001 |
| Client           | HP 01, Hill Partnerships |             |           |

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

|                                |                            |
|--------------------------------|----------------------------|
| Orientation                    | North                      |
| Property Tenure                | ND                         |
| Transaction Type               | 6                          |
| Terrain Type                   | Suburban                   |
| 1.0 Property Type              | Flat, End-Terrace          |
| Position of Flat               | Mid-floor flat             |
| Which Floor                    | 2                          |
| 2.0 Number of Storeys          | 1                          |
| 3.0 Date Built                 | 2026                       |
| 4.0 Sheltered Sides            | 2                          |
| 5.0 Sunlight/Shade             | Average or unknown         |
| 6.0 Thermal Mass Parameter     | Precise calculation        |
| Thermal Mass                   | 171.57 kJ/m <sup>2</sup> K |
| 7.0 Electricity Tariff         | Standard                   |
| Smart electricity meter fitted | Yes                        |
| Smart gas meter fitted         | Yes                        |

|                  |               |                                |                                             |                                 |
|------------------|---------------|--------------------------------|---------------------------------------------|---------------------------------|
| 7.0 Measurements | Ground floor: | Heat Loss Perimeter<br>20.81 m | Internal Floor Area<br>50.08 m <sup>2</sup> | Average Storey Height<br>2.40 m |
|------------------|---------------|--------------------------------|---------------------------------------------|---------------------------------|

|                 |                      |
|-----------------|----------------------|
| 8.0 Living Area | 23.61 m <sup>2</sup> |
|-----------------|----------------------|

| Description   | Type        | Construction                                                                                                    | U-Value<br>(W/m <sup>2</sup> K) | Kappa<br>(kJ/m <sup>2</sup> K) | Gross<br>Area(m <sup>2</sup> ) | Nett Area<br>(m <sup>2</sup> ) | Shelter<br>Res | Shelter               | Openings | Area Calculation<br>Type |
|---------------|-------------|-----------------------------------------------------------------------------------------------------------------|---------------------------------|--------------------------------|--------------------------------|--------------------------------|----------------|-----------------------|----------|--------------------------|
| External Wall | Cavity Wall | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.19                            | 110.00                         | 49.94                          | 40.75                          | 0.00           | None                  | 9.19     | Enter Gross Area         |
| Communal Wall | Cavity Wall | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.26                            | 110.00                         | 18.15                          | 16.03                          | 2.50           | Stairwell Stairwell 2 | 2.12     | Enter Gross Area         |

| Description           | Construction                 | Kappa<br>(kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|-----------------------|------------------------------|--------------------------------|------------------------|
| Timber stud Partition | Plasterboard on timber frame | 9.00                           | 93.65                  |

| Description     | Construction                                    | Kappa<br>(kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|-----------------|-------------------------------------------------|--------------------------------|------------------------|
| Party Ceiling 1 | Precast concrete planks floor, screed, carpeted | 30.00                          | 50.08                  |

| Description   | Type                  | Storey Index    | Construction | U-Value<br>(W/m <sup>2</sup> K) | Shelter Code | Shelter<br>Factor | Kappa<br>(kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|---------------|-----------------------|-----------------|--------------|---------------------------------|--------------|-------------------|--------------------------------|------------------------|
| Exposed Floor | Exposed Floor - Solid | Lowest occupied | Other        | 0.12                            | None         | 0.00              | 0.00                           | 50.08                  |

| Description | Data Source  | Type       | Glazing | Glazing<br>Gap | Filling<br>Type | G-value | Frame<br>Type | Frame<br>Factor | U Value<br>(W/m <sup>2</sup> K) |
|-------------|--------------|------------|---------|----------------|-----------------|---------|---------------|-----------------|---------------------------------|
| Solid Door  | Manufacturer | Solid Door |         |                |                 | 0.63    |               |                 | 1.20                            |

# Summary for Input Data

|             |                           |            |                       |      |      |      |
|-------------|---------------------------|------------|-----------------------|------|------|------|
| Window      | BFRC, BSI or CERTASS data | Window     | Double Low-E Soft 0.1 | 0.40 |      | 1.20 |
| Rooflight   | Manufacturer              | Roof Light | Double Low-E Soft 0.1 | 0.63 | 0.70 | 1.20 |
| Patio Doors | BFRC, BSI or CERTASS data | Window     | Double Low-E Soft 0.1 | 0.33 |      | 1.20 |

## 13.0 Openings

| Name       | Opening Type | Location      | Orientation | Area (m <sup>2</sup> ) | Pitch |
|------------|--------------|---------------|-------------|------------------------|-------|
| Front Door | Solid Door   | Communal Wall | North       | 2.12                   |       |
| Windows 1  | Window       | External Wall | South       | 3.06                   |       |
| Windows 2  | Window       | External Wall | West        | 3.06                   |       |
| Windows 3  | Window       | External Wall | North       | 3.06                   |       |

## 14.0 Conservatory

## 15.0 Draught Proofing

 %

## 16.0 Draught Lobby

## 17.0 Thermal Bridging

## 17.1 List of Bridges

| Bridge Type                                           | Source Type            | Length | Psi  | Adjusted Reference: | Imported |
|-------------------------------------------------------|------------------------|--------|------|---------------------|----------|
| E2 Other lintels (including other steel lintels)      | Independently assessed | 7.82   | 0.05 | 0.05 HiTherm        | No       |
| E3 Sill                                               | Independently assessed | 6.81   | 0.02 | 0.02 Hill Std.      | No       |
| E4 Jamb                                               | Independently assessed | 20.40  | 0.03 | 0.03 Hill Std.      | No       |
| E16 Corner (normal)                                   | Independently assessed | 9.60   | 0.05 | 0.05 Hill Std.      | No       |
| E7 Party floor between dwellings (in blocks of flats) | Independently assessed | 20.81  | 0.04 | 0.04 RCD            | No       |
| E20 Exposed floor (normal)                            | Table K1 - Default     | 20.81  | 0.32 | 0.32                | No       |

Y-value  W/m<sup>2</sup>K

## 19.0 Mechanical Ventilation

### Mechanical Ventilation

|                                              |                                                                                 |
|----------------------------------------------|---------------------------------------------------------------------------------|
| Mechanical Ventilation System Present        | <input type="text" value="Yes"/>                                                |
| Approved Installation                        | <input type="text" value="Yes"/>                                                |
| Mechanical Ventilation data Type             | <input type="text" value="Database"/>                                           |
| Type                                         | <input type="text" value="Balanced mechanical ventilation with heat recovery"/> |
| MV Reference Number                          | <input type="text" value="500321"/>                                             |
| Configuration                                | <input type="text" value="1"/>                                                  |
| Manufacturer SFP                             | <input type="text" value="0.73"/>                                               |
| Duct Type                                    | <input type="text" value="Rigid"/>                                              |
| MVHR Efficiency                              | <input type="text" value="85.00"/>                                              |
| Wet Rooms                                    | <input type="text" value="1"/>                                                  |
| SFP from Installer Commissioning Certificate | <input type="text" value="No"/>                                                 |
| MVHR System Location                         | <input type="text" value="Inside heated envelope (installed exclusively)"/>     |
| Duct Installation Specification              | <input type="text" value="Level 2"/>                                            |

## 20.0 Fans, Open Fireplaces, Flues

|                                                  |                                |
|--------------------------------------------------|--------------------------------|
| Number of open chimneys                          | <input type="text" value="0"/> |
| Number of open flues                             | <input type="text" value="0"/> |
| Number of chimneys/flues attached to closed fire | <input type="text" value="0"/> |
| Number of flues attached to solid fuel boiler    | <input type="text" value="0"/> |
| Number of flues attached to other heater         | <input type="text" value="0"/> |
| Number of blocked chimneys                       | <input type="text" value="0"/> |
| Number of intermittent extract fans              | <input type="text" value="0"/> |
| Number of passive vents                          | <input type="text" value="0"/> |
| Number of flueless gas fires                     | <input type="text" value="0"/> |

## 21.0 Fixed Cooling System

## 22.0 Pressure Testing

Designed AP<sub>50</sub>  m<sup>3</sup>/(h.m<sup>2</sup>) @ 50 Pa

Test Method

## 22.0 Lighting

# Summary for Input Data

|                   |                         |                          |                       |                           |                    |
|-------------------|-------------------------|--------------------------|-----------------------|---------------------------|--------------------|
| No Fixed Lighting | No                      |                          |                       |                           |                    |
|                   | <b>Name</b><br>Lighting | <b>Efficacy</b><br>75.00 | <b>Power</b><br>10.00 | <b>Capacity</b><br>750.00 | <b>Count</b><br>10 |

---

**24.0 Main Heating 1**

|                      |                                   |
|----------------------|-----------------------------------|
| Database             |                                   |
| Percentage of Heat   | 100.00 %                          |
| Database Ref. No.    | 100834                            |
| Fuel Type            | Electricity                       |
| In Winter            | 305.84                            |
| In Summer            | 194.18                            |
| Model Name           | Compact P                         |
| Manufacturer         | Nilan AS                          |
| System Type          | Heat Pump                         |
| Controls SAP Code    | 2506                              |
| Controls description | Time and temperature zone control |

---

**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             |
| 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              |
| Immersion Only Heating Hot Water                 | Yes            |

---

**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**

|                 |               |
|-----------------|---------------|
| Internal Store  |               |
| Insulation Type | Measured Loss |
| Cylinder Volume | 180.00 L      |
| Loss            | 0.84 kWh/day  |

---

**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

|                      |               |               |                |            |
|----------------------|---------------|---------------|----------------|------------|
| Plot Reference       | 1 Bed Flat MF |               | Issued on Date | 04/03/2026 |
| Assessment Reference | 001           | Plot Type Ref | 1 Bed Flat MF  |            |
| Plot Address         | 1 Bed Flat MF |               | SAP Version    | 10.2       |

|                                    |          |               |       |      |       |
|------------------------------------|----------|---------------|-------|------|-------|
| SAP Rating                         | 86 B     | DER           | 4.19  | TER  | 14.08 |
| Environmental                      | 97 A     | % DER < TER   |       |      | 70.24 |
| CO <sub>2</sub> Emissions (t/year) | 0.19     | DFEE          | 27.81 | TFEE | 30.64 |
| Compliance Check                   | See BREL | % DFEE < TFEE |       |      | 9.23  |
| % DPER < TPER                      | 40.79    | DPER          | 44.42 | TPER | 75.02 |

|                  |                          |             |           |
|------------------|--------------------------|-------------|-----------|
| Assessor Details | Mr. Matthew Fitzpatrick  | Assessor ID | 7601-0001 |
| Client           | HP 01, Hill Partnerships |             |           |

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

|                                |                     |        |
|--------------------------------|---------------------|--------|
| Orientation                    | North               |        |
| Property Tenture               | ND                  |        |
| Transaction Type               | 6                   |        |
| Terrain Type                   | Suburban            |        |
| 1.0 Property Type              | Flat, End-Terrace   |        |
| Position of Flat               | Mid-floor flat      |        |
| Which Floor                    | 3                   |        |
| 2.0 Number of Storeys          | 1                   |        |
| 3.0 Date Built                 | 2026                |        |
| 4.0 Sheltered Sides            | 2                   |        |
| 5.0 Sunlight/Shade             | Average or unknown  |        |
| 6.0 Thermal Mass Parameter     | Precise calculation |        |
| Thermal Mass                   | 211.57              | kJ/m²K |
|                                |                     |        |
| 7.0 Electricity Tariff         | Standard            |        |
| Smart electricity meter fitted | Yes                 |        |
| Smart gas meter fitted         | Yes                 |        |

|                  |               |                     |                      |                       |
|------------------|---------------|---------------------|----------------------|-----------------------|
| 7.0 Measurements |               | Heat Loss Perimeter | Internal Floor Area  | Average Storey Height |
|                  | Ground floor: | 20.81 m             | 50.08 m <sup>2</sup> | 2.40 m                |

|                 |       |                |
|-----------------|-------|----------------|
| 8.0 Living Area | 23.61 | m <sup>2</sup> |
|-----------------|-------|----------------|

| Description   | Type        | Construction                                                                                                    | U-Value (W/m <sup>2</sup> K) | Kappa (kJ/m <sup>2</sup> K) | Gross Area(m <sup>2</sup> ) | Nett Area (m <sup>2</sup> ) | Shelter Res | Shelter               | Openings | Area Calculation Type |
|---------------|-------------|-----------------------------------------------------------------------------------------------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|-------------|-----------------------|----------|-----------------------|
| External Wall | Cavity Wall | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.19                         | 110.00                      | 49.94                       | 40.75                       | 0.00        | None                  | 9.19     | Enter Gross Area      |
| Communal Wall | Cavity Wall | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.26                         | 110.00                      | 18.15                       | 16.03                       | 2.50        | Stairwell Stairwell 2 | 2.12     | Enter Gross Area      |

| Description           | Construction                 | Kappa (kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|-----------------------|------------------------------|-----------------------------|------------------------|
| Timber stud Partition | Plasterboard on timber frame | 9.00                        | 93.65                  |

| Description     | Construction                                    | Kappa (kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|-----------------|-------------------------------------------------|-----------------------------|------------------------|
| Party Ceiling 1 | Precast concrete planks floor, screed, carpeted | 30.00                       | 50.08                  |

| Description   | Storey Index    | Construction                                    | Kappa (kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|---------------|-----------------|-------------------------------------------------|-----------------------------|------------------------|
| Party Floor 1 | Lowest occupied | Precast concrete planks floor, screed, carpeted | 40.00                       | 50.08                  |

| Description | Data Source | Type | Glazing | Glazing Gap | Filling Type | G-value | Frame Type | Frame Factor | U Value (W/m <sup>2</sup> K) |
|-------------|-------------|------|---------|-------------|--------------|---------|------------|--------------|------------------------------|
|-------------|-------------|------|---------|-------------|--------------|---------|------------|--------------|------------------------------|

# Summary for Input Data

|                       |                                       |                   |                       |      |      |      |
|-----------------------|---------------------------------------|-------------------|-----------------------|------|------|------|
| Solid Door Window     | Manufacturer BFR, BSI or CERTASS data | Solid Door Window | Double Low-E Soft 0.1 | 0.63 |      | 1.20 |
|                       |                                       |                   |                       | 0.40 |      | 1.20 |
| Rooflight Patio Doors | Manufacturer BFR, BSI or CERTASS data | Roof Light Window | Double Low-E Soft 0.1 | 0.63 | 0.70 | 1.20 |
|                       |                                       |                   | Double Low-E Soft 0.1 | 0.33 |      | 1.20 |

## 13.0 Openings

| Name       | Opening Type | Location      | Orientation | Area (m²) | Pitch |
|------------|--------------|---------------|-------------|-----------|-------|
| Front Door | Solid Door   | Communal Wall | North       | 2.12      |       |
| Windows 1  | Window       | External Wall | South       | 3.06      |       |
| Windows 2  | Window       | External Wall | West        | 3.06      |       |
| Windows 3  | Window       | External Wall | North       | 3.06      |       |

## 14.0 Conservatory

## 15.0 Draught Proofing

 %

## 16.0 Draught Lobby

## 17.0 Thermal Bridging

### 17.1 List of Bridges

| Bridge Type                                           | Source Type            | Length | Psi  | Adjusted Reference: | Imported |
|-------------------------------------------------------|------------------------|--------|------|---------------------|----------|
| E2 Other lintels (including other steel lintels)      | Independently assessed | 7.82   | 0.05 | 0.05 HiTherm        | No       |
| E3 Sill                                               | Independently assessed | 6.81   | 0.02 | 0.02 Hill Std.      | No       |
| E4 Jamb                                               | Independently assessed | 20.40  | 0.03 | 0.03 Hill Std.      | No       |
| E16 Corner (normal)                                   | Independently assessed | 9.60   | 0.05 | 0.05 Hill Std.      | No       |
| E7 Party floor between dwellings (in blocks of flats) | Independently assessed | 41.62  | 0.04 | 0.04 RCD            | No       |

Y-value  W/m²K

## 19.0 Mechanical Ventilation

### Mechanical Ventilation

|                                              |                                                                                 |
|----------------------------------------------|---------------------------------------------------------------------------------|
| Mechanical Ventilation System Present        | <input type="text" value="Yes"/>                                                |
| Approved Installation                        | <input type="text" value="Yes"/>                                                |
| Mechanical Ventilation data Type             | <input type="text" value="Database"/>                                           |
| Type                                         | <input type="text" value="Balanced mechanical ventilation with heat recovery"/> |
| MV Reference Number                          | <input type="text" value="500321"/>                                             |
| Configuration                                | <input type="text" value="1"/>                                                  |
| Manufacturer SFP                             | <input type="text" value="0.73"/>                                               |
| Duct Type                                    | <input type="text" value="Rigid"/>                                              |
| MVHR Efficiency                              | <input type="text" value="85.00"/>                                              |
| Wet Rooms                                    | <input type="text" value="1"/>                                                  |
| SFP from Installer Commissioning Certificate | <input type="text" value="No"/>                                                 |
| MVHR System Location                         | <input type="text" value="Inside heated envelope (installed exclusively)"/>     |
| Duct Installation Specification              | <input type="text" value="Level 2"/>                                            |

## 20.0 Fans, Open Fireplaces, Flues

|                                                  |                                |
|--------------------------------------------------|--------------------------------|
| Number of open chimneys                          | <input type="text" value="0"/> |
| Number of open flues                             | <input type="text" value="0"/> |
| Number of chimneys/flues attached to closed fire | <input type="text" value="0"/> |
| Number of flues attached to solid fuel boiler    | <input type="text" value="0"/> |
| Number of flues attached to other heater         | <input type="text" value="0"/> |
| Number of blocked chimneys                       | <input type="text" value="0"/> |
| Number of intermittent extract fans              | <input type="text" value="0"/> |
| Number of passive vents                          | <input type="text" value="0"/> |
| Number of flueless gas fires                     | <input type="text" value="0"/> |

## 21.0 Fixed Cooling System

## 22.0 Pressure Testing

Designed AP<sub>50</sub>  m³/(h.m²) @ 50 Pa

Test Method

## 22.0 Lighting

# Summary for Input Data

|                   |                         |                          |                       |                           |                    |  |
|-------------------|-------------------------|--------------------------|-----------------------|---------------------------|--------------------|--|
| No Fixed Lighting | No                      |                          |                       |                           |                    |  |
|                   | <b>Name</b><br>Lighting | <b>Efficacy</b><br>75.00 | <b>Power</b><br>10.00 | <b>Capacity</b><br>750.00 | <b>Count</b><br>10 |  |

---

**24.0 Main Heating 1**

|                      |                                   |
|----------------------|-----------------------------------|
| Database             |                                   |
| Percentage of Heat   | 100.00 %                          |
| Database Ref. No.    | 100834                            |
| Fuel Type            | Electricity                       |
| In Winter            | 300.53                            |
| In Summer            | 194.18                            |
| Model Name           | Compact P                         |
| Manufacturer         | Nilan AS                          |
| System Type          | Heat Pump                         |
| Controls SAP Code    | 2506                              |
| Controls description | Time and temperature zone control |

---

**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             |
| 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              |
| Immersion Only Heating Hot Water                 | Yes            |

---

**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**

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**29.0 Hot Water Cylinder**

|                 |               |
|-----------------|---------------|
| Internal Store  |               |
| Insulation Type | Measured Loss |
| Cylinder Volume | 180.00 L      |
| Loss            | 0.84 kWh/day  |

---

**34.0 Small-scale Hydro**

|      |     |     |     |     |     |     |     |     |     |     |     |
|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| None |     |     |     |     |     |     |     |     |     |     |     |
| Jan  | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |

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**Recommendations**

Lower cost measures  
None

Further measures to achieve even higher standards  
None

# Summary for Input Data

|                      |               |               |                |            |
|----------------------|---------------|---------------|----------------|------------|
| Plot Reference       | 1 Bed Flat TF |               | Issued on Date | 04/03/2026 |
| Assessment Reference | 001           | Plot Type Ref | 1 Bed Flat TF  |            |
| Plot Address         | 1 Bed Flat TF |               | SAP Version    | 10.2       |

|                                    |          |               |       |      |       |
|------------------------------------|----------|---------------|-------|------|-------|
| SAP Rating                         | 85 B     | DER           | 4.59  | TER  | 15.44 |
| Environmental                      | 97 A     | % DER < TER   |       |      | 70.27 |
| CO <sub>2</sub> Emissions (t/year) | 0.21     | DFEE          | 34.51 | TFEE | 36.84 |
| Compliance Check                   | See BREL | % DFEE < TFEE |       |      | 6.32  |
| % DPER < TPER                      | 41.14    | DPER          | 48.46 | TPER | 82.33 |

|                  |                          |             |           |
|------------------|--------------------------|-------------|-----------|
| Assessor Details | Mr. Matthew Fitzpatrick  | Assessor ID | 7601-0001 |
| Client           | HP 01, Hill Partnerships |             |           |

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

|                                |                     |        |
|--------------------------------|---------------------|--------|
| Orientation                    | North               |        |
| Property Tenture               | ND                  |        |
| Transaction Type               | 6                   |        |
| Terrain Type                   | Suburban            |        |
| 1.0 Property Type              | Flat, End-Terrace   |        |
| Position of Flat               | Top-floor flat      |        |
| Which Floor                    | 4                   |        |
| 2.0 Number of Storeys          | 1                   |        |
| 3.0 Date Built                 | 2026                |        |
| 4.0 Sheltered Sides            | 2                   |        |
| 5.0 Sunlight/Shade             | Average or unknown  |        |
| 6.0 Thermal Mass Parameter     | Precise calculation |        |
| Thermal Mass                   | 190.57              | kJ/m²K |
|                                |                     |        |
| 7.0 Electricity Tariff         | Standard            |        |
| Smart electricity meter fitted | Yes                 |        |
| Smart gas meter fitted         | Yes                 |        |

|                  |               |                                |                                             |                                 |
|------------------|---------------|--------------------------------|---------------------------------------------|---------------------------------|
| 7.0 Measurements | Ground floor: | Heat Loss Perimeter<br>20.81 m | Internal Floor Area<br>50.08 m <sup>2</sup> | Average Storey Height<br>2.40 m |
|------------------|---------------|--------------------------------|---------------------------------------------|---------------------------------|

|                 |       |                |
|-----------------|-------|----------------|
| 8.0 Living Area | 23.61 | m <sup>2</sup> |
|-----------------|-------|----------------|

| Description   | Type        | Construction                                                                                                    | U-Value<br>(W/m <sup>2</sup> K) | Kappa<br>(kJ/m <sup>2</sup> K) | Gross<br>Area(m <sup>2</sup> ) | Nett Area<br>(m <sup>2</sup> ) | Shelter<br>Res | Shelter               | Openings | Area Calculation<br>Type |
|---------------|-------------|-----------------------------------------------------------------------------------------------------------------|---------------------------------|--------------------------------|--------------------------------|--------------------------------|----------------|-----------------------|----------|--------------------------|
| External Wall | Cavity Wall | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.19                            | 110.00                         | 49.94                          | 40.75                          | 0.00           | None                  | 9.19     | Enter Gross Area         |
| Communal Wall | Cavity Wall | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.26                            | 110.00                         | 18.15                          | 16.03                          | 2.50           | Stairwell Stairwell 2 | 2.12     | Enter Gross Area         |

| Description           | Construction                 | Kappa<br>(kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|-----------------------|------------------------------|--------------------------------|------------------------|
| Timber stud Partition | Plasterboard on timber frame | 9.00                           | 93.65                  |

| Description | Type                | Construction                             | U-Value<br>(W/m <sup>2</sup> K) | Kappa<br>(kJ/m <sup>2</sup> K) | Gross<br>Area(m <sup>2</sup> ) | Nett<br>Area<br>(m <sup>2</sup> ) | Shelter<br>Code | Shelter<br>Factor | Calculation<br>Type | Openings |
|-------------|---------------------|------------------------------------------|---------------------------------|--------------------------------|--------------------------------|-----------------------------------|-----------------|-------------------|---------------------|----------|
| Cold Roof   | External Plane Roof | Plasterboard, insulated at ceiling level | 0.11                            | 9.00                           | 50.08                          | 50.08                             | None            | 0.00              | Enter Gross Area    | 0.00     |

| Description   | Storey<br>Index | Construction                                    | Kappa<br>(kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|---------------|-----------------|-------------------------------------------------|--------------------------------|------------------------|
| Party Floor 1 | Lowest occupied | Precast concrete planks floor, screed, carpeted | 40.00                          | 50.08                  |

## 12.0 Opening Types

# Summary for Input Data

| Description           | Data Source                           | Type              | Glazing                                        | Glazing Gap | Filling Type | G-value      | Frame Type | Frame Factor | U Value (W/m²K) |
|-----------------------|---------------------------------------|-------------------|------------------------------------------------|-------------|--------------|--------------|------------|--------------|-----------------|
| Solid Door Window     | Manufacturer BFR, BSI or CERTASS data | Solid Door Window | Double Low-E Soft 0.1                          |             |              | 0.63<br>0.40 |            |              | 1.20<br>1.20    |
| Rooflight Patio Doors | Manufacturer BFR, BSI or CERTASS data | Roof Light Window | Double Low-E Soft 0.1<br>Double Low-E Soft 0.1 |             |              | 0.63<br>0.33 |            | 0.70         | 1.20<br>1.20    |

## 13.0 Openings

| Name       | Opening Type | Location      | Orientation | Area (m²) | Pitch |
|------------|--------------|---------------|-------------|-----------|-------|
| Front Door | Solid Door   | Communal Wall | North       | 2.12      |       |
| Windows 1  | Window       | External Wall | South       | 3.06      |       |
| Windows 2  | Window       | External Wall | West        | 3.06      |       |
| Windows 3  | Window       | External Wall | North       | 3.06      |       |

## 14.0 Conservatory

## 15.0 Draught Proofing

 %

## 16.0 Draught Lobby

## 17.0 Thermal Bridging

### 17.1 List of Bridges

| Bridge Type                                           | Source Type            | Length | Psi  | Adjusted Reference: | Imported |
|-------------------------------------------------------|------------------------|--------|------|---------------------|----------|
| E2 Other lintels (including other steel lintels)      | Independently assessed | 7.82   | 0.05 | 0.05 HiTherm        | No       |
| E3 Sill                                               | Independently assessed | 6.81   | 0.02 | 0.02 Hill Std.      | No       |
| E4 Jamb                                               | Independently assessed | 20.40  | 0.03 | 0.03 Hill Std.      | No       |
| E10 Eaves (insulation at ceiling level)               | Independently assessed | 13.25  | 0.05 | 0.05 Hill Std.      | No       |
| E12 Gable (insulation at ceiling level)               | Independently assessed | 15.12  | 0.06 | 0.06 Hill Std.      | No       |
| E16 Corner (normal)                                   | Independently assessed | 9.60   | 0.05 | 0.05 Hill Std.      | No       |
| E7 Party floor between dwellings (in blocks of flats) | Independently assessed | 20.81  | 0.04 | 0.04 RCD            | No       |

Y-value  W/m²K

## 19.0 Mechanical Ventilation

### Mechanical Ventilation

|                                              |                                                                                 |
|----------------------------------------------|---------------------------------------------------------------------------------|
| Mechanical Ventilation System Present        | <input type="text" value="Yes"/>                                                |
| Approved Installation                        | <input type="text" value="Yes"/>                                                |
| Mechanical Ventilation data Type             | <input type="text" value="Database"/>                                           |
| Type                                         | <input type="text" value="Balanced mechanical ventilation with heat recovery"/> |
| MV Reference Number                          | <input type="text" value="500321"/>                                             |
| Configuration                                | <input type="text" value="1"/>                                                  |
| Manufacturer SFP                             | <input type="text" value="0.73"/>                                               |
| Duct Type                                    | <input type="text" value="Rigid"/>                                              |
| MVHR Efficiency                              | <input type="text" value="85.00"/>                                              |
| Wet Rooms                                    | <input type="text" value="1"/>                                                  |
| SFP from Installer Commissioning Certificate | <input type="text" value="No"/>                                                 |
| MVHR System Location                         | <input type="text" value="Inside heated envelope (installed exclusively)"/>     |
| Duct Installation Specification              | <input type="text" value="Level 2"/>                                            |

## 20.0 Fans, Open Fireplaces, Flues

|                                                  |                                |
|--------------------------------------------------|--------------------------------|
| Number of open chimneys                          | <input type="text" value="0"/> |
| Number of open flues                             | <input type="text" value="0"/> |
| Number of chimneys/flues attached to closed fire | <input type="text" value="0"/> |
| Number of flues attached to solid fuel boiler    | <input type="text" value="0"/> |
| Number of flues attached to other heater         | <input type="text" value="0"/> |
| Number of blocked chimneys                       | <input type="text" value="0"/> |
| Number of intermittent extract fans              | <input type="text" value="0"/> |
| Number of passive vents                          | <input type="text" value="0"/> |
| Number of flueless gas fires                     | <input type="text" value="0"/> |

## 21.0 Fixed Cooling System

## 22.0 Pressure Testing

Designed AP<sub>50</sub>  m³/(h.m²) @ 50 Pa

# Summary for Input Data

|             |             |  |  |  |  |  |  |  |  |  |  |  |
|-------------|-------------|--|--|--|--|--|--|--|--|--|--|--|
| Test Method | Blower Door |  |  |  |  |  |  |  |  |  |  |  |
|-------------|-------------|--|--|--|--|--|--|--|--|--|--|--|

---

**22.0 Lighting**

|                   |                         |                          |                       |                           |                    |  |  |  |  |  |  |  |
|-------------------|-------------------------|--------------------------|-----------------------|---------------------------|--------------------|--|--|--|--|--|--|--|
| No Fixed Lighting | No                      |                          |                       |                           |                    |  |  |  |  |  |  |  |
|                   | <b>Name</b><br>Lighting | <b>Efficacy</b><br>75.00 | <b>Power</b><br>10.00 | <b>Capacity</b><br>750.00 | <b>Count</b><br>10 |  |  |  |  |  |  |  |

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**24.0 Main Heating 1**

|                      |                                   |  |  |  |  |  |  |  |  |  |  |  |
|----------------------|-----------------------------------|--|--|--|--|--|--|--|--|--|--|--|
|                      | Database                          |  |  |  |  |  |  |  |  |  |  |  |
| Percentage of Heat   | 100.00 %                          |  |  |  |  |  |  |  |  |  |  |  |
| Database Ref. No.    | 100834                            |  |  |  |  |  |  |  |  |  |  |  |
| Fuel Type            | Electricity                       |  |  |  |  |  |  |  |  |  |  |  |
| In Winter            | 303.76                            |  |  |  |  |  |  |  |  |  |  |  |
| In Summer            | 194.18                            |  |  |  |  |  |  |  |  |  |  |  |
| Model Name           | Compact P                         |  |  |  |  |  |  |  |  |  |  |  |
| Manufacturer         | Nilan AS                          |  |  |  |  |  |  |  |  |  |  |  |
| System Type          | Heat Pump                         |  |  |  |  |  |  |  |  |  |  |  |
| Controls SAP Code    | 2506                              |  |  |  |  |  |  |  |  |  |  |  |
| Controls description | Time and temperature zone control |  |  |  |  |  |  |  |  |  |  |  |

---

**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             |  |  |  |  |  |  |  |  |  |  |  |
| 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              |  |  |  |  |  |  |  |  |  |  |  |
| Immersion Only Heating Hot Water                 | Yes            |  |  |  |  |  |  |  |  |  |  |  |

---

**28.1 Showers**

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

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**28.3 Waste Water Heat Recovery System**

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**29.0 Hot Water Cylinder**

|                 |                |  |  |  |  |  |  |  |  |  |  |  |
|-----------------|----------------|--|--|--|--|--|--|--|--|--|--|--|
|                 | Internal Store |  |  |  |  |  |  |  |  |  |  |  |
| Insulation Type | Measured Loss  |  |  |  |  |  |  |  |  |  |  |  |
| Cylinder Volume | 180.00 L       |  |  |  |  |  |  |  |  |  |  |  |
| Loss            | 0.84 kWh/day   |  |  |  |  |  |  |  |  |  |  |  |

---

**34.0 Small-scale Hydro**

|  |      |     |     |     |     |     |     |     |     |     |     |     |
|--|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|  | None |     |     |     |     |     |     |     |     |     |     |     |
|  | Jan  | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |

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**Recommendations**

Lower cost measures  
None

Further measures to achieve even higher standards  
None

# Summary for Input Data

|                      |               |               |                |            |
|----------------------|---------------|---------------|----------------|------------|
| Plot Reference       | 2 Bed Flat GF |               | Issued on Date | 04/03/2026 |
| Assessment Reference | 001           | Plot Type Ref | 2 Bed Flat GF  |            |
| Plot Address         | 2 Bed Flat GF |               | SAP Version    | 10.2       |

|                                    |          |               |       |      |       |
|------------------------------------|----------|---------------|-------|------|-------|
| SAP Rating                         | 86 B     | DER           | 3.64  | TER  | 13.53 |
| Environmental                      | 97 A     | % DER < TER   |       |      | 73.10 |
| CO <sub>2</sub> Emissions (t/year) | 0.23     | DFEE          | 31.38 | TFEE | 36.03 |
| Compliance Check                   | See BREL | % DFEE < TFEE |       |      | 12.91 |
| % DPER < TPER                      | 46.45    | DPER          | 38.48 | TPER | 71.86 |

|                  |                          |             |           |
|------------------|--------------------------|-------------|-----------|
| Assessor Details | Mr. Matthew Fitzpatrick  | Assessor ID | 7601-0001 |
| Client           | HP 01, Hill Partnerships |             |           |

