



DohertyEnergy

ENERGY & SUSTAINABILITY STATEMENT

(To Accompany Planning Application)

Site

**LAND SOUTH OF BOLNEY ROAD,
ANSTY RH17 5AW**

Proposal

DEVELOPMENT OF SITE TO CREATE THIRTY-FOUR DWELLINGS

Client

DEVINE HOMES PLC

4th FEBRUARY 2026

Ref. E1554-ESS-01

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1.0 INTRODUCTION

- a) Doherty Energy Limited have been instructed by Devine Homes Plc to prepare an Energy and Sustainability Statement to support the submission of the planning application for the development on Land South of Bolney Road, Ansty, Haywards Heath, RH17 5AW. This report must be read in conjunction with the application forms, certificates, detailed plans and other supporting documents submitted to the Local Authority as part of the application.
- b) The Application is for the development of the site to create thirty-four dwellings. The dwellings shall be a mixture of two and three bedroom houses and flats, in the form of detached and semi-detached dwellings.
- c) The objectives of this Energy and Sustainability Statement are to outline the possible measures that can be incorporated into the development during detailed design, to make an appraisal of the carbon dioxide emissions of the proposed development, assess the potential fabric and building services efficiencies to reduce the carbon dioxide emission and to suggest the most appropriate means by which the development can contribute towards the aspiration of policy relating to reducing carbon dioxide emissions and energy consumption. It also investigates the water usage of the development with a view to reducing the water consumption of the dwellings.
- d) The Assessment shall be carried out following the principles set out in the “Energy Hierarchy”. These principles can be summarised as follows:
 - Be Lean –use less energy
 - Be Clean – supply energy efficiently
 - Be Green - use renewable energy

- e) At this stage in the design of the development, the detailed Building Regulations construction information has not been prepared and therefore following detailed construction design, the energy calculations will be revisited to ensure the energy requirements and carbon dioxide emissions are up to date.
- f) In order to demonstrate the carbon dioxide emissions, it is proposed to use the Standard Assessment Procedure (SAP) for the calculations to obtain initial baseline carbon dioxide emissions figures for the dwellings.
- g) Further calculations will be used to demonstrate the potential carbon dioxide emission savings from the initial calculations by enhancements to the building fabric, plant and controls – BE LEAN. The suitability of supplying energy, both heat and power, through the use of a combined heat and power system shall be assessed – BE CLEAN. The carbon dioxide emission saving by the use of renewable energy shall be assessed through the outputs from the SAP calculations – BE GREEN.

2.0 **POLICY CONTEXT**

- a) The Mid Sussex District Plan 2014-2031 was adopted by Mid Sussex District Council in March 2018. This sets out a vision for how Mid Sussex wants to evolve and a delivery strategy for how that will be achieved. It supports the National Planning Policy Framework's 'presumption in favour of sustainable development'. As such, it sets out broad guidance on the distribution and quality of development in the form of 'higher level' strategic policies. It also provides the framework for all subsequent planning documents, including Neighbourhood Plans.
- b) Within the Plan there are a number of policies and this Energy and Sustainability Statement shall address the policies that are relevant to the energy and carbon emissions and water usage of the development.
- c) Policy DP39 – Sustainable Design and Construction set the strategic objective of promoting development that makes the best use of resources and increases the sustainability of communities within Mid Sussex, and its ability to adapt to climate change.
- d) All development proposals must seek to improve the sustainability of development and should where appropriate and feasible according to the type and size of development and location, incorporate the following measures:
 - Minimise energy use through the design and layout of the scheme including through the use of natural lighting and ventilation;
 - Explore opportunities for efficient energy supply through the use of communal heating networks where viable and feasible;
 - Use renewable sources of energy;
 - Maximise efficient use of resources, including minimising waste and maximising recycling/ re-use of materials through both construction and occupation;
 - Limit water use to 110 litres/person/day in accordance with Policy DP42: Water Infrastructure and the Water Environment;

- Demonstrate how the risks associated with future climate change have been planned for as part of the layout of the scheme and design of its buildings to ensure its longer term resilience
- e) Policy DP42 – Water Infrastructure and the water Environment – seeks to promote development that makes the best use of resources and increases the sustainability of communities within Mid Sussex, and its ability to adapt to climate change.
- f) New development proposals must be in accordance with the objectives of the Water Framework Directive, and accord with the findings of the Gatwick Sub Region Water Cycle Study with respect to water quality, water supply and wastewater treatment and consequently the optional requirement under Building Regulations – Part G applies to all new residential development in the district. Residential development should meet a water consumption standard of 110 litres per person per day (including external water use).
- g) The Mid Sussex Design Guide Supplementary Planning Guide, adopted November 2020, sets sustainability Objectives including that all new developments should be designed to high environmental standards. This includes the sustainable construction principles of maximising energy and water efficiency, minimising carbon emissions and use of resources.
- h) Principle DG37 aims to deliver high quality buildings that minimise their environmental impact. The Council welcomes innovative and inventive designs that respond to the sustainability agenda by minimising the use of resources and energy both through building construction and after completion.
- i) Applicants must demonstrate how this has informed their design and should consider in particular:
- Orientation and design of buildings and roofs to maximise daylight / sunlight penetration and solar gain, whilst also avoiding overheating;
 - The use of green roofs or walls to reduce storm water run-off, increase sound-proofing and biodiversity;

- The use of materials with low embodied energy (for example, renewably sourced timber and recycled materials);
- The use of sustainable materials that are locally sourced wherever possible;
- Incorporating high levels of insulation (in combination with air tightness and temperature control systems) including the use of materials with a high thermal mass, such as stone or brick, which store heat and release it slowly;
- Incorporating renewable energy including photovoltaics, solar thermal water heating, ground and air source heat pumps;
- The use of low flow technology in water fittings, rainwater harvesting systems and grey water recycling systems to reduce water consumption to 110 litres/person/day (maximum); and
- Laying out development to support identified opportunities for decentralised renewable or low carbon energy systems.

3.0 SUSTAINABLE DESIGN AND CONSTRUCTION ASSESSMENT

- a) The building fabric, the building services and the management of the building broadly determines its energy usage. The detailed design of a building is an iterative process, often requiring the involvement of different professional disciplines to establish the fundamental objectives of the design. An overall design philosophy in this respect has been established at an early stage.
- b) As a result of central Government objectives, followed through at local level the general design philosophy for this site has a strong emphasis on sustainable design. This is not only in terms of the location and suitability of the site but also in relation to the way in which the building is constructed and will be used by its future occupants.
- c) The first step in developing an integrated design is to establish the function of the buildings envelope and how it interacts with the usage patterns of the building and the technology used to condition the individual spaces.
- d) Good fabric design can minimize the need for services. Where appropriate, designs should avoid simply excluding the environment, but should respond to factors like weather and occupancy and make good use of natural light, ventilation, solar gains and shading, where they are beneficial.
- e) This section of the report will look at the ways in which energy is used within the proposed building and how the design can encourage efficient levels of energy consumption.

3.1 Management

- a) Although improvements can be made to the fabric and services of a building, often the biggest impact on the day-to-day energy consumption is influenced by the way in which the building is managed. It is common to find well-designed buildings operating badly due to poor management. Conversely, poorly designed buildings can be optimised to their maximum efficiency through good management practices.

- b) It is recommended that due consideration is given to the management strategy of the building. It is understood that the dwelling will be within private ownership. However, there is still an opportunity to provide for the most efficient management system and to encourage the future occupants to manage their homes efficiently.
- c) This may include the use of movement sensor switched lighting systems, the installation of energy efficient electrical appliances, efficient lighting and fittings that do not permit the use of non-efficient lamps, tightly controlled heating and ventilation specific to the location within the dwelling, installation of efficient hot water systems and the provision of recycling facilities.
- d) The EU energy efficiency labelling scheme rates products from A (the most efficient) to G (the least efficient). For refrigeration, the scale now extends to A++. The occupants of the dwelling shall be provided with information on the EU Energy Efficiency Labelling Scheme so that they are informed of the benefits of the scheme.

3.2 Ventilation

- a) Natural ventilation is the most energy efficient form of ventilating any space. The proposed use and traditional architectural design of this building enables it to make best use of natural ventilation via openable windows.
- b) Horizontal pivoted windows produce the most effective ventilation because of their inherent characteristic to develop large openings, where air will tend to enter at the lower level and exit via the top. They are easily adjustable to provide control and reduce the amount of energy required to run and maintain artificial ventilation systems. Normal casement windows can provide a degree of natural ventilation and with the layout of the dwelling; it is possible to obtain good cross ventilation.
- c) Given the historical records for the British Isles, the weather permits a possible energy saving with the use of windows to provide cooling and ventilation. When the outside temperature ranges between 14 °C through to

24 °C, people are able to moderate the heat build-up in the space with the use of an openable window systems.

- d) In addition to allowing direct and flexible control of heat through the use of openable windows they, also provide for the natural provision of fresh air to the occupants eliminating the need for artificially produced fresh air supply.
- e) At other times of the year, mechanical ventilation with heat recovery can conserve energy in each dwelling by recovering heat from the warm moist extracted air and transferring it to the incoming fresh air. This works both ways so if the outside temperature is higher than inside the exchanger helps to maintain a comfortable internal environment. The mechanical ventilation with heat recovery system ensures high air quality whilst maintaining a balance between extraction and supply.

3.3 Heating System

- a) The method of heating for the dwellings is not yet decided, however, it proposed method of heating for the dwelling will use of a highly efficient heat source, with weather compensation. It shall be appropriately designed to provide suitable conditions for the occupants and to offset the heat losses through the fabric of the dwelling.
- b) The heating systems will be provided with time and temperature zone control to control the heating in the spaces.
- c) Weather compensation will be used to help control the heating system. It uses an outdoor temperature sensor to adjust the system controls to compensate for changes in outdoor temperature automatically. As the weather gets colder the system works harder and produces more heat to the space. However, the weather warms up the system reduces the temperature of the heating system thereby reducing the energy consumption and carbon dioxide emissions.
- d) If a central heating system was used, the heat would be have to be available for any occupant all the time, which would require a large buffer storage

vessel and distribution around the building all the time. With the local heating systems, there are no storage or distribution losses.

- e) Due to the high level of insulation standards required under the current building regulations and the associated heat gains of the building, the level of artificially produced heat required to the internal spaces is envisaged to be low.

3.4 Lighting (Natural / Artificial)

- a) The proposed design makes best use of natural daylight to reduce the amount of electrical energy used to provide the minimum luminance for the required conditions. It is envisaged that all the habitable rooms within the dwelling are to be provided with natural light via windows. The number of windows proposed and the use of dimming controls on the lighting scheme where appropriate may assist in achieving the maximum reduction of electrical consumption.
- b) The dwellings are orientated so that the large windows do not face south or are shaded, thus avoiding excessive solar gains during the summer.
- c) When selecting luminaires, consideration should be given to their inherent local power consumption and luminance levels. This together with the use of energy saving lamps will reduce the consumption of energy through lighting to a minimum. It is suggested that a development of this kind could reduce the energy usage further by installing luminaires that only allow the use of energy saving lamps.
- d) Any lighting in the external areas shall be fitted with automatic control systems, like passive infrared sensors, time switches or “dawn to dusk” day light sensors. These luminaires shall be fitted with low energy lamps.

3.5 Hot Water Systems

- a) The hot water demand for the dwellings shall be generated using the efficient heating source and if necessary, a very well insulated hot water storage cylinder is to be provided.

