



BEYOND BUILDING

Energy and Sustainability Statement

Land at Bird in Eye Farm, Uckfield, TN22 5HA

On behalf of Croudace Homes Group

Cr.BI.TN22

R01

Date: July 24

Revision History

Revision	Issue Date	Description	Issued by	Checked by
R00	21/05/2021	Original Document	GS	ME
R01	30/07/2024	Updates to the Site Layout	MK	DS

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Calculations contained within this report have been produced based on information supplied to Energist by the Client and the Design Team. Any alterations to the technical specification on which this report is based will invalidate its findings.

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EXECUTIVE SUMMARY

This Energy and Sustainability Statement has been produced by Energist UK on behalf of Croudace Homes Group ('the Applicant').

It will set out the design measures that have been implemented by the Applicant to achieve the required CO₂ reductions at the development site: Land at Bird in Eye Farm, South of Bird in Eye Hill, Uckfield, TN22 5HA ('the Development').

This Statement has been produced in support of a planning application being submitted to Wealden District Council to show compliance with Policy WCS14 Presumption in favour of sustainable development contained within the Wealden District Local Plan Core Strategy (2013). This is achieved by outlining the predicted energy demand and resultant carbon emissions of the development. It also shows how the proposals have incorporated energy efficiency measures informed by the Wealden Design Guide Supplementary Planning Document Section 4 Sustainability. Furthermore, this statement sets out the approach to satisfying the environmental objectives of Wealden planning policy. This will be achieved by contributing to protecting and enhancing our natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change.

The Statement will demonstrate measures taken by the Applicant to comply with:

- i) The Climate Change Act (2008).
- ii) National Planning Policy Framework.
- iii) Wealden District Local Plan Core Strategy (2013).
- iv) Wealden Design Guide Supplementary Planning Document (2008).
- v) Conservation of fuel and power: Approved Document L (ADL, 2021 edition incorporating 2023 amendments – for use in England).

This Energy and Sustainability Statement describes demand-reduction measures and energy-efficiency measures in relation to how the Applicant meets the objectives of the relevant policies.

It concludes that the following combination of measures, summarised in Table 1 below, are included in the design of the Development:

Table 1 - Measures incorporated to deliver the energy efficient and sustainable development

Energy Saving and Efficiency	- Energy-efficient building fabric and insulation to all heat loss floors, walls and roofs. - Quality of build will be confirmed by achieving good air-tightness results throughout. - Efficient-building services including high-efficiency space heating and domestic hot water systems. - Efficient MVHR system throughout - Low-energy lighting throughout the building.
Sustainable design	- Implementing water-efficient appliances and flow restrictors to reduce consumption and operational costs. - Developing a Resource Management Plan (RMP) to minimise landfill use, prioritise recycling, and set waste reduction targets. - Adhering to the Considerate Constructors Scheme, focusing on resource efficiency and pollution control. - Sourcing materials locally and responsibly, prioritising certified sustainable timber, and reusing materials where feasible. - Minimising VOC emissions in paints and fittings, controlling dust, and properly managing waste and noise on-site. - Installing digital Smart Meters to monitor energy consumption and support future Smart Grid integration.

The impact of the energy efficient design measures is illustrated in Figure 1.

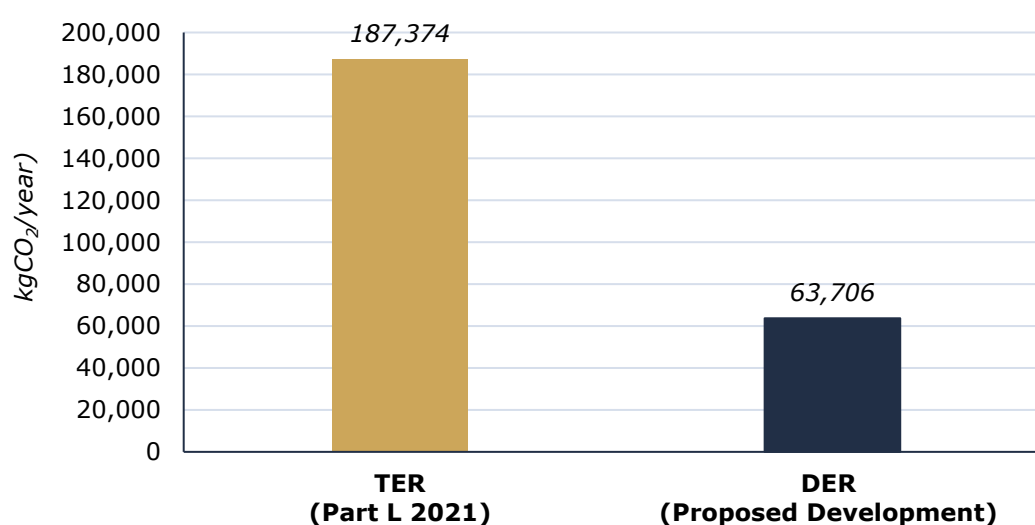


Figure 1 - How the Development complies with the relevant energy requirements.