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

|                                |                     |        |
|--------------------------------|---------------------|--------|
| Orientation                    | North               |        |
| Property Tenture               | ND                  |        |
| Transaction Type               | 6                   |        |
| Terrain Type                   | Suburban            |        |
| 1.0 Property Type              | Flat, End-Terrace   |        |
| Position of Flat               | Ground-floor flat   |        |
| Which Floor                    | 1                   |        |
| 2.0 Number of Storeys          | 1                   |        |
| 3.0 Date Built                 | 2026                |        |
| 4.0 Sheltered Sides            | 2                   |        |
| 5.0 Sunlight/Shade             | Average or unknown  |        |
| 6.0 Thermal Mass Parameter     | Precise calculation |        |
| Thermal Mass                   | 230.34              | kJ/m²K |
|                                |                     |        |
| 7.0 Electricity Tariff         | Standard            |        |
| Smart electricity meter fitted | Yes                 |        |
| Smart gas meter fitted         | Yes                 |        |

|                  |               |                     |                      |                       |
|------------------|---------------|---------------------|----------------------|-----------------------|
| 7.0 Measurements |               | Heat Loss Perimeter | Internal Floor Area  | Average Storey Height |
|                  | Ground floor: | 26.26 m             | 70.58 m <sup>2</sup> | 2.40 m                |

|                 |       |                |
|-----------------|-------|----------------|
| 8.0 Living Area | 27.26 | m <sup>2</sup> |
|-----------------|-------|----------------|

| Description   | Type        | Construction                                                                                                    | U-Value (W/m <sup>2</sup> K) | Kappa (kJ/m <sup>2</sup> K) | Gross Area(m <sup>2</sup> ) | Nett Area (m <sup>2</sup> ) | Shelter Res | Shelter               | Openings | Area Calculation Type |
|---------------|-------------|-----------------------------------------------------------------------------------------------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|-------------|-----------------------|----------|-----------------------|
| External Wall | Cavity Wall | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.19                         | 110.00                      | 63.02                       | 53.83                       | 0.00        | None                  | 9.19     | Enter Gross Area      |
| Communal Wall | Cavity Wall | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.26                         | 110.00                      | 18.02                       | 15.90                       | 2.50        | Stairwell Stairwell 2 | 2.12     | Enter Gross Area      |

| Description           | Construction                 | Kappa (kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|-----------------------|------------------------------|-----------------------------|------------------------|
| Timber stud Partition | Plasterboard on timber frame | 9.00                        | 130.56                 |

| Description     | Construction                                    | Kappa (kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|-----------------|-------------------------------------------------|-----------------------------|------------------------|
| Party Ceiling 1 | Precast concrete planks floor, screed, carpeted | 30.00                       | 70.58                  |

| Description  | Type                 | Storey Index    | Construction                       | U-Value (W/m <sup>2</sup> K) | Shelter Code | Shelter Factor | Kappa (kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|--------------|----------------------|-----------------|------------------------------------|------------------------------|--------------|----------------|-----------------------------|------------------------|
| Ground Floor | Ground Floor - Solid | Lowest occupied | Suspended concrete floor, carpeted | 0.12                         | None         | 0.00           | 75.00                       | 70.58                  |

| Description | Data Source  | Type       | Glazing | Glazing Gap | Filling Type | G-value | Frame Type | Frame Factor | U Value (W/m <sup>2</sup> K) |
|-------------|--------------|------------|---------|-------------|--------------|---------|------------|--------------|------------------------------|
| Solid Door  | Manufacturer | Solid Door |         |             |              | 0.63    |            |              | 1.20                         |

# Summary for Input Data

|             |                           |            |                       |      |      |      |
|-------------|---------------------------|------------|-----------------------|------|------|------|
| Window      | BFRC, BSI or CERTASS data | Window     | Double Low-E Soft 0.1 | 0.40 |      | 1.20 |
| Rooflight   | Manufacturer              | Roof Light | Double Low-E Soft 0.1 | 0.63 | 0.70 | 1.20 |
| Patio Doors | BFRC, BSI or CERTASS data | Window     | Double Low-E Soft 0.1 | 0.33 |      | 1.20 |

## 13.0 Openings

| Name       | Opening Type | Location      | Orientation | Area (m <sup>2</sup> ) | Pitch |
|------------|--------------|---------------|-------------|------------------------|-------|
| Front Door | Solid Door   | Communal Wall | North       | 2.12                   |       |
| Windows 1  | Window       | External Wall | South       | 3.06                   |       |
| Windows 2  | Window       | External Wall | East        | 3.06                   |       |
| Windows 3  | Window       | External Wall | North       | 3.06                   |       |

## 14.0 Conservatory

## 15.0 Draught Proofing

 %

## 16.0 Draught Lobby

## 17.0 Thermal Bridging

## 17.1 List of Bridges

| Bridge Type                                           | Source Type            | Length | Psi  | Adjusted Reference: | Imported |
|-------------------------------------------------------|------------------------|--------|------|---------------------|----------|
| E2 Other lintels (including other steel lintels)      | Independently assessed | 7.82   | 0.05 | 0.05 HiTherm        | No       |
| E3 Sill                                               | Independently assessed | 6.81   | 0.02 | 0.02 Hill Std.      | No       |
| E4 Jamb                                               | Independently assessed | 20.40  | 0.03 | 0.03 Hill Std.      | No       |
| E16 Corner (normal)                                   | Independently assessed | 9.60   | 0.05 | 0.05 Hill Std.      | No       |
| E7 Party floor between dwellings (in blocks of flats) | Independently assessed | 26.26  | 0.04 | 0.04 RCD            | No       |
| E5 Ground floor (normal)                              | Independently assessed | 26.26  | 0.06 | 0.06 Hill Std.      | No       |

Y-value  W/m<sup>2</sup>K

## 19.0 Mechanical Ventilation

### Mechanical Ventilation

|                                              |                                                                                 |
|----------------------------------------------|---------------------------------------------------------------------------------|
| Mechanical Ventilation System Present        | <input type="text" value="Yes"/>                                                |
| Approved Installation                        | <input type="text" value="Yes"/>                                                |
| Mechanical Ventilation data Type             | <input type="text" value="Database"/>                                           |
| Type                                         | <input type="text" value="Balanced mechanical ventilation with heat recovery"/> |
| MV Reference Number                          | <input type="text" value="500321"/>                                             |
| Configuration                                | <input type="text" value="1"/>                                                  |
| Manufacturer SFP                             | <input type="text" value="0.73"/>                                               |
| Duct Type                                    | <input type="text" value="Rigid"/>                                              |
| MVHR Efficiency                              | <input type="text" value="85.00"/>                                              |
| Wet Rooms                                    | <input type="text" value="1"/>                                                  |
| SFP from Installer Commissioning Certificate | <input type="text" value="No"/>                                                 |
| MVHR System Location                         | <input type="text" value="Inside heated envelope (installed exclusively)"/>     |
| Duct Installation Specification              | <input type="text" value="Level 1"/>                                            |

## 20.0 Fans, Open Fireplaces, Flues

|                                                  |                                |
|--------------------------------------------------|--------------------------------|
| Number of open chimneys                          | <input type="text" value="0"/> |
| Number of open flues                             | <input type="text" value="0"/> |
| Number of chimneys/flues attached to closed fire | <input type="text" value="0"/> |
| Number of flues attached to solid fuel boiler    | <input type="text" value="0"/> |
| Number of flues attached to other heater         | <input type="text" value="0"/> |
| Number of blocked chimneys                       | <input type="text" value="0"/> |
| Number of intermittent extract fans              | <input type="text" value="0"/> |
| Number of passive vents                          | <input type="text" value="0"/> |
| Number of flueless gas fires                     | <input type="text" value="0"/> |

## 21.0 Fixed Cooling System

## 22.0 Pressure Testing

Designed AP<sub>50</sub>  m<sup>3</sup>/(h.m<sup>2</sup>) @ 50 Pa

Test Method

## 22.0 Lighting

# Summary for Input Data

|                   |                         |                          |                       |                           |                    |  |
|-------------------|-------------------------|--------------------------|-----------------------|---------------------------|--------------------|--|
| No Fixed Lighting | No                      |                          |                       |                           |                    |  |
|                   | <b>Name</b><br>Lighting | <b>Efficacy</b><br>75.00 | <b>Power</b><br>10.00 | <b>Capacity</b><br>750.00 | <b>Count</b><br>10 |  |

---

**24.0 Main Heating 1**

|                      |                                   |
|----------------------|-----------------------------------|
| Database             |                                   |
| Percentage of Heat   | 100.00 %                          |
| Database Ref. No.    | 100834                            |
| Fuel Type            | Electricity                       |
| In Winter            | 306.66                            |
| In Summer            | 194.18                            |
| Model Name           | Compact P                         |
| Manufacturer         | Nilan AS                          |
| System Type          | Heat Pump                         |
| Controls SAP Code    | 2506                              |
| Controls description | Time and temperature zone control |

---

**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             |
| 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              |
| Immersion Only Heating Hot Water                 | Yes            |

---

**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**

|                 |               |
|-----------------|---------------|
| Internal Store  |               |
| Insulation Type | Measured Loss |
| Cylinder Volume | 180.00 L      |
| Loss            | 0.84 kWh/day  |

---

**34.0 Small-scale Hydro**

|      |     |     |     |     |     |     |     |     |     |     |     |
|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| None |     |     |     |     |     |     |     |     |     |     |     |
| Jan  | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |

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**Recommendations**

Lower cost measures  
None

Further measures to achieve even higher standards  
None

# Summary for Input Data

|                      |               |               |               |                |            |
|----------------------|---------------|---------------|---------------|----------------|------------|
| Plot Reference       | 2 Bed Flat MF |               |               | Issued on Date | 04/03/2026 |
| Assessment Reference | 001           | Plot Type Ref | 2 Bed Flat MF |                |            |
| Plot Address         | 2 Bed Flat MF |               |               | SAP Version    | 10.2       |

|                                    |          |               |       |      |       |
|------------------------------------|----------|---------------|-------|------|-------|
| SAP Rating                         | 87 B     | DER           | 3.40  | TER  | 11.62 |
| Environmental                      | 97 A     | % DER < TER   |       |      | 70.74 |
| CO <sub>2</sub> Emissions (t/year) | 0.22     | DFEE          | 24.59 | TFEE | 27.09 |
| Compliance Check                   | See BREL | % DFEE < TFEE |       |      | 9.23  |
| % DPER < TPER                      | 41.39    | DPER          | 36.11 | TPER | 61.62 |

|                  |                          |  |  |             |           |
|------------------|--------------------------|--|--|-------------|-----------|
| Assessor Details | Mr. Matthew Fitzpatrick  |  |  | Assessor ID | 7601-0001 |
| Client           | HP 01, Hill Partnerships |  |  |             |           |

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

|                                |                     |  |  |  |        |
|--------------------------------|---------------------|--|--|--|--------|
| Orientation                    | North               |  |  |  |        |
| Property Tenture               | ND                  |  |  |  |        |
| Transaction Type               | 6                   |  |  |  |        |
| Terrain Type                   | Suburban            |  |  |  |        |
| 1.0 Property Type              | Flat, End-Terrace   |  |  |  |        |
| Position of Flat               | Mid-floor flat      |  |  |  |        |
| Which Floor                    | 2                   |  |  |  |        |
| 2.0 Number of Storeys          | 1                   |  |  |  |        |
| 3.0 Date Built                 | 2026                |  |  |  |        |
| 4.0 Sheltered Sides            | 2                   |  |  |  |        |
| 5.0 Sunlight/Shade             | Average or unknown  |  |  |  |        |
| 6.0 Thermal Mass Parameter     | Precise calculation |  |  |  |        |
| Thermal Mass                   | 195.34              |  |  |  | kJ/m²K |
| 7.0 Electricity Tariff         | Standard            |  |  |  |        |
| Smart electricity meter fitted | Yes                 |  |  |  |        |
| Smart gas meter fitted         | Yes                 |  |  |  |        |

| 7.0 Measurements | Ground floor: | Heat Loss Perimeter | Internal Floor Area | Average Storey Height |
|------------------|---------------|---------------------|---------------------|-----------------------|
|                  |               | 26.26 m             | 70.58 m²            | 2.40 m                |

|                 |       |    |
|-----------------|-------|----|
| 8.0 Living Area | 27.26 | m² |
|-----------------|-------|----|

| 9.0 External Walls |             |                                                                                                                 |                 |                |                |                |             |                       |          |                  |      |
|--------------------|-------------|-----------------------------------------------------------------------------------------------------------------|-----------------|----------------|----------------|----------------|-------------|-----------------------|----------|------------------|------|
| Description        | Type        | Construction                                                                                                    | U-Value (W/m²K) | Kappa (kJ/m²K) | Gross Area(m²) | Nett Area (m²) | Shelter Res | Shelter               | Openings | Area Calculation | Type |
| External Wall      | Cavity Wall | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.19            | 110.00         | 63.02          | 53.83          | 0.00        | None                  | 9.19     | Enter Gross Area |      |
| Communal Wall      | Cavity Wall | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.26            | 110.00         | 18.02          | 15.90          | 2.50        | Stairwell Stairwell 2 | 2.12     | Enter Gross Area |      |

| 9.2 Internal Walls    |                              |  |  |  |  | Kappa (kJ/m²K) | Area (m²) |
|-----------------------|------------------------------|--|--|--|--|----------------|-----------|
| Description           | Construction                 |  |  |  |  |                |           |
| Timber stud Partition | Plasterboard on timber frame |  |  |  |  | 9.00           | 130.56    |

| 10.1 Party Ceilings |                                                 |  |  |  |  | Kappa (kJ/m²K) | Area (m²) |
|---------------------|-------------------------------------------------|--|--|--|--|----------------|-----------|
| Description         | Construction                                    |  |  |  |  |                |           |
| Party Ceiling 1     | Precast concrete planks floor, screed, carpeted |  |  |  |  | 30.00          | 70.58     |

| 11.1 Party Floors |                 |                                                 |  |  |  | Kappa (kJ/m²K) | Area (m²) |
|-------------------|-----------------|-------------------------------------------------|--|--|--|----------------|-----------|
| Description       | Storey Index    | Construction                                    |  |  |  |                |           |
| Party Floor 1     | Lowest occupied | Precast concrete planks floor, screed, carpeted |  |  |  | 40.00          | 70.58     |

| 12.0 Opening Types |             |      |         |             |              |         |            |              |                 |  |
|--------------------|-------------|------|---------|-------------|--------------|---------|------------|--------------|-----------------|--|
| Description        | Data Source | Type | Glazing | Glazing Gap | Filling Type | G-value | Frame Type | Frame Factor | U Value (W/m²K) |  |

# Summary for Input Data

|                       |                                       |                   |                       |      |      |      |
|-----------------------|---------------------------------------|-------------------|-----------------------|------|------|------|
| Solid Door Window     | Manufacturer BFR, BSI or CERTASS data | Solid Door Window | Double Low-E Soft 0.1 | 0.63 |      | 1.20 |
|                       |                                       |                   |                       | 0.40 |      | 1.20 |
| Rooflight Patio Doors | Manufacturer BFR, BSI or CERTASS data | Roof Light Window | Double Low-E Soft 0.1 | 0.63 | 0.70 | 1.20 |
|                       |                                       |                   | Double Low-E Soft 0.1 | 0.33 |      | 1.20 |

## 13.0 Openings

| Name       | Opening Type | Location      | Orientation | Area (m²) | Pitch |
|------------|--------------|---------------|-------------|-----------|-------|
| Front Door | Solid Door   | Communal Wall | North       | 2.12      |       |
| Windows 1  | Window       | External Wall | South       | 3.06      |       |
| Windows 2  | Window       | External Wall | East        | 3.06      |       |
| Windows 3  | Window       | External Wall | North       | 3.06      |       |

## 14.0 Conservatory

## 15.0 Draught Proofing

 %

## 16.0 Draught Lobby

## 17.0 Thermal Bridging

### 17.1 List of Bridges

| Bridge Type                                           | Source Type            | Length | Psi  | Adjusted Reference: | Imported |
|-------------------------------------------------------|------------------------|--------|------|---------------------|----------|
| E2 Other lintels (including other steel lintels)      | Independently assessed | 7.82   | 0.05 | 0.05 HiTherm        | No       |
| E3 Sill                                               | Independently assessed | 6.81   | 0.02 | 0.02 Hill Std.      | No       |
| E4 Jamb                                               | Independently assessed | 20.40  | 0.03 | 0.03 Hill Std.      | No       |
| E16 Corner (normal)                                   | Independently assessed | 9.60   | 0.05 | 0.05 Hill Std.      | No       |
| E7 Party floor between dwellings (in blocks of flats) | Independently assessed | 52.52  | 0.04 | 0.04 RCD            | No       |

Y-value  W/m²K

## 19.0 Mechanical Ventilation

### Mechanical Ventilation

|                                              |                                                                                 |
|----------------------------------------------|---------------------------------------------------------------------------------|
| Mechanical Ventilation System Present        | <input type="text" value="Yes"/>                                                |
| Approved Installation                        | <input type="text" value="Yes"/>                                                |
| Mechanical Ventilation data Type             | <input type="text" value="Database"/>                                           |
| Type                                         | <input type="text" value="Balanced mechanical ventilation with heat recovery"/> |
| MV Reference Number                          | <input type="text" value="500321"/>                                             |
| Configuration                                | <input type="text" value="1"/>                                                  |
| Manufacturer SFP                             | <input type="text" value="0.73"/>                                               |
| Duct Type                                    | <input type="text" value="Rigid"/>                                              |
| MVHR Efficiency                              | <input type="text" value="85.00"/>                                              |
| Wet Rooms                                    | <input type="text" value="1"/>                                                  |
| SFP from Installer Commissioning Certificate | <input type="text" value="No"/>                                                 |
| MVHR System Location                         | <input type="text" value="Inside heated envelope (installed exclusively)"/>     |
| Duct Installation Specification              | <input type="text" value="Level 2"/>                                            |

## 20.0 Fans, Open Fireplaces, Flues

|                                                  |                                |
|--------------------------------------------------|--------------------------------|
| Number of open chimneys                          | <input type="text" value="0"/> |
| Number of open flues                             | <input type="text" value="0"/> |
| Number of chimneys/flues attached to closed fire | <input type="text" value="0"/> |
| Number of flues attached to solid fuel boiler    | <input type="text" value="0"/> |
| Number of flues attached to other heater         | <input type="text" value="0"/> |
| Number of blocked chimneys                       | <input type="text" value="0"/> |
| Number of intermittent extract fans              | <input type="text" value="0"/> |
| Number of passive vents                          | <input type="text" value="0"/> |
| Number of flueless gas fires                     | <input type="text" value="0"/> |

## 21.0 Fixed Cooling System

## 22.0 Pressure Testing

Designed AP<sub>50</sub>  m³/(h.m²) @ 50 Pa

Test Method

## 22.0 Lighting

# Summary for Input Data

|                   |                         |                          |                       |                           |                    |  |
|-------------------|-------------------------|--------------------------|-----------------------|---------------------------|--------------------|--|
| No Fixed Lighting | No                      |                          |                       |                           |                    |  |
|                   | <b>Name</b><br>Lighting | <b>Efficacy</b><br>75.00 | <b>Power</b><br>10.00 | <b>Capacity</b><br>750.00 | <b>Count</b><br>10 |  |

---

**24.0 Main Heating 1**

|                      |                                   |
|----------------------|-----------------------------------|
| Database             |                                   |
| Percentage of Heat   | 100.00 %                          |
| Database Ref. No.    | 100834                            |
| Fuel Type            | Electricity                       |
| In Winter            | 304.73                            |
| In Summer            | 194.18                            |
| Model Name           | Compact P                         |
| Manufacturer         | Nilan AS                          |
| System Type          | Heat Pump                         |
| Controls SAP Code    | 2506                              |
| Controls description | Time and temperature zone control |

---

**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             |
| 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              |
| Immersion Only Heating Hot Water                 | Yes            |

---

**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**

|                 |               |
|-----------------|---------------|
| Internal Store  |               |
| Insulation Type | Measured Loss |
| Cylinder Volume | 180.00 L      |
| Loss            | 0.84 kWh/day  |

---

**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



|                      |               |               |                |            |
|----------------------|---------------|---------------|----------------|------------|
| Plot Reference       | 2 Bed Flat TF |               | Issued on Date | 04/03/2026 |
| Assessment Reference | 001           | Plot Type Ref | 2 Bed Flat TF  |            |
| Plot Address         | 2 Bed Flat TF |               | SAP Version    | 10.2       |

|                                    |          |               |       |      |       |
|------------------------------------|----------|---------------|-------|------|-------|
| SAP Rating                         | 85 B     | DER           | 3.78  | TER  | 12.97 |
| Environmental                      | 97 A     | % DER < TER   |       |      | 70.86 |
| CO <sub>2</sub> Emissions (t/year) | 0.24     | DFEE          | 31.22 | TFEE | 33.26 |
| Compliance Check                   | See BREL | % DFEE < TFEE |       |      | 6.14  |
| % DPER < TPER                      | 42.00    | DPER          | 39.94 | TPER | 68.86 |

|                  |                          |             |           |
|------------------|--------------------------|-------------|-----------|
| Assessor Details | Mr. Matthew Fitzpatrick  | Assessor ID | 7601-0001 |
| Client           | HP 01, Hill Partnerships |             |           |

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

|                                |                     |        |
|--------------------------------|---------------------|--------|
| Orientation                    | North               |        |
| Property Tenture               | ND                  |        |
| Transaction Type               | 6                   |        |
| Terrain Type                   | Suburban            |        |
| 1.0 Property Type              | Flat, End-Terrace   |        |
| Position of Flat               | Top-floor flat      |        |
| Which Floor                    | 4                   |        |
| 2.0 Number of Storeys          | 1                   |        |
| 3.0 Date Built                 | 2026                |        |
| 4.0 Sheltered Sides            | 2                   |        |
| 5.0 Sunlight/Shade             | Average or unknown  |        |
| 6.0 Thermal Mass Parameter     | Precise calculation |        |
| Thermal Mass                   | 174.34              | kJ/m²K |
|                                |                     |        |
| 7.0 Electricity Tariff         | Standard            |        |
| Smart electricity meter fitted | Yes                 |        |
| Smart gas meter fitted         | Yes                 |        |

|                  |               |                     |                      |                       |
|------------------|---------------|---------------------|----------------------|-----------------------|
| 7.0 Measurements |               | Heat Loss Perimeter | Internal Floor Area  | Average Storey Height |
|                  | Ground floor: | 26.26 m             | 70.58 m <sup>2</sup> | 2.40 m                |

|                 |       |                |
|-----------------|-------|----------------|
| 8.0 Living Area | 27.26 | m <sup>2</sup> |
|-----------------|-------|----------------|

| Description   | Type        | Construction                                                                                                    | U-Value (W/m <sup>2</sup> K) | Kappa (kJ/m <sup>2</sup> K) | Gross Area(m <sup>2</sup> ) | Nett Area (m <sup>2</sup> ) | Shelter Res | Shelter               | Openings | Area Calculation Type |
|---------------|-------------|-----------------------------------------------------------------------------------------------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|-------------|-----------------------|----------|-----------------------|
| External Wall | Cavity Wall | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.19                         | 110.00                      | 63.02                       | 53.83                       | 0.00        | None                  | 9.19     | Enter Gross Area      |
| Communal Wall | Cavity Wall | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.26                         | 110.00                      | 18.02                       | 15.90                       | 2.50        | Stairwell Stairwell 2 | 2.12     | Enter Gross Area      |

| Description           | Construction                 | Kappa (kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|-----------------------|------------------------------|-----------------------------|------------------------|
| Timber stud Partition | Plasterboard on timber frame | 9.00                        | 130.56                 |

| Description | Type                | Construction                             | U-Value (W/m <sup>2</sup> K) | Kappa (kJ/m <sup>2</sup> K) | Gross Area(m <sup>2</sup> ) | Nett Area (m <sup>2</sup> ) | Shelter Code | Shelter Factor | Calculation Type | Openings |
|-------------|---------------------|------------------------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|--------------|----------------|------------------|----------|
| Cold Roof   | External Plane Roof | Plasterboard, insulated at ceiling level | 0.11                         | 9.00                        | 70.58                       | 70.58                       | None         | 0.00           | Enter Gross Area | 0.00     |

| Description   | Storey Index    | Construction                                    | Kappa (kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|---------------|-----------------|-------------------------------------------------|-----------------------------|------------------------|
| Party Floor 1 | Lowest occupied | Precast concrete planks floor, screed, carpeted | 40.00                       | 70.58                  |

## 12.0 Opening Types

# Summary for Input Data

| Description           | Data Source                           | Type              | Glazing                                        | Glazing Gap | Filling Type | G-value      | Frame Type | Frame Factor | U Value (W/m²K) |
|-----------------------|---------------------------------------|-------------------|------------------------------------------------|-------------|--------------|--------------|------------|--------------|-----------------|
| Solid Door Window     | Manufacturer BFR, BSI or CERTASS data | Solid Door Window | Double Low-E Soft 0.1                          |             |              | 0.63<br>0.40 |            |              | 1.20<br>1.20    |
| Rooflight Patio Doors | Manufacturer BFR, BSI or CERTASS data | Roof Light Window | Double Low-E Soft 0.1<br>Double Low-E Soft 0.1 |             |              | 0.63<br>0.33 |            | 0.70         | 1.20<br>1.20    |

## 13.0 Openings

| Name       | Opening Type | Location      | Orientation | Area (m²) | Pitch |
|------------|--------------|---------------|-------------|-----------|-------|
| Front Door | Solid Door   | Communal Wall | North       | 2.12      |       |
| Windows 1  | Window       | External Wall | South       | 3.06      |       |
| Windows 2  | Window       | External Wall | East        | 3.06      |       |
| Windows 3  | Window       | External Wall | North       | 3.06      |       |

## 14.0 Conservatory

## 15.0 Draught Proofing

 %

## 16.0 Draught Lobby

## 17.0 Thermal Bridging

### 17.1 List of Bridges

| Bridge Type                                           | Source Type            | Length | Psi  | Adjusted Reference: | Imported |
|-------------------------------------------------------|------------------------|--------|------|---------------------|----------|
| E2 Other lintels (including other steel lintels)      | Independently assessed | 7.82   | 0.05 | 0.05 HiTherm        | No       |
| E3 Sill                                               | Independently assessed | 6.81   | 0.02 | 0.02 Hill Std.      | No       |
| E4 Jamb                                               | Independently assessed | 20.40  | 0.03 | 0.03 Hill Std.      | No       |
| E10 Eaves (insulation at ceiling level)               | Independently assessed | 18.72  | 0.05 | 0.05 Hill Std.      | No       |
| E12 Gable (insulation at ceiling level)               | Independently assessed | 15.08  | 0.06 | 0.06 Hill Std.      | No       |
| E16 Corner (normal)                                   | Independently assessed | 9.60   | 0.05 | 0.05 Hill Std.      | No       |
| E7 Party floor between dwellings (in blocks of flats) | Independently assessed | 26.26  | 0.04 | 0.04 RCD            | No       |

Y-value  W/m²K

## 19.0 Mechanical Ventilation

### Mechanical Ventilation

|                                              |                                                                                 |
|----------------------------------------------|---------------------------------------------------------------------------------|
| Mechanical Ventilation System Present        | <input type="text" value="Yes"/>                                                |
| Approved Installation                        | <input type="text" value="Yes"/>                                                |
| Mechanical Ventilation data Type             | <input type="text" value="Database"/>                                           |
| Type                                         | <input type="text" value="Balanced mechanical ventilation with heat recovery"/> |
| MV Reference Number                          | <input type="text" value="500321"/>                                             |
| Configuration                                | <input type="text" value="1"/>                                                  |
| Manufacturer SFP                             | <input type="text" value="0.73"/>                                               |
| Duct Type                                    | <input type="text" value="Rigid"/>                                              |
| MVHR Efficiency                              | <input type="text" value="85.00"/>                                              |
| Wet Rooms                                    | <input type="text" value="1"/>                                                  |
| SFP from Installer Commissioning Certificate | <input type="text" value="No"/>                                                 |
| MVHR System Location                         | <input type="text" value="Inside heated envelope (installed exclusively)"/>     |
| Duct Installation Specification              | <input type="text" value="Level 2"/>                                            |

## 20.0 Fans, Open Fireplaces, Flues

|                                                  |                                |
|--------------------------------------------------|--------------------------------|
| Number of open chimneys                          | <input type="text" value="0"/> |
| Number of open flues                             | <input type="text" value="0"/> |
| Number of chimneys/flues attached to closed fire | <input type="text" value="0"/> |
| Number of flues attached to solid fuel boiler    | <input type="text" value="0"/> |
| Number of flues attached to other heater         | <input type="text" value="0"/> |
| Number of blocked chimneys                       | <input type="text" value="0"/> |
| Number of intermittent extract fans              | <input type="text" value="0"/> |
| Number of passive vents                          | <input type="text" value="0"/> |
| Number of flueless gas fires                     | <input type="text" value="0"/> |

## 21.0 Fixed Cooling System

## 22.0 Pressure Testing

Designed AP<sub>50</sub>  m³/(h.m²) @ 50 Pa

# Summary for Input Data

|             |             |  |  |  |  |  |  |  |  |  |  |  |
|-------------|-------------|--|--|--|--|--|--|--|--|--|--|--|
| Test Method | Blower Door |  |  |  |  |  |  |  |  |  |  |  |
|-------------|-------------|--|--|--|--|--|--|--|--|--|--|--|

---

**22.0 Lighting**

|                   |                         |                          |                       |                           |                    |  |  |  |  |  |  |  |
|-------------------|-------------------------|--------------------------|-----------------------|---------------------------|--------------------|--|--|--|--|--|--|--|
| No Fixed Lighting | No                      |                          |                       |                           |                    |  |  |  |  |  |  |  |
|                   | <b>Name</b><br>Lighting | <b>Efficacy</b><br>75.00 | <b>Power</b><br>10.00 | <b>Capacity</b><br>750.00 | <b>Count</b><br>10 |  |  |  |  |  |  |  |

---

**24.0 Main Heating 1**

|                      |                                   |  |  |  |  |  |  |  |  |  |  |  |
|----------------------|-----------------------------------|--|--|--|--|--|--|--|--|--|--|--|
|                      | Database                          |  |  |  |  |  |  |  |  |  |  |  |
| Percentage of Heat   | 100.00 %                          |  |  |  |  |  |  |  |  |  |  |  |
| Database Ref. No.    | 100834                            |  |  |  |  |  |  |  |  |  |  |  |
| Fuel Type            | Electricity                       |  |  |  |  |  |  |  |  |  |  |  |
| In Winter            | 307.13                            |  |  |  |  |  |  |  |  |  |  |  |
| In Summer            | 194.18                            |  |  |  |  |  |  |  |  |  |  |  |
| Model Name           | Compact P                         |  |  |  |  |  |  |  |  |  |  |  |
| Manufacturer         | Nilan AS                          |  |  |  |  |  |  |  |  |  |  |  |
| System Type          | Heat Pump                         |  |  |  |  |  |  |  |  |  |  |  |
| Controls SAP Code    | 2506                              |  |  |  |  |  |  |  |  |  |  |  |
| Controls description | Time and temperature zone control |  |  |  |  |  |  |  |  |  |  |  |

---

**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             |  |  |  |  |  |  |  |  |  |  |  |
| 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              |  |  |  |  |  |  |  |  |  |  |  |
| Immersion Only Heating Hot Water                 | Yes            |  |  |  |  |  |  |  |  |  |  |  |

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**28.1 Showers**

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

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**28.3 Waste Water Heat Recovery System**

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**29.0 Hot Water Cylinder**

|                 |                |  |  |  |  |  |  |  |  |  |  |  |
|-----------------|----------------|--|--|--|--|--|--|--|--|--|--|--|
|                 | Internal Store |  |  |  |  |  |  |  |  |  |  |  |
| Insulation Type | Measured Loss  |  |  |  |  |  |  |  |  |  |  |  |
| Cylinder Volume | 180.00 L       |  |  |  |  |  |  |  |  |  |  |  |
| Loss            | 0.84 kWh/day   |  |  |  |  |  |  |  |  |  |  |  |

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**34.0 Small-scale Hydro**

|  |      |     |     |     |     |     |     |     |     |     |     |     |
|--|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|  | None |     |     |     |     |     |     |     |     |     |     |     |
|  | Jan  | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |

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**Recommendations**

Lower cost measures  
None

Further measures to achieve even higher standards  
None

# Summary for Input Data

|                      |           |               |                |            |
|----------------------|-----------|---------------|----------------|------------|
| Plot Reference       | AC-2B4P-1 |               | Issued on Date | 27/02/2026 |
| Assessment Reference | 001       | Plot Type Ref | AC-2B4P-1      |            |
| Plot Address         | AC-2B4P-1 |               | SAP Version    | 10.2       |

|                                    |          |               |       |      |       |
|------------------------------------|----------|---------------|-------|------|-------|
| SAP Rating                         | 86 B     | DER           | 3.48  | TER  | 11.37 |
| Environmental                      | 97 A     | % DER < TER   |       |      | 69.39 |
| CO <sub>2</sub> Emissions (t/year) | 0.25     | DFEE          | 34.23 | TFEE | 35.97 |
| Compliance Check                   | See BREL | % DFEE < TFEE |       |      | 4.85  |
| % DPER < TPER                      | 38.46    | DPER          | 36.49 | TPER | 59.30 |

|                  |                          |             |           |
|------------------|--------------------------|-------------|-----------|
| Assessor Details | Mr. Matthew Fitzpatrick  | Assessor ID | 7601-0001 |
| Client           | HP 01, Hill Partnerships |             |           |