- b) The hot water system shall be designed to appropriate standards required by the current building regulations. This will ensure the minimum amount of heat loss from hot water pipe work by applying a high standard of thermal insulation and ensuring the correct circulation throughout the system.
- c) It is possible, with the ever-increasing demand on the limited supply of the natural resource of water, to suitably restrict the flow of water outlets. Flow restrictors can be installed on outlets where a reduced flow is acceptable, for example on showers and basins. This system allows for a uniform maximum flow to be provided regardless of natural water pressures throughout the dwelling.

3.6 Cold Water Systems

- a) Cold water consumption can be kept to a minimum by the installation of a numbers of facilities.
- b) Modern water efficient dual flush WC cisterns should be fitted as standard and as with the hot water system flow restrictors can be fitted to provide a uniform maximum flow rate throughout the dwelling.
- c) Simple water butts can be provided in appropriate locations, allowing for the collection of rain water for the direct use on external landscaped areas. Water butts are the cheapest and easiest way of reducing the use of drinking water for this purpose. There are many products on the market ranging in price and size and some local authorities offer their own option at a subsidised price to the consumer.
- d) It is not possible to estimate the total water saving from the installation and use of such a device as this is very much dependant on the landscaping design for the dwelling, the annual rain fall and the required usage of this water within the domestic setting. However, an average storage device can produce up to 5000 litres of usable rainwater per year.

3.7 Sustainable methods of construction

- a) Sustainable methods of construction can range from the simplest of solutions, such as construction in locations with access to sustainable modes of transport to the more complex solutions including passive solar design and rainwater harvesting.
- b) The following paragraphs will briefly discuss some of the additional options available for incorporation into the scheme at this early stage or later during the detailed design process.

3.8 Passive Solar Design

- a) Passive solar gain can be experienced in both a positive and negative manner. South facing facades can often benefit from solar passive gain during the winter months but this is counteracted by the increased requirement for cooling during the summer.
- b) In a scheme like that proposed, it is important to recognise where solar passive gains will be experienced and to design the scheme to enhance the effect during the winter and protect from it during the summer.

3.9 Building Envelope

- a) All facades of the dwellings shall be designed to ensure that the minimum standards required by the Approved Document L of the Building Regulations are exceeded and that care shall be exercised to ensure flexibility and good shading systems are installed where necessary.
- b) Any insulation that is used in this development shall have global warming potential of less than 5. This shall include not only the thermal insulation, but any acoustic insulation.

3.10 Enhanced Construction Details

- a) The dwellings envelope shall be designed using the Enhanced Construction Details to limit recurring thermal bridging. This exceeds the requirement of the Building Regulations and helps lower the carbon emissions of the dwelling by reducing the heat losses by cold bridging.

3.11 Surface Water Drainage

- a) Surface water drainage at the site will follow the Sustainable Drainage Systems (SuDS) management train. Further details can be found in the SuDs report.

3.12 Rainwater Harvesting

- a) The harvesting and recycling of rainwater can considerably reduce mains water consumption for toilets and other uses that do not need a sanitized water supply.
- b) However, the plant space requirement for treatment and storage is often difficult to incorporate into a scheme. It also requires additional public health and water system risers to be installed to serve the facilities able to utilise such a water supply. If this system were to be considered then early design allowances would be required.
- c) An alternative option would be to install a water butt system as discussed above, that allows the collection of rainwater from the roof to be used in the amenity space provided.

3.13 Sustainable Material Choices

- a) A high percentage of carbon dioxide emissions are generated by unsustainable modes of transport. This is not only made up of the use of the private car but is substantially increased by the use of road as the popular way of transporting materials and goods needed during the construction purposes.

- b) Many opportunities are now available to Architects wishing to make more sustainable choices when specifying building materials. The consideration can include where the materials come from, its' travel distance, mode of transport, and the nature in which the material resource is manufactured and managed.
- c) Throughout the design process consideration will be given to not only the quality of materials to be specified, but also to the quantities. Additional consideration will be given to building material selection that maximises the life expectancy of the building by selecting materials build-ups from the Green Guide to Specification published by the Building Research Establishment (BRE).
- d) The proposed development will be constructed of materials with a low environmental impact, achieving a Green Guide rating of between A+ and D for all five elements of construction, as follows:
 - Roof.
 - External walls.
 - Internal walls.
 - Upper and ground floors.
 - Windows.
- e) Consideration will also be given to the use of materials and products manufactured in the UK and Europe. Once a contractor is appointed, the opportunities for the use of local suppliers for their supply chain will also be explored.
- f) All timber, including that used in the construction processes, will be required to be legally sourced. The definition of legally sourced timber follows the UK Government's definition of legally sourced timber, according to the CPET 2nd Edition report on UK Government timber procurement policy.

3.14 Recycling Facilities

- a) In order to encourage the homeowners to recycle household waste, the dwelling can be provided with recycling bins, both within the dwelling and in the external waste storage area.
- b) The recycling bins could be in the form of three internal in a dedicated non obstructive location in the kitchen. The bins shall be in a variety of sizes and a total capacity of 30 litres and no individual bins shall have a capacity of less than 7 litres.
- c) External bins shall be provided for the Local Authority collection scheme. These shall be located in a dedicated location.

3.15 Transport

- a) In order to promote the wider use of bicycles as transport, the proposed dwelling will have storage facilities for a number of bicycles. This will help reduce the need for short car journeys and the associated carbon dioxide emissions
- b) To encourage the use of bicycles, the storage area shall have easy and direct access to the public right of way, so it wouldn't be necessary to take the bicycle through the house.
- c) The storage shall be secure and weather tight to protect the bicycles.
- d) Electric vehicles are proving to be an attractive option to the reduce running costs and lower emissions. The proposed dwelling shall be provided with electric vehicle charging point to allow for the charging of an electric vehicle.
- e) The electric vehicle charging shall be capable of connecting to and using the electricity generated on site by the photovoltaic panels, thereby reducing the carbon emissions of the occupants transport. It is also possible to maximise the benefit of the photovoltaic system by the use of battery storage.

3.16 Home Office

- a) In order to promote working from home, the dwelling shall be provided with the necessary space and services. This will further reduce the need for commuting to an office and reduce the carbon footprint of the occupants.
- b) The suitable space for the home office shall have adequate space for an office, which will have good daylighting and natural ventilation. High speed broadband and adequate power points shall also be provided.
- c) The good daylighting and natural ventilation will help the occupants use the spaces without the need for artificial lighting and mechanical ventilation for more of the year and reduce the emissions of the operation of the dwelling.

4.0 **ENERGY ASSESSMENT**

4.1 **Introduction**

- a) This section of the Energy and Sustainability Statement shall make an appraisal of the carbon dioxide emissions of the proposed development, assess the implications of fabric and building services enhancements, the various methods of generating and using renewable energy at source, and to suggest the most appropriate means by which the development can contribute towards the aspiration of policy relating to reducing energy consumption and renewable energy provision.
- b) In order to assess the impact of the improved building envelope and the fixed building services, the initial Standard Assessment Procedure (SAP) Assessments have been carried out on the proposed dwellings as if they were constructed simply to comply with the requirements of the current Building Regulations. Further SAP calculations have been undertaken to demonstrate an improvement in the carbon emissions by incorporating better fabric constructions, better windows and doors, improved ventilation systems and efficient building services.
- c) The energy assessment shall follow the principles set out in the emerging local plan, which expects development proposals to make the fullest contribution to minimising carbon dioxide emissions in accordance with the following energy hierarchy:
 - Be Lean – use less energy
 - Be Clean – supply energy efficiently
 - Be Green – use renewable energy

4.2 Baseline Carbon Dioxide Emissions

- a) In order to assess the carbon dioxide emissions of the development, the delivered energy demand needs to be estimated. At this stage in the design of the dwellings, the detailed construction drawings have not been prepared and therefore detailed carbon emission calculations cannot be undertaken to produce the carbon dioxide emissions.
- b) However, the developments carbon dioxide emission estimates can be based on the current drawings and construction information known at this time and the initial stage SAP calculations for a representative sample of the units.
- c) Based on the current design and using construction information, the proposed dwellings comply with the current Building Regulations. The building services information is based on standard building services to meet the requirements of the Building Regulations.
- d) Table 1 below summarises the results from the BREL Compliance Reports that and the results are prorated for the development.

Dwelling	TER (kg/m ² /yr)	Area (m ²)	No. off	Emissions (kg/yr)
E1554-23	12.93	74.5	3	2,890
E1554-27	11.57	78.32	11	9,968
E1554-10	9.83	99.78	15	14,713
E1554-34	10.93	111.96	3	3,671
E1554-31	11.59	102.33	2	2,372
Baseline Carbon Dioxide Emissions (kg/yr)				33,613

Table 1 – Baseline Carbon Dioxide Emissions

4.3 Improved Baseline Carbon Dioxide Emissions – BE LEAN

- a) Following the principles set out in the “Energy Hierarchy” which is implemented through the Local Policy, the proposed design has been improved to use less energy and lower the carbon dioxide emissions - BE LEAN.
- b) This has been achieved by improving the thermal performance of the various constructions, like the walls, roof, floors, windows, doors etc and improving the air tightness of the dwellings.
- c) The floor U Values can be improved by incorporating insulation under the screed, or by using insulation blocks instead of concrete blocks between the beams. For the purposes of these calculations, the U Values of the current floor constructions have been calculated as 0.11-0.12 W/m²K.
- d) The wall U Values can be improved by improving the thermal performance of the insulation, either by increased thickness or lower thermal conductivity. In addition, insulated plasterboard will be used in place of standard plasterboard. For the purposes of these calculations, the U Values of the current wall constructions have been calculated as 0.19 W/m²K.
- e) The party wall is fully filled with sealed edges, so the U Value is 0.0W/m²K.
- f) The roof areas offer excellent opportunity to enhance the insulation levels and for the purposes of these calculations, the U Value of 0.08 W/m²K has been used.
- g) The thermal performance of the windows can be improved by adding coatings to the panes or adding an inert gas to the cavities. For the purposes of these calculations, a U Value for the windows of 1.2 W/m²K has been used, which uses double glazed planitherm glass, argon gas and warm edge spacer bars.
- h) Composite entrance doors not only provide excellent noise and fire resistance, but are secure by design and have a U Value of 0.55 W/m²K.

- i) The air leakage rate for the dwelling can be improved. The maximum allowed under the current Building Regulations Approved Document L1:2021 is $8 \text{ m}^3/\text{hr}/\text{m}^2$ at 50 Pascal's. With careful detailing, this can be easily improved to $5 \text{ m}^3/\text{hr}/\text{m}^2$ at 50 Pascal's.
- j) The use of Recognised Construction Details in the development means that the thermal bridging coefficient can be greatly improved thus a lower γ Value can be used.
- k) With regard to the heating, for the purposes of these calculations, to demonstrate the "fabric first" approach, the dwellings shall be heated using highly efficient heat sources, with time and temperature zone control. This provides excellent control for the dwelling occupants.
- l) Instead of simply installing 75% of the light fittings as low energy efficient light fittings, as required by the current Building Regulations, 100% of the light fitting could be low energy fittings.
- m) The use of natural lighting has been considered and although its use is not measured in the SAP calculations, it can help lower the energy use and therefore carbon dioxide emissions. This is carefully assessed against any unwanted solar overheating. Whilst a degree of solar gain can be beneficial for the occupants and helps lower the carbon dioxide emissions, it must be controlled to minimise the risk of solar overheating. The calculations show that there is only a slight to medium risk of overheating.
- n) The development shall be designed to ensure that the Dwelling Emission Rates are better than the Target Emission Rates and the Fabric Energy Efficiency is better than the Target Fabric Energy Efficiency. These are the requirements from Criterion 1 of the current Building Regulations Approved Document L (2021).
- o) By incorporating items like those stated above, the SAP calculations have been updated to demonstrate the effect of these improvements and the results are listed in Table 2 below.