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

|                                |                      |        |
|--------------------------------|----------------------|--------|
| Orientation                    | North                |        |
| Property Tenture               | ND                   |        |
| Transaction Type               | 6                    |        |
| Terrain Type                   | Suburban             |        |
| 1.0 Property Type              | House, Semi-Detached |        |
| 2.0 Number of Storeys          | 2                    |        |
| 3.0 Date Built                 | 2026                 |        |
| 4.0 Sheltered Sides            | 2                    |        |
| 5.0 Sunlight/Shade             | Average or unknown   |        |
| 6.0 Thermal Mass Parameter     | Precise calculation  |        |
| Thermal Mass                   | 0.00                 | kJ/m²K |
| <hr/>                          |                      |        |
| 7.0 Electricity Tariff         | Standard             |        |
| Smart electricity meter fitted | Yes                  |        |
| Smart gas meter fitted         | Yes                  |        |

| 7.0 Measurements | Ground floor: | Heat Loss Perimeter | Internal Floor Area | Average Storey Height |
|------------------|---------------|---------------------|---------------------|-----------------------|
|                  | 1st Storey:   | 18.26 m             | 40.46 m²            | 2.50 m                |
|                  |               | 18.26 m             | 40.46 m²            | 2.70 m                |

|                 |       |    |
|-----------------|-------|----|
| 8.0 Living Area | 30.79 | m² |
|-----------------|-------|----|

| 9.0 External Walls | Description   | Type        | Construction                                                                                                    | U-Value (W/m²K) | Kappa (kJ/m²K) | Gross Area(m²) | Nett Area (m²) | Shelter Res | Shelter | Openings | Area Calculation Type |
|--------------------|---------------|-------------|-----------------------------------------------------------------------------------------------------------------|-----------------|----------------|----------------|----------------|-------------|---------|----------|-----------------------|
|                    | External Wall | Cavity Wall | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.19            | 110.00         | 94.97          | 72.23          | 0.00        | None    | 22.74    | Enter Gross Area      |

| 9.1 Party Walls | Description | Type                            | Construction                                                                                | U-Value (W/m²K) | Kappa (kJ/m²K) | Area (m²) | Shelter Res | Shelter |
|-----------------|-------------|---------------------------------|---------------------------------------------------------------------------------------------|-----------------|----------------|-----------|-------------|---------|
|                 | Party Wall  | Filled Cavity with Edge Sealing | Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill | 0.00            | 110.00         | 39.32     | 0.00        | None    |

| 9.2 Internal Walls | Description     | Construction                 | Kappa (kJ/m²K) | Area (m²) |
|--------------------|-----------------|------------------------------|----------------|-----------|
|                    | Stud Partitions | Plasterboard on timber frame | 9.00           | 159.27    |

| 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 | 0.11            | 9.00           | 40.46          | 40.46          | None         | 0.00           | Enter Gross 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  | 40.46     |

## 11.0 Heat Loss Floors

# Summary for Input Data



| Description  | Type                 | Storey Index    | Construction                       | U-Value (W/m²K) | Shelter Code | Shelter Factor | Kappa (kJ/m²K) | Area (m²) |
|--------------|----------------------|-----------------|------------------------------------|-----------------|--------------|----------------|----------------|-----------|
| Ground Floor | Ground Floor - Solid | Lowest occupied | Suspended concrete floor, carpeted | 0.12            | None         | 0.00           | 75.00          | 40.46     |

## 11.2 Internal Floors

| Description      | Storey Index    | Construction                                   | Kappa (kJ/m²K) | Area (m²) |
|------------------|-----------------|------------------------------------------------|----------------|-----------|
| Internal Floor 1 | Lowest occupied | Plasterboard ceiling, carpeted chipboard floor | 18.00          | 40.46     |

## 12.0 Opening Types

| Description               | Data Source               | Type             | Glazing                | Glazing Gap | Filling Type | G-value | Frame Type | Frame Factor | U Value (W/m²K) |
|---------------------------|---------------------------|------------------|------------------------|-------------|--------------|---------|------------|--------------|-----------------|
| Windows                   | BFRC, BSI or CERTASS data | Window           | Double Low-E Soft 0.1  |             |              | 0.40    |            |              | 1.20            |
| Bi-Fold/Patio Door        | BFRC, BSI or CERTASS data | Window           | Double Low-E Soft 0.05 |             |              | 0.33    |            |              | 1.20            |
| Entrance Door             | Manufacturer              | Solid Door       |                        |             |              | 0.00    |            |              | 1.20            |
| Half Glazed Entrance Door | Manufacturer              | Half Glazed Door | Double Low-E Soft 0.1  |             |              | 0.63    |            | 0.70         | 1.20            |

## 13.0 Openings

| Name          | Opening Type       | Location      | Orientation | Area (m²) | Pitch |
|---------------|--------------------|---------------|-------------|-----------|-------|
| Front Door    | Entrance Door      | External Wall | North       | 2.12      |       |
| Front Windows | Windows            | External Wall | North       | 5.95      |       |
| Rear Windows  | Windows            | External Wall | South       | 3.33      |       |
| Patio Doors   | Bi-Fold/Patio Door | External Wall | South       | 11.34     |       |

## 14.0 Conservatory

## 15.0 Draught Proofing

 %

## 16.0 Draught Lobby

## 17.0 Thermal Bridging

### 17.1 List of Bridges

| Bridge Type                                          | Source Type              | Length | Psi   | Adjusted Reference: | Imported |
|------------------------------------------------------|--------------------------|--------|-------|---------------------|----------|
| E2 Other lintels (including other steel lintels)     | Independently assessed   | 12.08  | 0.05  | 0.05 HiTherm        | No       |
| E3 Sill                                              | Independently assessed   | 6.78   | 0.02  | 0.02 Hill Std.      | No       |
| E4 Jamb                                              | Independently assessed   | 25.20  | 0.03  | 0.03 Hill Std.      | No       |
| E5 Ground floor (normal)                             | Independently assessed   | 18.26  | 0.06  | 0.06 Hill Std.      | No       |
| E10 Eaves (insulation at ceiling level)              | Independently assessed   | 10.70  | 0.05  | 0.05 Hill Std.      | No       |
| E16 Corner (normal)                                  | Independently assessed   | 10.40  | 0.05  | 0.05 Hill Std.      | No       |
| E6 Intermediate floor within a dwelling              | Independently assessed   | 18.26  | 0.05  | 0.05 Hill Std.      | No       |
| E12 Gable (insulation at ceiling level)              | Independently assessed   | 7.56   | 0.06  | 0.06 Hill Std.      | No       |
| E18 Party wall between dwellings                     | Independently assessed   | 10.40  | -0.06 | -0.06 Hill Std.     | No       |
| P1 Party wall - Ground floor                         | Non Gov Approved Schemes | 7.56   | 0.04  | 0.04 RCD            | No       |
| P2 Party wall - Intermediate floor within a dwelling | Table K1 - Default       | 7.56   | 0.00  | 0.00                | No       |
| P4 Party wall - Roof (insulation at ceiling level)   | Non Gov Approved Schemes | 7.56   | 0.03  | 0.03 RCD            | No       |

## 19.0 Mechanical Ventilation

### Mechanical Ventilation

|                                       |                                                                             |
|---------------------------------------|-----------------------------------------------------------------------------|
| Mechanical Ventilation System Present | <input type="text" value="Yes"/>                                            |
| Approved Installation                 | <input type="text" value="Yes"/>                                            |
| Mechanical Ventilation data Type      | <input type="text" value="Database"/>                                       |
| Type                                  | <input type="text" value="Mechanical extract ventilation - decentralised"/> |
| MV Reference Number                   | <input type="text" value="500776"/>                                         |
| Configuration                         | <input type="text" value="1"/>                                              |
| Duct Type                             | <input type="text" value="Rigid"/>                                          |
| Wet Rooms                             | <input type="text" value="4"/>                                              |

### 19.1 Mechanical extract ventilation - Decentralised

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

## 20.0 Fans, Open Fireplaces, Flues

|                         |                                |
|-------------------------|--------------------------------|
| Number of open chimneys | <input type="text" value="0"/> |
| Number of open flues    | <input type="text" value="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**

**22.0 Pressure Testing**

Designed AP<sub>50</sub>  m<sup>3</sup>/(h.m<sup>2</sup>) @ 50 Pa

Test Method

**22.0 Lighting**

|                   |               |                 |              |                 |              |
|-------------------|---------------|-----------------|--------------|-----------------|--------------|
| No Fixed Lighting | No            |                 |              |                 |              |
|                   | <b>Name</b>   | <b>Efficacy</b> | <b>Power</b> | <b>Capacity</b> | <b>Count</b> |
|                   | Pendant light | 75.00           | 10.00        | 750.00          | 10           |
|                   | Batten light  | 75.00           | 10.00        | 750.00          | 10           |

**24.0 Main Heating 1**

Percentage of Heat  %

Database Ref. No.

Fuel Type

Model Name

Manufacturer

Controls SAP Code

Is MHS Pumped

Heating Pump Age

Heat Emitter

Underfloor Heating

Flow Temperature

Flow Temperature Value

**25.0 Main Heating 2**

**26.0 Heat Networks**

**27.0 Secondary Heating**

**28.0 Water Heating**

Water Heating

SAP Code

Flue Gas Heat Recovery System

Waste Water Heat Recovery Instantaneous System 1

Waste Water Heat Recovery Instantaneous System 2

Waste Water Heat Recovery Storage System

Solar Panel

Water use <= 125 litres/person/day

Cold Water Source

Bath Count

Immersion Only Heating Hot Water

Hot Water Controls Model

**28.1 Showers**

| Description | Shower Type | Flow Rate<br>[l/min] | Rated Power<br>[kW] | Connected | Connected To |
|-------------|-------------|----------------------|---------------------|-----------|--------------|
|-------------|-------------|----------------------|---------------------|-----------|--------------|

# Summary for Input Data



|   |                                           |      |    |
|---|-------------------------------------------|------|----|
| 1 | Combi boiler or unvented hot water system | 8.00 | No |
| 2 | Combi boiler or unvented hot water system | 8.00 | No |

## 28.3 Waste Water Heat Recovery System

### 29.0 Hot Water Cylinder

|                          |                                  |         |
|--------------------------|----------------------------------|---------|
| Hot Water Cylinder       |                                  |         |
| Cylinder Stat            | Yes                              |         |
| Cylinder In Heated Space | Yes                              |         |
| Independent Time Control | Yes                              |         |
| Insulation Type          | Measured Loss                    |         |
| Cylinder Volume          | 250.00                           | L       |
| Loss                     | 1.40                             | kWh/day |
| Pipes insulation         | Fully insulated primary pipework |         |

### 31.0 Thermal Store

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

|                      |           |               |                |            |
|----------------------|-----------|---------------|----------------|------------|
| Plot Reference       | AC-2B4P-3 |               | Issued on Date | 27/02/2026 |
| Assessment Reference | 001       | Plot Type Ref | AC-2B4P-3      |            |
| Plot Address         | AC-2B4P-3 |               | SAP Version    | 10.2       |

|                                    |          |               |       |      |       |
|------------------------------------|----------|---------------|-------|------|-------|
| SAP Rating                         | 84 B     | DER           | 3.94  | TER  | 12.82 |
| Environmental                      | 97 A     | % DER < TER   |       |      | 69.27 |
| CO <sub>2</sub> Emissions (t/year) | 0.3      | DFEE          | 41.86 | TFEE | 43.53 |
| Compliance Check                   | See BREL | % DFEE < TFEE |       |      | 3.84  |
| % DPER < TPER                      | 38.62    | DPER          | 41.20 | TPER | 67.12 |

|                  |                          |             |           |
|------------------|--------------------------|-------------|-----------|
| Assessor Details | Mr. Matthew Fitzpatrick  | Assessor ID | 7601-0001 |
| Client           | HP 01, Hill Partnerships |             |           |

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

|                            |                     |       |
|----------------------------|---------------------|-------|
| Orientation                | North               |       |
| Property Tenture           | ND                  |       |
| Transaction Type           | 6                   |       |
| Terrain Type               | Suburban            |       |
| 1.0 Property Type          | House, Detached     |       |
| 2.0 Number of Storeys      | 2                   |       |
| 3.0 Date Built             | 2026                |       |
| 4.0 Sheltered Sides        | 2                   |       |
| 5.0 Sunlight/Shade         | Average or unknown  |       |
| 6.0 Thermal Mass Parameter | Precise calculation |       |
| Thermal Mass               | 0.00                | kJ/m² |

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

| 7.0 Measurements | Ground floor:<br>1st Storey: | Heat Loss Perimeter<br>27.03 m<br>27.03 m | Internal Floor Area<br>42.00 m²<br>42.00 m² | Average Storey Height<br>2.50 m<br>2.70 m |
|------------------|------------------------------|-------------------------------------------|---------------------------------------------|-------------------------------------------|
|------------------|------------------------------|-------------------------------------------|---------------------------------------------|-------------------------------------------|

|                 |       |    |
|-----------------|-------|----|
| 8.0 Living Area | 16.92 | m² |
|-----------------|-------|----|

| 9.0 External Walls | Description   | Type        | Construction                                                                                                    | U-Value<br>(W/m²K) | Kappa<br>(kJ/m²K) | Gross<br>Area(m²) | Nett<br>Area<br>(m²) | Shelter<br>Res | Shelter | Openings | Area Calculation<br>Type |
|--------------------|---------------|-------------|-----------------------------------------------------------------------------------------------------------------|--------------------|-------------------|-------------------|----------------------|----------------|---------|----------|--------------------------|
|                    | External Wall | Cavity Wall | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.19               | 110.00            | 145.95            | 126.96               | 0.00           | None    | 18.99    | Enter Gross Area         |

| 9.2 Internal Walls | Description           | Construction                 | Kappa<br>(kJ/m²K) | Area (m²) |
|--------------------|-----------------------|------------------------------|-------------------|-----------|
|                    | Timber stud Partition | Plasterboard on timber frame | 9.00              | 176.24    |

| 10.0 External Roofs | Description | Type                | Construction                             | U-Value<br>(W/m²K) | Kappa<br>(kJ/m²K) | Gross<br>Area(m²) | Nett<br>Area<br>(m²) | Shelter<br>Code | Shelter<br>Factor | Calculation<br>Type | Openings |
|---------------------|-------------|---------------------|------------------------------------------|--------------------|-------------------|-------------------|----------------------|-----------------|-------------------|---------------------|----------|
|                     | Cold Roof   | External Plane Roof | Plasterboard, insulated at ceiling level | 0.11               | 9.00              | 42.00             | 42.00                | None            | 0.00              | Enter Gross Area    | 0.00     |

| 10.2 Internal Ceilings | Description      | Storey<br>Lowest occupied | Construction                                   | Kappa | Area (m²) |
|------------------------|------------------|---------------------------|------------------------------------------------|-------|-----------|
|                        | Internal Ceiling |                           | Plasterboard ceiling, carpeted chipboard floor | 9.00  | 42.00     |

| 11.0 Heat Loss Floors | Description  | Type                 | Storey Index    | Construction                       | U-Value<br>(W/m²K) | Shelter Code | Shelter<br>Factor | Kappa<br>(kJ/m²K) | Area (m²) |
|-----------------------|--------------|----------------------|-----------------|------------------------------------|--------------------|--------------|-------------------|-------------------|-----------|
|                       | Ground Floor | Ground Floor - Solid | Lowest occupied | Suspended concrete floor, carpeted | 0.12               | None         | 0.00              | 75.00             | 42.00     |

| 11.2 Internal Floors | Description | Storey Index | Construction | Kappa<br>(kJ/m²K) | Area (m²) |
|----------------------|-------------|--------------|--------------|-------------------|-----------|
|----------------------|-------------|--------------|--------------|-------------------|-----------|

# Summary for Input Data

Internal Floor 1 +1 Plasterboard ceiling, carpeted chipboard floor 18.00 42.00

## 12.0 Opening Types

| Description              | Data Source                           | Type                    | Glazing                                        | Glazing Gap | Filling Type | G-value      | Frame Type | Frame Factor | U Value (W/m²K) |
|--------------------------|---------------------------------------|-------------------------|------------------------------------------------|-------------|--------------|--------------|------------|--------------|-----------------|
| Glazed front Door Window | Manufacturer BFR, BSI or CERTASS data | Half Glazed Door Window | Double Low-E Soft 0.1<br>Double Low-E Soft 0.1 |             |              | 0.63<br>0.40 |            | 0.70         | 1.20<br>1.20    |
| Rooflight Patio Doors    | Manufacturer BFR, BSI or CERTASS data | Roof Light Window       | Double Low-E Soft 0.1<br>Double Low-E Soft 0.1 |             |              | 0.63<br>0.33 |            | 0.70         | 1.20<br>1.20    |

## 13.0 Openings

| Name            | Opening Type      | Location      | Orientation | Area (m²) | Pitch |
|-----------------|-------------------|---------------|-------------|-----------|-------|
| Front Door      | Glazed front Door | External Wall | North       | 2.14      |       |
| Front Elevation | Window            | External Wall | North       | 8.94      |       |
| Rear Elevation  | Window            | External Wall | South       | 3.51      |       |
| Patio Doors     | Patio Doors       | External Wall | South       | 3.80      |       |
| RHS Windows     | Window            | External Wall | East        | 0.60      |       |

## 14.0 Conservatory

None

## 15.0 Draught Proofing

100 %

## 16.0 Draught Lobby

No

## 17.0 Thermal Bridging

Calculate Bridges

## 17.1 List of Bridges

| Bridge Type                                      | Source Type            | Length | Psi  | Adjusted Reference: | Imported |
|--------------------------------------------------|------------------------|--------|------|---------------------|----------|
| E2 Other lintels (including other steel lintels) | Independently assessed | 13.52  | 0.05 | 0.05 HiTherm        | No       |
| E3 Sill                                          | Independently assessed | 12.50  | 0.02 | 0.02 Hill Std.      | No       |
| E4 Jamb                                          | Independently assessed | 27.68  | 0.03 | 0.03 Hill Std.      | No       |
| E5 Ground floor (normal)                         | Independently assessed | 27.03  | 0.06 | 0.06 Hill Std.      | No       |
| E6 Intermediate floor within a dwelling          | Independently assessed | 27.03  | 0.05 | 0.05 Hill Std.      | No       |
| E10 Eaves (insulation at ceiling level)          | Independently assessed | 17.34  | 0.05 | 0.05 Hill Std.      | No       |
| E12 Gable (insulation at ceiling level)          | Independently assessed | 9.69   | 0.06 | 0.06 Hill Std.      | No       |
| E16 Corner (normal)                              | Independently assessed | 20.80  | 0.05 | 0.05 Hill Std.      | No       |

## 19.0 Mechanical Ventilation

### Mechanical Ventilation

|                                       |                                                |
|---------------------------------------|------------------------------------------------|
| Mechanical Ventilation System Present | Yes                                            |
| Approved Installation                 | Yes                                            |
| Mechanical Ventilation data Type      | Database                                       |
| Type                                  | Mechanical extract ventilation - decentralised |
| MV Reference Number                   | 500776                                         |
| Duct Type                             | Rigid                                          |
| Wet Rooms                             | 4                                              |

## 19.1 Mechanical extract ventilation - Decentralised

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

## 20.0 Fans, Open Fireplaces, Flues

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

# Summary for Input Data

|                                                  |                                                         |                                             |                            |                           |                     |
|--------------------------------------------------|---------------------------------------------------------|---------------------------------------------|----------------------------|---------------------------|---------------------|
| <b>21.0 Fixed Cooling System</b>                 | <input type="text" value="No"/>                         |                                             |                            |                           |                     |
| <b>22.0 Pressure Testing</b>                     | <input type="text" value="Yes"/>                        |                                             |                            |                           |                     |
| Designed AP <sub>50</sub>                        | <input type="text" value="4.00"/>                       | m <sup>2</sup> /(h.m <sup>2</sup> ) @ 50 Pa |                            |                           |                     |
| Test Method                                      | <input type="text" value="Blower Door"/>                |                                             |                            |                           |                     |
| <b>22.0 Lighting</b>                             | <input type="text" value="No"/>                         |                                             |                            |                           |                     |
| No Fixed Lighting                                | <input type="text" value="No"/>                         |                                             |                            |                           |                     |
|                                                  | <b>Name</b><br>Lighting                                 | <b>Efficacy</b><br>75.00                    | <b>Power</b><br>10.00      | <b>Capacity</b><br>750.00 | <b>Count</b><br>30  |
| <b>24.0 Main Heating 1</b>                       | <input type="text" value="Database"/>                   |                                             |                            |                           |                     |
| Percentage of Heat                               | <input type="text" value="100.00"/> %                   |                                             |                            |                           |                     |
| Database Ref. No.                                | <input type="text" value="104432"/>                     |                                             |                            |                           |                     |
| Fuel Type                                        | <input type="text" value="Electricity"/>                |                                             |                            |                           |                     |
| Model Name                                       | <input type="text" value="aroTHERM plus 7kW + AI"/>     |                                             |                            |                           |                     |
| Manufacturer                                     | <input type="text" value="Vaillant Group UK Ltd"/>      |                                             |                            |                           |                     |
| Controls SAP Code                                | <input type="text" value="2207"/>                       |                                             |                            |                           |                     |
| Is MHS Pumped                                    | <input type="text" value="Pump in heated space"/>       |                                             |                            |                           |                     |
| Heating Pump Age                                 | <input type="text" value="2013 or later"/>              |                                             |                            |                           |                     |
| Heat Emitter                                     | <input type="text" value="Radiators and Underfloor"/>   |                                             |                            |                           |                     |
| Underfloor Heating                               | <input type="text" value="Yes - Pipes in thin screed"/> |                                             |                            |                           |                     |
| Flow Temperature                                 | <input type="text" value="Enter value"/>                |                                             |                            |                           |                     |
| Flow Temperature Value                           | <input type="text" value="45.00"/>                      |                                             |                            |                           |                     |
| <b>25.0 Main Heating 2</b>                       | <input type="text" value="None"/>                       |                                             |                            |                           |                     |
| <b>26.0 Heat Networks</b>                        | <input type="text" value="None"/>                       |                                             |                            |                           |                     |
| <b>27.0 Secondary Heating</b>                    | <input type="text" value="None"/>                       |                                             |                            |                           |                     |
| <b>28.0 Water Heating</b>                        | <input type="text" value="Main Heating 1"/>             |                                             |                            |                           |                     |
| Water Heating                                    | <input type="text" value="Main Heating 1"/>             |                                             |                            |                           |                     |
| SAP Code                                         | <input type="text" value="901"/>                        |                                             |                            |                           |                     |
| Flue Gas Heat Recovery System                    | <input type="text" value="No"/>                         |                                             |                            |                           |                     |
| Waste Water Heat Recovery Instantaneous System 1 | <input type="text" value="No"/>                         |                                             |                            |                           |                     |
| Waste Water Heat Recovery Instantaneous System 2 | <input type="text" value="No"/>                         |                                             |                            |                           |                     |
| Waste Water Heat Recovery Storage System         | <input type="text" value="No"/>                         |                                             |                            |                           |                     |
| Solar Panel                                      | <input type="text" value="No"/>                         |                                             |                            |                           |                     |
| Water use <= 125 litres/person/day               | <input type="text" value="Yes"/>                        |                                             |                            |                           |                     |
| Cold Water Source                                | <input type="text" value="From mains"/>                 |                                             |                            |                           |                     |
| Bath Count                                       | <input type="text" value="1"/>                          |                                             |                            |                           |                     |
| Immersion Only Heating Hot Water                 | <input type="text" value="Yes"/>                        |                                             |                            |                           |                     |
| <b>28.1 Showers</b>                              |                                                         |                                             |                            |                           |                     |
| <b>Description</b>                               | <b>Shower Type</b>                                      | <b>Flow Rate</b><br>[l/min]                 | <b>Rated Power</b><br>[kW] | <b>Connected</b>          | <b>Connected To</b> |
| Bathroom                                         | Combi boiler or unvented hot water system               | 8.00                                        |                            | No                        |                     |
| En-suite                                         | Combi boiler or unvented hot water system               | 8.00                                        |                            | No                        |                     |
| <b>28.3 Waste Water Heat Recovery System</b>     |                                                         |                                             |                            |                           |                     |
| <b>29.0 Hot Water Cylinder</b>                   | <input type="text" value="Hot Water Cylinder"/>         |                                             |                            |                           |                     |
| Cylinder Stat                                    | <input type="text" value="Yes"/>                        |                                             |                            |                           |                     |
| Cylinder In Heated Space                         | <input type="text" value="Yes"/>                        |                                             |                            |                           |                     |
| Independent Time Control                         | <input type="text" value="Yes"/>                        |                                             |                            |                           |                     |
| Insulation Type                                  | <input type="text" value="Measured Loss"/>              |                                             |                            |                           |                     |
| Cylinder Volume                                  | <input type="text" value="250.00"/> L                   |                                             |                            |                           |                     |

# Summary for Input Data



|                  |                                                                |         |
|------------------|----------------------------------------------------------------|---------|
| Loss             | <input type="text" value="1.40"/>                              | kWh/day |
| Pipes insulation | <input type="text" value="All accessible pipework insulated"/> |         |

## 31.0 Thermal Store

## 34.0 Small-scale Hydro

| 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



|                      |           |                |            |
|----------------------|-----------|----------------|------------|
| Plot Reference       | AC-3B5P-1 | Issued on Date | 27/02/2026 |
| Assessment Reference | 001       | Plot Type Ref  | AC-3B5P-1  |
| Plot Address         | AC-3B5P-1 | SAP Version    | 10.2       |

|                                    |          |               |       |      |       |
|------------------------------------|----------|---------------|-------|------|-------|
| SAP Rating                         | 86 B     | DER           | 3.27  | TER  | 10.21 |
| Environmental                      | 97 A     | % DER < TER   |       |      | 67.97 |
| CO <sub>2</sub> Emissions (t/year) | 0.3      | DFEE          | 34.03 | TFEE | 35.96 |
| Compliance Check                   | See BREL | % DFEE < TFEE |       |      | 5.37  |
| % DPER < TPER                      | 35.63    | DPER          | 34.20 | TPER | 53.13 |

|                  |                          |             |           |
|------------------|--------------------------|-------------|-----------|
| Assessor Details | Mr. Matthew Fitzpatrick  | Assessor ID | 7601-0001 |
| Client           | HP 01, Hill Partnerships |             |           |

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

|                            |                      |        |
|----------------------------|----------------------|--------|
| Orientation                | North                |        |
| Property Tenture           | ND                   |        |
| Transaction Type           | 6                    |        |
| Terrain Type               | Suburban             |        |
| 1.0 Property Type          | House, Semi-Detached |        |
| 2.0 Number of Storeys      | 2                    |        |
| 3.0 Date Built             | 2026                 |        |
| 4.0 Sheltered Sides        | 2                    |        |
| 5.0 Sunlight/Shade         | Average or unknown   |        |
| 6.0 Thermal Mass Parameter | Precise calculation  |        |
| Thermal Mass               | 0.00                 | kJ/m²K |

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

| 7.0 Measurements | Ground floor:<br>1st Storey: | Heat Loss Perimeter<br>20.16 m<br>20.16 m | Internal Floor Area<br>50.86 m <sup>2</sup><br>50.86 m <sup>2</sup> | Average Storey Height<br>2.50 m<br>2.70 m |
|------------------|------------------------------|-------------------------------------------|---------------------------------------------------------------------|-------------------------------------------|
|------------------|------------------------------|-------------------------------------------|---------------------------------------------------------------------|-------------------------------------------|

|                 |       |                |
|-----------------|-------|----------------|
| 8.0 Living Area | 37.44 | m <sup>2</sup> |
|-----------------|-------|----------------|

| 9.0 External Walls | Description   | Type        | Construction                                                                                                    | U-Value<br>(W/m <sup>2</sup> K) | Kappa<br>(kJ/m <sup>2</sup> K) | Gross<br>Area(m <sup>2</sup> ) | Nett Area<br>(m <sup>2</sup> ) | Shelter<br>Res | Shelter | Openings | Area Calculation<br>Type |
|--------------------|---------------|-------------|-----------------------------------------------------------------------------------------------------------------|---------------------------------|--------------------------------|--------------------------------|--------------------------------|----------------|---------|----------|--------------------------|
|                    | External Wall | Cavity Wall | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.19                            | 110.00                         | 104.94                         | 78.38                          | 0.00           | None    | 26.56    | Enter Gross Area         |

| 9.1 Party Walls | Description | Type                            | Construction                                                                                | U-Value<br>(W/m <sup>2</sup> K) | Kappa<br>(kJ/m <sup>2</sup> K) | Area<br>(m <sup>2</sup> ) | Shelter<br>Res | Shelter |
|-----------------|-------------|---------------------------------|---------------------------------------------------------------------------------------------|---------------------------------|--------------------------------|---------------------------|----------------|---------|
|                 | Party Wall  | Filled Cavity with Edge Sealing | Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill | 0.00                            | 110.00                         | 49.84                     | 0.00           | None    |

| 9.2 Internal Walls | Description     | Construction                 | Kappa<br>(kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|--------------------|-----------------|------------------------------|--------------------------------|------------------------|
|                    | Stud Partitions | Plasterboard on timber frame | 9.00                           | 201.07                 |

| 10.0 External Roofs | Description | Type                | Construction                             | U-Value<br>(W/m <sup>2</sup> K) | Kappa<br>(kJ/m <sup>2</sup> K) | Gross<br>Area(m <sup>2</sup> ) | Nett<br>Area<br>(m <sup>2</sup> ) | Shelter<br>Code | Shelter<br>Factor | Calculation<br>Type | Openings |
|---------------------|-------------|---------------------|------------------------------------------|---------------------------------|--------------------------------|--------------------------------|-----------------------------------|-----------------|-------------------|---------------------|----------|
|                     | Cold Roof   | External Plane Roof | Plasterboard, insulated at ceiling level | 0.11                            | 9.00                           | 50.86                          | 50.86                             | None            | 0.00              | Enter Gross Area    | 0.00     |

| 10.2 Internal Ceilings | Description        | Storey          | Construction                                   | Kappa | Area (m <sup>2</sup> ) |
|------------------------|--------------------|-----------------|------------------------------------------------|-------|------------------------|
|                        | Internal Ceiling 1 | Lowest occupied | Plasterboard ceiling, carpeted chipboard floor | 9.00  | 50.86                  |

## 11.0 Heat Loss Floors

# Summary for Input Data

| Description  | Type                 | Storey Index    | Construction                       | U-Value (W/m²K) | Shelter Code | Shelter Factor | Kappa (kJ/m²K) | Area (m²) |
|--------------|----------------------|-----------------|------------------------------------|-----------------|--------------|----------------|----------------|-----------|
| Ground Floor | Ground Floor - Solid | Lowest occupied | Suspended concrete floor, carpeted | 0.12            | None         | 0.00           | 75.00          | 50.86     |

## 11.2 Internal Floors

| Description      | Storey Index    | Construction                                   | Kappa (kJ/m²K) | Area (m²) |
|------------------|-----------------|------------------------------------------------|----------------|-----------|
| Internal Floor 1 | Lowest occupied | Plasterboard ceiling, carpeted chipboard floor | 18.00          | 50.86     |

## 12.0 Opening Types

| Description               | Data Source               | Type             | Glazing                | Glazing Gap | Filling Type | G-value | Frame Type | Frame Factor | U Value (W/m²K) |
|---------------------------|---------------------------|------------------|------------------------|-------------|--------------|---------|------------|--------------|-----------------|
| Windows                   | BFRC, BSI or CERTASS data | Window           | Double Low-E Soft 0.1  |             |              | 0.40    |            |              | 1.20            |
| Bi-Fold/Patio Door        | BFRC, BSI or CERTASS data | Window           | Double Low-E Soft 0.05 |             |              | 0.33    |            |              | 1.20            |
| Entrance Door             | Manufacturer              | Solid Door       |                        |             |              | 0.00    |            |              | 1.20            |
| Half Glazed Entrance Door | Manufacturer              | Half Glazed Door | Double Low-E Soft 0.1  |             |              | 0.63    |            | 0.70         | 1.20            |

## 13.0 Openings

| Name          | Opening Type       | Location      | Orientation | Area (m²) | Pitch |
|---------------|--------------------|---------------|-------------|-----------|-------|
| Front Door    | Entrance Door      | External Wall | North       | 2.12      |       |
| Front Windows | Windows            | External Wall | North       | 5.95      |       |
| Rear Windows  | Windows            | External Wall | South       | 4.28      |       |
| Patio Doors   | Bi-Fold/Patio Door | External Wall | South       | 11.34     |       |
| Side Windows  | Windows            | External Wall | East        | 2.87      |       |

## 14.0 Conservatory

## 15.0 Draught Proofing

 %

## 16.0 Draught Lobby

## 17.0 Thermal Bridging

## 17.1 List of Bridges

| Bridge Type                                          | Source Type              | Length | Psi   | Adjusted Reference: | Imported |
|------------------------------------------------------|--------------------------|--------|-------|---------------------|----------|
| E2 Other lintels (including other steel lintels)     | Independently assessed   | 14.81  | 0.05  | 0.05 HiTherm        | No       |
| E3 Sill                                              | Independently assessed   | 8.61   | 0.02  | 0.02 Hill Std.      | No       |
| E4 Jamb                                              | Independently assessed   | 33.60  | 0.03  | 0.03 Hill Std.      | No       |
| E5 Ground floor (normal)                             | Independently assessed   | 20.16  | 0.06  | 0.06 Hill Std.      | No       |
| E10 Eaves (insulation at ceiling level)              | Independently assessed   | 9.59   | 0.05  | 0.05 Hill Std.      | No       |
| E16 Corner (normal)                                  | Independently assessed   | 10.40  | 0.05  | 0.05 Hill Std.      | No       |
| E6 Intermediate floor within a dwelling              | Independently assessed   | 20.16  | 0.05  | 0.05 Hill Std.      | No       |
| E12 Gable (insulation at ceiling level)              | Independently assessed   | 10.61  | 0.06  | 0.06 Hill Std.      | No       |
| E18 Party wall between dwellings                     | Independently assessed   | 10.40  | -0.06 | -0.06 Hill Std.     | No       |
| P1 Party wall - Ground floor                         | Non Gov Approved Schemes | 9.58   | 0.04  | 0.04 RCD            | No       |
| P2 Party wall - Intermediate floor within a dwelling | Table K1 - Default       | 9.58   | 0.00  | 0.00                | No       |
| P4 Party wall - Roof (insulation at ceiling level)   | Non Gov Approved Schemes | 9.58   | 0.03  | 0.03 RCD            | No       |

## 19.0 Mechanical Ventilation

### Mechanical Ventilation

|                                       |                                                                             |
|---------------------------------------|-----------------------------------------------------------------------------|
| Mechanical Ventilation System Present | <input type="text" value="Yes"/>                                            |
| Approved Installation                 | <input type="text" value="Yes"/>                                            |
| Mechanical Ventilation data Type      | <input type="text" value="Database"/>                                       |
| Type                                  | <input type="text" value="Mechanical extract ventilation - decentralised"/> |
| MV Reference Number                   | <input type="text" value="500776"/>                                         |
| Configuration                         | <input type="text" value="1"/>                                              |
| Duct Type                             | <input type="text" value="Rigid"/>                                          |
| Wet Rooms                             | <input type="text" value="4"/>                                              |

## 19.1 Mechanical extract ventilation - Decentralised

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

## 20.0 Fans, Open Fireplaces, Flues

|                         |                                |
|-------------------------|--------------------------------|
| Number of open chimneys | <input type="text" value="0"/> |
| Number of open flues    | <input type="text" value="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**

**22.0 Pressure Testing**

Designed AP<sub>50</sub>  m<sup>3</sup>/(h.m<sup>2</sup>) @ 50 Pa

Test Method

**22.0 Lighting**

|                   |               |                 |              |                 |              |
|-------------------|---------------|-----------------|--------------|-----------------|--------------|
| No Fixed Lighting | No            |                 |              |                 |              |
|                   | <b>Name</b>   | <b>Efficacy</b> | <b>Power</b> | <b>Capacity</b> | <b>Count</b> |
|                   | Pendant light | 75.00           | 10.00        | 750.00          | 10           |
|                   | Batten light  | 75.00           | 10.00        | 750.00          | 10           |

**24.0 Main Heating 1**

Percentage of Heat  %

Database Ref. No.