Dwelling	DER (kg/m²/yr)	Area (m²)	No. off	Emissions (kg/yr)
E1554-23	11.98	74.5	3	2,678
E1554-27	10.67	78.32	11	9,192
E1554-10	9.08	99.78	15	13,590
E1554-34	10.43	111.96	3	3,503
E1554-31	10.50	102.33	2	2,149
Baseline Carbon Dioxide Emissions (kg/yr)				33,613
Improved Carbon Dioxide Emissions (kg/yr)				31,112
Percentage Improvement over current Building Regulations				8 %

Table 2 – Actual Carbon Dioxide Emissions

- p) As demonstrated in Table 2 above, the improvements in the thermal performance and fixed building services, a reduction of 8% can be achieved in the carbon emissions of the development.

4.4 Supplying Energy Efficiently – BE CLEAN

- a) Following the principles set out in the Energy Hierarchy, the next step is to reduce the carbon dioxide emissions by supplying energy efficiently - BE CLEAN.

4.5 District Heat Network

- a) District heat networks supply heat to building or close cluster of buildings from a single or small number of generating plant to the distributed loads across an area. Where operating from locally generated heat, as opposed to waste or unwanted process heat for example, they are most suitable where there are numerous different heat loads (i.e. not purely residential) to provide a fairly consistent baseload demand and allow for maximisation of plant efficiency.
- b) As of 2026, Mid Sussex District Council does not operate or endorse any centralised district heating schemes (e.g. communal heat networks or energy centres serving multiple dwellings). There appears to be no known schemes in Haywards Heath, Burgess Hill, East Grinstead, or surrounding villages, or even proposed in the area within the next five years, so it would not be feasible to install plant for future connection to such a network at this time.
- c) Due to the small size of the development, a communal heating system would be relatively expensive to install and to operate and therefore is not be considered at this time.

4.6 Combined Heat and Power

- a) Combined Heat and Power typically generates electricity on site as a by-product of generating heat. It uses fuel efficient energy technology that, unlike traditional forms of power generation, uses the by-product of the heat generation required for the development. Normally during power generation, the heat is discharged or wasted to atmosphere.
- b) A typical CHP plant can increase the overall efficiency of the fuel use to more than 75%, compared to the traditional power supplies of 40%, which

uses inefficient power stations and takes into account transmission and distribution losses.

- c) The use of this development is primarily residential and it will be built to exceed the current Building Regulations. The aim of these regulations is to minimise the base heating load and electrical loads. The site base heating and electrical loads is key to the sizing and operation of any CHP system.
- d) A this development is relatively small purely residential, i.e. under 300 dwellings and has is not sufficiently dense, it does not support the use of a site wide CHP system.
- e) Due to the high levels of insulation and energy efficiency measures that will be incorporated into this development, there is no year round heat load for the CHP plant and therefore, a CHP system would be considered not viable on this development. As such, if a CHP system were to be incorporated, it would not operate efficiently and therefore NOT BE CLEAN.

4.7 Renewable Technologies Considered – BE GREEN

- a) The final step in the Energy Hierarchy is to reduce the carbon dioxide emissions by the use of renewable technologies - BE GREEN.
- b) A review of the potential renewable technologies has been undertaken to identify any potential low or zero carbon technologies which could be incorporated at a later date. The following renewable energy resources have been assessed for availability and appropriateness in relation to the site location, building occupancy and design.
 - Combined Heat and Power
 - Biomass Heating
 - Biomass CHP
 - Heat Pumps
 - Solar Photovoltaics
 - Domestic Solar Hot Water Systems
 - Wind Power
- c) A preliminary assessment has been carried out for each renewable energy technology and for those appearing viable a further detailed appraisal has been undertaken.
- d) The preliminary study considered the site location and the type of building in the development and surroundings and produced a shortlist of renewable energy technologies that will be the subject of a further feasibility study.
- e) Table 3 below provides a summary of the assessment.

4.8 Renewables Toolkit Assessment

Energy System	Description	Comment
Combined Heat and Power (CHP)	<p>Combined Heat and Power systems use the waste heat from an engine to provide heating and hot water, while the engine drives an electricity generator.</p> <p>These systems uses gas or oil as the main fuel and therefore can not truly be considered as renewable technology however, it is recognised that they have a significant reduced impact on the environment compared to conventional fossil fueled systems.</p>	<p>As CHP systems produce roughly twice as much heat as they generate electricity, they are usually sized according to the base load heat demand of a building, to minimise heat that is wasted during part-load operations. Therefore, to be viable economically they require a large and constant demand for heat, which make their use in new energy efficient housing, with high insulation, not really suitable.</p> <p>The efficiency of small scale CHP is relatively low and is unlikely to result in CO₂ emission savings. Economic viability relies on 4000 hours running time, which is unlikely to be achieved in this scheme.</p>
Combined Heat and Power		Feasible – NO
Biomass Heating	<p>Solid, liquid or gaseous fuels derived from plant material can provide boiler heat for space and water heating.</p> <p>Biomass can be burnt directly to provide heat in buildings. Wood from forests, urban tree pruning, farmed coppices or farm and factory waste, is the most common fuel and is used commercially in the form of wood chips or pellets, although traditional logs are also used. Other forms of Biomass can be used, e.g. bio-diesel.</p>	<p>Wood pellet or wood chip fired or dual bio-diesel/gas-fired boilers could be considered. As this development consists of a new building, it offers the opportunity to accommodate such a system.</p> <p>The flues would have to be discharged to atmosphere above roof level and concerns raised by Environmental Health regarding the pollutants and particles, which would have to be addressed. Care need to be taken with the design of the flue to ensure particle discharge is not a concern to residents.</p> <p>The fuel storage silo/tank would have to be located external to the building, which is not available on this site.</p> <p>A suitable local fuel supplier is required to supply the site.</p>
Biomass Heating		Feasible – NO

Energy System	Description	Comment
Biomass CHP	CHP as above, but with biomass as the fuel.	Whilst the Biomass CHP system may overcome the issue of the reduction in carbon dioxide emissions via true renewable sources, however, the lack of a year round base load is still a problem and therefore Biomass CHP is not feasible for this development.
Biomass CHP		Feasible - NO
Ground/Air Source Heat Pumps (GSHP / ASHP) - heating	The ground collector can be installed, either as a loop of pipe, in the piles or using a borehole and a compressor offer efficient heating of a space in winter, as the temperature of the ground (below approx 2m) remains almost constant all year. For air source, the external condensing unit can be located adjacent to the dwelling in a discreet location.	Ground and air source heat pumps are most efficient when supplying heat continuously and in areas where a mains gas supply is not available. In dwellings, GSHP and ASHP are capable of supplying the majority of the total space heating and pre heat for the hot water demand. This site does not appear to have external areas of sufficient size for the installation of ground loops for the collection of heat. It is considered that the use of ASHP to offset the heat losses of the dwellings could be feasible, however, the location of the outdoor units needs to be assessed to ensure they do not cause a nuisance to the neighbouring properties.
Ground/Air Source Heat Pumps		Feasible – YES
Solar Photovoltaics (PV)	Building Integrated Photovoltaics (BIPV) or Roof mounted collectors provide noiseless, low maintenance, carbon free electricity.	There appears to be areas of roof that could be utilised to install PV panels onto the scheme. These could be integrated into the roof finishes or mounted on frames on the roof and orientated towards the south for optimal performance. Careful consideration must be given to the chosen roof finish to ensure compatibility.
Solar PhotoVoltaics		Feasible – YES
Solar Thermal Hot Water	Solar collectors for low temperature hot water systems require direct isolation, so the chosen location, orientation and tilt are critical.	This solution could be utilised to generate hot water using the energy from the sun. There are areas of roof that could be used for the installation of solar thermal collectors. However, with the efficiencies of these systems and their relatively low reduction in carbon dioxide emissions, it is felt that other technologies could be used to provide a greater reduction in carbon dioxide emissions for the cost.
Solar Thermal Hot Water		Feasible – NO

Energy System	Description	Comment
Wind Power	Most small (1-25kW) wind turbines can be mounted on buildings, but larger machines require foundations at ground level and suitable site location	It could be viable to install some form of wind turbines on this site, however due to surrounding buildings and the visual impact it is not considered to be the most sensitive system of providing energy via renewable resources in this location.
Wind Power		Feasible – NO

Table 3 – Renewable Technology Feasibility Assessment

- a) From the above it has been established that there are two potential ways of providing energy via renewable sources appropriate for inclusion in the residential areas of the scheme, these being the use of heat pumps and solar photovoltaics or a combination of these.
- b) CHP and Micro CHP are considered not feasible as the economic viability relies on at least 4,000 hours runtime which is unlikely to be achieved in this development.
- c) Biomass systems have been considered unfeasible for this site due to particle discharge in a built up area, fuel handling and storage on a site with limited open space, required plant areas and the on going maintenance of the system.
- d) Wind has been considered not viable for this site as there are a lot of the buildings and trees in the surrounding area which are likely to cause disruption to air flows.

4.9 Heat Pumps

- a) Heat pumps are used to extract the heat from the ground, air or water and transfer it to a heating distribution system, such as under floor heating or radiators using an electric pump. They are usually efficient enough to provide for all space heating requirements and a pre-heat for the domestic hot water systems.
- b) The system would comprise of a heat exchanger either buried in the ground, or mounted on the exterior of the building, incorporated into the ventilation system or located within a water course, and a heat pump. These would be connected to a traditional heating distribution system, like radiators, underfloor heating, fan coil units etc.
- c) The system uses the latent solar energy stored in the ground or water, or the latent temperature of the air around or within the building. The heat pump upgrades the heat energy to provide the heating for the building. The heat pump operates on the same principles as a refrigeration cycle, like a domestic fridge, except the heat is retained and the cold rejected.
- d) Ground source heat pumps are generally the most efficient however can be expensive to install as the heat exchanger needs to be buried under the ground. Their efficiency and practicality can also be affected by the ground conditions of the site.
- e) Water source heat pumps are only suitable where there is a water source available and when appropriate consents have been obtained to utilize this source.
- f) Air source heat pumps are generally more flexible as the heat pump and exchanger unit is usually mounted external to the building or within a garage or storage space.
- g) Exhaust air heat pumps collect energy from the exhaust air of the property. The exhaust air is extracted from the kitchen and the bathrooms and brought to the heat pump via ductwork. The exhaust air heat pumps come with an integrated hot water cylinder.

- h) With regard to emissions, heat pump installations are pollution free. There are no local emissions and, although there will be carbon dioxide emissions associated with their electricity use, these are much less than other forms of electric heating and can be lower than those associated with conventional gas or oil fired boilers.
- i) There is not sufficient area around or under the building to provide adequate area for sufficient heat collectors for the development. Therefore, ground source heat pumps shall not be considered at this stage.
- j) There are no suitable water sources on the development site. Therefore, water source heat pumps shall not be considered at this stage.
- k) There appears to be a suitable location at the side of the dwellings for the external heat pump unit, that would allow for good air flow and avoid disturbing the residents.
- l) The heat pump will be connected to the low-temperature distribution system, e.g. radiators, convectors or underfloor heating and hot water cylinder.
- m) Many of the safety considerations appropriate to any refrigeration or air conditioning systems apply to the use of heat pumps since the working fluid is often a controlled substance that needs to be handled by trained personnel. However, once the system is commissioned, accidental release of refrigerant is unlikely.
- n) In general terms heat pumps of all kinds are expected to operate an average output efficiency of 3:1, this means that for every 1 unit of energy used to run the system it will produce 3 units of energy as a result.
- o) The SAP Assessment has been adjusted to incorporate the use of the air source heat pump and the BREL documents are summarised in the Table 4 below. Full details of the SAP calculations can be found in the BREL Documents in Appendix A.