Fuel Type

Model Name

Manufacturer

Controls SAP Code

Is MHS Pumped

Heating Pump Age

Heat Emitter

Underfloor Heating

Flow Temperature

Flow Temperature Value

**25.0 Main Heating 2**

**26.0 Heat Networks**

**27.0 Secondary Heating**

**28.0 Water Heating**

Water Heating

SAP Code

Flue Gas Heat Recovery System

Waste Water Heat Recovery Instantaneous System 1

Waste Water Heat Recovery Instantaneous System 2

Waste Water Heat Recovery Storage System

Solar Panel

Water use <= 125 litres/person/day

Cold Water Source

Bath Count

Immersion Only Heating Hot Water

Hot Water Controls Model

**28.1 Showers**

| Description | Shower Type | Flow Rate<br>[l/min] | Rated Power<br>[kW] | Connected | Connected To |
|-------------|-------------|----------------------|---------------------|-----------|--------------|
|-------------|-------------|----------------------|---------------------|-----------|--------------|

# Summary for Input Data



|   |                                           |      |    |
|---|-------------------------------------------|------|----|
| 1 | Combi boiler or unvented hot water system | 8.00 | No |
| 2 | Combi boiler or unvented hot water system | 8.00 | No |

## 28.3 Waste Water Heat Recovery System

### 29.0 Hot Water Cylinder

|                          |                                  |         |
|--------------------------|----------------------------------|---------|
| Hot Water Cylinder       |                                  |         |
| Cylinder Stat            | Yes                              |         |
| Cylinder In Heated Space | Yes                              |         |
| Independent Time Control | Yes                              |         |
| Insulation Type          | Measured Loss                    |         |
| Cylinder Volume          | 250.00                           | L       |
| Loss                     | 1.40                             | kWh/day |
| Pipes insulation         | Fully insulated primary pipework |         |

### 31.0 Thermal Store

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

|                      |           |                |            |
|----------------------|-----------|----------------|------------|
| Plot Reference       | AC-3B5P-2 | Issued on Date | 27/02/2026 |
| Assessment Reference | 001       | Plot Type Ref  | AC-3B5P-2  |
| Plot Address         | AC-3B5P-2 | SAP Version    | 10.2       |

|                                    |          |               |       |      |       |
|------------------------------------|----------|---------------|-------|------|-------|
| SAP Rating                         | 83 B     | DER           | 3.89  | TER  | 12.18 |
| Environmental                      | 97 A     | % DER < TER   |       |      | 68.06 |
| CO <sub>2</sub> Emissions (t/year) | 0.34     | DFEE          | 42.82 | TFEE | 44.50 |
| Compliance Check                   | See BREL | % DFEE < TFEE |       |      | 3.78  |
| % DPER < TPER                      | 36.51    | DPER          | 40.47 | TPER | 63.73 |

|                  |                          |             |           |
|------------------|--------------------------|-------------|-----------|
| Assessor Details | Mr. Matthew Fitzpatrick  | Assessor ID | 7601-0001 |
| Client           | HP 01, Hill Partnerships |             |           |

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

|                            |                     |        |
|----------------------------|---------------------|--------|
| Orientation                | North               |        |
| Property Tenture           | ND                  |        |
| Transaction Type           | 6                   |        |
| Terrain Type               | Suburban            |        |
| 1.0 Property Type          | House, Detached     |        |
| 2.0 Number of Storeys      | 2                   |        |
| 3.0 Date Built             | 2026                |        |
| 4.0 Sheltered Sides        | 2                   |        |
| 5.0 Sunlight/Shade         | Average or unknown  |        |
| 6.0 Thermal Mass Parameter | Precise calculation |        |
| Thermal Mass               | 0.00                | kJ/m²K |

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

| 7.0 Measurements | Ground floor: | Heat Loss Perimeter | Internal Floor Area  | Average Storey Height |
|------------------|---------------|---------------------|----------------------|-----------------------|
|                  | 1st Storey:   | 28.95 m             | 49.13 m <sup>2</sup> | 2.50 m                |
|                  |               | 28.95 m             | 49.13 m <sup>2</sup> | 2.70 m                |

|                 |       |                |
|-----------------|-------|----------------|
| 8.0 Living Area | 17.16 | m <sup>2</sup> |
|-----------------|-------|----------------|

| 9.0 External Walls | Description   | Type        | Construction                                                                                                    | U-Value (W/m <sup>2</sup> K) | Kappa (kJ/m <sup>2</sup> K) | Gross Area(m <sup>2</sup> ) | Nett Area (m <sup>2</sup> ) | Shelter Res | Shelter | Openings | Area Calculation Type |
|--------------------|---------------|-------------|-----------------------------------------------------------------------------------------------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|-------------|---------|----------|-----------------------|
|                    | External Wall | Cavity Wall | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.19                         | 110.00                      | 150.38                      | 123.83                      | 0.00        | None    | 26.55    | Enter Gross Area      |

| 9.2 Internal Walls | Description      | Construction                      | Kappa (kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|--------------------|------------------|-----------------------------------|-----------------------------|------------------------|
|                    | Stud Partitions  | Plasterboard on timber frame      | 9.00                        | 153.05                 |
|                    | Block Partitions | Dense block, plasterboard on dabs | 75.00                       | 54.23                  |

| 10.0 External Roofs | Description | Type                | Construction                             | U-Value (W/m <sup>2</sup> K) | Kappa (kJ/m <sup>2</sup> K) | Gross Area(m <sup>2</sup> ) | Nett Area (m <sup>2</sup> ) | Shelter Code | Shelter Factor | Calculation Type | Openings |
|---------------------|-------------|---------------------|------------------------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|--------------|----------------|------------------|----------|
|                     | Cold Roof   | External Plane Roof | Plasterboard, insulated at ceiling level | 0.11                         | 9.00                        | 49.13                       | 49.13                       | None         | 0.00           | Enter Gross Area | 0.00     |

| 10.2 Internal Ceilings | Description        | Storey          | Construction                                   | Kappa | Area (m <sup>2</sup> ) |
|------------------------|--------------------|-----------------|------------------------------------------------|-------|------------------------|
|                        | Internal Ceiling 1 | Lowest occupied | Plasterboard ceiling, carpeted chipboard floor | 9.00  | 49.13                  |

| 11.0 Heat Loss Floors | Description  | Type                 | Storey Index    | Construction                       | U-Value (W/m <sup>2</sup> K) | Shelter Code | Shelter Factor | Kappa (kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|-----------------------|--------------|----------------------|-----------------|------------------------------------|------------------------------|--------------|----------------|-----------------------------|------------------------|
|                       | Ground Floor | Ground Floor - Solid | Lowest occupied | Suspended concrete floor, carpeted | 0.12                         | None         | 0.00           | 75.00                       | 49.13                  |

## 11.2 Internal Floors

# Summary for Input Data

| Description      | Storey Index    | Construction                                   | Kappa (kJ/m²K) | Area (m²) |
|------------------|-----------------|------------------------------------------------|----------------|-----------|
| Internal Floor 1 | Lowest occupied | Plasterboard ceiling, carpeted chipboard floor | 18.00          | 49.13     |

## 12.0 Opening Types

| Description               | Data Source               | Type             | Glazing                | Glazing Gap | Filling Type | G-value | Frame Type | Frame Factor | U Value (W/m²K) |
|---------------------------|---------------------------|------------------|------------------------|-------------|--------------|---------|------------|--------------|-----------------|
| Windows                   | BFRC, BSI or CERTASS data | Window           | Double Low-E Soft 0.1  |             |              | 0.40    |            |              | 1.20            |
| Bi-Fold/Patio Door        | BFRC, BSI or CERTASS data | Window           | Double Low-E Soft 0.05 |             |              | 0.33    |            |              | 1.20            |
| Entrance Door             | Manufacturer              | Solid Door       |                        |             |              | 0.00    |            |              | 1.20            |
| Half Glazed Entrance Door | Manufacturer              | Half Glazed Door | Double Low-E Soft 0.1  |             |              | 0.63    |            | 0.70         | 1.20            |

## 13.0 Openings

| Name               | Opening Type       | Location      | Orientation | Area (m²) | Pitch |
|--------------------|--------------------|---------------|-------------|-----------|-------|
| Front Door         | Entrance Door      | External Wall | North       | 2.12      |       |
| Front Windows      | Windows            | External Wall | North       | 11.89     |       |
| Rear Windows       | Windows            | External Wall | South       | 2.87      |       |
| Patio Doors        | Bi-Fold/Patio Door | External Wall | West        | 3.80      |       |
| Right Side Windows | Windows            | External Wall | East        | 4.78      |       |
| Left Side Windows  | Windows            | External Wall | West        | 1.09      |       |

## 14.0 Conservatory

## 15.0 Draught Proofing

 %

## 16.0 Draught Lobby

## 17.0 Thermal Bridging

### 17.1 List of Bridges

| Bridge Type                                      | Source Type            | Length | Psi  | Adjusted Reference: | Imported |
|--------------------------------------------------|------------------------|--------|------|---------------------|----------|
| E2 Other lintels (including other steel lintels) | Independently assessed | 18.25  | 0.05 | 0.05 HiTherm        | No       |
| E3 Sill                                          | Independently assessed | 8.63   | 0.02 | 0.02 Hill Std.      | No       |
| E4 Jamb                                          | Independently assessed | 47.70  | 0.03 | 0.03 Hill Std.      | No       |
| E5 Ground floor (normal)                         | Independently assessed | 28.95  | 0.06 | 0.06 Hill Std.      | No       |
| E10 Eaves (insulation at ceiling level)          | Independently assessed | 18.08  | 0.05 | 0.05 Hill Std.      | No       |
| E16 Corner (normal)                              | Independently assessed | 20.80  | 0.05 | 0.05 Hill Std.      | No       |
| E6 Intermediate floor within a dwelling          | Independently assessed | 28.95  | 0.05 | 0.05 Hill Std.      | No       |
| E12 Gable (insulation at ceiling level)          | Independently assessed | 10.87  | 0.06 | 0.06 Hill Std.      | No       |

## 19.0 Mechanical Ventilation

### Mechanical Ventilation

|                                       |                                                                             |
|---------------------------------------|-----------------------------------------------------------------------------|
| Mechanical Ventilation System Present | <input type="text" value="Yes"/>                                            |
| Approved Installation                 | <input type="text" value="Yes"/>                                            |
| Mechanical Ventilation data Type      | <input type="text" value="Database"/>                                       |
| Type                                  | <input type="text" value="Mechanical extract ventilation - decentralised"/> |
| MV Reference Number                   | <input type="text" value="500776"/>                                         |
| Configuration                         | <input type="text" value="1"/>                                              |
| Duct Type                             | <input type="text" value="Rigid"/>                                          |
| Wet Rooms                             | <input type="text" value="4"/>                                              |

### 19.1 Mechanical extract ventilation - Decentralised

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

## 20.0 Fans, Open Fireplaces, Flues

|                                                  |                                |
|--------------------------------------------------|--------------------------------|
| Number of open chimneys                          | <input type="text" value="0"/> |
| Number of open flues                             | <input type="text" value="0"/> |
| Number of chimneys/flues attached to closed fire | <input type="text" value="0"/> |
| Number of flues attached to solid fuel boiler    | <input type="text" value="0"/> |
| Number of flues attached to other heater         | <input type="text" value="0"/> |
| Number of blocked chimneys                       | <input type="text" value="0"/> |

# Summary for Input Data

|                                     |                                |
|-------------------------------------|--------------------------------|
| Number of intermittent extract fans | <input type="text" value="0"/> |
| Number of passive vents             | <input type="text" value="0"/> |
| Number of flueless gas fires        | <input type="text" value="0"/> |

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

|                              |                                          |                                             |
|------------------------------|------------------------------------------|---------------------------------------------|
| <b>22.0 Pressure Testing</b> | <input type="text" value="Yes"/>         |                                             |
| Designed AP <sub>50</sub>    | <input type="text" value="4.00"/>        | m <sup>3</sup> /(h.m <sup>2</sup> ) @ 50 Pa |
| Test Method                  | <input type="text" value="Blower Door"/> |                                             |

|                      |                                 |                 |              |                 |              |
|----------------------|---------------------------------|-----------------|--------------|-----------------|--------------|
| <b>22.0 Lighting</b> | <input type="text" value="No"/> |                 |              |                 |              |
| No Fixed Lighting    | <input type="text" value="No"/> |                 |              |                 |              |
|                      | <b>Name</b>                     | <b>Efficacy</b> | <b>Power</b> | <b>Capacity</b> | <b>Count</b> |
|                      | Pendant light                   | 75.00           | 10.00        | 750.00          | 10           |
|                      | Batten light                    | 75.00           | 10.00        | 750.00          | 10           |

|                            |                                                         |   |
|----------------------------|---------------------------------------------------------|---|
| <b>24.0 Main Heating 1</b> | <input type="text" value="Database"/>                   |   |
| Percentage of Heat         | <input type="text" value="100.00"/>                     | % |
| Database Ref. No.          | <input type="text" value="104436"/>                     |   |
| Fuel Type                  | <input type="text" value="Electricity"/>                |   |
| Model Name                 | <input type="text" value="aroTHERM plus 7kW + AI"/>     |   |
| Manufacturer               | <input type="text" value="Vaillant Group UK Ltd"/>      |   |
| Controls SAP Code          | <input type="text" value="2207"/>                       |   |
| Is MHS Pumped              | <input type="text" value="Pump in heated space"/>       |   |
| Heating Pump Age           | <input type="text" value="2013 or later"/>              |   |
| Heat Emitter               | <input type="text" value="Radiators and Underfloor"/>   |   |
| Underfloor Heating         | <input type="text" value="Yes - Pipes in thin screed"/> |   |
| Flow Temperature           | <input type="text" value="Enter value"/>                |   |
| Flow Temperature Value     | <input type="text" value="45.00"/>                      |   |

|                            |                                   |
|----------------------------|-----------------------------------|
| <b>25.0 Main Heating 2</b> | <input type="text" value="None"/> |
|----------------------------|-----------------------------------|

|                           |                                   |
|---------------------------|-----------------------------------|
| <b>26.0 Heat Networks</b> | <input type="text" value="None"/> |
|---------------------------|-----------------------------------|

|                               |                                   |
|-------------------------------|-----------------------------------|
| <b>27.0 Secondary Heating</b> | <input type="text" value="None"/> |
|-------------------------------|-----------------------------------|

|                                                  |                                             |
|--------------------------------------------------|---------------------------------------------|
| <b>28.0 Water Heating</b>                        | <input type="text" value="Main Heating 1"/> |
| Water Heating                                    | <input type="text" value="Main Heating 1"/> |
| SAP Code                                         | <input type="text" value="901"/>            |
| Flue Gas Heat Recovery System                    | <input type="text" value="No"/>             |
| Waste Water Heat Recovery Instantaneous System 1 | <input type="text" value="No"/>             |
| Waste Water Heat Recovery Instantaneous System 2 | <input type="text" value="No"/>             |
| Waste Water Heat Recovery Storage System         | <input type="text" value="No"/>             |
| Solar Panel                                      | <input type="text" value="No"/>             |
| Water use <= 125 litres/person/day               | <input type="text" value="Yes"/>            |
| Cold Water Source                                | <input type="text" value="From mains"/>     |
| Bath Count                                       | <input type="text" value="1"/>              |
| Immersion Only Heating Hot Water                 | <input type="text" value="No"/>             |
| Hot Water Controls Model                         | <input type="text" value="HIU"/>            |

|                     |                                           |                          |                         |                  |                     |
|---------------------|-------------------------------------------|--------------------------|-------------------------|------------------|---------------------|
| <b>28.1 Showers</b> |                                           |                          |                         |                  |                     |
| <b>Description</b>  | <b>Shower Type</b>                        | <b>Flow Rate [l/min]</b> | <b>Rated Power [kW]</b> | <b>Connected</b> | <b>Connected To</b> |
| 1                   | Combi boiler or unvented hot water system | 8.00                     |                         | No               |                     |
| 2                   | Combi boiler or unvented hot water system | 8.00                     |                         | No               |                     |

|                                              |  |
|----------------------------------------------|--|
| <b>28.3 Waste Water Heat Recovery System</b> |  |
|----------------------------------------------|--|

|                                |                                                 |
|--------------------------------|-------------------------------------------------|
| <b>29.0 Hot Water Cylinder</b> | <input type="text" value="Hot Water Cylinder"/> |
|--------------------------------|-------------------------------------------------|

# Summary for Input Data

|                          |                                                               |         |
|--------------------------|---------------------------------------------------------------|---------|
| Cylinder Stat            | <input type="text" value="Yes"/>                              |         |
| Cylinder In Heated Space | <input type="text" value="Yes"/>                              |         |
| Independent Time Control | <input type="text" value="Yes"/>                              |         |
| Insulation Type          | <input type="text" value="Measured Loss"/>                    |         |
| Cylinder Volume          | <input type="text" value="250.00"/>                           | L       |
| Loss                     | <input type="text" value="1.40"/>                             | kWh/day |
| Pipes insulation         | <input type="text" value="Fully insulated primary pipework"/> |         |

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## 31.0 Thermal Store

---

## 34.0 Small-scale Hydro

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

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## Recommendations

### Lower cost measures

None

### Further measures to achieve even higher standards

None

# Summary for Input Data

|                      |           |                |            |
|----------------------|-----------|----------------|------------|
| Plot Reference       | AC-3B6P-1 | Issued on Date | 27/02/2026 |
| Assessment Reference | 001       | Plot Type Ref  | AC-3B6P-1  |
| Plot Address         | AC-3B6P-1 | SAP Version    | 10.2       |

|                                    |          |               |       |      |       |
|------------------------------------|----------|---------------|-------|------|-------|
| SAP Rating                         | 84 B     | DER           | 3.57  | TER  | 11.01 |
| Environmental                      | 97 A     | % DER < TER   |       |      | 67.57 |
| CO <sub>2</sub> Emissions (t/year) | 0.34     | DFEE          | 38.81 | TFEE | 40.54 |
| Compliance Check                   | See BREL | % DFEE < TFEE |       |      | 4.27  |
| % DPER < TPER                      | 35.26    | DPER          | 37.22 | TPER | 57.49 |

|                  |                          |             |           |
|------------------|--------------------------|-------------|-----------|
| Assessor Details | Mr. Matthew Fitzpatrick  | Assessor ID | 7601-0001 |
| Client           | HP 01, Hill Partnerships |             |           |

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

|                            |                     |       |
|----------------------------|---------------------|-------|
| Orientation                | North               |       |
| Property Tenture           | ND                  |       |
| Transaction Type           | 6                   |       |
| Terrain Type               | Suburban            |       |
| 1.0 Property Type          | House, Detached     |       |
| 2.0 Number of Storeys      | 2                   |       |
| 3.0 Date Built             | 2026                |       |
| 4.0 Sheltered Sides        | 2                   |       |
| 5.0 Sunlight/Shade         | Average or unknown  |       |
| 6.0 Thermal Mass Parameter | Precise calculation |       |
| Thermal Mass               | 0.00                | kJ/m² |

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

| 7.0 Measurements | Ground floor:<br>1st Storey: | Heat Loss Perimeter<br>29.80 m<br>29.80 m | Internal Floor Area<br>53.69 m²<br>53.69 m² | Average Storey Height<br>2.50 m<br>2.70 m |
|------------------|------------------------------|-------------------------------------------|---------------------------------------------|-------------------------------------------|
|------------------|------------------------------|-------------------------------------------|---------------------------------------------|-------------------------------------------|

|                 |       |    |
|-----------------|-------|----|
| 8.0 Living Area | 40.12 | m² |
|-----------------|-------|----|

| 9.0 External Walls | Description   | Type        | Construction                                                                                                    | U-Value<br>(W/m²K) | Kappa<br>(kJ/m²K) | Gross<br>Area(m²) | Nett<br>Area<br>(m²) | Shelter<br>Res | Shelter | Openings | Area Calculation<br>Type |
|--------------------|---------------|-------------|-----------------------------------------------------------------------------------------------------------------|--------------------|-------------------|-------------------|----------------------|----------------|---------|----------|--------------------------|
|                    | External Wall | Cavity Wall | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.19               | 110.00            | 154.97            | 131.27               | 0.00           | None    | 23.70    | Enter Gross Area         |

| 9.2 Internal Walls | Description     | Construction                 | Kappa<br>(kJ/m²K) | Area (m²) |
|--------------------|-----------------|------------------------------|-------------------|-----------|
|                    | Stud Partitions | Plasterboard on timber frame | 9.00              | 202.96    |

| 10.0 External Roofs | Description | Type                | Construction                             | U-Value<br>(W/m²K) | Kappa<br>(kJ/m²K) | Gross<br>Area(m²) | Nett<br>Area<br>(m²) | Shelter<br>Code | Shelter<br>Factor | Calculation<br>Type | Openings |
|---------------------|-------------|---------------------|------------------------------------------|--------------------|-------------------|-------------------|----------------------|-----------------|-------------------|---------------------|----------|
|                     | Cold Roof   | External Plane Roof | Plasterboard, insulated at ceiling level | 0.11               | 9.00              | 53.69             | 53.69                | None            | 0.00              | Enter Gross 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  | 53.69     |

| 11.0 Heat Loss Floors | Description  | Type                 | Storey Index    | Construction                       | U-Value<br>(W/m²K) | Shelter Code | Shelter<br>Factor | Kappa<br>(kJ/m²K) | Area (m²) |
|-----------------------|--------------|----------------------|-----------------|------------------------------------|--------------------|--------------|-------------------|-------------------|-----------|
|                       | Ground Floor | Ground Floor - Solid | Lowest occupied | Suspended concrete floor, carpeted | 0.12               | None         | 0.00              | 75.00             | 53.69     |

| 11.2 Internal Floors | Description | Storey Index | Construction | Kappa<br>(kJ/m²K) | Area (m²) |
|----------------------|-------------|--------------|--------------|-------------------|-----------|
|----------------------|-------------|--------------|--------------|-------------------|-----------|

# Summary for Input Data

Internal Floor 1      Lowest occupied      Plasterboard ceiling, carpeted chipboard floor      18.00      53.69

## 12.0 Opening Types

| Description               | Data Source               | Type             | Glazing                | Glazing Gap | Filling Type | G-value | Frame Type | Frame Factor | U Value (W/m²K) |
|---------------------------|---------------------------|------------------|------------------------|-------------|--------------|---------|------------|--------------|-----------------|
| Windows                   | BFRC, BSI or CERTASS data | Window           | Double Low-E Soft 0.1  |             |              | 0.40    |            |              | 1.20            |
| Bi-Fold/Patio Door        | BFRC, BSI or CERTASS data | Window           | Double Low-E Soft 0.05 |             |              | 0.33    |            |              | 1.20            |
| Entrance Door             | Manufacturer              | Solid Door       |                        |             |              | 0.00    |            |              | 1.20            |
| Half Glazed Entrance Door | Manufacturer              | Half Glazed Door | Double Low-E Soft 0.1  |             |              | 0.63    |            | 0.70         | 1.20            |

## 13.0 Openings

| Name               | Opening Type       | Location      | Orientation | Area (m²) | Pitch |
|--------------------|--------------------|---------------|-------------|-----------|-------|
| Front Door         | Entrance Door      | External Wall | North       | 2.12      |       |
| Front Windows      | Windows            | External Wall | North       | 5.62      |       |
| Rear Windows       | Windows            | External Wall | South       | 8.34      |       |
| Patio Doors        | Bi-Fold/Patio Door | External Wall | South       | 3.80      |       |
| Right Side Windows | Windows            | External Wall | East        | 2.87      |       |
| Left Side Windows  | Windows            | External Wall | West        | 0.96      |       |

## 14.0 Conservatory

None

## 15.0 Draught Proofing

100 %

## 16.0 Draught Lobby

No

## 17.0 Thermal Bridging

Calculate Bridges

## 17.1 List of Bridges

| Bridge Type                                      | Source Type            | Length | Psi  | Adjusted Reference: | Imported |
|--------------------------------------------------|------------------------|--------|------|---------------------|----------|
| E2 Other lintels (including other steel lintels) | Independently assessed | 13.78  | 0.05 | 0.05 HiTherm        | No       |
| E3 Sill                                          | Independently assessed | 6.88   | 0.02 | 0.02 Hill Std.      | No       |
| E4 Jamb                                          | Independently assessed | 37.82  | 0.03 | 0.03 Hill Std.      | No       |
| E5 Ground floor (normal)                         | Independently assessed | 29.80  | 0.06 | 0.06 Hill Std.      | No       |
| E10 Eaves (insulation at ceiling level)          | Independently assessed | 17.60  | 0.05 | 0.05 Hill Std.      | No       |
| E16 Corner (normal)                              | Independently assessed | 20.80  | 0.05 | 0.05 Hill Std.      | No       |
| E6 Intermediate floor within a dwelling          | Independently assessed | 29.80  | 0.05 | 0.05 Hill Std.      | No       |
| E12 Gable (insulation at ceiling level)          | Independently assessed | 12.19  | 0.06 | 0.06 Hill Std.      | No       |

## 19.0 Mechanical Ventilation

### Mechanical Ventilation

|                                       |                                                |
|---------------------------------------|------------------------------------------------|
| Mechanical Ventilation System Present | Yes                                            |
| Approved Installation                 | Yes                                            |
| Mechanical Ventilation data Type      | Database                                       |
| Type                                  | Mechanical extract ventilation - decentralised |
| MV Reference Number                   | 500776                                         |
| Configuration                         | 1                                              |
| Duct Type                             | Rigid                                          |
| Wet Rooms                             | 4                                              |

## 19.1 Mechanical extract ventilation - Decentralised

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

## 20.0 Fans, Open Fireplaces, Flues

|                                                  |   |
|--------------------------------------------------|---|
| Number of open chimneys                          | 0 |
| Number of open flues                             | 0 |
| Number of chimneys/flues attached to closed fire | 0 |
| Number of flues attached to solid fuel boiler    | 0 |
| Number of flues attached to other heater         | 0 |
| Number of blocked chimneys                       | 0 |
| Number of intermittent extract fans              | 0 |

# Summary for Input Data

Number of passive vents

Number of flueless gas fires

**21.0 Fixed Cooling System**

**22.0 Pressure Testing**

Designed AP<sub>50</sub>  m<sup>2</sup>/(h.m<sup>2</sup>) @ 50 Pa

Test Method

**22.0 Lighting**

No Fixed Lighting

| Name          | Efficacy | Power | Capacity | Count |
|---------------|----------|-------|----------|-------|
| Pendant light | 75.00    | 10.00 | 750.00   | 10    |
| Batten light  | 75.00    | 10.00 | 750.00   | 10    |

**24.0 Main Heating 1**

Percentage of Heat  %

Database Ref. No.