Dwelling	DER (kg/m2/yr)	Area (m2)	No. off	Part L 2021 CO ₂ Emissions (kgCO ₂ /yr)
E1554-23	5.15	74.5	3	1,151
E1554-27	4.65	78.32	11	4,006
E1554-10	4.01	99.78	15	6,002
E1554-34	4.19	111.96	3	1,407
E1554-31	4.34	102.33	2	888
Baseline Carbon Dioxide Emissions (kg/yr)				33,613
Total Carbon Dioxide Emissions (kg/yr)				13,454
Total Reduction in Carbon Emissions over Building Regulations				52%

Table 4 – Heat Pump Carbon Dioxide Emissions

- a) As can be seen in Table 4 above, the use of air source heat pumps to provide the heating and hot water for the dwellings, could reduce the carbon dioxide emissions by 52% below the requirements of Approved Document L1:2021 and when combined with the fabric energy efficiency measures from in Table 2 above, a potential total reduction of 60% could be achieved.

4.10 Solar Photovoltaics

- b) Photovoltaics (PV) is a technology that allows the production of electricity directly from sunlight. The term originates from “Photo” referring to light and “voltaic” referring to voltage. This type of technology has been developed for incorporation within building design to produce electricity for either direct consumption or re-sale to the National Grid.
- c) PV panels come in modular panels which can be fitted on the top of roofs or incorporated in the finishes like slates or shingles to form integral part of the roof covering. PV cells can be incorporated into glass for atria walls and roofs or used in the cladding or rain screen on a building wall.
- d) When planning to install PV panels, it is important to consider the inherent cost of installation in comparison to possible alternatives. The aesthetic impact of the PV panels also requires careful consideration.
- e) Roof mounted PV panels should ideally face south-east to south-west at an elevation of about 30-40°. However, in the UK even if installed flat on a roof, they receive 90% of the energy of an optimum system.
- f) PV installations are expressed in terms of the electrical output of the system, i.e. kilowatt peak (kWp). The Department of Trade and Industry estimate that an installation of 1kWp, could produce approximately 700-850 kWh/yr, which would require an area of between 8-20m², depending on the efficiencies and type of PV panel used.
- g) It is also estimated that a well insulated typical dwelling would use approximately 1,500kWh/year electricity for the lights and appliances, therefore the 1kWp system could save approximately 45% of a single dwellings electrical energy requirements.
- h) Although often not unattractive, and possible to integrate into the building or roof cladding, PV systems are still considered likely to have visual implications, therefore careful sighting of the panels is required.

- i) As this installation will be contained on the roof of the proposed dwellings, it involves no additional land use. With regard to noise and vibration, a PV system is completely silent in operation.
- j) Care must be taken with the design and installation of PV systems as they need to meet standards for electrical safety.
- k) Space has been identified on the roofs of the dwellings that can be used for the installation of photovoltaic systems. It is proposed that 2-No. 435Wp panels are installed for each two bed dwelling and 4-No. 435Wp panels for the 3 bed dwellings. These would be connected to each dwelling and used to generate on-site renewable electricity.

Development incorporating Energy Efficiency Measures	Total Carbon Dioxide Emissions (kgCO ₂ /yr)	Percentage Reduction (%)
No Renewables	31,112	-
Reduced by including PV systems	25,374	17%

Table 5 – Photovoltaic Carbon Dioxide Emissions

- l) As can be seen from Table 5 above, the incorporation of a photovoltaic systems on the roofs of the dwellings, the development could reduce the carbon dioxide emissions by 17% and when combined with the fabric energy efficiency measures from in Table 2 above, a potential total reduction of 25% could be achieved.
- m) These panels could be connected to the individual electric supplies for the dwellings to be used in the dwelling. Battery storage could be incorporated to provide a supply for the electric vehicle charging. Any surplus electricity can be exported to the National Grid.
- n) Further detailed calculations for the carbon dioxide emissions and the final system size and layout shall be carried out during detailed design.

4.11 Annual Carbon Dioxide Emission Reduction

- a) Based on the initial SAP calculations for the dwellings, it has been calculated that the baseline carbon dioxide emissions figure for the development is 33,613 kgCO₂/year.
- b) In accordance with the Planning Policies set out by Mid Sussex District Council, this report has demonstrated an improvement in carbon dioxide emissions by fabric and energy efficiencies and the use of low or zero carbon technologies.
- c) These reductions in carbon dioxide emissions are over and above the requirements of the Building Regulations Approved Document L.
- d) A number of options have been considered and the potential carbon dioxide reductions calculated using the SAP calculations. A summary of the results is provided in Table 6 below.

	Total Carbon Dioxide Emissions (kgCO ₂ /yr)	Reduction in Carbon Dioxide Emissions (%) (Total)
Building Regulations Compliant Development	33,613	-
Development incorporating Energy Efficiency Measures	31,112	8%
Further Reduction in Carbon Dioxide Emissions by incorporating a Renewable Technology		
ASHP	13,454	52% (60%)
PV	25,374	17% (25%)

Table 6 – Summary of Reduction in Carbon Dioxide Emissions

- e) The assessment demonstrates that reductions in regulated carbon dioxide emissions beyond the requirements of current Building Regulations can be achieved through enhanced building fabric performance, improved building services efficiencies, and the incorporation of low- or zero-carbon technologies such as air source heat pumps or photovoltaic systems. It is anticipated that these reductions can be further optimised as the design progresses into the detailed design stage.

- f) CHP and Biomass CHP have been analysed but are considered not feasible for this development as the heating and electrical load profiles would not provide a good clean efficient system for the development.
- g) Biomass heating has been analysed but is considered not feasible for this development due to particle discharge in the built up area, space requirements and the cost and the reliability of a biomass fuel source.
- h) Wind power is considered not feasible for this development due to the visual impact in the area and the turbulence caused by the surrounding buildings and trees etc.
- i) Solar hot water has been considered but due to the low carbon reduction compared to other systems, it is not being considered further at this stage.
- j) There is not enough space for the installation of ground loops in order to use ground source heat pumps.
- k) The installation of photovoltaic (PV) systems has the potential to achieve an estimated total 25% reduction in regulated carbon emissions. The suitability and extent of PV provision will be reviewed further as the project progresses into detailed design.
- l) Air source heat pumps (ASHPs) offer the greatest reduction in regulated carbon emissions, with an estimated total 60% improvement compared to the baseline. However, preliminary modelling indicates that dwellings incorporating ASHPs achieve lower Energy Performance Ratings than those fitted with photovoltaic systems.
- m) As part of the detailed design stage, a further assessment will be undertaken to determine the most appropriate low-carbon solution. This will include a comparative review of ASHPs and PV systems, considering carbon performance, Energy Performance Ratings, technical feasibility, and overall compliance with relevant planning and building regulations.

- n) For the purposes of planning, and based on the findings of the initial SAP calculations, this report demonstrates that through enhanced building fabric performance, the use of energy-efficient controls and systems, and the incorporation of appropriate low- or zero-carbon technologies, the proposed development is capable of meeting the aspirations of Mid Sussex District Council's planning policy requirements.

5.0 OVERHEATING

- a) It is important to consider the internal comfort conditions for the occupants of the dwelling. At design stage, this can be met through the use of the “cooling hierarchy”. The cooling hierarchy seeks to reduce any potential overheating and also the need to cool a building through active cooling measures. Air conditioning systems are a very resource intensive form of active cooling, increasing carbon dioxide emissions, and also emitting large amounts of heat into the surrounding area. By incorporating the cooling hierarchy into the design process buildings will be better equipped to manage their cooling needs and to adapt to the changing climate they will experience over their lifetime.
- b) The development shall reduce the potential for overheating and reliance on air conditioning systems and demonstrate this in accordance with the following cooling hierarchy:
 - a) minimise internal heat generation through energy efficient design
 - b) reduce the amount of heat entering a building in summer through orientation, shading, albedo, fenestration, insulation and green roofs and walls
 - c) manage the heat within the building through exposed internal thermal mass and high ceilings
 - d) passive ventilation
 - e) mechanical ventilation
 - f) active cooling systems (ensuring they are the lowest carbon options).
- c) During the initial design, the initial SAP Assessment was carried out for the dwelling to help assess the energy demand and carbon emissions of the development. The SAP Assessment includes an overheating assessment in line with the requirements of the Building Regulations.
- d) Based on this SAP Assessment, the dwellings have a slight to medium risk of solar overheating. This is acceptable under the requirements of the Building Regulations.

- e) The internal heat generation has been minimised through energy efficient design. All of the luminaires shall be low energy which will also remove an internal heat generating load.
- f) The heat entering the building in summer is reduced through the optimisation of glazing area, the use of shading via building form and other protruding edges, together with the inclusion of very high performance façade materials and improved air tightness. The use of a solar control glazing, which has a coating applied to lower the G Value of the glass, can be applied. This acts in the same way that the low e coating lowers the U Value which helps reduce heat losses through the windows.
- g) The dwellings could have a mechanical ventilation system installed, which provides filtered fresh air to the dwelling. This is tempered by the crossover heat exchanger, which recovers waste heat from the extract air from the dwelling. The ventilation systems shall be controlled locally by the occupants.
- h) Low energy lamps shall be used in the luminaires to reduce heat gain. These lamps do not emit heat like traditional GLS lamps.
- i) It is also possible to include passive ventilation within the cores and staircase by utilising the smoke vents. The smoke vents are linked to thermostats and can be opened if the temperature exceeds an upper limit, thus providing passive and natural ventilation to these areas to remove any potential heat build-up.
- j) If required, during the detailed design phase of this project, dynamic thermal modelling, using IES software to produce an SBEM model, in accordance with CIBSE Guide A, TM52 and TM49, can be used to ensure that the findings of the initial overheating assessment are still valid and provide a more detailed assessment and prediction of the overheating risk for the development.

6.0 **WATER CALCULATIONS**

- a) The Mid Sussex District Council recognises that region of the South East is classified as 'seriously' water stressed, meaning that more water is taken from the environment than the environment can sustain in the long term. The region is relatively resilient to drought and it takes two consecutive drier than normal winters to create water supply issues.
- b) The Local Plan requires all new dwellings should limit domestic water consumption to 110 litres per person per day (l/p/d), including a maximum external water allowance of 5 litres.
- c) Low water usage fitting, or flow restrictors can be fitted in the dwelling. Efficient white goods that are not only energy efficient but also water efficient can also be installed.
- d) At this stage in the design, the final selection of the water fittings and appliance has not been made, but this calculations shows the design intent for these fittings and appliances.
- e) Dual flush toilets can be installed to reduce the water consumption of the dwelling. A full flush capacity of 4 litres and a part flush capacity of 2.6 litres has been selected.
- f) Flow restrictors shall be installed to limit the flow rates of the taps to 2 litres / minute. Flow restrictors shall also be installed in the kitchen taps and the showers to restrict their flow to 6 litres / minute. The utility taps shall be restricted to 4 litres / minute.
- g) Baths, with a capacity of 130 litres to overflow, are being provided.
- h) The washing machine shall have a water consumption of 5.56 litres / kg of dry load. The dishwasher shall have a water consumption of 0.61 litres / place setting.
- i) No water softeners are being installed.

- j) Using the Building Regulations Approved Document G Calculator, the water consumption has been calculated for the dwellings as 87.95 litres/person/day. This complies with the requirements of Policy DP42 of the Mid Sussex District Plan.

7.0 CONCLUSION

- a) The Mid Sussex District Council requires new residential developments to minimise carbon emissions and exhibit the highest standards of sustainable design and construction.
- b) The Application is for the development of the site to create thirty-four dwellings. The dwellings shall be a mixture of two and three bedroom houses and flats.
- c) It is proposed that in order to meet the requirements of policy this development will adopt a high standard of design with regard to energy efficiency principles.
- d) At planning stage it is not possible to produce the final reports on the energy demand, carbon dioxide emissions, based on the initial construction information. It is envisaged that during detailed design, the reduction in carbon dioxide emissions can be improved.
- e) The initial SAP assessments undertaken for the proposed development demonstrate that meaningful reductions in regulated carbon emissions can be achieved through a combination of enhanced building fabric, improved energy-efficient systems, and the incorporation of low- or zero-carbon technologies.
- f) The analysis indicates that photovoltaic (PV) systems have the potential to deliver an approximate total 25% reduction in regulated emissions, while air source heat pumps (ASHPs) offer a significantly higher reduction of around 60%. It is therefore proposed that ASHP shall be used to provide the heating and hot water in the development
- g) For the purposes of planning, and based on the results of the initial SAP calculations, this report confirms that the development is capable of meeting the aspirations of Mid Sussex District Council's planning policies

- h) Overall, the development demonstrates a clear pathway to achieving a compliant and policy-aligned energy strategy, with the flexibility to refine the preferred low-carbon solution as the design progresses.
- i) This report has assessed the risk of overheating and the development has been identified as having slight to medium risk, which can be reduced by incorporating low G value glazing, internal shading by light coloured curtains or cross ventilation by opening the windows fifty percent of the time.
- j) The water usage has been assessed and although the actual water fittings have not been selected yet, the calculations show that the average water consumption of the development is 87.95 litres/person/day. This demonstrates the dwellings will be below the 110 litres/person/day requirement of the planning policy, thus minimising the impact of the development on the local water resources.
- k) This Energy and Sustainability Statement demonstrates that the proposed development aligns with the aspirations of local planning policy to reduce carbon emissions. This is achieved through a combination of enhanced building fabric performance, energy-efficient systems, and the utilisation of low- and zero-carbon technologies such as air source heat pump systems. The assessment also confirms that the development meets the relevant planning policy requirements relating to water consumption and overheating. On this basis, it is considered that the application should be viewed favourably by Mid Sussex District Council.

Appendix A – BREL Compliance Reports

Building Regulations England Part L (BREL) Compliance Report

Approved Document L1 2021 Edition, England assessed by Array SAP 10 program, Array

Date: Thu 22 Jan 2026 13:57:54

Project Information			
Assessed By	Jason Doherty	Building Type	House, Semi-detached
OCDEA Registration	EES/022645	Assessment Date	2026-01-22

Dwelling Details			
Assessment Type	As designed	Total Floor Area	100 m ²
Site Reference	E1554-3B SD	Plot Reference	3B-HP
Address	Plot 10 Land South of Bolney Road, Ansty, RH17 5AW		

Client Details	
Name	Devine Homes
Company	Devine Homes PLC
Address	St Michaels House, Reigate, RH2 7LF

This report covers items included within the SAP calculations. It is not a complete report of regulations compliance.

1a Target emission rate and dwelling emission rate			
Fuel for main heating system	Electricity		
Target carbon dioxide emission rate	9.83 kgCO ₂ /m ²		
Dwelling carbon dioxide emission rate	4.01 kgCO ₂ /m ²		OK
1b Target primary energy rate and dwelling primary energy			
Target primary energy	51.17 kWh _{PE} /m ²		
Dwelling primary energy	42.44 kWh _{PE} /m ²		OK
1c Target fabric energy efficiency and dwelling fabric energy efficiency			
Target fabric energy efficiency	33.7 kWh/m ²		
Dwelling fabric energy efficiency	27.3 kWh/m ²		OK

2a Fabric U-values				
Element	Maximum permitted average U-Value [W/m ² K]	Dwelling average U-Value [W/m ² K]	Element with highest individual U-Value	
External walls	0.26	0.17	Walls (1) (0.17)	OK
Party walls	0.2	0	Party Wall (1) (0)	N/A
Curtain walls	1.6	0	N/A	N/A
Floors	0.18	0.11	Heatloss Floor 1 (0.11)	OK
Roofs	0.16	0.09	Roof (1) (0.09)	OK
Windows, doors, and roof windows	1.6	1.18	N (1.2)	OK
Rooflights	2.2	N/A	N/A	N/A

2b Envelope elements (better than typically expected values are flagged with a subsequent (!))			
Name	Net area [m ²]	U-Value [W/m ² K]	
Exposed wall: Walls (1)	82.8105	0.17	
Party wall: Party Wall (1)	49.4	0 (!)	
Ground floor: Heatloss Floor 1, Heatloss Floor 1	49.89	0.11	
Exposed roof: Roof (1)	49.89	0.09 (!)	

2c Openings (better than typically expected values are flagged with a subsequent (!))				
Name	Area [m ²]	Orientation	Frame factor	U-Value [W/m ² K]
N, Window	1.26	North	0.7	1.2
N, Window	0.6615	North	0.7	1.2
N, Window	2.124	North	0.7	1.2
E, Window	0.6615	East	0.7	1.2
E, Window	0.6615	East	0.7	1.2
D-N, Door	2.121	North	N/A	1 (!)
S, Window	6.72	South	0.7	1.2
S, Window	1.44	South	0.7	1.2
S, Window	1.44	South	0.7	1.2

2d Thermal bridging (better than typically expected values are flagged with a subsequent (!))
Building part 1: Thermal bridging calculated from linear thermal transmittances for each junction

Main element	Junction detail	Source	Psi value [W/mK]	Drawing / reference
External wall	E2: Other lintels (including other steel lintels)	Calculated by person with suitable expertise	0.028 (!)	e2-02
External wall	E3: Sill	Calculated by person with suitable expertise	0.023 (!)	e3-01
External wall	E4: Jamb	Calculated by person with suitable expertise	0.018 (!)	e4-01
External wall	E5: Ground floor (normal)	Calculated by person with suitable expertise	0.046	e5-04
External wall	E6: Intermediate floor within a dwelling	Calculated by person with suitable expertise	0.001 (!)	e6-01
External wall	E16: Corner (normal)	Calculated by person with suitable expertise	0.039 (!)	e16-01
External wall	E18: Party wall between dwellings	Calculated by person with suitable expertise	0.031 (!)	e18-01
External wall	E10: Eaves (insulation at ceiling level)	Calculated by person with suitable expertise	0.047	e10-01
External wall	E24: Eaves (insulation at ceiling level - inverted)	SAP table default	0.15	
External wall	E12: Gable (insulation at ceiling level)	Calculated by person with suitable expertise	0.031 (!)	e12-01
External wall	E14: Flat roof	SAP table default	0.16	
External wall	E17: Corner (inverted - internal area greater than external area)	Calculated by person with suitable expertise	-0.087	e17-01
Party wall	P1: Ground floor	Calculated by person with suitable expertise	0.043	p1-04
Party wall	P4: Roof (insulation at ceiling level)	Calculated by person with suitable expertise	0.033 (!)	p4-01

3 Air permeability (better than typically expected values are flagged with a subsequent (!))

Maximum permitted air permeability at 50Pa	8 m ³ /hm ²	
Dwelling air permeability at 50Pa	5 m ³ /hm ² , Design value	OK
Air permeability test certificate reference		

4 Space heating

Main heating system 1: Heat pump with radiators or underfloor heating - Electricity

Efficiency	270.1%
Emitter type	Radiators
Flow temperature	45°C
System type	Heat Pump
Manufacturer	Daikin Europe NV
Model	EDLA04EV3 PPC
Commissioning	

Secondary heating system: N/A

Fuel	N/A
Efficiency	N/A
Commissioning	

5 Hot water

Cylinder/store - type: Cylinder

Capacity	180 litres
Declared heat loss	1.89 kWh/day
Primary pipework insulated	Yes
Manufacturer	
Model	
Commissioning	

Waste water heat recovery system 1 - type: N/A

Efficiency	
Manufacturer	
Model	

6 Controls		
Main heating 1 - type: Time and temperature zone control by arrangement of plumbing and electrical services		
Function		
Ecodesign class		
Manufacturer		
Model		
Water heating - type: Cylinder thermostat and HW separately timed		
Manufacturer		
Model		
7 Lighting		
Minimum permitted light source efficacy	75 lm/W	
Lowest light source efficacy	180 lm/W	OK
External lights control	N/A	
8 Mechanical ventilation		
System type: Centralised mechanical extract		
Maximum permitted specific fan power	0.7 W/(l/s)	
Specific fan power	0.22 W/(l/s)	OK
Minimum permitted heat recovery efficiency	N/A	
Heat recovery efficiency	N/A	N/A
Manufacturer/Model	MEV300	
Commissioning		
9 Local generation		
N/A		
10 Heat networks		
N/A		
11 Supporting documentary evidence		
N/A		
12 Declarations		
a. Assessor Declaration		
This declaration by the assessor is confirmation that the contents of this BREL Compliance Report are a true and accurate reflection based upon the design information submitted for this dwelling for the purpose of carrying out the "As designed" assessment, and that the supporting documentary evidence (SAP Conventions, Appendix 1 (documentary evidence) schedules the minimum documentary evidence required) has been reviewed in the course of preparing this BREL Compliance Report.		
Signed:	Assessor ID:	
Name:	Date:	
b. Client Declaration		
N/A		

Building Regulations England Part L (BREL) Compliance Report

Approved Document L1 2021 Edition, England assessed by Array SAP 10 program, Array

Date: Thu 22 Jan 2026 13:57:53

Project Information			
Assessed By	Jason Doherty	Building Type	Maisonette, Semi-detached
OCDEA Registration	EES/022645	Assessment Date	2026-01-22

Dwelling Details			
Assessment Type	As designed	Total Floor Area	74 m ²
Site Reference	E1554-2B F	Plot Reference	2B-HP
Address	Plot 23 Land South of Bolney Road, Ansty, RH17 5AW		

Client Details	
Name	Devine Homes
Company	Devine Homes PLC
Address	St Michaels House, Reigate, RH2 7LF

This report covers items included within the SAP calculations. It is not a complete report of regulations compliance.

1a Target emission rate and dwelling emission rate		
Fuel for main heating system	Electricity	
Target carbon dioxide emission rate	12.93 kgCO ₂ /m ²	
Dwelling carbon dioxide emission rate	5.15 kgCO ₂ /m ²	OK
1b Target primary energy rate and dwelling primary energy		
Target primary energy	67.79 kWh _{PE} /m ²	
Dwelling primary energy	54.39 kWh _{PE} /m ²	OK
1c Target fabric energy efficiency and dwelling fabric energy efficiency		
Target fabric energy efficiency	41.5 kWh/m ²	
Dwelling fabric energy efficiency	38.7 kWh/m ²	OK

2a Fabric U-values				
Element	Maximum permitted average U-Value [W/m ² K]	Dwelling average U-Value [W/m ² K]	Element with highest individual U-Value	
External walls	0.26	0.17	Walls (1) (0.17)	OK
Party walls	0.2	0	Party Wall (1) (0)	N/A
Curtain walls	1.6	0	N/A	N/A
Floors	0.18	0.11	Heatloss Floor 1 (0.11)	OK
Roofs	0.16	0.09	Roof (1) (0.09)	OK
Windows, doors, and roof windows	1.6	1.17	NW (1.2)	OK
Rooflights	2.2	N/A	N/A	N/A

2b Envelope elements (better than typically expected values are flagged with a subsequent (!))		
Name	Net area [m ²]	U-Value [W/m ² K]
Exposed wall: Walls (1)	59.4097	0.17
Party wall: Party Wall (1)	15.14	0 (!)
Upper floor: Heatloss Floor 1, Heatloss Floor 1	74.52	0.11
Exposed roof: Roof (1)	74.52	0.09 (!)