Fuel Type

Model Name

Manufacturer

Controls SAP Code

Is MHS Pumped

Heating Pump Age

Heat Emitter

Underfloor Heating

Flow Temperature

Flow Temperature Value

**25.0 Main Heating 2**

**26.0 Heat Networks**

**27.0 Secondary Heating**

**28.0 Water Heating**

Water Heating

SAP Code

Flue Gas Heat Recovery System

Waste Water Heat Recovery Instantaneous System 1

Waste Water Heat Recovery Instantaneous System 2

Waste Water Heat Recovery Storage System

Solar Panel

Water use <= 125 litres/person/day

Cold Water Source

Bath Count

Immersion Only Heating Hot Water

Hot Water Controls Model

**28.1 Showers**

| Description | Shower Type                               | Flow Rate [l/min] | Rated Power [kW] | Connected | Connected To |
|-------------|-------------------------------------------|-------------------|------------------|-----------|--------------|
| 1           | Combi boiler or unvented hot water system | 8.00              |                  | No        |              |
| 2           | Combi boiler or unvented hot water system | 8.00              |                  | No        |              |

**28.3 Waste Water Heat Recovery System**

**29.0 Hot Water Cylinder**

Cylinder Stat

# Summary for Input Data

|                          |                                                               |         |
|--------------------------|---------------------------------------------------------------|---------|
| Cylinder In Heated Space | <input type="text" value="Yes"/>                              |         |
| Independent Time Control | <input type="text" value="Yes"/>                              |         |
| Insulation Type          | <input type="text" value="Measured Loss"/>                    |         |
| Cylinder Volume          | <input type="text" value="250.00"/>                           | L       |
| Loss                     | <input type="text" value="1.40"/>                             | kWh/day |
| Pipes insulation         | <input type="text" value="Fully insulated primary pipework"/> |         |

---

## 31.0 Thermal Store

---

## 34.0 Small-scale Hydro

|     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 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

|                      |           |                |            |
|----------------------|-----------|----------------|------------|
| Plot Reference       | AC-4B8P-8 | Issued on Date | 27/02/2026 |
| Assessment Reference | 001       | Plot Type Ref  | AC-4B8P-8  |
| Plot Address         | AC-4B8P-8 | SAP Version    | 10.2       |

|                                    |          |               |       |      |       |
|------------------------------------|----------|---------------|-------|------|-------|
| SAP Rating                         | 84 B     | DER           | 3.27  | TER  | 9.61  |
| Environmental                      | 97 A     | % DER < TER   |       |      | 65.97 |
| CO <sub>2</sub> Emissions (t/year) | 0.41     | DFEE          | 38.33 | TFEE | 39.49 |
| Compliance Check                   | See BREL | % DFEE < TFEE |       |      | 2.94  |
| % DPER < TPER                      | 32.35    | DPER          | 34.03 | TPER | 50.31 |

|                  |                          |             |           |
|------------------|--------------------------|-------------|-----------|
| Assessor Details | Mr. Matthew Fitzpatrick  | Assessor ID | 7601-0001 |
| Client           | HP 01, Hill Partnerships |             |           |

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

|                            |                     |        |
|----------------------------|---------------------|--------|
| Orientation                | North               |        |
| Property Tenture           | ND                  |        |
| Transaction Type           | 6                   |        |
| Terrain Type               | Suburban            |        |
| 1.0 Property Type          | House, Detached     |        |
| 2.0 Number of Storeys      | 2                   |        |
| 3.0 Date Built             | 2026                |        |
| 4.0 Sheltered Sides        | 2                   |        |
| 5.0 Sunlight/Shade         | Average or unknown  |        |
| 6.0 Thermal Mass Parameter | Precise calculation |        |
| Thermal Mass               | 0.00                | kJ/m²K |

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

| 7.0 Measurements | Ground floor:<br>1st Storey: | Heat Loss Perimeter<br>33.79 m<br>33.79 m | Internal Floor Area<br>70.55 m <sup>2</sup><br>70.55 m <sup>2</sup> | Average Storey Height<br>2.50 m<br>2.70 m |
|------------------|------------------------------|-------------------------------------------|---------------------------------------------------------------------|-------------------------------------------|
|------------------|------------------------------|-------------------------------------------|---------------------------------------------------------------------|-------------------------------------------|

|                 |       |                |
|-----------------|-------|----------------|
| 8.0 Living Area | 15.45 | m <sup>2</sup> |
|-----------------|-------|----------------|

| 9.0 External Walls | Description   | Type        | Construction                                                                                                    | U-Value<br>(W/m <sup>2</sup> K) | Kappa<br>(kJ/m <sup>2</sup> K) | Gross<br>Area(m <sup>2</sup> ) | Nett Area<br>(m <sup>2</sup> ) | Shelter<br>Res | Shelter | Openings | Area Calculation<br>Type |
|--------------------|---------------|-------------|-----------------------------------------------------------------------------------------------------------------|---------------------------------|--------------------------------|--------------------------------|--------------------------------|----------------|---------|----------|--------------------------|
|                    | External Wall | Cavity Wall | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.19                            | 110.00                         | 182.45                         | 157.88                         | 0.00           | None    | 24.57    | Enter Gross Area         |

| 9.2 Internal Walls | Description           | Construction                      | Kappa<br>(kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|--------------------|-----------------------|-----------------------------------|--------------------------------|------------------------|
|                    | Timber stud Partition | Plasterboard on timber frame      | 9.00                           | 250.55                 |
|                    | Block Partitions      | Dense block, plasterboard on dabs | 75.00                          | 46.71                  |

| 10.0 External Roofs | Description | Type                | Construction                             | U-Value<br>(W/m <sup>2</sup> K) | Kappa<br>(kJ/m <sup>2</sup> K) | Gross<br>Area(m <sup>2</sup> ) | Nett<br>Area<br>(m <sup>2</sup> ) | Shelter<br>Code | Shelter<br>Factor | Calculation<br>Type | Openings |
|---------------------|-------------|---------------------|------------------------------------------|---------------------------------|--------------------------------|--------------------------------|-----------------------------------|-----------------|-------------------|---------------------|----------|
|                     | Cold Roof   | External Plane Roof | Plasterboard, insulated at ceiling level | 0.11                            | 9.00                           | 70.55                          | 70.55                             | None            | 0.00              | Enter Gross Area    | 0.00     |

| 10.2 Internal Ceilings | Description      | Storey<br>Lowest occupied | Construction                                   | Kappa | Area (m <sup>2</sup> ) |
|------------------------|------------------|---------------------------|------------------------------------------------|-------|------------------------|
|                        | Internal Ceiling |                           | Plasterboard ceiling, carpeted chipboard floor | 9.00  | 70.55                  |

| 11.0 Heat Loss Floors | Description  | Type                 | Storey Index    | Construction                       | U-Value<br>(W/m <sup>2</sup> K) | Shelter Code | Shelter<br>Factor | Kappa<br>(kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|-----------------------|--------------|----------------------|-----------------|------------------------------------|---------------------------------|--------------|-------------------|--------------------------------|------------------------|
|                       | Ground Floor | Ground Floor - Solid | Lowest occupied | Suspended concrete floor, carpeted | 0.12                            | None         | 0.00              | 75.00                          | 70.55                  |

## 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          | 70.55     |

## 12.0 Opening Types

| Description       | Data Source               | Type             | Glazing               | Glazing Gap | Filling Type | G-value | Frame Type | Frame Factor | U Value (W/m²K) |
|-------------------|---------------------------|------------------|-----------------------|-------------|--------------|---------|------------|--------------|-----------------|
| Glazed 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 |             |              | 0.40    |            |              | 1.20            |
| Rooflight         | Manufacturer              | Roof Light       | Double Low-E Soft 0.1 |             |              | 0.63    |            | 0.70         | 1.20            |
| Patio Doors       | BFRC, BSI or CERTASS data | Window           | Double Low-E Soft 0.1 |             |              | 0.33    |            |              | 1.20            |

## 13.0 Openings

| Name            | Opening Type      | Location      | Orientation | Area (m²) | Pitch |
|-----------------|-------------------|---------------|-------------|-----------|-------|
| Front Door      | Glazed front Door | External Wall | North       | 2.12      |       |
| Front Elevation | Window            | External Wall | North       | 8.48      |       |
| Rear Elevation  | Window            | External Wall | South       | 6.16      |       |
| Rear Door       | Glazed front Door | External Wall | East        | 2.12      |       |
| Patio Doors     | Patio Doors       | External Wall | South       | 5.69      |       |

## 14.0 Conservatory

## 15.0 Draught Proofing

 %

## 16.0 Draught Lobby

## 17.0 Thermal Bridging

## 17.1 List of Bridges

| Bridge Type                                      | Source Type            | Length | Psi  | Adjusted Reference: | Imported |
|--------------------------------------------------|------------------------|--------|------|---------------------|----------|
| E2 Other lintels (including other steel lintels) | Independently assessed | 16.98  | 0.05 | 0.05 HiTherm        | No       |
| E3 Sill                                          | Independently assessed | 14.95  | 0.02 | 0.02 Hill Std.      | No       |
| E4 Jamb                                          | Independently assessed | 36.20  | 0.03 | 0.03 Hill Std.      | No       |
| E5 Ground floor (normal)                         | Independently assessed | 33.79  | 0.06 | 0.06 Hill Std.      | No       |
| E6 Intermediate floor within a dwelling          | Independently assessed | 33.79  | 0.05 | 0.05 Hill Std.      | No       |
| E10 Eaves (insulation at ceiling level)          | Independently assessed | 18.68  | 0.05 | 0.05 Hill Std.      | No       |
| E12 Gable (insulation at ceiling level)          | Independently assessed | 15.10  | 0.06 | 0.06 Hill Std.      | No       |
| E16 Corner (normal)                              | Independently assessed | 20.80  | 0.05 | 0.05 Hill Std.      | No       |

## 19.0 Mechanical Ventilation

### Mechanical Ventilation

|                                       |                                                                             |
|---------------------------------------|-----------------------------------------------------------------------------|
| Mechanical Ventilation System Present | <input type="text" value="Yes"/>                                            |
| Approved Installation                 | <input type="text" value="Yes"/>                                            |
| Mechanical Ventilation data Type      | <input type="text" value="Database"/>                                       |
| Type                                  | <input type="text" value="Mechanical extract ventilation - decentralised"/> |
| MV Reference Number                   | <input type="text" value="500776"/>                                         |
| Duct Type                             | <input type="text" value="Rigid"/>                                          |
| Wet Rooms                             | <input type="text" value="5"/>                                              |

## 19.1 Mechanical extract ventilation - Decentralised

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

## 20.0 Fans, Open Fireplaces, Flues

|                                                  |                                |
|--------------------------------------------------|--------------------------------|
| Number of open chimneys                          | <input type="text" value="0"/> |
| Number of open flues                             | <input type="text" value="0"/> |
| Number of chimneys/flues attached to closed fire | <input type="text" value="0"/> |
| Number of flues attached to solid fuel boiler    | <input type="text" value="0"/> |
| Number of flues attached to other heater         | <input type="text" value="0"/> |
| Number of blocked chimneys                       | <input type="text" value="0"/> |
| Number of intermittent extract fans              | <input type="text" value="0"/> |
| Number of passive vents                          | <input type="text" value="0"/> |

# Summary for Input Data

|                              |                                |  |  |  |  |
|------------------------------|--------------------------------|--|--|--|--|
| Number of flueless gas fires | <input type="text" value="0"/> |  |  |  |  |
|------------------------------|--------------------------------|--|--|--|--|

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

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|                              |                                          |                   |  |  |  |
|------------------------------|------------------------------------------|-------------------|--|--|--|
| <b>22.0 Pressure Testing</b> | <input type="text" value="Yes"/>         |                   |  |  |  |
| Designed AP <sub>50</sub>    | <input type="text" value="4.00"/>        | m³/(h.m²) @ 50 Pa |  |  |  |
| Test Method                  | <input type="text" value="Blower Door"/> |                   |  |  |  |

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|                      |                                 |  |  |  |  |
|----------------------|---------------------------------|--|--|--|--|
| <b>22.0 Lighting</b> | <input type="text" value="No"/> |  |  |  |  |
| No Fixed Lighting    | <input type="text" value="No"/> |  |  |  |  |

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| Name     | Efficacy | Power | Capacity | Count |
|----------|----------|-------|----------|-------|
| Lighting | 75.00    | 10.00 | 750.00   | 30    |

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|                            |                                                         |   |  |  |  |
|----------------------------|---------------------------------------------------------|---|--|--|--|
| <b>24.0 Main Heating 1</b> | <input type="text" value="Database"/>                   |   |  |  |  |
| Percentage of Heat         | <input type="text" value="100.00"/>                     | % |  |  |  |
| Database Ref. No.          | <input type="text" value="104432"/>                     |   |  |  |  |
| Fuel Type                  | <input type="text" value="Electricity"/>                |   |  |  |  |
| Model Name                 | <input type="text" value="aroTHERM plus 7kW + AI"/>     |   |  |  |  |
| Manufacturer               | <input type="text" value="Vaillant Group UK Ltd"/>      |   |  |  |  |
| Controls SAP Code          | <input type="text" value="2207"/>                       |   |  |  |  |
| Is MHS Pumped              | <input type="text" value="Pump in heated space"/>       |   |  |  |  |
| Heating Pump Age           | <input type="text" value="2013 or later"/>              |   |  |  |  |
| Heat Emitter               | <input type="text" value="Radiators and Underfloor"/>   |   |  |  |  |
| Underfloor Heating         | <input type="text" value="Yes - Pipes in thin screed"/> |   |  |  |  |
| Flow Temperature           | <input type="text" value="Enter value"/>                |   |  |  |  |
| Flow Temperature Value     | <input type="text" value="45.00"/>                      |   |  |  |  |

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|                            |                                   |  |  |  |  |
|----------------------------|-----------------------------------|--|--|--|--|
| <b>25.0 Main Heating 2</b> | <input type="text" value="None"/> |  |  |  |  |
|----------------------------|-----------------------------------|--|--|--|--|

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|                           |                                   |  |  |  |  |
|---------------------------|-----------------------------------|--|--|--|--|
| <b>26.0 Heat Networks</b> | <input type="text" value="None"/> |  |  |  |  |
|---------------------------|-----------------------------------|--|--|--|--|

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|                               |                                   |  |  |  |  |
|-------------------------------|-----------------------------------|--|--|--|--|
| <b>27.0 Secondary Heating</b> | <input type="text" value="None"/> |  |  |  |  |
|-------------------------------|-----------------------------------|--|--|--|--|

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|                                                  |                                             |  |  |  |  |
|--------------------------------------------------|---------------------------------------------|--|--|--|--|
| <b>28.0 Water Heating</b>                        | <input type="text" value="Main Heating 1"/> |  |  |  |  |
| Water Heating                                    | <input type="text" value="Main Heating 1"/> |  |  |  |  |
| SAP Code                                         | <input type="text" value="901"/>            |  |  |  |  |
| Flue Gas Heat Recovery System                    | <input type="text" value="No"/>             |  |  |  |  |
| Waste Water Heat Recovery Instantaneous System 1 | <input type="text" value="No"/>             |  |  |  |  |
| Waste Water Heat Recovery Instantaneous System 2 | <input type="text" value="No"/>             |  |  |  |  |
| Waste Water Heat Recovery Storage System         | <input type="text" value="No"/>             |  |  |  |  |
| Solar Panel                                      | <input type="text" value="No"/>             |  |  |  |  |
| Water use <= 125 litres/person/day               | <input type="text" value="Yes"/>            |  |  |  |  |
| Cold Water Source                                | <input type="text" value="From mains"/>     |  |  |  |  |
| Bath Count                                       | <input type="text" value="1"/>              |  |  |  |  |
| Immersion Only Heating Hot Water                 | <input type="text" value="Yes"/>            |  |  |  |  |

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|                     |                                           |                  |                    |                  |                     |
|---------------------|-------------------------------------------|------------------|--------------------|------------------|---------------------|
| <b>28.1 Showers</b> |                                           |                  |                    |                  |                     |
| <b>Description</b>  | <b>Shower Type</b>                        | <b>Flow Rate</b> | <b>Rated Power</b> | <b>Connected</b> | <b>Connected To</b> |
| Bathroom            | Combi boiler or unvented hot water system | [l/min]<br>8.00  | [kW]               | No               |                     |
| En-suite            | Combi boiler or unvented hot water system | 8.00             |                    | No               |                     |

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|                                              |  |  |  |  |  |
|----------------------------------------------|--|--|--|--|--|
| <b>28.3 Waste Water Heat Recovery System</b> |  |  |  |  |  |
|----------------------------------------------|--|--|--|--|--|

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|                                |                                                 |  |  |  |  |
|--------------------------------|-------------------------------------------------|--|--|--|--|
| <b>29.0 Hot Water Cylinder</b> | <input type="text" value="Hot Water Cylinder"/> |  |  |  |  |
| Cylinder Stat                  | <input type="text" value="Yes"/>                |  |  |  |  |
| Cylinder In Heated Space       | <input type="text" value="Yes"/>                |  |  |  |  |
| Independent Time Control       | <input type="text" value="Yes"/>                |  |  |  |  |
| Insulation Type                | <input type="text" value="Measured Loss"/>      |  |  |  |  |

# Summary for Input Data



|                  |                                                                |         |
|------------------|----------------------------------------------------------------|---------|
| Cylinder Volume  | <input type="text" value="250.00"/>                            | L       |
| Loss             | <input type="text" value="1.40"/>                              | kWh/day |
| Pipes insulation | <input type="text" value="All accessible pipework insulated"/> |         |

## 31.0 Thermal Store

## 34.0 Small-scale Hydro

| 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



|                      |           |               |                |            |
|----------------------|-----------|---------------|----------------|------------|
| Plot Reference       | AC-5B9P-1 |               | Issued on Date | 27/02/2026 |
| Assessment Reference | 001       | Plot Type Ref | AC-5B9P-1      |            |
| Plot Address         | AC-5B9P-1 |               | SAP Version    | 10.2       |

|                                    |          |               |       |      |       |
|------------------------------------|----------|---------------|-------|------|-------|
| SAP Rating                         | 83 B     | DER           | 3.26  | TER  | 9.21  |
| Environmental                      | 97 A     | % DER < TER   |       |      | 64.60 |
| CO <sub>2</sub> Emissions (t/year) | 0.57     | DFEE          | 41.08 | TFEE | 42.98 |
| Compliance Check                   | See BREL | % DFEE < TFEE |       |      | 4.43  |
| % DPER < TPER                      | 29.87    | DPER          | 34.04 | TPER | 48.53 |

|                  |                          |             |           |
|------------------|--------------------------|-------------|-----------|
| Assessor Details | Mr. Matthew Fitzpatrick  | Assessor ID | 7601-0001 |
| Client           | HP 01, Hill Partnerships |             |           |

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

|                            |                     |        |
|----------------------------|---------------------|--------|
| Orientation                | North               |        |
| Property Tenture           | ND                  |        |
| Transaction Type           | 6                   |        |
| Terrain Type               | Suburban            |        |
| 1.0 Property Type          | House, Detached     |        |
| 2.0 Number of Storeys      | 2                   |        |
| 3.0 Date Built             | 2026                |        |
| 4.0 Sheltered Sides        | 2                   |        |
| 5.0 Sunlight/Shade         | Average or unknown  |        |
| 6.0 Thermal Mass Parameter | Precise calculation |        |
| Thermal Mass               | 0.00                | kJ/m²K |

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

|                  |               |                     |                      |                       |
|------------------|---------------|---------------------|----------------------|-----------------------|
| 7.0 Measurements |               |                     |                      |                       |
|                  | Ground floor: | Heat Loss Perimeter | Internal Floor Area  | Average Storey Height |
|                  | 1st Storey:   | 46.18 m             | 96.93 m <sup>2</sup> | 2.50 m                |
|                  |               | 44.64 m             | 95.29 m <sup>2</sup> | 2.70 m                |

|                 |       |                |
|-----------------|-------|----------------|
| 8.0 Living Area | 17.85 | m <sup>2</sup> |
|-----------------|-------|----------------|

| Description   | Type        | Construction                                                                                                    | U-Value (W/m <sup>2</sup> K) | Kappa (kJ/m <sup>2</sup> K) | Gross Area(m <sup>2</sup> ) | Nett Area (m <sup>2</sup> ) | Shelter Res | Shelter | Openings | Area Calculation Type |
|---------------|-------------|-----------------------------------------------------------------------------------------------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|-------------|---------|----------|-----------------------|
| External Wall | Cavity Wall | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.19                         | 110.00                      | 235.99                      | 197.54                      | 0.00        | None    | 38.45    | Enter Gross Area      |

| Description           | Construction                      | Kappa (kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|-----------------------|-----------------------------------|-----------------------------|------------------------|
| Timber stud Partition | Plasterboard on timber frame      | 9.00                        | 285.72                 |
| Block Partitions      | Dense block, plasterboard on dabs | 75.00                       | 67.73                  |

| Description | Type                | Construction                             | U-Value (W/m <sup>2</sup> K) | Kappa (kJ/m <sup>2</sup> K) | Gross Area(m <sup>2</sup> ) | Nett Area (m <sup>2</sup> ) | Shelter Code | Shelter Factor | Calculation Type | Openings |
|-------------|---------------------|------------------------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|--------------|----------------|------------------|----------|
| Cold Roof   | External Plane Roof | Plasterboard, insulated at ceiling level | 0.11                         | 9.00                        | 95.29                       | 95.29                       | None         | 0.00           | Enter Gross Area | 0.00     |
| Bay Roof    | External Plane Roof | Plasterboard, insulated at ceiling level | 0.11                         | 9.00                        | 1.66                        | 1.66                        | None         | 0.00           | Enter Gross Area | 0.00     |

| Description      | Storey          | Construction                                   | Kappa | Area (m <sup>2</sup> ) |
|------------------|-----------------|------------------------------------------------|-------|------------------------|
| Internal Ceiling | Lowest occupied | Plasterboard ceiling, carpeted chipboard floor | 9.00  | 95.29                  |

| Description  | Type                 | Storey Index    | Construction                       | U-Value (W/m <sup>2</sup> K) | Shelter Code | Shelter Factor | Kappa (kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|--------------|----------------------|-----------------|------------------------------------|------------------------------|--------------|----------------|-----------------------------|------------------------|
| Ground Floor | Ground Floor - Solid | Lowest occupied | Suspended concrete floor, carpeted | 0.12                         | None         | 0.00           | 75.00                       | 96.93                  |

## 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          | 95.29     |

## 12.0 Opening Types

| Description       | Data Source               | Type             | Glazing               | Glazing Gap | Filling Type | G-value | Frame Type | Frame Factor | U Value (W/m²K) |
|-------------------|---------------------------|------------------|-----------------------|-------------|--------------|---------|------------|--------------|-----------------|
| Glazed 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 |             |              | 0.40    |            |              | 1.20            |
| Rooflight         | Manufacturer              | Roof Light       | Double Low-E Soft 0.1 |             |              | 0.63    |            | 0.70         | 1.20            |
| Patio Doors       | BFRC, BSI or CERTASS data | Window           | Double Low-E Soft 0.1 |             |              | 0.33    |            |              | 1.20            |

## 13.0 Openings

| Name            | Opening Type      | Location      | Orientation | Area (m²) | Pitch |
|-----------------|-------------------|---------------|-------------|-----------|-------|
| Front Door      | Glazed front Door | External Wall | North       | 2.12      |       |
| Front Elevation | Window            | External Wall | North       | 13.09     |       |
| Rear Elevation  | Window            | External Wall | South       | 5.64      |       |
| Rear Door       | Glazed front Door | External Wall | South       | 2.12      |       |
| Patio Doors     | Window            | External Wall | East        | 11.34     |       |
| RHS Windows     | Window            | External Wall | East        | 0.71      |       |
| LHS Windows     | Window            | External Wall | West        | 3.42      |       |

## 14.0 Conservatory

## 15.0 Draught Proofing

 %

## 16.0 Draught Lobby

## 17.0 Thermal Bridging

### 17.1 List of Bridges

| Bridge Type                                                      | Source Type            | Length | Psi   | Adjusted Reference: | Imported |
|------------------------------------------------------------------|------------------------|--------|-------|---------------------|----------|
| E2 Other lintels (including other steel lintels)                 | Independently assessed | 25.64  | 0.05  | 0.05 HiTherm        | No       |
| E3 Sill                                                          | Independently assessed | 17.22  | 0.02  | 0.02 Hill Std.      | No       |
| E4 Jamb                                                          | Independently assessed | 54.10  | 0.03  | 0.03 Hill Std.      | No       |
| E5 Ground floor (normal)                                         | Independently assessed | 46.18  | 0.06  | 0.06 Hill Std.      | No       |
| E6 Intermediate floor within a dwelling                          | Independently assessed | 44.64  | 0.05  | 0.05 Hill Std.      | No       |
| E10 Eaves (insulation at ceiling level)                          | Independently assessed | 30.72  | 0.05  | 0.05 Hill Std.      | No       |
| E12 Gable (insulation at ceiling level)                          | Independently assessed | 17.62  | 0.06  | 0.06 Hill Std.      | No       |
| E16 Corner (normal)                                              | Independently assessed | 36.20  | 0.05  | 0.05 Hill Std.      | No       |
| E17 Corner (inverted – internal area greater than external area) | Independently assessed | 15.40  | -0.08 | -0.08 Hill Std.     | No       |

## 19.0 Mechanical Ventilation

### Mechanical Ventilation

|                                       |                                                                             |
|---------------------------------------|-----------------------------------------------------------------------------|
| Mechanical Ventilation System Present | <input type="text" value="Yes"/>                                            |
| Approved Installation                 | <input type="text" value="Yes"/>                                            |
| Mechanical Ventilation data Type      | <input type="text" value="Database"/>                                       |
| Type                                  | <input type="text" value="Mechanical extract ventilation - decentralised"/> |
| MV Reference Number                   | <input type="text" value="500776"/>                                         |
| Duct Type                             | <input type="text" value="Rigid"/>                                          |
| Wet Rooms                             | <input type="text" value="6"/>                                              |

### 19.1 Mechanical extract ventilation - Decentralised

| SFP  | Fan/Room Type       | Count |
|------|---------------------|-------|
| 0.14 | In Room Fan         | 1     |
|      | Kitchen             |       |
| 0.11 | In Room Fan Other   | 5     |
|      | Wet Room            |       |
| 0.00 | In Duct Fan Kitchen | 0     |
| 0.00 | In Duct Fan Other   | 0     |
|      | Wet Room            |       |
| 0.08 | Through Wall Fan    | 0     |
|      | Kitchen             |       |
| 0.08 | Through Wall Fan    | 0     |
|      | Other Wet Room      |       |

## 20.0 Fans, Open Fireplaces, Flues

|                                                  |                                |
|--------------------------------------------------|--------------------------------|
| Number of open chimneys                          | <input type="text" value="0"/> |
| Number of open flues                             | <input type="text" value="0"/> |
| Number of chimneys/flues attached to closed fire | <input type="text" value="0"/> |
| Number of flues attached to solid fuel boiler    | <input type="text" value="0"/> |
| Number of flues attached to other heater         | <input type="text" value="0"/> |
| Number of blocked chimneys                       | <input type="text" value="0"/> |

# Summary for Input Data

Number of intermittent extract fans

Number of passive vents

Number of flueless gas fires

**21.0 Fixed Cooling System**

**22.0 Pressure Testing**

Designed AP<sub>50</sub>  m<sup>3</sup>/(h.m<sup>2</sup>) @ 50 Pa

Test Method

**22.0 Lighting**

No Fixed Lighting

| Name     | Efficacy | Power | Capacity | Count |
|----------|----------|-------|----------|-------|
| Lighting | 75.00    | 10.00 | 750.00   | 30    |

**24.0 Main Heating 1**

Percentage of Heat  %

Database Ref. No.

Fuel Type

Model Name

Manufacturer

Controls SAP Code

Is MHS Pumped

Heating Pump Age

Heat Emitter

Underfloor Heating

Flow Temperature

Flow Temperature Value

**25.0 Main Heating 2**

**26.0 Heat Networks**

**27.0 Secondary Heating**

**28.0 Water Heating**

Water Heating

SAP Code

Flue Gas Heat Recovery System

Waste Water Heat Recovery Instantaneous System 1

Waste Water Heat Recovery Instantaneous System 2

Waste Water Heat Recovery Storage System

Solar Panel

Water use <= 125 litres/person/day

Cold Water Source

Bath Count

Immersion Only Heating Hot Water

**28.1 Showers**

| Description | Shower Type                               | Flow Rate [l/min] | Rated Power [kW] | Connected | Connected To |
|-------------|-------------------------------------------|-------------------|------------------|-----------|--------------|
| Bathroom    | Combi boiler or unvented hot water system | 8.00              |                  | No        |              |
| En-suite 1  | Combi boiler or unvented hot water system | 8.00              |                  | No        |              |
| En-suite 2  | Combi boiler or unvented hot water system | 8.00              |                  | No        |              |

**28.3 Waste Water Heat Recovery System**

**29.0 Hot Water Cylinder**

Cylinder Stat

# Summary for Input Data

|                          |                                                                |         |
|--------------------------|----------------------------------------------------------------|---------|
| Cylinder In Heated Space | <input type="text" value="Yes"/>                               |         |
| Independent Time Control | <input type="text" value="Yes"/>                               |         |
| Insulation Type          | <input type="text" value="Measured Loss"/>                     |         |
| Cylinder Volume          | <input type="text" value="300.00"/>                            | L       |
| Loss                     | <input type="text" value="1.60"/>                              | kWh/day |
| Pipes insulation         | <input type="text" value="All accessible pipework insulated"/> |         |

## 31.0 Thermal Store

## 34.0 Small-scale Hydro

| 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

|                      |           |               |                |            |
|----------------------|-----------|---------------|----------------|------------|
| Plot Reference       | AC-5B9P-3 |               | Issued on Date | 27/02/2026 |
| Assessment Reference | 001       | Plot Type Ref | AC-5B9P-3      |            |
| Plot Address         | AC-5B9P-3 |               | SAP Version    | 10.2       |

|                                    |          |               |       |      |       |
|------------------------------------|----------|---------------|-------|------|-------|
| SAP Rating                         | 84 B     | DER           | 3.16  | TER  | 8.68  |
| Environmental                      | 97 A     | % DER < TER   |       |      | 63.59 |
| CO <sub>2</sub> Emissions (t/year) | 0.58     | DFEE          | 40.18 | TFEE | 41.31 |
| Compliance Check                   | See BREL | % DFEE < TFEE |       |      | 2.73  |
| % DPER < TPER                      | 27.87    | DPER          | 32.98 | TPER | 45.72 |

|                  |                          |             |           |
|------------------|--------------------------|-------------|-----------|
| Assessor Details | Mr. Matthew Fitzpatrick  | Assessor ID | 7601-0001 |
| Client           | HP 01, Hill Partnerships |             |           |

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

|                            |                     |       |
|----------------------------|---------------------|-------|
| Orientation                | North               |       |
| Property Tenture           | ND                  |       |
| Transaction Type           | 6                   |       |
| Terrain Type               | Suburban            |       |
| 1.0 Property Type          | House, Detached     |       |
| 2.0 Number of Storeys      | 2                   |       |
| 3.0 Date Built             | 2026                |       |
| 4.0 Sheltered Sides        | 2                   |       |
| 5.0 Sunlight/Shade         | Average or unknown  |       |
| 6.0 Thermal Mass Parameter | Precise calculation |       |
| Thermal Mass               | 0.00                | kJ/m² |

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

|                  |               |                     |                     |                       |
|------------------|---------------|---------------------|---------------------|-----------------------|
| 7.0 Measurements |               |                     |                     |                       |
|                  | Ground floor: | Heat Loss Perimeter | Internal Floor Area | Average Storey Height |
|                  | 1st Storey:   | 46.65 m             | 100.88 m²           | 2.50 m                |
|                  |               | 45.09 m             | 99.23 m²            | 2.70 m                |

|                 |       |    |
|-----------------|-------|----|
| 8.0 Living Area | 18.44 | m² |
|-----------------|-------|----|

| Description   | Type        | Construction                                                                                                    | U-Value (W/m²K) | Kappa (kJ/m²K) | Gross Area(m²) | Nett Area (m²) | Shelter Res | Shelter | Openings | Area Calculation Type |
|---------------|-------------|-----------------------------------------------------------------------------------------------------------------|-----------------|----------------|----------------|----------------|-------------|---------|----------|-----------------------|
| External Wall | Cavity Wall | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.19            | 110.00         | 238.39         | 193.86         | 0.00        | None    | 44.53    | Enter Gross Area      |

| Description           | Construction                      | Kappa (kJ/m²K) | Area (m²) |
|-----------------------|-----------------------------------|----------------|-----------|
| Timber stud Partition | Plasterboard on timber frame      | 9.00           | 291.86    |
| Block Partitions      | Dense block, plasterboard on dabs | 75.00          | 69.98     |

| 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 | 0.11            | 9.00           | 99.23          | 99.23          | None         | 0.00           | Enter Gross Area | 0.00     |
| Bay Roof    | External Plane Roof | Plasterboard, insulated at ceiling level | 0.11            | 9.00           | 1.66           | 1.66           | None         | 0.00           | Enter Gross Area | 0.00     |

| Description      | Storey          | Construction                                   | Kappa | Area (m²) |
|------------------|-----------------|------------------------------------------------|-------|-----------|
| Internal Ceiling | Lowest occupied | Plasterboard ceiling, carpeted chipboard floor | 9.00  | 99.23     |

| Description  | Type                 | Storey Index    | Construction                       | U-Value (W/m²K) | Shelter Code | Shelter Factor | Kappa (kJ/m²K) | Area (m²) |
|--------------|----------------------|-----------------|------------------------------------|-----------------|--------------|----------------|----------------|-----------|
| Ground Floor | Ground Floor - Solid | Lowest occupied | Suspended concrete floor, carpeted | 0.12            | None         | 0.00           | 75.00          | 100.88    |

## 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          | 99.23     |

## 12.0 Opening Types

| Description       | Data Source               | Type             | Glazing               | Glazing Gap | Filling Type | G-value | Frame Type | Frame Factor | U Value (W/m²K) |
|-------------------|---------------------------|------------------|-----------------------|-------------|--------------|---------|------------|--------------|-----------------|
| Glazed 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 |             |              | 0.40    |            |              | 1.20            |
| Rooflight         | Manufacturer              | Roof Light       | Double Low-E Soft 0.1 |             |              | 0.63    |            | 0.70         | 1.20            |
| Patio Doors       | BFRC, BSI or CERTASS data | Window           | Double Low-E Soft 0.1 |             |              | 0.33    |            |              | 1.20            |

## 13.0 Openings

| Name             | Opening Type      | Location      | Orientation | Area (m²) | Pitch |
|------------------|-------------------|---------------|-------------|-----------|-------|
| Front Door       | Glazed front Door | External Wall | North       | 2.12      |       |
| Front Elevation  | Window            | External Wall | North       | 14.13     |       |
| Rear Elevation   | Window            | External Wall | South       | 4.95      |       |
| Rear Door        | Glazed front Door | External Wall | South       | 2.12      |       |
| Rear Patio Doors | Patio Doors       | External Wall | South       | 11.38     |       |
| RHS Windows      | Window            | External Wall | East        | 0.74      |       |
| LHS Windows      | Window            | External Wall | West        | 9.08      |       |

## 14.0 Conservatory

## 15.0 Draught Proofing

 %

## 16.0 Draught Lobby

## 17.0 Thermal Bridging

### 17.1 List of Bridges

| Bridge Type                                                      | Source Type            | Length | Psi   | Adjusted | Reference: | Imported |
|------------------------------------------------------------------|------------------------|--------|-------|----------|------------|----------|
| E2 Other lintels (including other steel lintels)                 | Independently assessed | 30.35  | 0.05  | 0.05     | HiTherm    | No       |
| E3 Sill                                                          | Independently assessed | 21.90  | 0.02  | 0.02     | Hill Std.  | No       |
| E4 Jamb                                                          | Independently assessed | 64.22  | 0.03  | 0.03     | Hill Std.  | No       |
| E5 Ground floor (normal)                                         | Independently assessed | 46.50  | 0.06  | 0.06     | Hill Std.  | No       |
| E6 Intermediate floor within a dwelling                          | Independently assessed | 45.09  | 0.05  | 0.05     | Hill Std.  | No       |
| E10 Eaves (insulation at ceiling level)                          | Independently assessed | 28.82  | 0.05  | 0.05     | Hill Std.  | No       |
| E12 Gable (insulation at ceiling level)                          | Independently assessed | 19.97  | 0.06  | 0.06     | Hill Std.  | No       |
| E16 Corner (normal)                                              | Independently assessed | 28.50  | 0.05  | 0.05     | Hill Std.  | No       |
| E17 Corner (inverted – internal area greater than external area) | Independently assessed | 10.20  | -0.08 | -0.08    | Hill Std.  | No       |
| E24 Eaves (insulation at ceiling level - inverted)               | Table K1 - Default     | 2.14   | 0.15  | 0.15     |            | No       |