2c Openings (better than typically expected values are flagged with a subsequent (!))				
Name	Area [m ²]	Orientation	Frame factor	U-Value [W/m ² K]
D-NW, Door	1.9803	North West	N/A	1 (!)
NW, Window	5.04	North West	0.7	1.2
NW, Window	1.44	North West	0.7	1.2
NW, Window	1.44	North West	0.7	1.2
SE, Window	1.26	South East	0.7	1.2
SE, Window	0.63	South East	0.7	1.2
SE, Window	0.63	South East	0.7	1.2

2d Thermal bridging (better than typically expected values are flagged with a subsequent (!))
Building part 1: Thermal bridging calculated from linear thermal transmittances for each junction

Main element	Junction detail	Source	Psi value [W/mK]	Drawing / reference
External wall	E16: Corner (normal)	Calculated by person with suitable expertise	0.039 (!)	e16-01
External wall	E17: Corner (inverted - internal area greater than external area)	Calculated by person with suitable expertise	-0.087	e17-01
External wall	E2: Other lintels (including other steel lintels)	Calculated by person with suitable expertise	0.028 (!)	e2-01
External wall	E3: Sill	Calculated by person with suitable expertise	0.023 (!)	e3-01
External wall	E4: Jamb	Calculated by person with suitable expertise	0.018 (!)	e4-01
External wall	E5: Ground floor (normal)	Calculated by person with suitable expertise	0.046	e5-04
External wall	E18: Party wall between dwellings	Calculated by person with suitable expertise	0 (!)	
External wall	E7: Party floor between dwellings (in blocks of flats)	SAP table default	0.28	

3 Air permeability (better than typically expected values are flagged with a subsequent (!))

Maximum permitted air permeability at 50Pa	8 m ³ /hm ²	
Dwelling air permeability at 50Pa	5 m ³ /hm ² , Design value	OK
Air permeability test certificate reference		

4 Space heating

Main heating system 1: Heat pump with radiators or underfloor heating - Electricity

Efficiency	274.9%
Emitter type	Radiators
Flow temperature	45°C
System type	Heat Pump
Manufacturer	Daikin Europe NV
Model	EDLA04EV3 PPC
Commissioning	

Secondary heating system: N/A

Fuel	N/A
Efficiency	N/A
Commissioning	

5 Hot water

Cylinder/store - type: Cylinder

Capacity	180 litres
Declared heat loss	1.89 kWh/day
Primary pipework insulated	Yes
Manufacturer	
Model	
Commissioning	

Waste water heat recovery system 1 - type: N/A

Efficiency	
Manufacturer	
Model	

6 Controls

Main heating 1 - type: Time and temperature zone control by arrangement of plumbing and electrical services

Function	
Ecodesign class	
Manufacturer	
Model	

Water heating - type: Cylinder thermostat and HW separately timed

Manufacturer	
Model	

7 Lighting

Minimum permitted light source efficacy	75 lm/W	
Lowest light source efficacy	180 lm/W	OK
External lights control	N/A	

8 Mechanical ventilation		
System type: Centralised mechanical extract		
Maximum permitted specific fan power	0.7 W/(l/s)	
Specific fan power	0.19 W/(l/s)	OK
Minimum permitted heat recovery efficiency	N/A	
Heat recovery efficiency	N/A	N/A
Manufacturer/Model	MEV300	
Commissioning		
9 Local generation		
N/A		
10 Heat networks		
N/A		
11 Supporting documentary evidence		
N/A		
12 Declarations		
a. Assessor Declaration		
This declaration by the assessor is confirmation that the contents of this BREL Compliance Report are a true and accurate reflection based upon the design information submitted for this dwelling for the purpose of carrying out the "As designed" assessment, and that the supporting documentary evidence (SAP Conventions, Appendix 1 (documentary evidence) schedules the minimum documentary evidence required) has been reviewed in the course of preparing this BREL Compliance Report.		
Signed:	Assessor ID:	
Name:	Date:	
b. Client Declaration		
N/A		

Building Regulations England Part L (BREL) Compliance Report

Approved Document L1 2021 Edition, England assessed by Array SAP 10 program, Array

Date: Thu 22 Jan 2026 13:57:53

Project Information			
Assessed By	Jason Doherty	Building Type	House, Semi-detached
OCDEA Registration	EES/022645	Assessment Date	2026-01-22

Dwelling Details			
Assessment Type	As designed	Total Floor Area	78 m ²
Site Reference	E1554-2B-SD	Plot Reference	2B-HP
Address	Plot 27 Land South of Bolney Road, Ansty, RH17 5AW		

Client Details	
Name	Devine Homes
Company	Devine Homes PLC
Address	St Michaels House, Reigate, RH2 7LF

This report covers items included within the SAP calculations. It is not a complete report of regulations compliance.

1a Target emission rate and dwelling emission rate			
Fuel for main heating system	Electricity		
Target carbon dioxide emission rate	11.57 kgCO ₂ /m ²		
Dwelling carbon dioxide emission rate	4.65 kgCO ₂ /m ²		OK
1b Target primary energy rate and dwelling primary energy			
Target primary energy	60.46 kWh _{PE} /m ²		
Dwelling primary energy	49.15 kWh _{PE} /m ²		OK
1c Target fabric energy efficiency and dwelling fabric energy efficiency			
Target fabric energy efficiency	37.0 kWh/m ²		
Dwelling fabric energy efficiency	30.8 kWh/m ²		OK

2a Fabric U-values				
Element	Maximum permitted average U-Value [W/m ² K]	Dwelling average U-Value [W/m ² K]	Element with highest individual U-Value	
External walls	0.26	0.17	Walls (1) (0.17)	OK
Party walls	0.2	0	Party Wall (1) (0)	N/A
Curtain walls	1.6	0	N/A	N/A
Floors	0.18	0.11	Heatloss Floor 1 (0.11)	OK
Roofs	0.16	0.09	Roof (1) (0.09)	OK
Windows, doors, and roof windows	1.6	1.17	E (1.2)	OK
Rooflights	2.2	N/A	N/A	N/A

2b Envelope elements (better than typically expected values are flagged with a subsequent (!))		
Name	Net area [m ²]	U-Value [W/m ² K]
Exposed wall: Walls (1)	75.3425	0.17
Party wall: Party Wall (1)	48.35	0 (!)
Ground floor: Heatloss Floor 1, Heatloss Floor 1	39.16	0.11
Exposed roof: Roof (1)	39.16	0.09 (!)

2c Openings (better than typically expected values are flagged with a subsequent (!))				
Name	Area [m ²]	Orientation	Frame factor	U-Value [W/m ² K]
E, Window	1.26	East	0.7	1.2
E, Window	1.44	East	0.7	1.2
N, Window	0.6615	North	0.7	1.2
N, Window	0.6615	North	0.7	1.2
D-E, Door	2.142	East	N/A	1 (!)
W, Window	5.2185	West	0.7	1.2
W, Window	2.124	West	0.7	1.2

2d Thermal bridging (better than typically expected values are flagged with a subsequent (!))
Building part 1: Thermal bridging calculated from linear thermal transmittances for each junction

Main element	Junction detail	Source	Psi value [W/mK]	Drawing / reference
External wall	E2: Other lintels (including other steel lintels)	Calculated by person with suitable expertise	0.028 (!)	e2-02
External wall	E3: Sill	Calculated by person with suitable expertise	0.023 (!)	e3-01
External wall	E4: Jamb	Calculated by person with suitable expertise	0.018 (!)	e4-01
External wall	E5: Ground floor (normal)	Calculated by person with suitable expertise	0.046	e5-04
External wall	E6: Intermediate floor within a dwelling	Calculated by person with suitable expertise	0.001 (!)	e6-01
External wall	E16: Corner (normal)	Calculated by person with suitable expertise	0.039 (!)	e16-01
External wall	E18: Party wall between dwellings	Calculated by person with suitable expertise	0.031 (!)	e18-01
External wall	E10: Eaves (insulation at ceiling level)	Calculated by person with suitable expertise	0.047	e10-01
External wall	E12: Gable (insulation at ceiling level)	Calculated by person with suitable expertise	0.031 (!)	e12-01
Party wall	P1: Ground floor	Calculated by person with suitable expertise	0.043	p1-04
Party wall	P4: Roof (insulation at ceiling level)	Calculated by person with suitable expertise	0.033 (!)	e4-01

3 Air permeability (better than typically expected values are flagged with a subsequent (!))				
Maximum permitted air permeability at 50Pa		8 m ³ /hm ²		
Dwelling air permeability at 50Pa		5 m ³ /hm ² , Design value		OK
Air permeability test certificate reference				

4 Space heating	
Main heating system 1: Heat pump with radiators or underfloor heating - Electricity	
Efficiency	275.3%
Emitter type	Radiators
Flow temperature	45°C
System type	Heat Pump
Manufacturer	Daikin Europe NV
Model	EDLA04EV3 PPC
Commissioning	
Secondary heating system: N/A	
Fuel	N/A
Efficiency	N/A
Commissioning	

5 Hot water	
Cylinder/store - type: Cylinder	
Capacity	150 litres
Declared heat loss	1.89 kWh/day
Primary pipework insulated	Yes
Manufacturer	
Model	
Commissioning	
Waste water heat recovery system 1 - type: N/A	
Efficiency	
Manufacturer	
Model	

6 Controls	
Main heating 1 - type: Time and temperature zone control by arrangement of plumbing and electrical services	
Function	
Ecodesign class	
Manufacturer	
Model	
Water heating - type: Cylinder thermostat and HW separately timed	
Manufacturer	
Model	

7 Lighting		
Minimum permitted light source efficacy	75 lm/W	
Lowest light source efficacy	180 lm/W	OK
External lights control	N/A	
8 Mechanical ventilation		
System type: N/A		
Maximum permitted specific fan power	N/A	
Specific fan power	N/A	N/A
Minimum permitted heat recovery efficiency	N/A	
Heat recovery efficiency	N/A	N/A
Manufacturer/Model		
Commissioning		
9 Local generation		
N/A		
10 Heat networks		
N/A		
11 Supporting documentary evidence		
N/A		
12 Declarations		
a. Assessor Declaration		
This declaration by the assessor is confirmation that the contents of this BREL Compliance Report are a true and accurate reflection based upon the design information submitted for this dwelling for the purpose of carrying out the "As designed" assessment, and that the supporting documentary evidence (SAP Conventions, Appendix 1 (documentary evidence) schedules the minimum documentary evidence required) has been reviewed in the course of preparing this BREL Compliance Report.		
Signed:	Assessor ID:	
Name:	Date:	
b. Client Declaration		
N/A		

Building Regulations England Part L (BREL) Compliance Report

Approved Document L1 2021 Edition, England assessed by Array SAP 10 program, Array

Date: Thu 22 Jan 2026 13:57:54

Project Information			
Assessed By	Jason Doherty	Building Type	House, Detached
OCDEA Registration	EES/022645	Assessment Date	2026-01-22

Dwelling Details			
Assessment Type	As designed	Total Floor Area	102 m ²
Site Reference	E1554-3B D	Plot Reference	3B-BlrHP
Address	Plot 31 Land South of Bolney Road, Antsy, RH17 5AW		

Client Details	
Name	Devine Homes
Company	Devine Homes PLC
Address	St Michaels House, Reigate, RH2 7LF

This report covers items included within the SAP calculations. It is not a complete report of regulations compliance.