## 19.0 Mechanical Ventilation

### Mechanical Ventilation

|                                       |                                                                             |
|---------------------------------------|-----------------------------------------------------------------------------|
| Mechanical Ventilation System Present | <input type="text" value="Yes"/>                                            |
| Approved Installation                 | <input type="text" value="Yes"/>                                            |
| Mechanical Ventilation data Type      | <input type="text" value="Database"/>                                       |
| Type                                  | <input type="text" value="Mechanical extract ventilation - decentralised"/> |
| MV Reference Number                   | <input type="text" value="500776"/>                                         |
| Duct Type                             | <input type="text" value="Rigid"/>                                          |
| Wet Rooms                             | <input type="text" value="6"/>                                              |

### 19.1 Mechanical extract ventilation - Decentralised

| SFP  | Fan/Room Type                   | Count |
|------|---------------------------------|-------|
| 0.14 | In Room Fan Kitchen             | 1     |
| 0.11 | In Room Fan Other Wet Room      | 5     |
| 0.00 | In Duct Fan Kitchen             | 0     |
| 0.00 | In Duct Fan Other Wet Room      | 0     |
| 0.08 | Through Wall Fan Kitchen        | 0     |
| 0.08 | Through Wall Fan Other Wet Room | 0     |

## 20.0 Fans, Open Fireplaces, Flues

|                                                  |                                |
|--------------------------------------------------|--------------------------------|
| Number of open chimneys                          | <input type="text" value="0"/> |
| Number of open flues                             | <input type="text" value="0"/> |
| Number of chimneys/flues attached to closed fire | <input type="text" value="0"/> |
| Number of flues attached to solid fuel boiler    | <input type="text" value="0"/> |
| Number of flues attached to other heater         | <input type="text" value="0"/> |

# Summary for Input Data

|                                     |                                |
|-------------------------------------|--------------------------------|
| Number of blocked chimneys          | <input type="text" value="0"/> |
| Number of intermittent extract fans | <input type="text" value="0"/> |
| Number of passive vents             | <input type="text" value="0"/> |
| Number of flueless gas fires        | <input type="text" value="0"/> |

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

|                              |                                          |                                             |
|------------------------------|------------------------------------------|---------------------------------------------|
| <b>22.0 Pressure Testing</b> | <input type="text" value="Yes"/>         |                                             |
| Designed AP <sub>50</sub>    | <input type="text" value="4.00"/>        | m <sup>3</sup> /(h.m <sup>2</sup> ) @ 50 Pa |
| Test Method                  | <input type="text" value="Blower Door"/> |                                             |

|                      |                                 |                          |                       |                           |                    |
|----------------------|---------------------------------|--------------------------|-----------------------|---------------------------|--------------------|
| <b>22.0 Lighting</b> | <input type="text" value="No"/> |                          |                       |                           |                    |
| No Fixed Lighting    | <input type="text" value="No"/> |                          |                       |                           |                    |
|                      | <b>Name</b><br>Lighting         | <b>Efficacy</b><br>75.00 | <b>Power</b><br>10.00 | <b>Capacity</b><br>750.00 | <b>Count</b><br>30 |

|                            |                                                         |   |
|----------------------------|---------------------------------------------------------|---|
| <b>24.0 Main Heating 1</b> | <input type="text" value="Database"/>                   |   |
| Percentage of Heat         | <input type="text" value="100.00"/>                     | % |
| Database Ref. No.          | <input type="text" value="104983"/>                     |   |
| Fuel Type                  | <input type="text" value="Electricity"/>                |   |
| Model Name                 | <input type="text" value="aroTHERM plus 10kW + AI"/>    |   |
| Manufacturer               | <input type="text" value="Vaillant Group UK Ltd"/>      |   |
| Controls SAP Code          | <input type="text" value="2207"/>                       |   |
| Is MHS Pumped              | <input type="text" value="Pump in heated space"/>       |   |
| Heating Pump Age           | <input type="text" value="2013 or later"/>              |   |
| Heat Emitter               | <input type="text" value="Radiators and Underfloor"/>   |   |
| Underfloor Heating         | <input type="text" value="Yes - Pipes in thin screed"/> |   |
| Flow Temperature           | <input type="text" value="Enter value"/>                |   |
| Flow Temperature Value     | <input type="text" value="45.00"/>                      |   |

|                            |                                   |
|----------------------------|-----------------------------------|
| <b>25.0 Main Heating 2</b> | <input type="text" value="None"/> |
|----------------------------|-----------------------------------|

|                           |                                   |
|---------------------------|-----------------------------------|
| <b>26.0 Heat Networks</b> | <input type="text" value="None"/> |
|---------------------------|-----------------------------------|

|                               |                                   |
|-------------------------------|-----------------------------------|
| <b>27.0 Secondary Heating</b> | <input type="text" value="None"/> |
|-------------------------------|-----------------------------------|

|                                                  |                                             |
|--------------------------------------------------|---------------------------------------------|
| <b>28.0 Water Heating</b>                        |                                             |
| Water Heating                                    | <input type="text" value="Main Heating 1"/> |
| SAP Code                                         | <input type="text" value="901"/>            |
| Flue Gas Heat Recovery System                    | <input type="text" value="No"/>             |
| Waste Water Heat Recovery Instantaneous System 1 | <input type="text" value="No"/>             |
| Waste Water Heat Recovery Instantaneous System 2 | <input type="text" value="No"/>             |
| Waste Water Heat Recovery Storage System         | <input type="text" value="No"/>             |
| Solar Panel                                      | <input type="text" value="No"/>             |
| Water use <= 125 litres/person/day               | <input type="text" value="Yes"/>            |
| Cold Water Source                                | <input type="text" value="From mains"/>     |
| Bath Count                                       | <input type="text" value="1"/>              |
| Immersion Only Heating Hot Water                 | <input type="text" value="Yes"/>            |

|                     |                                           |                             |                            |                  |                     |
|---------------------|-------------------------------------------|-----------------------------|----------------------------|------------------|---------------------|
| <b>28.1 Showers</b> |                                           |                             |                            |                  |                     |
| <b>Description</b>  | <b>Shower Type</b>                        | <b>Flow Rate</b><br>[l/min] | <b>Rated Power</b><br>[kW] | <b>Connected</b> | <b>Connected To</b> |
| Bathroom            | Combi boiler or unvented hot water system | 8.00                        |                            | No               |                     |
| En-suite 1          | Combi boiler or unvented hot water system | 8.00                        |                            | No               |                     |
| En-suite 2          | Combi boiler or unvented hot water system | 8.00                        |                            | No               |                     |

## 28.3 Waste Water Heat Recovery System

|                                |                                                 |
|--------------------------------|-------------------------------------------------|
| <b>29.0 Hot Water Cylinder</b> | <input type="text" value="Hot Water Cylinder"/> |
|--------------------------------|-------------------------------------------------|

# Summary for Input Data

|                          |                                                                |         |
|--------------------------|----------------------------------------------------------------|---------|
| Cylinder Stat            | <input type="text" value="Yes"/>                               |         |
| Cylinder In Heated Space | <input type="text" value="Yes"/>                               |         |
| Independent Time Control | <input type="text" value="Yes"/>                               |         |
| Insulation Type          | <input type="text" value="Measured Loss"/>                     |         |
| Cylinder Volume          | <input type="text" value="300.00"/>                            | L       |
| Loss                     | <input type="text" value="1.60"/>                              | kWh/day |
| Pipes insulation         | <input type="text" value="All accessible pipework insulated"/> |         |

---

## 31.0 Thermal Store

---

## 34.0 Small-scale Hydro

|     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 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



|                      |            |                |            |
|----------------------|------------|----------------|------------|
| Plot Reference       | AFF-2B4P-2 | Issued on Date | 27/02/2026 |
| Assessment Reference | 001        | Plot Type Ref  | AFF-2B4P-2 |
| Plot Address         | AFF-2B4P-2 | SAP Version    | 10.2       |

|                                    |          |               |       |      |       |
|------------------------------------|----------|---------------|-------|------|-------|
| SAP Rating                         | 88 B     | DER           | 2.96  | TER  | 11.16 |
| Environmental                      | 98 A     | % DER < TER   |       |      | 73.48 |
| CO <sub>2</sub> Emissions (t/year) | 0.22     | DFEE          | 32.39 | TFEE | 35.26 |
| Compliance Check                   | See BREL | % DFEE < TFEE |       |      | 8.16  |
| % DPER < TPER                      | 46.88    | DPER          | 30.94 | TPER | 58.25 |

|                  |                          |             |           |
|------------------|--------------------------|-------------|-----------|
| Assessor Details | Mr. Matthew Fitzpatrick  | Assessor ID | 7601-0001 |
| Client           | HP 01, Hill Partnerships |             |           |

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

|                            |                     |        |
|----------------------------|---------------------|--------|
| Orientation                | North               |        |
| Property Tenture           | ND                  |        |
| Transaction Type           | 6                   |        |
| Terrain Type               | Suburban            |        |
| 1.0 Property Type          | House, End-Terrace  |        |
| 2.0 Number of Storeys      | 2                   |        |
| 3.0 Date Built             | 2026                |        |
| 4.0 Sheltered Sides        | 2                   |        |
| 5.0 Sunlight/Shade         | Average or unknown  |        |
| 6.0 Thermal Mass Parameter | Precise calculation |        |
| Thermal Mass               | 0.00                | kJ/m²K |

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

| 7.0 Measurements | Ground floor: | Heat Loss Perimeter | Internal Floor Area  | Average Storey Height |
|------------------|---------------|---------------------|----------------------|-----------------------|
|                  | 1st Storey:   | 18.44 m             | 41.00 m <sup>2</sup> | 2.38 m                |
|                  |               | 18.44 m             | 41.00 m <sup>2</sup> | 2.69 m                |

|                 |       |                |
|-----------------|-------|----------------|
| 8.0 Living Area | 30.96 | m <sup>2</sup> |
|-----------------|-------|----------------|

| 9.0 External Walls | Description   | Type        | Construction                                                                                                    | U-Value (W/m <sup>2</sup> K) | Kappa (kJ/m <sup>2</sup> K) | Gross Area(m <sup>2</sup> ) | Nett Area (m <sup>2</sup> ) | Shelter Res | Shelter | Openings | Area Calculation Type |
|--------------------|---------------|-------------|-----------------------------------------------------------------------------------------------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|-------------|---------|----------|-----------------------|
|                    | External Wall | Cavity Wall | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.19                         | 110.00                      | 93.57                       | 78.78                       | 0.00        | None    | 14.79    | Enter Gross Area      |

| 9.1 Party Walls | Description | Type                            | Construction                                                                                | U-Value (W/m <sup>2</sup> K) | Kappa (kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) | Shelter Res | Shelter |
|-----------------|-------------|---------------------------------|---------------------------------------------------------------------------------------------|------------------------------|-----------------------------|------------------------|-------------|---------|
|                 | Party Wall  | Filled Cavity with Edge Sealing | Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill | 0.00                         | 110.00                      | 38.43                  | 0.00        | None    |

| 9.2 Internal Walls | Description           | Construction                 | Kappa (kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|--------------------|-----------------------|------------------------------|-----------------------------|------------------------|
|                    | Timber stud Partition | Plasterboard on timber frame | 9.00                        | 116.38                 |

| 10.0 External Roofs | Description | Type                | Construction                             | U-Value (W/m <sup>2</sup> K) | Kappa (kJ/m <sup>2</sup> K) | Gross Area(m <sup>2</sup> ) | Nett Area (m <sup>2</sup> ) | Shelter Code | Shelter Factor | Calculation Type | Openings |
|---------------------|-------------|---------------------|------------------------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|--------------|----------------|------------------|----------|
|                     | Cold Roof   | External Plane Roof | Plasterboard, insulated at ceiling level | 0.11                         | 9.00                        | 41.00                       | 41.00                       | None         | 0.00           | Enter Gross Area | 0.00     |

| 10.2 Internal Ceilings | Description      | Storey          | Construction                                   | Kappa | Area (m <sup>2</sup> ) |
|------------------------|------------------|-----------------|------------------------------------------------|-------|------------------------|
|                        | Internal Ceiling | Lowest occupied | Plasterboard ceiling, carpeted chipboard floor | 9.00  | 41.00                  |

## 11.0 Heat Loss Floors

# Summary for Input Data



| Description  | Type                 | Storey Index    | Construction                       | U-Value (W/m²K) | Shelter Code | Shelter Factor | Kappa (kJ/m²K) | Area (m²) |
|--------------|----------------------|-----------------|------------------------------------|-----------------|--------------|----------------|----------------|-----------|
| Ground Floor | Ground Floor - Solid | Lowest occupied | Suspended concrete floor, carpeted | 0.12            | None         | 0.00           | 75.00          | 41.00     |

## 11.2 Internal Floors

| Description      | Storey Index | Construction                                   | Kappa (kJ/m²K) | Area (m²) |
|------------------|--------------|------------------------------------------------|----------------|-----------|
| Internal Floor 1 | +1           | Plasterboard ceiling, carpeted chipboard floor | 18.00          | 41.00     |

## 12.0 Opening Types

| Description       | Data Source               | Type             | Glazing               | Glazing Gap | Filling Type | G-value | Frame Type | Frame Factor | U Value (W/m²K) |
|-------------------|---------------------------|------------------|-----------------------|-------------|--------------|---------|------------|--------------|-----------------|
| Glazed 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 |             |              | 0.40    |            |              | 1.20            |
| Patio Door        | BFRC, BSI or CERTASS data | Window           | Double Low-E Soft 0.1 |             |              | 0.33    |            |              | 1.20            |

## 13.0 Openings

| Name            | Opening Type      | Location      | Orientation | Area (m²) | Pitch |
|-----------------|-------------------|---------------|-------------|-----------|-------|
| Front Door      | Glazed front Door | External Wall | North       | 2.15      |       |
| Front Elevation | Window            | External Wall | North       | 4.96      |       |
| Rear Elevation  | Patio Door        | External Wall | South       | 5.69      |       |
| Rear Elevation  | Window            | External Wall | South       | 1.99      |       |

## 14.0 Conservatory

## 15.0 Draught Proofing

 %

## 16.0 Draught Lobby

## 17.0 Thermal Bridging

### 17.1 List of Bridges

| Bridge Type                                          | Source Type              | Length | Psi   | Adjusted Reference: | Imported |
|------------------------------------------------------|--------------------------|--------|-------|---------------------|----------|
| E2 Other lintels (including other steel lintels)     | Independently assessed   | 9.74   | 0.05  | 0.05 HiTherm        | No       |
| E3 Sill                                              | Independently assessed   | 8.72   | 0.02  | 0.02 Hill Std.      | No       |
| E4 Jamb                                              | Independently assessed   | 17.45  | 0.03  | 0.03 Hill Std.      | No       |
| E5 Ground floor (normal)                             | Independently assessed   | 18.44  | 0.06  | 0.06 Hill Std.      | No       |
| E6 Intermediate floor within a dwelling              | Independently assessed   | 18.44  | 0.05  | 0.05 Hill Std.      | No       |
| E10 Eaves (insulation at ceiling level)              | Independently assessed   | 10.82  | 0.05  | 0.05 Hill Std.      | No       |
| E12 Gable (insulation at ceiling level)              | Independently assessed   | 7.56   | 0.06  | 0.06 Hill Std.      | No       |
| E16 Corner (normal)                                  | Independently assessed   | 10.14  | 0.05  | 0.05 Hill Std.      | No       |
| P1 Party wall - Ground floor                         | Non Gov Approved Schemes | 7.58   | 0.04  | 0.04 RCD            | No       |
| P2 Party wall - Intermediate floor within a dwelling | Table K1 - Default       | 7.56   | 0.00  | 0.00                | No       |
| P4 Party wall - Roof (insulation at ceiling level)   | Non Gov Approved Schemes | 7.58   | 0.03  | 0.03 RCD            | No       |
| E18 Party wall between dwellings                     | Independently assessed   | 10.14  | -0.13 | -0.13 Hill Std.     | No       |

## 19.0 Mechanical Ventilation

### Mechanical Ventilation

|                                       |                                                                             |
|---------------------------------------|-----------------------------------------------------------------------------|
| Mechanical Ventilation System Present | <input type="text" value="Yes"/>                                            |
| Approved Installation                 | <input type="text" value="No"/>                                             |
| Mechanical Ventilation data Type      | <input type="text" value="Database"/>                                       |
| Type                                  | <input type="text" value="Mechanical extract ventilation - decentralised"/> |
| MV Reference Number                   | <input type="text" value="500776"/>                                         |
| Duct Type                             | <input type="text" value="Rigid"/>                                          |
| Wet Rooms                             | <input type="text" value="3"/>                                              |

### 19.1 Mechanical extract ventilation - Decentralised

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

## 20.0 Fans, Open Fireplaces, Flues

|                                                  |                                |
|--------------------------------------------------|--------------------------------|
| Number of open chimneys                          | <input type="text" value="0"/> |
| Number of open flues                             | <input type="text" value="0"/> |
| Number of chimneys/flues attached to closed fire | <input type="text" value="0"/> |
| Number of flues attached to solid fuel boiler    | <input type="text" value="0"/> |

# Summary for Input Data

|                                          |                                |
|------------------------------------------|--------------------------------|
| Number of flues attached to other heater | <input type="text" value="0"/> |
| Number of blocked chimneys               | <input type="text" value="0"/> |
| Number of intermittent extract fans      | <input type="text" value="0"/> |
| Number of passive vents                  | <input type="text" value="0"/> |
| Number of flueless gas fires             | <input type="text" value="0"/> |

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

|                              |                                          |                                             |
|------------------------------|------------------------------------------|---------------------------------------------|
| <b>22.0 Pressure Testing</b> | <input type="text" value="Yes"/>         |                                             |
| Designed AP <sub>50</sub>    | <input type="text" value="4.00"/>        | m <sup>2</sup> /(h.m <sup>2</sup> ) @ 50 Pa |
| Test Method                  | <input type="text" value="Blower Door"/> |                                             |

|                      |                                 |                 |              |                 |              |
|----------------------|---------------------------------|-----------------|--------------|-----------------|--------------|
| <b>22.0 Lighting</b> | <input type="text" value="No"/> |                 |              |                 |              |
| No Fixed Lighting    | <input type="text" value="No"/> |                 |              |                 |              |
|                      | <b>Name</b>                     | <b>Efficacy</b> | <b>Power</b> | <b>Capacity</b> | <b>Count</b> |
|                      | Downlighters                    | 75.00           | 10.00        | 750.00          | 17           |
|                      | Pendants                        | 75.00           | 10.00        | 750.00          | 4            |
|                      | Bulkhead Lights                 | 75.00           | 10.00        | 750.00          | 4            |

|                            |                                                                 |   |
|----------------------------|-----------------------------------------------------------------|---|
| <b>24.0 Main Heating 1</b> | <input type="text" value="Database"/>                           |   |
| Description                | <input type="text" value="ASHP"/>                               |   |
| Percentage of Heat         | <input type="text" value="100.00"/>                             | % |
| Database Ref. No.          | <input type="text" value="104959"/>                             |   |
| Fuel Type                  | <input type="text" value="Electricity"/>                        |   |
| Model Name                 | <input type="text" value="aroTHERM plus 3.5kW + AI-Not valid"/> |   |
| Manufacturer               | <input type="text" value="Vaillant Group UK Ltd"/>              |   |
| Controls SAP Code          | <input type="text" value="2207"/>                               |   |
| Is MHS Pumped              | <input type="text" value="Pump in heated space"/>               |   |
| Heating Pump Age           | <input type="text" value="2013 or later"/>                      |   |
| Heat Emitter               | <input type="text" value="Radiators and Underfloor"/>           |   |
| Underfloor Heating         | <input type="text" value="Yes - Pipes in thin screed"/>         |   |
| Flow Temperature           | <input type="text" value="Enter value"/>                        |   |
| Flow Temperature Value     | <input type="text" value="45.00"/>                              |   |

|                            |                                   |
|----------------------------|-----------------------------------|
| <b>25.0 Main Heating 2</b> | <input type="text" value="None"/> |
|----------------------------|-----------------------------------|

|                           |                                   |
|---------------------------|-----------------------------------|
| <b>26.0 Heat Networks</b> | <input type="text" value="None"/> |
|---------------------------|-----------------------------------|

|                               |                                   |
|-------------------------------|-----------------------------------|
| <b>27.0 Secondary Heating</b> | <input type="text" value="None"/> |
|-------------------------------|-----------------------------------|

|                                                  |                                             |
|--------------------------------------------------|---------------------------------------------|
| <b>28.0 Water Heating</b>                        |                                             |
| Water Heating                                    | <input type="text" value="Main Heating 1"/> |
| SAP Code                                         | <input type="text" value="901"/>            |
| Flue Gas Heat Recovery System                    | <input type="text" value="No"/>             |
| Waste Water Heat Recovery Instantaneous System 1 | <input type="text" value="No"/>             |
| Waste Water Heat Recovery Instantaneous System 2 | <input type="text" value="No"/>             |
| Waste Water Heat Recovery Storage System         | <input type="text" value="No"/>             |
| Solar Panel                                      | <input type="text" value="No"/>             |
| Water use <= 125 litres/person/day               | <input type="text" value="Yes"/>            |
| Cold Water Source                                | <input type="text" value="From mains"/>     |
| Bath Count                                       | <input type="text" value="1"/>              |
| Immersion Only Heating Hot Water                 | <input type="text" value="Yes"/>            |

|                     |                                           |                          |                         |                  |                     |
|---------------------|-------------------------------------------|--------------------------|-------------------------|------------------|---------------------|
| <b>28.1 Showers</b> |                                           |                          |                         |                  |                     |
| <b>Description</b>  | <b>Shower Type</b>                        | <b>Flow Rate [l/min]</b> | <b>Rated Power [kW]</b> | <b>Connected</b> | <b>Connected To</b> |
| Bathroom            | Combi boiler or unvented hot water system | 8.00                     |                         | No               |                     |

|                                              |
|----------------------------------------------|
| <b>28.3 Waste Water Heat Recovery System</b> |
|----------------------------------------------|

# Summary for Input Data

## 29.0 Hot Water Cylinder

|                          |                                   |         |
|--------------------------|-----------------------------------|---------|
| Hot Water Cylinder       | Hot Water Cylinder                |         |
| Cylinder Stat            | Yes                               |         |
| Cylinder In Heated Space | Yes                               |         |
| Independent Time Control | Yes                               |         |
| Insulation Type          | Measured Loss                     |         |
| Cylinder Volume          | 200.00                            | L       |
| Loss                     | 1.20                              | kWh/day |
| Pipes insulation         | All accessible pipework insulated |         |

## 31.0 Thermal Store

None

## 34.0 Small-scale Hydro

None

## 35.0 Special Features

| Energy Saved | Fuel Saved | Energy Used | Fuel Used | Description | Monthly Air Change Rates | Special Technologies Type | Jan  | Feb  | Mar  | Apr  | May  | Jun  | Jul  | Aug  | Sep  | Oct  | Nov  | Dec  |
|--------------|------------|-------------|-----------|-------------|--------------------------|---------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| 0.00         |            | 0.00        |           |             |                          | CO2 saving feature        | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

## Recommendations

### Lower cost measures

None

### Further measures to achieve even higher standards

None

# Summary for Input Data

|                      |            |                |            |
|----------------------|------------|----------------|------------|
| Plot Reference       | AFF-3B6P-1 | Issued on Date | 27/02/2026 |
| Assessment Reference | 001        | Plot Type Ref  | AFF-3B6P-1 |
| Plot Address         | AFF-3B6P-1 | SAP Version    | 10.2       |

|                                    |          |               |       |      |       |
|------------------------------------|----------|---------------|-------|------|-------|
| SAP Rating                         | 85 B     | DER           | 3.46  | TER  | 11.24 |
| Environmental                      | 97 A     | % DER < TER   |       |      | 69.22 |
| CO <sub>2</sub> Emissions (t/year) | 0.32     | DFEE          | 35.67 | TFEE | 36.53 |
| Compliance Check                   | See BREL | % DFEE < TFEE |       |      | 2.35  |
| % DPER < TPER                      | 38.49    | DPER          | 36.22 | TPER | 58.88 |

|                  |                          |             |           |
|------------------|--------------------------|-------------|-----------|
| Assessor Details | Mr. Matthew Fitzpatrick  | Assessor ID | 7601-0001 |
| Client           | HP 01, Hill Partnerships |             |           |

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

|                                |                      |        |
|--------------------------------|----------------------|--------|
| Orientation                    | North                |        |
| Property Tenture               | ND                   |        |
| Transaction Type               | 6                    |        |
| Terrain Type                   | Suburban             |        |
| 1.0 Property Type              | House, Semi-Detached |        |
| 2.0 Number of Storeys          | 3                    |        |
| 3.0 Date Built                 | 2026                 |        |
| 4.0 Sheltered Sides            | 2                    |        |
| 5.0 Sunlight/Shade             | Average or unknown   |        |
| 6.0 Thermal Mass Parameter     | Precise calculation  |        |
| Thermal Mass                   | 0.00                 | kJ/m²K |
| <hr/>                          |                      |        |
| 7.0 Electricity Tariff         | Standard             |        |
| Smart electricity meter fitted | Yes                  |        |
| Smart gas meter fitted         | Yes                  |        |

| 7.0 Measurements | Ground floor: | Heat Loss Perimeter | Internal Floor Area  | Average Storey Height |
|------------------|---------------|---------------------|----------------------|-----------------------|
|                  | 1st Storey:   | 18.13 m             | 39.59 m <sup>2</sup> | 2.50 m                |
|                  | 2nd Storey:   | 18.13 m             | 39.59 m <sup>2</sup> | 2.70 m                |
|                  |               | 16.41 m             | 21.29 m <sup>2</sup> | 2.40 m                |

|                 |       |                |
|-----------------|-------|----------------|
| 8.0 Living Area | 20.79 | m <sup>2</sup> |
|-----------------|-------|----------------|

| 9.0 External Walls | Description                   | Type         | Construction                                                                                                    | U-Value (W/m <sup>2</sup> K) | Kappa (kJ/m <sup>2</sup> K) | Gross Area(m <sup>2</sup> ) | Nett Area (m <sup>2</sup> ) | Shelter Res | Shelter      | Openings | Area Calculation Type |
|--------------------|-------------------------------|--------------|-----------------------------------------------------------------------------------------------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|-------------|--------------|----------|-----------------------|
|                    | External Wall                 | Cavity Wall  | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.19                         | 110.00                      | 102.03                      | 89.07                       | 0.00        | None         | 12.96    | Enter Gross Area      |
|                    | Timber Stud Wall to Loft Room | Timber Frame | Timber framed wall (one layer of plasterboard)                                                                  | 0.19                         | 9.00                        | 23.65                       | 23.65                       | 0.50        | Room In Roof | 0.00     | Enter Gross Area      |
|                    | Dormer Cheek                  | Timber Frame | Timber framed wall (one layer of plasterboard)                                                                  | 0.19                         | 9.00                        | 4.30                        | 2.94                        | 0.00        | None         | 1.36     | Enter Gross Area      |

| 9.1 Party Walls | Description | Type                            | Construction                                                                                | U-Value (W/m <sup>2</sup> K) | Kappa (kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) | Shelter Res | Shelter |
|-----------------|-------------|---------------------------------|---------------------------------------------------------------------------------------------|------------------------------|-----------------------------|------------------------|-------------|---------|
|                 | Party Wall  | Filled Cavity with Edge Sealing | Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill | 0.00                         | 110.00                      | 47.28                  | 0.00        | None    |

| 9.2 Internal Walls | Description           | Construction                 | Kappa (kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|--------------------|-----------------------|------------------------------|-----------------------------|------------------------|
|                    | Timber stud Partition | Plasterboard on timber frame | 9.00                        | 168.84                 |

| 10.0 External Roofs | Description  | Type                | Construction                             | U-Value (W/m <sup>2</sup> K) | Kappa (kJ/m <sup>2</sup> K) | Gross Area(m <sup>2</sup> ) | Nett Area (m <sup>2</sup> ) | Shelter Code | Shelter Factor | Calculation Type | Openings |
|---------------------|--------------|---------------------|------------------------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|--------------|----------------|------------------|----------|
|                     | Cold Roof    | External Plane Roof | Plasterboard, insulated at ceiling level | 0.11                         | 9.00                        | 10.50                       | 10.50                       | None         | 0.00           | Enter Gross Area | 0.00     |
|                     | Exposed Roof | External Plane Roof | Plasterboard, insulated at ceiling level | 0.11                         | 9.00                        | 18.37                       | 18.37                       | Room In Roof | 0.50           | Enter Gross Area | 0.00     |
|                     | Sloping Roof | External Slope Roof | Plasterboard, insulated slope            | 0.15                         | 9.00                        | 8.70                        | 8.70                        | None         | 0.00           | Enter Gross Area | 0.00     |

# Summary for Input Data



|             |                    |                                   |      |      |      |      |      |      |                  |      |
|-------------|--------------------|-----------------------------------|------|------|------|------|------|------|------------------|------|
| Dormer Roof | External Flat Roof | Plasterboard, insulated flat roof | 0.13 | 9.00 | 2.12 | 2.12 | None | 0.00 | Enter Gross Area | 0.00 |
|-------------|--------------------|-----------------------------------|------|------|------|------|------|------|------------------|------|

## 10.2 Internal Ceilings

| Description      | Storey          | Construction                                   | Kappa | Area (m²) |
|------------------|-----------------|------------------------------------------------|-------|-----------|
| Internal Ceiling | Lowest occupied | Plasterboard ceiling, carpeted chipboard floor | 9.00  | 78.37     |

## 11.0 Heat Loss Floors

| Description  | Type                 | Storey Index    | Construction                       | U-Value (W/m²K) | Shelter Code | Shelter Factor | Kappa (kJ/m²K) | Area (m²) |
|--------------|----------------------|-----------------|------------------------------------|-----------------|--------------|----------------|----------------|-----------|
| Ground Floor | Ground Floor - Solid | Lowest occupied | Suspended concrete floor, carpeted | 0.12            | None         | 0.00           | 75.00          | 39.41     |

## 11.2 Internal Floors

| Description      | Storey Index | Construction                                   | Kappa (kJ/m²K) | Area (m²) |
|------------------|--------------|------------------------------------------------|----------------|-----------|
| Internal Floor 1 | +1           | Plasterboard ceiling, carpeted chipboard floor | 18.00          | 78.37     |

## 12.0 Opening Types

| Description       | Data Source               | Type             | Glazing               | Glazing Gap | Filling Type | G-value | Frame Type | Frame Factor | U Value (W/m²K) |
|-------------------|---------------------------|------------------|-----------------------|-------------|--------------|---------|------------|--------------|-----------------|
| Glazed 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 |             |              | 0.40    |            |              | 1.20            |
| Rooflight         | Manufacturer              | Roof Light       | Double Low-E Soft 0.1 |             |              | 0.63    |            | 0.70         | 1.20            |
| Patio Doors       | BFRC, BSI or CERTASS data | Window           | Double Low-E Soft 0.1 |             |              | 0.33    |            |              | 1.20            |

## 13.0 Openings

| Name            | Opening Type      | Location      | Orientation | Area (m²) | Pitch |
|-----------------|-------------------|---------------|-------------|-----------|-------|
| Front Door      | Glazed front Door | External Wall | North       | 2.12      |       |
| Front Elevation | Window            | External Wall | North       | 3.92      |       |
| Rear Elevation  | Window            | External Wall | South       | 2.17      |       |
| Patio Door      | Patio Doors       | External Wall | South       | 4.75      |       |
| Dormer Window   | Window            | Dormer Cheek  | North       | 1.36      |       |