1a Target emission rate and dwelling emission rate		
Fuel for main heating system	Electricity	
Target carbon dioxide emission rate	11.59 kgCO ₂ /m ²	
Dwelling carbon dioxide emission rate	4.34 kgCO ₂ /m ²	OK
1b Target primary energy rate and dwelling primary energy		
Target primary energy	60.61 kWh _{PE} /m ²	
Dwelling primary energy	45.79 kWh _{PE} /m ²	OK
1c Target fabric energy efficiency and dwelling fabric energy efficiency		
Target fabric energy efficiency	42.5 kWh/m ²	
Dwelling fabric energy efficiency	34.7 kWh/m ²	OK

2a Fabric U-values				
Element	Maximum permitted average U-Value [W/m ² K]	Dwelling average U-Value [W/m ² K]	Element with highest individual U-Value	
External walls	0.26	0.15	Walls (1) (0.17)	OK
Party walls	0.2	N/A	N/A	N/A
Curtain walls	1.6	N/A	N/A	N/A
Floors	0.18	0.11	Heatloss Floor 1 (0.11)	OK
Roofs	0.16	0.09	Roof (2) (0.23)	OK
Windows, doors, and roof windows	1.6	1.18	S-Br (1.2)	OK
Rooflights	2.2	N/A	N/A	N/A

2b Envelope elements (better than typically expected values are flagged with a subsequent (!))		
Name	Net area [m ²]	U-Value [W/m ² K]
Exposed wall: Walls (1)	60.8165	0.17
Exposed wall: Walls (2)	73.2845	0.14 (!)
Ground floor: Heatloss Floor 1, Heatloss Floor 1	51.78	0.11
Exposed roof: Roof (1)	50.55	0.09 (!)
Exposed roof: Roof (2)	1.23	0.23

2c Openings (better than typically expected values are flagged with a subsequent (!))				
Name	Area [m ²]	Orientation	Frame factor	U-Value [W/m ² K]
S-Br, Window	1.26	South	0.7	1.2
S-Br, Window	0.6615	South	0.7	1.2
S-Br, Window	1.015	South	0.7	1.2
W-Br, Window	2.8275	West	0.7	1.2
D-S, Door	2.121	South	N/A	1 (!)
N-Br, Window	5.2185	North	0.7	1.2
S-Til, Window	2.124	South	0.7	1.2
W-Til, Window	0.6615	West	0.7	1.2
N-Til, Window	1.44	North	0.7	1.2
N-Til, Window	1.44	North	0.7	1.2

2d Thermal bridging (better than typically expected values are flagged with a subsequent (!))				
Building part 1: Thermal bridging calculated from linear thermal transmittances for each junction				
Main element	Junction detail	Source	Psi value [W/mK]	Drawing / reference
External wall	E2: Other lintels (including other steel lintels)	Calculated by person with suitable expertise	0.028 (!)	e2-02
External wall	E3: Sill	Calculated by person with suitable expertise	0.023 (!)	e3-01
External wall	E4: Jamb	Calculated by person with suitable expertise	0.018 (!)	e4-01
External wall	E5: Ground floor (normal)	Calculated by person with suitable expertise	0.046	e5-04
External wall	E6: Intermediate floor within a dwelling	Calculated by person with suitable expertise	0.001 (!)	e6-01
External wall	E16: Corner (normal)	Calculated by person with suitable expertise	0.039 (!)	e16-01
External wall	E18: Party wall between dwellings	Calculated by person with suitable expertise	0.031 (!)	e18-01
External wall	E10: Eaves (insulation at ceiling level)	Calculated by person with suitable expertise	0.047	e10-01
External wall	E24: Eaves (insulation at ceiling level - inverted)	SAP table default	0.15	
External wall	E12: Gable (insulation at ceiling level)	Calculated by person with suitable expertise	0.031 (!)	e12-01
External wall	E14: Flat roof	SAP table default	0.16	
External wall	E17: Corner (inverted - internal area greater than external area)	Calculated by person with suitable expertise	-0.087	e17-01
Party wall	P1: Ground floor	Calculated by person with suitable expertise	0.043	p1-04
Party wall	P4: Roof (insulation at ceiling level)	Calculated by person with suitable expertise	0.033 (!)	p4-01
3 Air permeability (better than typically expected values are flagged with a subsequent (!))				
Maximum permitted air permeability at 50Pa		8 m ³ /hm ²		
Dwelling air permeability at 50Pa		5 m ³ /hm ² , Design value		OK
Air permeability test certificate reference				
4 Space heating				
Main heating system 1: Heat pump with radiators or underfloor heating - Electricity				
Efficiency	268.5%			
Emitter type	Radiators			
Flow temperature	45°C			
System type	Heat Pump			
Manufacturer	Daikin Europe NV			
Model	EDLA04EV3 PPC			
Commissioning				
Secondary heating system: N/A				
Fuel	N/A			
Efficiency	N/A			
Commissioning				
5 Hot water				
Cylinder/store - type: Cylinder				
Capacity	180 litres			
Declared heat loss	1.89 kWh/day			
Primary pipework insulated	Yes			
Manufacturer				
Model				
Commissioning				
Waste water heat recovery system 1 - type: N/A				
Efficiency				
Manufacturer				
Model				

6 Controls		
Main heating 1 - type: Time and temperature zone control by arrangement of plumbing and electrical services		
Function		
Ecodesign class		
Manufacturer		
Model		
Water heating - type: Cylinder thermostat and HW separately timed		
Manufacturer		
Model		
7 Lighting		
Minimum permitted light source efficacy	75 lm/W	
Lowest light source efficacy	180 lm/W	OK
External lights control	N/A	
8 Mechanical ventilation		
System type: Centralised mechanical extract		
Maximum permitted specific fan power	0.7 W/(l/s)	
Specific fan power	0.22 W/(l/s)	OK
Minimum permitted heat recovery efficiency	N/A	
Heat recovery efficiency	N/A	N/A
Manufacturer/Model	MEV300	
Commissioning		
9 Local generation		
N/A		
10 Heat networks		
N/A		
11 Supporting documentary evidence		
N/A		
12 Declarations		
a. Assessor Declaration		
This declaration by the assessor is confirmation that the contents of this BREL Compliance Report are a true and accurate reflection based upon the design information submitted for this dwelling for the purpose of carrying out the "As designed" assessment, and that the supporting documentary evidence (SAP Conventions, Appendix 1 (documentary evidence) schedules the minimum documentary evidence required) has been reviewed in the course of preparing this BREL Compliance Report.		
Signed:	Assessor ID:	
Name:	Date:	
b. Client Declaration		
N/A		

Building Regulations England Part L (BREL) Compliance Report

Approved Document L1 2021 Edition, England assessed by Array SAP 10 program, Array

Date: Thu 22 Jan 2026 13:57:53

Project Information			
Assessed By	Jason Doherty	Building Type	House, Detached
OCDEA Registration	EES/022645	Assessment Date	2026-01-22

Dwelling Details			
Assessment Type	As designed	Total Floor Area	112 m ²
Site Reference	E1554-3B D	Plot Reference	3B-HP
Address	Plot 34 Land South of Bolney Road, Ansty, RH17 5AW		

Client Details	
Name	Devine Homes
Company	Devine Homes PLC
Address	St Michaels House, Reigate, RH2 7LF

This report covers items included within the SAP calculations. It is not a complete report of regulations compliance.

1a Target emission rate and dwelling emission rate		
Fuel for main heating system	Electricity	
Target carbon dioxide emission rate	10.93 kgCO ₂ /m ²	
Dwelling carbon dioxide emission rate	4.19 kgCO ₂ /m ²	OK
1b Target primary energy rate and dwelling primary energy		
Target primary energy	57.11 kWh _{PE} /m ²	
Dwelling primary energy	44.11 kWh _{PE} /m ²	OK
1c Target fabric energy efficiency and dwelling fabric energy efficiency		
Target fabric energy efficiency	42.0 kWh/m ²	
Dwelling fabric energy efficiency	36.0 kWh/m ²	OK

2a Fabric U-values				
Element	Maximum permitted average U-Value [W/m ² K]	Dwelling average U-Value [W/m ² K]	Element with highest individual U-Value	
External walls	0.26	0.17	Walls (1) (0.17)	OK
Party walls	0.2	N/A	N/A	N/A
Curtain walls	1.6	N/A	N/A	N/A
Floors	0.18	0.11	Heatloss Floor 1 (0.11)	OK
Roofs	0.16	0.09	Roof (1) (0.09)	OK
Windows, doors, and roof windows	1.6	1.19	S (1.2)	OK
Rooflights	2.2	N/A	N/A	N/A

2b Envelope elements (better than typically expected values are flagged with a subsequent (!))		
Name	Net area [m ²]	U-Value [W/m ² K]
Exposed wall: Walls (1)	142.5735	0.17
Ground floor: Heatloss Floor 1, Heatloss Floor 1	55.98	0.11
Exposed roof: Roof (1)	55.98	0.09 (!)

2c Openings (better than typically expected values are flagged with a subsequent (!))				
Name	Area [m ²]	Orientation	Frame factor	U-Value [W/m ² K]
S, Window	2.124	South	0.7	1.2
S, Window	2.124	South	0.7	1.2
S, Window	1.8585	South	0.7	1.2
S, Window	1.8585	South	0.7	1.2
S, Window	0.6615	South	0.7	1.2
W, Window	5.145	West	0.7	1.2
D-S, Door	1.974	South	N/A	1 (!)
N, Window	5.67	North	0.7	1.2
N, Window	0.6615	North	0.7	1.2
N, Window	0.6615	North	0.7	1.2
N, Window	1.44	North	0.7	1.2
N, Window	2.124	North	0.7	1.2
N, Window	2.124	North	0.7	1.2

2d Thermal bridging (better than typically expected values are flagged with a subsequent (!))				
Building part 1: Thermal bridging calculated from linear thermal transmittances for each junction				
Main element	Junction detail	Source	Psi value [W/mK]	Drawing / reference
External wall	E2: Other lintels (including other steel lintels)	Calculated by person with suitable expertise	0.028 (!)	e2-02
External wall	E3: Sill	Calculated by person with suitable expertise	0.023 (!)	e3-01
External wall	E4: Jamb	Calculated by person with suitable expertise	0.018 (!)	e4-01
External wall	E5: Ground floor (normal)	Calculated by person with suitable expertise	0.046	e5-04
External wall	E6: Intermediate floor within a dwelling	Calculated by person with suitable expertise	0.001 (!)	e6-01
External wall	E16: Corner (normal)	Calculated by person with suitable expertise	0.039 (!)	e16-01
External wall	E10: Eaves (insulation at ceiling level)	Calculated by person with suitable expertise	0.047	e10-01
External wall	E24: Eaves (insulation at ceiling level - inverted)	SAP table default	0.15	
External wall	E12: Gable (insulation at ceiling level)	Calculated by person with suitable expertise	0.031 (!)	e12-01
External wall	E14: Flat roof	SAP table default	0.16	
External wall	E17: Corner (inverted - internal area greater than external area)	Calculated by person with suitable expertise	-0.087	e17-01
3 Air permeability (better than typically expected values are flagged with a subsequent (!))				
Maximum permitted air permeability at 50Pa		8 m ³ /hm ²		
Dwelling air permeability at 50Pa		5 m ³ /hm ² , Design value		OK
Air permeability test certificate reference				
4 Space heating				
Main heating system 1: Heat pump with radiators or underfloor heating - Electricity				
Efficiency	271.3%			
Emitter type	Radiators			
Flow temperature	45°C			
System type	Heat Pump			
Manufacturer	Daikin Europe NV			
Model	EDLA04EV3 PPC			
Commissioning				
Secondary heating system: N/A				
Fuel	N/A			
Efficiency	N/A			
Commissioning				
5 Hot water				
Cylinder/store - type: Cylinder				
Capacity	210 litres			
Declared heat loss	1.89 kWh/day			
Primary pipework insulated	Yes			
Manufacturer				
Model				
Commissioning				
Waste water heat recovery system 1 - type: N/A				
Efficiency				
Manufacturer				
Model				
6 Controls				
Main heating 1 - type: Time and temperature zone control by arrangement of plumbing and electrical services				
Function				
Ecodesign class				
Manufacturer				
Model				