## 14.0 Conservatory

## 15.0 Draught Proofing

 %

## 16.0 Draught Lobby

## 17.0 Thermal Bridging

### 17.1 List of Bridges

| Bridge Type                                                      | Source Type              | Length | Psi   | Adjusted Reference: | Imported |
|------------------------------------------------------------------|--------------------------|--------|-------|---------------------|----------|
| E2 Other lintels (including other steel lintels)                 | Independently assessed   | 9.63   | 0.05  | 0.05 HiTherm        | No       |
| E3 Sill                                                          | Independently assessed   | 6.36   | 0.02  | 0.02 Hill Std.      | No       |
| E4 Jamb                                                          | Independently assessed   | 22.20  | 0.03  | 0.03 Hill Std.      | No       |
| E5 Ground floor (normal)                                         | Independently assessed   | 18.13  | 0.06  | 0.06 Hill Std.      | No       |
| E6 Intermediate floor within a dwelling                          | Independently assessed   | 34.54  | 0.05  | 0.05 Hill Std.      | No       |
| E10 Eaves (insulation at ceiling level)                          | Independently assessed   | 10.80  | 0.05  | 0.05 Hill Std.      | No       |
| E12 Gable (insulation at ceiling level)                          | Independently assessed   | 5.97   | 0.06  | 0.06 Hill Std.      | No       |
| E16 Corner (normal)                                              | Independently assessed   | 20.90  | 0.05  | 0.05 Hill Std.      | No       |
| E18 Party wall between dwellings                                 | Independently assessed   | 16.72  | -0.06 | -0.06 Hill Std.     | No       |
| P1 Party wall - Ground floor                                     | Non Gov Approved Schemes | 7.32   | 0.04  | 0.04 RCD            | No       |
| P2 Party wall - Intermediate floor within a dwelling             | Table K1 - Default       | 11.16  | 0.00  | 0.00                | No       |
| P4 Party wall - Roof (insulation at ceiling level)               | Non Gov Approved Schemes | 5.41   | 0.03  | 0.03 RCD            | No       |
| E13 Gable (insulation at rafter level)                           | Non Gov Approved Schemes | 1.36   | 0.04  | 0.04 RCD            | No       |
| E17 Corner (inverted – internal area greater than external area) | Independently assessed   | 6.30   | -0.08 | -0.08 Hill Std.     | No       |
| P5 Party wall - Roof (insulation at rafter level)                | Non Gov Approved Schemes | 1.88   | 0.04  | 0.04 RCD            | No       |
| R6 Flat ceiling                                                  | Table K1 - Default       | 10.85  | 0.12  | 0.12                | No       |
| R7 Flat ceiling (inverted)                                       | Table K1 - Default       | 1.34   | 0.12  | 0.12                | No       |
| R8 Roof to wall (rafter)                                         | Table K1 - Default       | 10.04  | 0.12  | 0.12                | No       |
| R9 Roof to wall (flat ceiling)                                   | Table K1 - Default       | 4.53   | 0.32  | 0.32                | No       |

## 19.0 Mechanical Ventilation

### Mechanical Ventilation

|                                       |                                                                             |
|---------------------------------------|-----------------------------------------------------------------------------|
| Mechanical Ventilation System Present | <input type="text" value="Yes"/>                                            |
| Approved Installation                 | <input type="text" value="Yes"/>                                            |
| Mechanical Ventilation data Type      | <input type="text" value="Database"/>                                       |
| Type                                  | <input type="text" value="Mechanical extract ventilation - decentralised"/> |
| MV Reference Number                   | <input type="text" value="500776"/>                                         |
| Duct Type                             | <input type="text" value="Rigid"/>                                          |
| Wet Rooms                             | <input type="text" value="3"/>                                              |

### 19.1 Mechanical extract ventilation - Decentralised

| SFP  | Fan/Room Type       | Count |
|------|---------------------|-------|
| 0.14 | In Room Fan Kitchen | 1     |

# Summary for Input Data

|      |                     |   |
|------|---------------------|---|
| 0.11 | In Room Fan Other   | 2 |
|      | Wet Room            |   |
| 0.00 | In Duct Fan Kitchen | 0 |
| 0.00 | In Duct Fan Other   | 0 |
|      | Wet Room            |   |
| 0.08 | Through Wall Fan    | 0 |
|      | Kitchen             |   |
| 0.08 | Through Wall Fan    | 0 |
|      | Other Wet Room      |   |

## 20.0 Fans, Open Fireplaces, Flues

|                                                  |                                |
|--------------------------------------------------|--------------------------------|
| Number of open chimneys                          | <input type="text" value="0"/> |
| Number of open flues                             | <input type="text" value="0"/> |
| Number of chimneys/flues attached to closed fire | <input type="text" value="0"/> |
| Number of flues attached to solid fuel boiler    | <input type="text" value="0"/> |
| Number of flues attached to other heater         | <input type="text" value="0"/> |
| Number of blocked chimneys                       | <input type="text" value="0"/> |
| Number of intermittent extract fans              | <input type="text" value="0"/> |
| Number of passive vents                          | <input type="text" value="0"/> |
| Number of flueless gas fires                     | <input type="text" value="0"/> |

## 21.0 Fixed Cooling System

## 22.0 Pressure Testing

|                           |                                   |                                             |
|---------------------------|-----------------------------------|---------------------------------------------|
| Designed AP <sub>50</sub> | <input type="text" value="4.00"/> | m <sup>3</sup> /(h.m <sup>2</sup> ) @ 50 Pa |
|---------------------------|-----------------------------------|---------------------------------------------|

|             |                                          |
|-------------|------------------------------------------|
| Test Method | <input type="text" value="Blower Door"/> |
|-------------|------------------------------------------|

## 22.0 Lighting

|                   |                                 |                 |              |                 |              |
|-------------------|---------------------------------|-----------------|--------------|-----------------|--------------|
| No Fixed Lighting | <input type="text" value="No"/> |                 |              |                 |              |
|                   | <b>Name</b>                     | <b>Efficacy</b> | <b>Power</b> | <b>Capacity</b> | <b>Count</b> |
|                   | Lighting                        | 75.00           | 10.00        | 750.00          | 30           |

## 24.0 Main Heating 1

|                        |                                                         |   |
|------------------------|---------------------------------------------------------|---|
| Database               | <input type="text" value="Database"/>                   |   |
| Percentage of Heat     | <input type="text" value="100.00"/>                     | % |
| Database Ref. No.      | <input type="text" value="104436"/>                     |   |
| Fuel Type              | <input type="text" value="Electricity"/>                |   |
| Model Name             | <input type="text" value="aroTHERM plus 7kW + AI"/>     |   |
| Manufacturer           | <input type="text" value="Vaillant Group UK Ltd"/>      |   |
| Controls SAP Code      | <input type="text" value="2207"/>                       |   |
| Is MHS Pumped          | <input type="text" value="Pump in heated space"/>       |   |
| Heating Pump Age       | <input type="text" value="2013 or later"/>              |   |
| Heat Emitter           | <input type="text" value="Radiators and Underfloor"/>   |   |
| Underfloor Heating     | <input type="text" value="Yes - Pipes in thin screed"/> |   |
| Flow Temperature       | <input type="text" value="Enter value"/>                |   |
| Flow Temperature Value | <input type="text" value="45.00"/>                      |   |

## 25.0 Main Heating 2

## 26.0 Heat Networks

## 27.0 Secondary Heating

## 28.0 Water Heating

|                                                  |                                             |
|--------------------------------------------------|---------------------------------------------|
| Water Heating                                    | <input type="text" value="Main Heating 1"/> |
| SAP Code                                         | <input type="text" value="901"/>            |
| Flue Gas Heat Recovery System                    | <input type="text" value="No"/>             |
| Waste Water Heat Recovery Instantaneous System 1 | <input type="text" value="No"/>             |
| Waste Water Heat Recovery Instantaneous System 2 | <input type="text" value="No"/>             |
| Waste Water Heat Recovery Storage System         | <input type="text" value="No"/>             |
| Solar Panel                                      | <input type="text" value="No"/>             |

# Summary for Input Data

|                                    |            |
|------------------------------------|------------|
| Water use <= 125 litres/person/day | Yes        |
| Cold Water Source                  | From mains |
| Bath Count                         | 1          |
| Immersion Only Heating Hot Water   | Yes        |

## 28.1 Showers

| Description | Shower Type                               | Flow Rate<br>[l/min] | Rated Power<br>[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

|                          |                                   |  |  |         |  |
|--------------------------|-----------------------------------|--|--|---------|--|
| Hot Water Cylinder       | Hot Water Cylinder                |  |  |         |  |
| Cylinder Stat            | Yes                               |  |  |         |  |
| Cylinder In Heated Space | Yes                               |  |  |         |  |
| Independent Time Control | Yes                               |  |  |         |  |
| Insulation Type          | Measured Loss                     |  |  |         |  |
| Cylinder Volume          | 250.00                            |  |  | L       |  |
| Loss                     | 1.40                              |  |  | kWh/day |  |
| Pipes insulation         | All accessible pipework insulated |  |  |         |  |

### 31.0 Thermal Store

|      |
|------|
| 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

|                      |           |               |                |            |
|----------------------|-----------|---------------|----------------|------------|
| Plot Reference       | BS-4B8P-1 |               | Issued on Date | 27/02/2026 |
| Assessment Reference | 001       | Plot Type Ref | BS-4B8P-1      |            |
| Plot Address         | BS-4B8P-1 |               | SAP Version    | 10.2       |

|                                    |          |               |       |      |       |
|------------------------------------|----------|---------------|-------|------|-------|
| SAP Rating                         | 82 B     | DER           | 3.68  | TER  | 10.76 |
| Environmental                      | 96 A     | % DER < TER   |       |      | 65.80 |
| CO <sub>2</sub> Emissions (t/year) | 0.5      | DFEE          | 47.35 | TFEE | 50.99 |
| Compliance Check                   | See BREL | % DFEE < TFEE |       |      | 7.15  |
| % DPER < TPER                      | 33.30    | DPER          | 38.17 | TPER | 57.23 |

|                  |                          |             |           |
|------------------|--------------------------|-------------|-----------|
| Assessor Details | Mr. Matthew Fitzpatrick  | Assessor ID | 7601-0001 |
| Client           | HP 01, Hill Partnerships |             |           |

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

|                                |                     |        |
|--------------------------------|---------------------|--------|
| Orientation                    | North               |        |
| Property Tenture               | ND                  |        |
| Transaction Type               | 6                   |        |
| Terrain Type                   | Suburban            |        |
| 1.0 Property Type              | House, Detached     |        |
| 2.0 Number of Storeys          | 2                   |        |
| 3.0 Date Built                 | 2026                |        |
| 4.0 Sheltered Sides            | 2                   |        |
| 5.0 Sunlight/Shade             | Average or unknown  |        |
| 6.0 Thermal Mass Parameter     | Precise calculation |        |
| Thermal Mass                   | 0.00                | kJ/m²K |
| <hr/>                          |                     |        |
| 7.0 Electricity Tariff         | Standard            |        |
| Smart electricity meter fitted | Yes                 |        |
| Smart gas meter fitted         | Yes                 |        |

| 7.0 Measurements | Heat Loss Perimeter | Internal Floor Area  | Unheated Space Floor Area | Average Storey Height |
|------------------|---------------------|----------------------|---------------------------|-----------------------|
| Ground floor:    | 43.49 m             | 77.25 m <sup>2</sup> | 25.34 m <sup>2</sup>      | 2.50 m                |
| 1st Storey:      | 36.99 m             | 74.25 m <sup>2</sup> |                           | 2.70 m                |

|                 |       |                |
|-----------------|-------|----------------|
| 8.0 Living Area | 43.90 | m <sup>2</sup> |
|-----------------|-------|----------------|

| 9.0 External Walls | Description   | Type        | Construction                                                                                                    | U-Value (W/m <sup>2</sup> K) | Kappa (kJ/m <sup>2</sup> K) | Gross Area(m <sup>2</sup> ) | Nett Area (m <sup>2</sup> ) | Shelter Res | Shelter | Openings | Area Calculation Type |
|--------------------|---------------|-------------|-----------------------------------------------------------------------------------------------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|-------------|---------|----------|-----------------------|
|                    | External Wall | Cavity Wall | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.19                         | 110.00                      | 208.60                      | 182.54                      | 0.00        | None    | 26.06    | Enter Gross Area      |

| 9.2 Internal Walls | Description           | Construction                      | Kappa (kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|--------------------|-----------------------|-----------------------------------|-----------------------------|------------------------|
|                    | Timber stud Partition | Plasterboard on timber frame      | 9.00                        | 218.75                 |
|                    | Block Partitions      | Dense block, plasterboard on dabs | 75.00                       | 53.05                  |

| 10.0 External Roofs | Description | Type                | Construction                             | U-Value (W/m <sup>2</sup> K) | Kappa (kJ/m <sup>2</sup> K) | Gross Area(m <sup>2</sup> ) | Nett Area (m <sup>2</sup> ) | Shelter Code | Shelter Factor | Calculation Type | Openings |
|---------------------|-------------|---------------------|------------------------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|--------------|----------------|------------------|----------|
|                     | Cold Roof   | External Plane Roof | Plasterboard, insulated at ceiling level | 0.11                         | 9.00                        | 74.25                       | 74.25                       | None         | 0.00           | Enter Gross Area | 0.00     |
|                     | Flat Roof   | External Flat Roof  | Plasterboard, insulated flat roof        | 0.13                         | 9.00                        | 30.15                       | 30.15                       | None         | 0.00           | Enter Gross Area | 0.00     |

| 10.2 Internal Ceilings | Description      | Storey          | Construction                                   | Kappa | Area (m <sup>2</sup> ) |
|------------------------|------------------|-----------------|------------------------------------------------|-------|------------------------|
|                        | Internal Ceiling | Lowest occupied | Plasterboard ceiling, carpeted chipboard floor | 9.00  | 74.25                  |

| 11.0 Heat Loss Floors | Description  | Type                 | Storey Index    | Construction                       | U-Value (W/m <sup>2</sup> K) | Shelter Code | Shelter Factor | Kappa (kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|-----------------------|--------------|----------------------|-----------------|------------------------------------|------------------------------|--------------|----------------|-----------------------------|------------------------|
|                       | Ground Floor | Ground Floor - Solid | Lowest occupied | Suspended concrete floor, carpeted | 0.12                         | None         | 0.00           | 75.00                       | 77.25                  |

# Summary for Input Data

Floor Over Garage      Exposed Floor - Timber      +1      Timber exposed floor, insulation between joists      0.12      None      0.00      20.00      25.34

## 11.2 Internal Floors

| Description      | Storey Index | Construction                                   | Kappa (kJ/m²K) | Area (m²) |
|------------------|--------------|------------------------------------------------|----------------|-----------|
| Internal Floor 1 | +1           | Plasterboard ceiling, carpeted chipboard floor | 18.00          | 74.25     |

## 12.0 Opening Types

| Description              | Data Source                            | Type                    | Glazing                                        | Glazing Gap | Filling Type | G-value      | Frame Type | Frame Factor | U Value (W/m²K) |
|--------------------------|----------------------------------------|-------------------------|------------------------------------------------|-------------|--------------|--------------|------------|--------------|-----------------|
| Glazed front Door Window | Manufacturer BFCR, BSI or CERTASS data | Half Glazed Door Window | Double Low-E Soft 0.1<br>Double Low-E Soft 0.1 |             |              | 0.63<br>0.40 |            | 0.70         | 1.20<br>1.20    |
| Rooflight                | Manufacturer BFCR, BSI or CERTASS data | Roof Light              | Double Low-E Soft 0.1                          |             |              | 0.63         |            | 0.70         | 1.20            |
| Patio Doors              |                                        | Window                  | Double Low-E Soft 0.1                          |             |              | 0.33         |            |              | 1.20            |

## 13.0 Openings

| Name            | Opening Type      | Location      | Orientation | Area (m²) | Pitch |
|-----------------|-------------------|---------------|-------------|-----------|-------|
| Front Door      | Glazed front Door | External Wall | North       | 2.12      |       |
| Front Elevation | Window            | External Wall | North       | 8.23      |       |
| Rear Elevation  | Window            | External Wall | South       | 5.64      |       |
| Patio Doors     | Window            | External Wall | South       | 8.53      |       |
| RHS Windows     | Window            | External Wall | East        | 0.77      |       |
| LHS Windows     | Window            | External Wall | West        | 0.77      |       |

## 14.0 Conservatory

None

## 15.0 Draught Proofing

100 %

## 16.0 Draught Lobby

No

## 17.0 Thermal Bridging

Calculate Bridges

## 17.1 List of Bridges

| Bridge Type                                                      | Source Type            | Length | Psi   | Adjusted Reference: | Imported |
|------------------------------------------------------------------|------------------------|--------|-------|---------------------|----------|
| E2 Other lintels (including other steel lintels)                 | Independently assessed | 17.60  | 0.05  | 0.05 HiTherm        | No       |
| E3 Sill                                                          | Independently assessed | 11.99  | 0.02  | 0.02 Hill Std.      | No       |
| E4 Jamb                                                          | Independently assessed | 30.40  | 0.03  | 0.03 Hill Std.      | No       |
| E5 Ground floor (normal)                                         | Independently assessed | 43.49  | 0.06  | 0.06 Hill Std.      | No       |
| E6 Intermediate floor within a dwelling                          | Independently assessed | 36.99  | 0.05  | 0.05 Hill Std.      | No       |
| E10 Eaves (insulation at ceiling level)                          | Independently assessed | 22.62  | 0.05  | 0.05 Hill Std.      | No       |
| E12 Gable (insulation at ceiling level)                          | Independently assessed | 14.36  | 0.06  | 0.06 Hill Std.      | No       |
| E16 Corner (normal)                                              | Independently assessed | 33.50  | 0.05  | 0.05 Hill Std.      | No       |
| E17 Corner (inverted – internal area greater than external area) | Independently assessed | 10.20  | -0.08 | -0.08 Hill Std.     | No       |
| E20 Exposed floor (normal)                                       | Table K1 - Default     | 19.69  | 0.32  | 0.32                | No       |
| E21 Exposed floor (inverted)                                     | Table K1 - Default     | 12.53  | 0.32  | 0.32                | No       |
| E14 Flat roof                                                    | Table K1 - Default     | 3.64   | 0.16  | 0.16                | No       |
| E15 Flat roof with parapet                                       | Table K1 - Default     | 15.61  | 0.30  | 0.30                | No       |
| E24 Eaves (insulation at ceiling level - inverted)               | Table K1 - Default     | 5.56   | 0.15  | 0.15                | No       |

## 19.0 Mechanical Ventilation

### Mechanical Ventilation

|                                       |                                                |
|---------------------------------------|------------------------------------------------|
| Mechanical Ventilation System Present | Yes                                            |
| Approved Installation                 | Yes                                            |
| Mechanical Ventilation data Type      | Database                                       |
| Type                                  | Mechanical extract ventilation - decentralised |
| MV Reference Number                   | 500776                                         |
| Duct Type                             | Rigid                                          |
| Wet Rooms                             | 5                                              |

## 19.1 Mechanical extract ventilation - Decentralised

| SFP  | Fan/Room Type                      | Count |
|------|------------------------------------|-------|
| 0.14 | In Room Fan<br>Kitchen             | 1     |
| 0.11 | In Room Fan Other<br>Wet Room      | 4     |
| 0.00 | In Duct Fan Kitchen                | 0     |
| 0.00 | In Duct Fan Other<br>Wet Room      | 0     |
| 0.08 | Through Wall Fan<br>Kitchen        | 0     |
| 0.08 | Through Wall Fan<br>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**

**22.0 Pressure Testing**

|                           |             |                                             |
|---------------------------|-------------|---------------------------------------------|
| Designed AP <sub>50</sub> | 4.00        | m <sup>2</sup> /(h.m <sup>2</sup> ) @ 50 Pa |
| Test Method               | Blower Door |                                             |

**22.0 Lighting**  
No Fixed Lighting

| Name     | Efficacy | Power | Capacity | Count |
|----------|----------|-------|----------|-------|
| Lighting | 75.00    | 10.00 | 750.00   | 30    |

**24.0 Main Heating 1**

Percentage of Heat  %

Database Ref. No.

Fuel Type

Model Name

Manufacturer

Controls SAP Code

Is MHS Pumped

Heating Pump Age

Heat Emitter

Underfloor Heating

Flow Temperature

Flow Temperature Value

**25.0 Main Heating 2**

**26.0 Heat Networks**

**27.0 Secondary Heating**

**28.0 Water Heating**

Water Heating

SAP Code

Flue Gas Heat Recovery System

Waste Water Heat Recovery Instantaneous System 1

Waste Water Heat Recovery Instantaneous System 2

Waste Water Heat Recovery Storage System

Solar Panel

Water use <= 125 litres/person/day

Cold Water Source

Bath Count

Immersion Only Heating Hot Water

## 28.1 Showers

| Description | Shower Type                               | Flow Rate<br>[l/min] | Rated Power<br>[kW] | Connected | Connected To |
|-------------|-------------------------------------------|----------------------|---------------------|-----------|--------------|
| Bathroom    | Combi boiler or unvented hot water system | 8.00                 |                     | No        |              |
| En-suite    | Combi boiler or unvented hot water system | 8.00                 |                     | No        |              |

# Summary for Input Data

## 28.3 Waste Water Heat Recovery System

### 29.0 Hot Water Cylinder

Cylinder Stat

Hot Water Cylinder

Yes

Cylinder In Heated Space

Yes

Independent Time Control

Yes

Insulation Type

Measured Loss

Cylinder Volume

250.00

L

Loss

1.40

kWh/day

Pipes insulation

All accessible pipework insulated

### 31.0 Thermal Store

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

|                      |         |               |                |            |
|----------------------|---------|---------------|----------------|------------|
| Plot Reference       | BS-5B9P |               | Issued on Date | 27/02/2026 |
| Assessment Reference | 001     | Plot Type Ref | BS-5B9P        |            |
| Plot Address         | BS-5B9P |               | SAP Version    | 10.2       |

|                                    |          |               |       |      |       |
|------------------------------------|----------|---------------|-------|------|-------|
| SAP Rating                         | 84 B     | DER           | 3.15  | TER  | 8.70  |
| Environmental                      | 97 A     | % DER < TER   |       |      | 63.79 |
| CO <sub>2</sub> Emissions (t/year) | 0.6      | DFEE          | 40.82 | TFEE | 41.88 |
| Compliance Check                   | See BREL | % DFEE < TFEE |       |      | 2.53  |
| % DPER < TPER                      | 28.60    | DPER          | 32.78 | TPER | 45.91 |

|                  |                          |             |           |
|------------------|--------------------------|-------------|-----------|
| Assessor Details | Mr. Matthew Fitzpatrick  | Assessor ID | 7601-0001 |
| Client           | HP 01, Hill Partnerships |             |           |

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

|                            |                     |       |
|----------------------------|---------------------|-------|
| Orientation                | North               |       |
| Property Tenture           | ND                  |       |
| Transaction Type           | 6                   |       |
| Terrain Type               | Suburban            |       |
| 1.0 Property Type          | House, Detached     |       |
| 2.0 Number of Storeys      | 2                   |       |
| 3.0 Date Built             | 2026                |       |
| 4.0 Sheltered Sides        | 2                   |       |
| 5.0 Sunlight/Shade         | Average or unknown  |       |
| 6.0 Thermal Mass Parameter | Precise calculation |       |
| Thermal Mass               | 0.00                | kJ/m² |

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

| 7.0 Measurements | Ground floor: | Heat Loss Perimeter | Internal Floor Area | Average Storey Height |
|------------------|---------------|---------------------|---------------------|-----------------------|
|                  | 1st Storey:   | 48.80 m             | 105.74 m²           | 2.50 m                |
|                  |               | 47.35 m             | 104.19 m²           | 2.70 m                |

|                 |       |    |
|-----------------|-------|----|
| 8.0 Living Area | 18.44 | m² |
|-----------------|-------|----|

| 9.0 External Walls | Description   | Type        | Construction                                                                                                    | U-Value (W/m²K) | Kappa (kJ/m²K) | Gross Area(m²) | Nett Area (m²) | Shelter Res | Shelter | Openings | Area Calculation Type |
|--------------------|---------------|-------------|-----------------------------------------------------------------------------------------------------------------|-----------------|----------------|----------------|----------------|-------------|---------|----------|-----------------------|
|                    | External Wall | Cavity Wall | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.19            | 110.00         | 249.84         | 205.84         | 0.00        | None    | 44.00    | Enter Gross Area      |

| 9.2 Internal Walls | Description           | Construction                      | Kappa (kJ/m²K) | Area (m²) |
|--------------------|-----------------------|-----------------------------------|----------------|-----------|
|                    | Timber stud Partition | Plasterboard on timber frame      | 9.00           | 287.91    |
|                    | Block Partitions      | Dense block, plasterboard on dabs | 75.00          | 88.92     |

| 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 | 0.11            | 9.00           | 104.19         | 104.19         | None         | 0.00           | Enter Gross Area | 0.00     |
|                     | Bay Roof    | External Plane Roof | Plasterboard, insulated at ceiling level | 0.11            | 9.00           | 1.68           | 1.68           | None         | 0.00           | Enter Gross Area | 0.00     |

| 10.2 Internal Ceilings | Description      | Storey          | Construction                                   | Kappa | Area (m²) |
|------------------------|------------------|-----------------|------------------------------------------------|-------|-----------|
|                        | Internal Ceiling | Lowest occupied | Plasterboard ceiling, carpeted chipboard floor | 9.00  | 104.19    |

| 11.0 Heat Loss Floors | Description  | Type                 | Storey Index    | Construction                       | U-Value (W/m²K) | Shelter Code | Shelter Factor | Kappa (kJ/m²K) | Area (m²) |
|-----------------------|--------------|----------------------|-----------------|------------------------------------|-----------------|--------------|----------------|----------------|-----------|
|                       | Ground Floor | Ground Floor - Solid | Lowest occupied | Suspended concrete floor, carpeted | 0.12            | None         | 0.00           | 75.00          | 105.74    |

## 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          | 104.19    |

## 12.0 Opening Types

| Description       | Data Source               | Type             | Glazing               | Glazing Gap | Filling Type | G-value | Frame Type | Frame Factor | U Value (W/m²K) |
|-------------------|---------------------------|------------------|-----------------------|-------------|--------------|---------|------------|--------------|-----------------|
| Glazed 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 |             |              | 0.40    |            |              | 1.20            |
| Rooflight         | Manufacturer              | Roof Light       | Double Low-E Soft 0.1 |             |              | 0.63    |            | 0.70         | 1.20            |
| Patio Doors       | BFRC, BSI or CERTASS data | Window           | Double Low-E Soft 0.1 |             |              | 0.33    |            |              | 1.20            |

## 13.0 Openings

| Name             | Opening Type      | Location      | Orientation | Area (m²) | Pitch |
|------------------|-------------------|---------------|-------------|-----------|-------|
| Front Door       | Glazed front Door | External Wall | North       | 2.12      |       |
| Front Elevation  | Window            | External Wall | North       | 14.28     |       |
| Rear Elevation   | Window            | External Wall | South       | 2.78      |       |
| Rear Door        | Glazed front Door | External Wall | South       | 2.12      |       |
| Side Patio Doors | Patio Doors       | External Wall | East        | 2.81      |       |
| RHS Windows      | Window            | External Wall | East        | 7.75      |       |
| LHS Windows      | Window            | External Wall | West        | 0.75      |       |
| Rear Patio Doors | Patio Doors       | External Wall | South       | 11.38     |       |

## 14.0 Conservatory

## 15.0 Draught Proofing

 %

## 16.0 Draught Lobby

## 17.0 Thermal Bridging

## 17.1 List of Bridges

| Bridge Type                                                      | Source Type            | Length | Psi   | Adjusted Reference: | Imported |
|------------------------------------------------------------------|------------------------|--------|-------|---------------------|----------|
| E2 Other lintels (including other steel lintels)                 | Independently assessed | 28.79  | 0.05  | 0.05 HiTherm        | No       |
| E3 Sill                                                          | Independently assessed | 19.01  | 0.02  | 0.02 Hill Std.      | No       |
| E4 Jamb                                                          | Independently assessed | 63.74  | 0.03  | 0.03 Hill Std.      | No       |
| E5 Ground floor (normal)                                         | Independently assessed | 48.80  | 0.06  | 0.06 Hill Std.      | No       |
| E6 Intermediate floor within a dwelling                          | Independently assessed | 47.35  | 0.05  | 0.05 Hill Std.      | No       |
| E10 Eaves (insulation at ceiling level)                          | Independently assessed | 33.70  | 0.05  | 0.05 Hill Std.      | No       |
| E12 Gable (insulation at ceiling level)                          | Independently assessed | 17.37  | 0.06  | 0.06 Hill Std.      | No       |
| E16 Corner (normal)                                              | Independently assessed | 36.20  | 0.05  | 0.05 Hill Std.      | No       |
| E17 Corner (inverted – internal area greater than external area) | Independently assessed | 12.70  | -0.08 | -0.08 Hill Std.     | No       |
| E24 Eaves (insulation at ceiling level - inverted)               | Table K1 - Default     | 2.18   | 0.15  | 0.15                | No       |

## 19.0 Mechanical Ventilation

### Mechanical Ventilation

|                                       |                                                                             |
|---------------------------------------|-----------------------------------------------------------------------------|
| Mechanical Ventilation System Present | <input type="text" value="Yes"/>                                            |
| Approved Installation                 | <input type="text" value="Yes"/>                                            |
| Mechanical Ventilation data Type      | <input type="text" value="Database"/>                                       |
| Type                                  | <input type="text" value="Mechanical extract ventilation - decentralised"/> |
| MV Reference Number                   | <input type="text" value="500776"/>                                         |
| Duct Type                             | <input type="text" value="Rigid"/>                                          |
| Wet Rooms                             | <input type="text" value="6"/>                                              |

## 19.1 Mechanical extract ventilation - Decentralised

| SFP  | Fan/Room Type                   | Count |
|------|---------------------------------|-------|
| 0.14 | In Room Fan Kitchen             | 1     |
| 0.11 | In Room Fan Other Wet Room      | 5     |
| 0.00 | In Duct Fan Kitchen             | 0     |
| 0.00 | In Duct Fan Other Wet Room      | 0     |
| 0.08 | Through Wall Fan Kitchen        | 0     |
| 0.08 | Through Wall Fan Other Wet Room | 0     |

## 20.0 Fans, Open Fireplaces, Flues

|                                                  |                                |
|--------------------------------------------------|--------------------------------|
| Number of open chimneys                          | <input type="text" value="0"/> |
| Number of open flues                             | <input type="text" value="0"/> |
| Number of chimneys/flues attached to closed fire | <input type="text" value="0"/> |
| Number of flues attached to solid fuel boiler    | <input type="text" value="0"/> |
| Number of flues attached to other heater         | <input type="text" value="0"/> |

# Summary for Input Data

|                                     |                                |
|-------------------------------------|--------------------------------|
| Number of blocked chimneys          | <input type="text" value="0"/> |
| Number of intermittent extract fans | <input type="text" value="0"/> |
| Number of passive vents             | <input type="text" value="0"/> |
| Number of flueless gas fires        | <input type="text" value="0"/> |

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

|                              |                                          |                                             |
|------------------------------|------------------------------------------|---------------------------------------------|
| <b>22.0 Pressure Testing</b> | <input type="text" value="Yes"/>         |                                             |
| Designed AP <sub>50</sub>    | <input type="text" value="4.00"/>        | m <sup>3</sup> /(h.m <sup>2</sup> ) @ 50 Pa |
| Test Method                  | <input type="text" value="Blower Door"/> |                                             |

|                      |                                 |                          |                       |                           |                    |
|----------------------|---------------------------------|--------------------------|-----------------------|---------------------------|--------------------|
| <b>22.0 Lighting</b> | <input type="text" value="No"/> |                          |                       |                           |                    |
| No Fixed Lighting    | <input type="text" value="No"/> |                          |                       |                           |                    |
|                      | <b>Name</b><br>Lighting         | <b>Efficacy</b><br>75.00 | <b>Power</b><br>10.00 | <b>Capacity</b><br>750.00 | <b>Count</b><br>30 |

|                            |                                                         |   |
|----------------------------|---------------------------------------------------------|---|
| <b>24.0 Main Heating 1</b> | <input type="text" value="Database"/>                   |   |
| Percentage of Heat         | <input type="text" value="100.00"/>                     | % |
| Database Ref. No.          | <input type="text" value="104983"/>                     |   |
| Fuel Type                  | <input type="text" value="Electricity"/>                |   |
| Model Name                 | <input type="text" value="aroTHERM plus 10kW + AI"/>    |   |
| Manufacturer               | <input type="text" value="Vaillant Group UK Ltd"/>      |   |
| Controls SAP Code          | <input type="text" value="2207"/>                       |   |
| Is MHS Pumped              | <input type="text" value="Pump in heated space"/>       |   |
| Heating Pump Age           | <input type="text" value="2013 or later"/>              |   |
| Heat Emitter               | <input type="text" value="Radiators and Underfloor"/>   |   |
| Underfloor Heating         | <input type="text" value="Yes - Pipes in thin screed"/> |   |
| Flow Temperature           | <input type="text" value="Enter value"/>                |   |
| Flow Temperature Value     | <input type="text" value="45.00"/>                      |   |

|                            |                                   |
|----------------------------|-----------------------------------|
| <b>25.0 Main Heating 2</b> | <input type="text" value="None"/> |
|----------------------------|-----------------------------------|

|                           |                                   |
|---------------------------|-----------------------------------|
| <b>26.0 Heat Networks</b> | <input type="text" value="None"/> |
|---------------------------|-----------------------------------|

|                               |                                   |
|-------------------------------|-----------------------------------|
| <b>27.0 Secondary Heating</b> | <input type="text" value="None"/> |
|-------------------------------|-----------------------------------|

|                                                  |                                             |
|--------------------------------------------------|---------------------------------------------|
| <b>28.0 Water Heating</b>                        | <input type="text" value="Main Heating 1"/> |
| Water Heating                                    | <input type="text" value="Main Heating 1"/> |
| SAP Code                                         | <input type="text" value="901"/>            |
| Flue Gas Heat Recovery System                    | <input type="text" value="No"/>             |
| Waste Water Heat Recovery Instantaneous System 1 | <input type="text" value="No"/>             |
| Waste Water Heat Recovery Instantaneous System 2 | <input type="text" value="No"/>             |
| Waste Water Heat Recovery Storage System         | <input type="text" value="No"/>             |
| Solar Panel                                      | <input type="text" value="No"/>             |
| Water use <= 125 litres/person/day               | <input type="text" value="Yes"/>            |
| Cold Water Source                                | <input type="text" value="From mains"/>     |
| Bath Count                                       | <input type="text" value="1"/>              |
| Immersion Only Heating Hot Water                 | <input type="text" value="Yes"/>            |

|                     |                                           |                             |                            |                  |                     |
|---------------------|-------------------------------------------|-----------------------------|----------------------------|------------------|---------------------|
| <b>28.1 Showers</b> |                                           |                             |                            |                  |                     |
| <b>Description</b>  | <b>Shower Type</b>                        | <b>Flow Rate</b><br>[l/min] | <b>Rated Power</b><br>[kW] | <b>Connected</b> | <b>Connected To</b> |
| Bathroom            | Combi boiler or unvented hot water system | 8.00                        |                            | No               |                     |
| En-suite 1          | Combi boiler or unvented hot water system | 8.00                        |                            | No               |                     |
| En-suite 2          | Combi boiler or unvented hot water system | 8.00                        |                            | No               |                     |