Water heating - type: Cylinder thermostat and HW separately timed		
Manufacturer		
Model		
7 Lighting		
Minimum permitted light source efficacy	75 lm/W	
Lowest light source efficacy	180 lm/W	OK
External lights control	N/A	
8 Mechanical ventilation		
System type: Centralised mechanical extract		
Maximum permitted specific fan power	0.7 W/(l/s)	
Specific fan power	0.22 W/(l/s)	OK
Minimum permitted heat recovery efficiency	N/A	
Heat recovery efficiency	N/A	N/A
Manufacturer/Model	MEV300	
Commissioning		
9 Local generation		
N/A		
10 Heat networks		
N/A		
11 Supporting documentary evidence		
N/A		
12 Declarations		
a. Assessor Declaration		
This declaration by the assessor is confirmation that the contents of this BREL Compliance Report are a true and accurate reflection based upon the design information submitted for this dwelling for the purpose of carrying out the "As designed" assessment, and that the supporting documentary evidence (SAP Conventions, Appendix 1 (documentary evidence) schedules the minimum documentary evidence required) has been reviewed in the course of preparing this BREL Compliance Report.		
Signed:	Assessor ID:	
Name:	Date:	
b. Client Declaration		
N/A		

Appendix B – Water Efficiency Calculations

Water Efficiency Calculator for New Dwellings (V1f - Aug 2010)

Project Details

Address/Reference	Land South of Bolney Road, Ansty	Case Reference	E1554
Number of Bedrooms	2	Occupancy for Calculation Purposes	3

Appliance/Useage Details

Taps (Excluding Kitchen Taps)

Tap Fitting Type	Flow Rate Litres/Min	Quantity (No.)	Total per Fitting type
Mixer Taps	2.00	2	4.00
			0.00
			0.00
			0.00
			0.00
			0.00
Total No. of Fittings (No.)		2	
Total Flow (l/s)			4.00
Maximum Flow (l/s)			2.00
Average Flow (l/s)			2.00
Weighted Average Flow (l/s)			1.40
Flow for Calculation (l/s)			2.00

Showers

Shower fitting Type	Flow Rate Litres/Min	Quantity (No.)	Total per Fitting type
Thermostatic Shower	6.00	1	6.00
			0.00
			0.00
			0.00
			0.00
			0.00
Total No. of Fittings (No.)		1	
Total Flow (l/s)			6.00
Maximum Flow (l/s)			6.00
Average Flow (l/s)			6.00
Weighted Average Flow (l/s)			4.20
Flow for Calculation (l/s)			6.00

Baths

Bath Type	Capacity to Overflow	Quantity (No.)	Total per Fitting type
Bath	130.00	1	130.00
			0.00
			0.00
			0.00
Total No. of Fittings (No.)		1	
Total Capacity (l)			130.00
Maximum Capacity (l)			130.00
Average Capacity (l)			130.00
Weighted Average Capacity (l)			91.00
Capacity for Calculation (l)			130.00

WCs

WC Type	Full Flush Volume	Part Flush Volume	Quantity (No)
Dual WC	4.00	2.60	2
Total number of fittings			2
Average effective flushing volume			3.07

Dishwashers

Dishwasher Type	L per Place Setting	Quantity (No.)	Total per Fitting type
Samsung 2021 Series 11	0.61	1	0.61
			0.00
Total No. of Fittings (No.)		1	
Total Consumption (l)			0.61
Maximum Consumption (l)			0.61
Average Consumption (l/s)			0.61
Weighted Average Consumption (l)			0.43
Consumption for Calculation (l/s)			0.61

Washing Machines

Washing Machine Type	L per Kg Dry Load	Quantity (No.)	Total per Fitting type
Samsung WW90T684DL	5.56		0.00
			0.00
Total No. of Fittings (No.)		0	
Total Consumption (l)			8.17
Maximum Consumption (l)			8.17
Average Consumption (l/s)			8.17
Weighted Average Consumption (l)			5.72
Consumption for Calculation (l/s)			8.17

Kitchen Taps

Tap Fitting Type	Flow Rate Litres/Min	Quantity (No.)	Total per Fitting type
Kitchen Tap	6.00	1	6.00
			0.00
			0.00
Total No. of Fittings (No.)		1	
Total Flow (l/s)			6.00
Maximum Flow (l/s)			6.00
Average Flow (l/s)			6.00
Weighted Average Flow (l/s)			4.20
Flow for Calculation (l/s)			6.00

Other Fittings

Waste Disposal Y/N	N
Water softner	
Consumption beyond 4% l/p/d	

Use of grey water and harvested rainwater

Total Grey water from WHB taps (l)	
Total Available Grey Water Supply (l)	121.56
Possible Demand (l)	92.13
Grey/Rain Installed Capacity (l)	0.00
Figure for Calculation lit/person/day	0.00

Water Use Assessment

Installation Type	Unit	Capacity/ Flow Rate	Use Factor	Fixed use (l/p/day)	Total Use (l/p/day)
WC Single Flush	Volume (l)	0.00	4.42	0.00	0.00
WC Dual Flush	Full Flush (l)	0.00	1.46	0.00	0.00
	Pt Flush (l)	0.00	2.96	0.00	0.00
WC's (Multiple)	Volume (l)	3.07	4.42	0.00	13.55
Taps Exc. Kitchen	Flow Rate	2.00	1.58	1.58	4.74
Bath (shower present)	(l/s)	130.00	0.11	0.00	14.30
Shower (bath present)	(l/s)	6.00	4.37	0.00	26.22
Bath Only	(l)	0.00	0.50	0.00	0.00
Shower Only	(l/s)	0.00	5.60	0.00	0.00
Kitchen Taps	(l/s)	6.00	0.44	10.36	13.00
Washing Machines	(l/kgdry)	8.17	2.10	0.00	17.16
Dishwashers	(l/place)	0.61	3.60	0.00	2.19
Waste Disposal	(l/s)	0.00	3.08	0.00	0.00
Water Softner	(l/s)	0.00	1.00	0.00	0.00
Total Calculated Water Use (l/p/day)					91.16
Grey/RainWater Reused (l)					0.00
Normalisation Factor (Factor)					0.91
Total Consumption CSH (l/p/day)					82.95
External Water Use Allowance (l)					5.00
Total Consumption Part G (l/p/day)					87.95

<< Note - these may be default values.
<< You can change them by entering
the actual appliances in the
appropriate sections above

Assesment Result

PASS

Water Efficiency Calculator for New Dwellings (V1f - Aug 2010)

Project Details

Address/Reference	Land South of Bolney Road, Ansty	Case Reference	E1554
Number of Bedrooms	3	Occupancy for Calculation Purposes	4

Appliance/Useage Details

Taps (Excluding Kitchen Taps)

Tap Fitting Type	Flow Rate Litres/Min	Quantity (No.)	Total per Fitting type
Mixer Taps	2.00	2	4.00
			0.00
			0.00
			0.00
			0.00
			0.00
Total No. of Fittings (No.)		2	
Total Flow (l/s)			4.00
Maximum Flow (l/s)			2.00
Average Flow (l/s)			2.00
Weighted Average Flow (l/s)			1.40
Flow for Calculation (l/s)			2.00

Showers

Shower fitting Type	Flow Rate Litres/Min	Quantity (No.)	Total per Fitting type
Thermostatic Shower	6.00	2	12.00
			0.00
			0.00
			0.00
			0.00
			0.00
Total No. of Fittings (No.)		2	
Total Flow (l/s)			12.00
Maximum Flow (l/s)			6.00
Average Flow (l/s)			6.00
Weighted Average Flow (l/s)			4.20
Flow for Calculation (l/s)			6.00

Baths

Bath Type	Capacity to Overflow	Quantity (No.)	Total per Fitting type
Bath	130.00	1	130.00
			0.00
			0.00
			0.00
Total No. of Fittings (No.)		1	
Total Capacity (l)			130.00
Maximum Capacity (l)			130.00
Average Capacity (l)			130.00
Weighted Average Capacity (l)			91.00
Capacity for Calculation (l)			130.00

WCs

WC Type	Full Flush Volume	Part Flush Volume	Quantity (No)
Dual WC	4.00	2.60	3
Total number of fittings			3
Average effective flushing volume			3.07

Dishwashers

Dishwasher Type	L per Place Setting	Quantity (No.)	Total per Fitting type
Samsung 2021 Series 11	0.61	1	0.61
			0.00
Total No. of Fittings (No.)		1	
Total Consumption (l)			0.61
Maximum Consumption (l)			0.61
Average Consumption (l/s)			0.61
Weighted Average Consumption (l)			0.43
Consumption for Calculation (l/s)			0.61

Washing Machines

Washing Machine Type	L per Kg Dry Load	Quantity (No.)	Total per Fitting type
Samsung WW90T684DL	5.56		0.00
			0.00
Total No. of Fittings (No.)		0	
Total Consumption (l)			8.17
Maximum Consumption (l)			8.17
Average Consumption (l/s)			8.17
Weighted Average Consumption (l)			5.72
Consumption for Calculation (l/s)			8.17

Kitchen Taps

Tap Fitting Type	Flow Rate Litres/Min	Quantity (No.)	Total per Fitting type
Kitchen Tap	6.00	1	6.00
			0.00
			0.00
Total No. of Fittings (No.)		1	
Total Flow (l/s)			6.00
Maximum Flow (l/s)			6.00
Average Flow (l/s)			6.00
Weighted Average Flow (l/s)			4.20
Flow for Calculation (l/s)			6.00

Other Fittings

Waste Disposal Y/N	N
Water softner	
Consumption beyond 4% l/p/d	

Use of grey water and harvested rainwater

Total Grey water from WHB taps (l)	
Total Available Grey Water Supply (l)	162.08
Possible Demand (l)	122.85
Grey/Rain Installed Capacity (l)	0.00
Figure for Calculation lit/person/day	0.00

Water Use Assessment

Installation Type	Unit	Capacity/ Flow Rate	Use Factor	Fixed use (l/p/day)	Total Use (l/p/day)
WC Single Flush	Volume (l)	0.00	4.42	0.00	0.00
WC Dual Flush	Full Flush (l)	0.00	1.46	0.00	0.00
	Pt Flush (l)	0.00	2.96	0.00	0.00
WC's (Multiple)	Volume (l)	3.07	4.42	0.00	13.55
Taps Exc. Kitchen	Flow Rate	2.00	1.58	1.58	4.74
Bath (shower present)	(l/s)	130.00	0.11	0.00	14.30
Shower (bath present)	(l/s)	6.00	4.37	0.00	26.22
Bath Only	(l)	0.00	0.50	0.00	0.00
Shower Only	(l/s)	0.00	5.60	0.00	0.00
Kitchen Taps	(l/s)	6.00	0.44	10.36	13.00
Washing Machines	(l/kgdry)	8.17	2.10	0.00	17.16
Dishwashers	(l/place)	0.61	3.60	0.00	2.19
Waste Disposal	(l/s)	0.00	3.08	0.00	0.00
Water Softner	(l/s)	0.00	1.00	0.00	0.00
Total Calculated Water Use (l/p/day)					91.16
Grey/RainWater Reused (l)					0.00
Normalisation Factor (Factor)					0.91
Total Consumption CSH (l/p/day)					82.95
External Water Use Allowance (l)					5.00
Total Consumption Part G (l/p/day)					87.95

<< Note - these may be default values.
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the actual appliances in the
appropriate sections above

Assesment Result

PASS