## 28.3 Waste Water Heat Recovery System

|                                |                                                 |
|--------------------------------|-------------------------------------------------|
| <b>29.0 Hot Water Cylinder</b> | <input type="text" value="Hot Water Cylinder"/> |
|--------------------------------|-------------------------------------------------|

# Summary for Input Data

|                          |                                                                |         |
|--------------------------|----------------------------------------------------------------|---------|
| Cylinder Stat            | <input type="text" value="Yes"/>                               |         |
| Cylinder In Heated Space | <input type="text" value="Yes"/>                               |         |
| Independent Time Control | <input type="text" value="Yes"/>                               |         |
| Insulation Type          | <input type="text" value="Measured Loss"/>                     |         |
| Cylinder Volume          | <input type="text" value="300.00"/>                            | L       |
| Loss                     | <input type="text" value="1.60"/>                              | kWh/day |
| Pipes insulation         | <input type="text" value="All accessible pipework insulated"/> |         |

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## 31.0 Thermal Store

---

## 34.0 Small-scale Hydro

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

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## Recommendations

### Lower cost measures

None

### Further measures to achieve even higher standards

None

# Summary for Input Data

|                      |               |               |                |            |
|----------------------|---------------|---------------|----------------|------------|
| Plot Reference       | BS-AFF-2B4P-1 |               | Issued on Date | 27/02/2026 |
| Assessment Reference | 001           | Plot Type Ref | BS-AFF-2B4P-1  |            |
| Plot Address         | BS-AFF-2B4P-1 |               | SAP Version    | 10.2       |

|                                    |          |               |       |      |       |
|------------------------------------|----------|---------------|-------|------|-------|
| SAP Rating                         | 84 B     | DER           | 3.88  | TER  | 12.54 |
| Environmental                      | 97 A     | % DER < TER   |       |      | 69.06 |
| CO <sub>2</sub> Emissions (t/year) | 0.28     | DFEE          | 40.22 | TFEE | 41.63 |
| Compliance Check                   | See BREL | % DFEE < TFEE |       |      | 3.40  |
| % DPER < TPER                      | 38.13    | DPER          | 40.56 | TPER | 65.56 |

|                  |                          |             |           |
|------------------|--------------------------|-------------|-----------|
| Assessor Details | Mr. Matthew Fitzpatrick  | Assessor ID | 7601-0001 |
| Client           | HP 01, Hill Partnerships |             |           |

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

|                            |                     |        |
|----------------------------|---------------------|--------|
| Orientation                | North               |        |
| Property Tenture           | ND                  |        |
| Transaction Type           | 6                   |        |
| Terrain Type               | Suburban            |        |
| 1.0 Property Type          | House, Detached     |        |
| 2.0 Number of Storeys      | 2                   |        |
| 3.0 Date Built             | 2026                |        |
| 4.0 Sheltered Sides        | 2                   |        |
| 5.0 Sunlight/Shade         | Average or unknown  |        |
| 6.0 Thermal Mass Parameter | Precise calculation |        |
| Thermal Mass               | 0.00                | kJ/m²K |

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

| 7.0 Measurements | Ground floor:<br>1st Storey: | Heat Loss Perimeter<br>25.52 m<br>25.52 m | Internal Floor Area<br>39.78 m <sup>2</sup><br>39.78 m <sup>2</sup> | Average Storey Height<br>2.50 m<br>2.70 m |
|------------------|------------------------------|-------------------------------------------|---------------------------------------------------------------------|-------------------------------------------|
|------------------|------------------------------|-------------------------------------------|---------------------------------------------------------------------|-------------------------------------------|

|                 |       |                |
|-----------------|-------|----------------|
| 8.0 Living Area | 17.25 | m <sup>2</sup> |
|-----------------|-------|----------------|

| 9.0 External Walls | Description   | Type        | Construction                                                                                                    | U-Value<br>(W/m <sup>2</sup> K) | Kappa<br>(kJ/m <sup>2</sup> K) | Gross<br>Area(m <sup>2</sup> ) | Nett Area<br>(m <sup>2</sup> ) | Shelter<br>Res | Shelter | Openings | Area Calculation<br>Type |
|--------------------|---------------|-------------|-----------------------------------------------------------------------------------------------------------------|---------------------------------|--------------------------------|--------------------------------|--------------------------------|----------------|---------|----------|--------------------------|
|                    | External Wall | Cavity Wall | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.19                            | 110.00                         | 132.69                         | 113.11                         | 0.00           | None    | 19.58    | Enter Gross Area         |

| 9.2 Internal Walls | Description           | Construction                 | Kappa<br>(kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|--------------------|-----------------------|------------------------------|--------------------------------|------------------------|
|                    | Timber stud Partition | Plasterboard on timber frame | 9.00                           | 166.85                 |

| 10.0 External Roofs | Description | Type                | Construction                             | U-Value<br>(W/m <sup>2</sup> K) | Kappa<br>(kJ/m <sup>2</sup> K) | Gross<br>Area(m <sup>2</sup> ) | Nett Area<br>(m <sup>2</sup> ) | Shelter<br>Code | Shelter<br>Factor | Calculation<br>Type | Openings |
|---------------------|-------------|---------------------|------------------------------------------|---------------------------------|--------------------------------|--------------------------------|--------------------------------|-----------------|-------------------|---------------------|----------|
|                     | Cold Roof   | External Plane Roof | Plasterboard, insulated at ceiling level | 0.11                            | 9.00                           | 39.78                          | 39.78                          | None            | 0.00              | Enter Gross Area    | 0.00     |

| 10.2 Internal Ceilings | Description      | Storey<br>Lowest occupied | Construction                                   | Kappa | Area (m <sup>2</sup> ) |
|------------------------|------------------|---------------------------|------------------------------------------------|-------|------------------------|
|                        | Internal Ceiling |                           | Plasterboard ceiling, carpeted chipboard floor | 9.00  | 39.78                  |

| 11.0 Heat Loss Floors | Description  | Type                 | Storey Index    | Construction                       | U-Value<br>(W/m <sup>2</sup> K) | Shelter Code | Shelter<br>Factor | Kappa<br>(kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|-----------------------|--------------|----------------------|-----------------|------------------------------------|---------------------------------|--------------|-------------------|--------------------------------|------------------------|
|                       | Ground Floor | Ground Floor - Solid | Lowest occupied | Suspended concrete floor, carpeted | 0.12                            | None         | 0.00              | 75.00                          | 39.78                  |

| 11.2 Internal Floors | Description | Storey Index | Construction | Kappa<br>(kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|----------------------|-------------|--------------|--------------|--------------------------------|------------------------|
|----------------------|-------------|--------------|--------------|--------------------------------|------------------------|

# Summary for Input Data

Internal Floor 1 +1 Plasterboard ceiling, carpeted chipboard floor 18.00 39.78

## 12.0 Opening Types

| Description              | Data Source                           | Type                    | Glazing                                        | Glazing Gap | Filling Type | G-value      | Frame Type | Frame Factor | U Value (W/m²K) |
|--------------------------|---------------------------------------|-------------------------|------------------------------------------------|-------------|--------------|--------------|------------|--------------|-----------------|
| Glazed front Door Window | Manufacturer BFR, BSI or CERTASS data | Half Glazed Door Window | Double Low-E Soft 0.1<br>Double Low-E Soft 0.1 |             |              | 0.63<br>0.40 |            | 0.70         | 1.20<br>1.20    |
| Rooflight Patio Doors    | Manufacturer BFR, BSI or CERTASS data | Roof Light Window       | Double Low-E Soft 0.1<br>Double Low-E Soft 0.1 |             |              | 0.63<br>0.33 |            | 0.70         | 1.20<br>1.20    |

## 13.0 Openings

| Name            | Opening Type      | Location      | Orientation | Area (m²) | Pitch |
|-----------------|-------------------|---------------|-------------|-----------|-------|
| Front Door      | Glazed front Door | External Wall | North       | 2.14      |       |
| Front Elevation | Window            | External Wall | North       | 6.14      |       |
| Rear Elevation  | Window            | External Wall | South       | 3.33      |       |
| Patio Doors     | Patio Doors       | External Wall | South       | 6.62      |       |
| RHS Windows     | Window            | External Wall | East        | 1.36      |       |

## 14.0 Conservatory

None

## 15.0 Draught Proofing

100 %

## 16.0 Draught Lobby

No

## 17.0 Thermal Bridging

Calculate Bridges

### 17.1 List of Bridges

| Bridge Type                                      | Source Type            | Length | Psi  | Adjusted Reference: | Imported |
|--------------------------------------------------|------------------------|--------|------|---------------------|----------|
| E2 Other lintels (including other steel lintels) | Independently assessed | 13.27  | 0.05 | 0.05 HiTherm        | No       |
| E3 Sill                                          | Independently assessed | 12.25  | 0.02 | 0.02 Hill Std.      | No       |
| E4 Jamb                                          | Independently assessed | 33.90  | 0.03 | 0.03 Hill Std.      | No       |
| E5 Ground floor (normal)                         | Independently assessed | 25.52  | 0.06 | 0.06 Hill Std.      | No       |
| E6 Intermediate floor within a dwelling          | Independently assessed | 25.52  | 0.05 | 0.05 Hill Std.      | No       |
| E10 Eaves (insulation at ceiling level)          | Independently assessed | 14.67  | 0.05 | 0.05 Hill Std.      | No       |
| E12 Gable (insulation at ceiling level)          | Independently assessed | 10.85  | 0.06 | 0.06 Hill Std.      | No       |
| E16 Corner (normal)                              | Independently assessed | 20.80  | 0.05 | 0.05 Hill Std.      | No       |

## 19.0 Mechanical Ventilation

### Mechanical Ventilation

|                                       |                                                |
|---------------------------------------|------------------------------------------------|
| Mechanical Ventilation System Present | Yes                                            |
| Approved Installation                 | Yes                                            |
| Mechanical Ventilation data Type      | Database                                       |
| Type                                  | Mechanical extract ventilation - decentralised |
| MV Reference Number                   | 500776                                         |
| Duct Type                             | Rigid                                          |
| Wet Rooms                             | 3                                              |

### 19.1 Mechanical extract ventilation - Decentralised

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

## 20.0 Fans, Open Fireplaces, Flues

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

# Summary for Input Data

|                                                  |                                                         |                                             |                         |                           |                     |
|--------------------------------------------------|---------------------------------------------------------|---------------------------------------------|-------------------------|---------------------------|---------------------|
| <b>21.0 Fixed Cooling System</b>                 | <input type="text" value="No"/>                         |                                             |                         |                           |                     |
| <b>22.0 Pressure Testing</b>                     | <input type="text" value="Yes"/>                        |                                             |                         |                           |                     |
| Designed AP <sub>50</sub>                        | <input type="text" value="4.00"/>                       | m <sup>2</sup> /(h.m <sup>2</sup> ) @ 50 Pa |                         |                           |                     |
| Test Method                                      | <input type="text" value="Blower Door"/>                |                                             |                         |                           |                     |
| <b>22.0 Lighting</b>                             | <input type="text" value="No"/>                         |                                             |                         |                           |                     |
| No Fixed Lighting                                | <input type="text" value="No"/>                         |                                             |                         |                           |                     |
|                                                  | <b>Name</b><br>Lighting                                 | <b>Efficacy</b><br>75.00                    | <b>Power</b><br>10.00   | <b>Capacity</b><br>750.00 | <b>Count</b><br>30  |
| <b>24.0 Main Heating 1</b>                       | <input type="text" value="Database"/>                   |                                             |                         |                           |                     |
| Percentage of Heat                               | <input type="text" value="100.00"/> %                   |                                             |                         |                           |                     |
| Database Ref. No.                                | <input type="text" value="104432"/>                     |                                             |                         |                           |                     |
| Fuel Type                                        | <input type="text" value="Electricity"/>                |                                             |                         |                           |                     |
| Model Name                                       | <input type="text" value="aroTHERM plus 7kW + AI"/>     |                                             |                         |                           |                     |
| Manufacturer                                     | <input type="text" value="Vaillant Group UK Ltd"/>      |                                             |                         |                           |                     |
| Controls SAP Code                                | <input type="text" value="2207"/>                       |                                             |                         |                           |                     |
| Is MHS Pumped                                    | <input type="text" value="Pump in heated space"/>       |                                             |                         |                           |                     |
| Heating Pump Age                                 | <input type="text" value="2013 or later"/>              |                                             |                         |                           |                     |
| Heat Emitter                                     | <input type="text" value="Radiators and Underfloor"/>   |                                             |                         |                           |                     |
| Underfloor Heating                               | <input type="text" value="Yes - Pipes in thin screed"/> |                                             |                         |                           |                     |
| Flow Temperature                                 | <input type="text" value="Enter value"/>                |                                             |                         |                           |                     |
| Flow Temperature Value                           | <input type="text" value="45.00"/>                      |                                             |                         |                           |                     |
| <b>25.0 Main Heating 2</b>                       | <input type="text" value="None"/>                       |                                             |                         |                           |                     |
| <b>26.0 Heat Networks</b>                        | <input type="text" value="None"/>                       |                                             |                         |                           |                     |
| <b>27.0 Secondary Heating</b>                    | <input type="text" value="None"/>                       |                                             |                         |                           |                     |
| <b>28.0 Water Heating</b>                        | <input type="text" value="Main Heating 1"/>             |                                             |                         |                           |                     |
| Water Heating                                    | <input type="text" value="Main Heating 1"/>             |                                             |                         |                           |                     |
| SAP Code                                         | <input type="text" value="901"/>                        |                                             |                         |                           |                     |
| Flue Gas Heat Recovery System                    | <input type="text" value="No"/>                         |                                             |                         |                           |                     |
| Waste Water Heat Recovery Instantaneous System 1 | <input type="text" value="No"/>                         |                                             |                         |                           |                     |
| Waste Water Heat Recovery Instantaneous System 2 | <input type="text" value="No"/>                         |                                             |                         |                           |                     |
| Waste Water Heat Recovery Storage System         | <input type="text" value="No"/>                         |                                             |                         |                           |                     |
| Solar Panel                                      | <input type="text" value="No"/>                         |                                             |                         |                           |                     |
| Water use <= 125 litres/person/day               | <input type="text" value="Yes"/>                        |                                             |                         |                           |                     |
| Cold Water Source                                | <input type="text" value="From mains"/>                 |                                             |                         |                           |                     |
| Bath Count                                       | <input type="text" value="1"/>                          |                                             |                         |                           |                     |
| Immersion Only Heating Hot Water                 | <input type="text" value="Yes"/>                        |                                             |                         |                           |                     |
| <b>28.1 Showers</b>                              |                                                         |                                             |                         |                           |                     |
| <b>Description</b>                               | <b>Shower Type</b>                                      | <b>Flow Rate [l/min]</b>                    | <b>Rated Power [kW]</b> | <b>Connected</b>          | <b>Connected To</b> |
| Bathroom                                         | Combi boiler or unvented hot water system               | 8.00                                        |                         | No                        |                     |
| <b>28.3 Waste Water Heat Recovery System</b>     |                                                         |                                             |                         |                           |                     |
| <b>29.0 Hot Water Cylinder</b>                   | <input type="text" value="Hot Water Cylinder"/>         |                                             |                         |                           |                     |
| Cylinder Stat                                    | <input type="text" value="Yes"/>                        |                                             |                         |                           |                     |
| Cylinder In Heated Space                         | <input type="text" value="Yes"/>                        |                                             |                         |                           |                     |
| Independent Time Control                         | <input type="text" value="Yes"/>                        |                                             |                         |                           |                     |
| Insulation Type                                  | <input type="text" value="Measured Loss"/>              |                                             |                         |                           |                     |
| Cylinder Volume                                  | <input type="text" value="200.00"/> L                   |                                             |                         |                           |                     |
| Loss                                             | <input type="text" value="1.20"/> kWh/day               |                                             |                         |                           |                     |

# Summary for Input Data



Pipes insulation

All accessible pipework insulated

31.0 Thermal Store

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



|                      |               |               |                |            |
|----------------------|---------------|---------------|----------------|------------|
| Plot Reference       | BS-AFF-4B6P-1 |               | Issued on Date | 27/02/2026 |
| Assessment Reference | 001           | Plot Type Ref | BS-AFF-4B6P-1  |            |
| Plot Address         | BS-AFF-4B6P-1 |               | SAP Version    | 10.2       |

|                                    |          |               |       |      |       |
|------------------------------------|----------|---------------|-------|------|-------|
| SAP Rating                         | 84 B     | DER           | 3.48  | TER  | 10.45 |
| Environmental                      | 97 A     | % DER < TER   |       |      | 66.70 |
| CO <sub>2</sub> Emissions (t/year) | 0.36     | DFEE          | 38.41 | TFEE | 39.41 |
| Compliance Check                   | See BREL | % DFEE < TFEE |       |      | 2.54  |
| % DPER < TPER                      | 33.42    | DPER          | 36.30 | TPER | 54.53 |

|                  |                          |             |           |
|------------------|--------------------------|-------------|-----------|
| Assessor Details | Mr. Matthew Fitzpatrick  | Assessor ID | 7601-0001 |
| Client           | HP 01, Hill Partnerships |             |           |

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

|                                |                     |        |
|--------------------------------|---------------------|--------|
| Orientation                    | North               |        |
| Property Tenture               | ND                  |        |
| Transaction Type               | 6                   |        |
| Terrain Type                   | Suburban            |        |
| 1.0 Property Type              | House, Detached     |        |
| 2.0 Number of Storeys          | 2                   |        |
| 3.0 Date Built                 | 2026                |        |
| 4.0 Sheltered Sides            | 2                   |        |
| 5.0 Sunlight/Shade             | Average or unknown  |        |
| 6.0 Thermal Mass Parameter     | Precise calculation |        |
| Thermal Mass                   | 0.00                | kJ/m²K |
| <hr/>                          |                     |        |
| 7.0 Electricity Tariff         | Standard            |        |
| Smart electricity meter fitted | Yes                 |        |
| Smart gas meter fitted         | Yes                 |        |

| 7.0 Measurements | Ground floor:<br>1st Storey: | Heat Loss Perimeter<br>31.14 m<br>31.14 m | Internal Floor Area<br>56.96 m <sup>2</sup><br>56.96 m <sup>2</sup> | Average Storey Height<br>2.50 m<br>2.70 m |
|------------------|------------------------------|-------------------------------------------|---------------------------------------------------------------------|-------------------------------------------|
|------------------|------------------------------|-------------------------------------------|---------------------------------------------------------------------|-------------------------------------------|

|                 |       |                |
|-----------------|-------|----------------|
| 8.0 Living Area | 20.10 | m <sup>2</sup> |
|-----------------|-------|----------------|

| 9.0 External Walls | Description   | Type        | Construction                                                                                                    | U-Value<br>(W/m <sup>2</sup> K) | Kappa<br>(kJ/m <sup>2</sup> K) | Gross<br>Area(m <sup>2</sup> ) | Nett Area<br>(m <sup>2</sup> ) | Shelter<br>Res | Shelter | Openings | Area Calculation<br>Type |
|--------------------|---------------|-------------|-----------------------------------------------------------------------------------------------------------------|---------------------------------|--------------------------------|--------------------------------|--------------------------------|----------------|---------|----------|--------------------------|
|                    | External Wall | Cavity Wall | Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure | 0.19                            | 110.00                         | 168.17                         | 144.26                         | 0.00           | None    | 23.91    | Enter Gross Area         |

| 9.2 Internal Walls | Description           | Construction                      | Kappa<br>(kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|--------------------|-----------------------|-----------------------------------|--------------------------------|------------------------|
|                    | Timber stud Partition | Plasterboard on timber frame      | 9.00                           | 169.88                 |
|                    | Block partitions      | Dense block, plasterboard on dabs | 75.00                          | 58.73                  |

| 10.0 External Roofs | Description | Type                | Construction                             | U-Value<br>(W/m <sup>2</sup> K) | Kappa<br>(kJ/m <sup>2</sup> K) | Gross<br>Area(m <sup>2</sup> ) | Nett<br>Area<br>(m <sup>2</sup> ) | Shelter<br>Code | Shelter<br>Factor | Calculation<br>Type | Openings |
|---------------------|-------------|---------------------|------------------------------------------|---------------------------------|--------------------------------|--------------------------------|-----------------------------------|-----------------|-------------------|---------------------|----------|
|                     | Cold Roof   | External Plane Roof | Plasterboard, insulated at ceiling level | 0.11                            | 9.00                           | 56.96                          | 56.96                             | None            | 0.00              | Enter Gross Area    | 0.00     |

| 10.2 Internal Ceilings | Description      | Storey<br>Lowest occupied | Construction                                   | Kappa | Area (m <sup>2</sup> ) |
|------------------------|------------------|---------------------------|------------------------------------------------|-------|------------------------|
|                        | Internal Ceiling |                           | Plasterboard ceiling, carpeted chipboard floor | 9.00  | 56.96                  |

| 11.0 Heat Loss Floors | Description  | Type                 | Storey Index    | Construction                       | U-Value<br>(W/m <sup>2</sup> K) | Shelter Code | Shelter<br>Factor | Kappa<br>(kJ/m <sup>2</sup> K) | Area (m <sup>2</sup> ) |
|-----------------------|--------------|----------------------|-----------------|------------------------------------|---------------------------------|--------------|-------------------|--------------------------------|------------------------|
|                       | Ground Floor | Ground Floor - Solid | Lowest occupied | Suspended concrete floor, carpeted | 0.12                            | None         | 0.00              | 75.00                          | 56.96                  |

## 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          | 56.96     |

## 12.0 Opening Types

| Description              | Data Source                           | Type                    | Glazing                                        | Glazing Gap | Filling Type | G-value      | Frame Type | Frame Factor | U Value (W/m²K) |
|--------------------------|---------------------------------------|-------------------------|------------------------------------------------|-------------|--------------|--------------|------------|--------------|-----------------|
| Glazed front Door Window | Manufacturer BFR, BSI or CERTASS data | Half Glazed Door Window | Double Low-E Soft 0.1<br>Double Low-E Soft 0.1 |             |              | 0.63<br>0.40 |            | 0.70         | 1.20<br>1.20    |
| Rooflight Patio Doors    | Manufacturer BFR, BSI or CERTASS data | Roof Light Window       | Double Low-E Soft 0.1<br>Double Low-E Soft 0.1 |             |              | 0.63<br>0.33 |            | 0.70         | 1.20<br>1.20    |

## 13.0 Openings

| Name            | Opening Type      | Location      | Orientation | Area (m²) | Pitch |
|-----------------|-------------------|---------------|-------------|-----------|-------|
| Front Door      | Glazed front Door | External Wall | North       | 2.14      |       |
| Front Elevation | Window            | External Wall | North       | 4.34      |       |
| Rear Elevation  | Window            | External Wall | South       | 4.09      |       |
| Patio Doors     | Patio Doors       | External Wall | South       | 9.00      |       |
| RHS Windows     | Window            | External Wall | East        | 4.34      |       |

## 14.0 Conservatory

## 15.0 Draught Proofing

 %

## 16.0 Draught Lobby

## 17.0 Thermal Bridging

## 17.1 List of Bridges

| Bridge Type                                      | Source Type            | Length | Psi  | Adjusted Reference: | Imported |
|--------------------------------------------------|------------------------|--------|------|---------------------|----------|
| E2 Other lintels (including other steel lintels) | Independently assessed | 15.95  | 0.05 | 0.05 HiTherm        | No       |
| E3 Sill                                          | Independently assessed | 10.64  | 0.02 | 0.02 Hill Std.      | No       |
| E4 Jamb                                          | Independently assessed | 29.40  | 0.03 | 0.03 Hill Std.      | No       |
| E5 Ground floor (normal)                         | Independently assessed | 31.14  | 0.06 | 0.06 Hill Std.      | No       |
| E6 Intermediate floor within a dwelling          | Independently assessed | 31.14  | 0.05 | 0.05 Hill Std.      | No       |
| E10 Eaves (insulation at ceiling level)          | Independently assessed | 19.40  | 0.05 | 0.05 Hill Std.      | No       |
| E12 Gable (insulation at ceiling level)          | Independently assessed | 11.75  | 0.06 | 0.06 Hill Std.      | No       |
| E16 Corner (normal)                              | Independently assessed | 20.80  | 0.05 | 0.05 Hill Std.      | No       |

## 19.0 Mechanical Ventilation

### Mechanical Ventilation

|                                       |                                                                             |
|---------------------------------------|-----------------------------------------------------------------------------|
| Mechanical Ventilation System Present | <input type="text" value="Yes"/>                                            |
| Approved Installation                 | <input type="text" value="Yes"/>                                            |
| Mechanical Ventilation data Type      | <input type="text" value="Database"/>                                       |
| Type                                  | <input type="text" value="Mechanical extract ventilation - decentralised"/> |
| MV Reference Number                   | <input type="text" value="500776"/>                                         |
| Duct Type                             | <input type="text" value="Rigid"/>                                          |
| Wet Rooms                             | <input type="text" value="3"/>                                              |

## 19.1 Mechanical extract ventilation - Decentralised

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

## 20.0 Fans, Open Fireplaces, Flues

|                                                  |                                |
|--------------------------------------------------|--------------------------------|
| Number of open chimneys                          | <input type="text" value="0"/> |
| Number of open flues                             | <input type="text" value="0"/> |
| Number of chimneys/flues attached to closed fire | <input type="text" value="0"/> |
| Number of flues attached to solid fuel boiler    | <input type="text" value="0"/> |
| Number of flues attached to other heater         | <input type="text" value="0"/> |
| Number of blocked chimneys                       | <input type="text" value="0"/> |
| Number of intermittent extract fans              | <input type="text" value="0"/> |
| Number of passive vents                          | <input type="text" value="0"/> |

# Summary for Input Data

|                              |                                |  |  |  |  |
|------------------------------|--------------------------------|--|--|--|--|
| Number of flueless gas fires | <input type="text" value="0"/> |  |  |  |  |
|------------------------------|--------------------------------|--|--|--|--|

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

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|                              |                                          |                                             |  |  |  |
|------------------------------|------------------------------------------|---------------------------------------------|--|--|--|
| <b>22.0 Pressure Testing</b> | <input type="text" value="Yes"/>         |                                             |  |  |  |
| Designed AP <sub>50</sub>    | <input type="text" value="4.00"/>        | m <sup>3</sup> /(h.m <sup>2</sup> ) @ 50 Pa |  |  |  |
| Test Method                  | <input type="text" value="Blower Door"/> |                                             |  |  |  |

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|                      |                                 |                 |              |                 |              |
|----------------------|---------------------------------|-----------------|--------------|-----------------|--------------|
| <b>22.0 Lighting</b> | <input type="text" value="No"/> |                 |              |                 |              |
| No Fixed Lighting    | <input type="text" value="No"/> |                 |              |                 |              |
|                      | <b>Name</b>                     | <b>Efficacy</b> | <b>Power</b> | <b>Capacity</b> | <b>Count</b> |
|                      | Lighting                        | 75.00           | 10.00        | 750.00          | 30           |

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|                            |                                                         |   |  |  |  |
|----------------------------|---------------------------------------------------------|---|--|--|--|
| <b>24.0 Main Heating 1</b> | <input type="text" value="Database"/>                   |   |  |  |  |
| Percentage of Heat         | <input type="text" value="100.00"/>                     | % |  |  |  |
| Database Ref. No.          | <input type="text" value="104432"/>                     |   |  |  |  |
| Fuel Type                  | <input type="text" value="Electricity"/>                |   |  |  |  |
| Model Name                 | <input type="text" value="aroTHERM plus 7kW + AI"/>     |   |  |  |  |
| Manufacturer               | <input type="text" value="Vaillant Group UK Ltd"/>      |   |  |  |  |
| Controls SAP Code          | <input type="text" value="2207"/>                       |   |  |  |  |
| Is MHS Pumped              | <input type="text" value="Pump in heated space"/>       |   |  |  |  |
| Heating Pump Age           | <input type="text" value="2013 or later"/>              |   |  |  |  |
| Heat Emitter               | <input type="text" value="Radiators and Underfloor"/>   |   |  |  |  |
| Underfloor Heating         | <input type="text" value="Yes - Pipes in thin screed"/> |   |  |  |  |
| Flow Temperature           | <input type="text" value="Enter value"/>                |   |  |  |  |
| Flow Temperature Value     | <input type="text" value="45.00"/>                      |   |  |  |  |

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|                            |                                   |  |  |  |  |
|----------------------------|-----------------------------------|--|--|--|--|
| <b>25.0 Main Heating 2</b> | <input type="text" value="None"/> |  |  |  |  |
|----------------------------|-----------------------------------|--|--|--|--|

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|                           |                                   |  |  |  |  |
|---------------------------|-----------------------------------|--|--|--|--|
| <b>26.0 Heat Networks</b> | <input type="text" value="None"/> |  |  |  |  |
|---------------------------|-----------------------------------|--|--|--|--|

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|                               |                                   |  |  |  |  |
|-------------------------------|-----------------------------------|--|--|--|--|
| <b>27.0 Secondary Heating</b> | <input type="text" value="None"/> |  |  |  |  |
|-------------------------------|-----------------------------------|--|--|--|--|

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|                                                  |                                             |  |  |  |  |
|--------------------------------------------------|---------------------------------------------|--|--|--|--|
| <b>28.0 Water Heating</b>                        | <input type="text" value="Main Heating 1"/> |  |  |  |  |
| Water Heating                                    | <input type="text" value="Main Heating 1"/> |  |  |  |  |
| SAP Code                                         | <input type="text" value="901"/>            |  |  |  |  |
| Flue Gas Heat Recovery System                    | <input type="text" value="No"/>             |  |  |  |  |
| Waste Water Heat Recovery Instantaneous System 1 | <input type="text" value="No"/>             |  |  |  |  |
| Waste Water Heat Recovery Instantaneous System 2 | <input type="text" value="No"/>             |  |  |  |  |
| Waste Water Heat Recovery Storage System         | <input type="text" value="No"/>             |  |  |  |  |
| Solar Panel                                      | <input type="text" value="No"/>             |  |  |  |  |
| Water use <= 125 litres/person/day               | <input type="text" value="Yes"/>            |  |  |  |  |
| Cold Water Source                                | <input type="text" value="From mains"/>     |  |  |  |  |
| Bath Count                                       | <input type="text" value="1"/>              |  |  |  |  |
| Immersion Only Heating Hot Water                 | <input type="text" value="Yes"/>            |  |  |  |  |

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|                     |                                           |                  |                    |                  |                     |
|---------------------|-------------------------------------------|------------------|--------------------|------------------|---------------------|
| <b>28.1 Showers</b> |                                           |                  |                    |                  |                     |
| <b>Description</b>  | <b>Shower Type</b>                        | <b>Flow Rate</b> | <b>Rated Power</b> | <b>Connected</b> | <b>Connected To</b> |
| Bathroom            | Combi boiler or unvented hot water system | [l/min]<br>8.00  | [kW]               | No               |                     |

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|                                              |  |  |  |  |  |
|----------------------------------------------|--|--|--|--|--|
| <b>28.3 Waste Water Heat Recovery System</b> |  |  |  |  |  |
|----------------------------------------------|--|--|--|--|--|

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|                                |                                                 |  |  |  |  |
|--------------------------------|-------------------------------------------------|--|--|--|--|
| <b>29.0 Hot Water Cylinder</b> | <input type="text" value="Hot Water Cylinder"/> |  |  |  |  |
| Cylinder Stat                  | <input type="text" value="Yes"/>                |  |  |  |  |
| Cylinder In Heated Space       | <input type="text" value="Yes"/>                |  |  |  |  |
| Independent Time Control       | <input type="text" value="Yes"/>                |  |  |  |  |
| Insulation Type                | <input type="text" value="Measured Loss"/>      |  |  |  |  |

# Summary for Input Data



|                  |                                                                |         |
|------------------|----------------------------------------------------------------|---------|
| Cylinder Volume  | <input type="text" value="250.00"/>                            | L       |
| Loss             | <input type="text" value="1.40"/>                              | kWh/day |
| Pipes insulation | <input type="text" value="All accessible pipework insulated"/> |         |

## 31.0 Thermal Store

## 34.0 Small-scale Hydro

| 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