The CO₂ emissions and percentage savings are set out in Table 2.

Table 2 - Development's Target Emission Rate and Dwelling Emission Rate and associated on-site CO₂ reductions

	CO ₂ emissions	
	kg/CO ₂ per annum	% reduction
Target Emission Rate (TER, Baseline): Compliant with AD L 2021	187,374	-
Proposed Development's Dwelling Emission Rate (DER):	63,706	66.0%

Moreover, the development's overall energy demand is expected to decrease by 24.9%.

1. INTRODUCTION

1.1 Site Description

The residential development at Land at Bird in Eye Farm is situated south of Bird in Eye Hill, Uckfield, TN22 5HA, under the jurisdiction of Wealden District Council.

The proposed site layout is shown in Figure 2 below.



Figure 2 - Site location for the scheme at Land at Bird in Eye Farm, South of Bird in Eye Hill, Uckfield.
[Source: Paul Brown RIBA Chartered Architect, Illustrative Site Layout, PRB/BIE/202H, dated June 2024]

The project will consist of 180 residential units, including 11 flats (with 1 and 2 bedrooms) and 169 houses (with 1, 2, 3, and 4 bedrooms). The breakdown of the accommodation schedule is detailed in the table below.

Table 3 - Accommodation schedule for the development at Land at Bird in Eye Farm (provided by the client in July 2024)

House / flat Type	Quantity	No. of beds	Floor area per unit (m ²)	Total floor area (m ²)
S4026	17	4	134.6	2,288
S4023M	4	4	118.1	472
B3017M	28	3	99.2	2,778

B3018M	13	3	99	1,287
B3015M	8	3	94.4	755
B2011M	21	2	80.6	1,693
B2010M	3	2	75.1	225
B2009M	10	2	72	720
F2006M	2	2	102.8	206
F1002M	9	1	61.8	556
A3710M	9	3	93	837
A2709M	6	2	79.4	476
A2708M	33	2	79.4	2,620
A2706M	1	2	79.2	79
A1701M	4	1	50	200
A1702M	12	1	55.7	668
Totals	180			15,861

1.2 Purpose of the Energy and Sustainability Statement

The Statement is written in support of the planning application being submitted to Wealden District Council.

The Statement will demonstrate measures taken by the Applicant to comply with:

- i) The Climate Change Act (2008).
- ii) National Planning Policy Framework.
- iii) Wealden District Local Plan Core Strategy (2013).
- iv) Wealden Design Guide Supplementary Planning Document (2008).
- v) Conservation of fuel and power: ADL 2021 (incorporating 2023 amendments – for use in England).

1.3 Methods

SAP

Energist UK has used SAP 10.2 methodology to calculate energy demand for 8 representative homes. The data has been modelled to reflect the expected CO₂ emission rates and energy demand for all proposed dwellings and houses included in the development application for this site.

2. ENERGY

2.1 Introduction

In order to measure the effectiveness of demand-reduction measures, it is first necessary to calculate the baseline energy demand and this has been done using SAP 10.2 methodology. This can also be referred to as the Target Emission Rate (TER.) The baseline is calculated using a mains gas heating system.

The resulting AD L 2021 TER for Bird in Eye Farm, Uckfield has been calculated using Part L model designs which have been applied to the Applicant's Development details. The TER, or baseline energy demand, represents the maximum CO₂ emissions that are permitted for the Development in order to comply with AD L 2021.

2.2 Development's Baseline

The resulting TER, representing the total maximum CO₂ emissions permitted for the Development has been calculated as **187,374 kg/CO₂ per annum**. To ensure compliance with AD L 2021, CO₂ emissions should not exceed this figure.

Table 4 - Development's Target Emission Rate

	CO ₂ emissions	
	kg/CO ₂ per annum	% reduction
Target Emission Rate: Compliant with AD L 2021	187,374	-

Development's Reduced Energy Demand

The residential development at Land at Bird in Eye Farm, Uckfield achieves a high quality, sustainable design by integrating the following design measures to reduce energy demand:

- Energy-efficient building fabric and insulation to all heat loss floors, walls and roofs.
- Quality of build will be confirmed by achieving good air-tightness results throughout.
- Efficient-building services including high-efficiency heating systems.
- Low-energy lighting throughout the building.

Designing an efficient thermal envelope will greatly reduce the need for space heating as heat transmittance through the thermal elements is reduced, whilst low air permeability rates will also reduce heating demand by reducing the volume of air that can penetrate the building, minimising heat losses in the winter and heat gains in the summer.

As part of a fabric first approach, the building fabric has been carefully considered, along with the specification of energy efficient plant. The following design specification is proposed.

Table 5 – The proposed design specification for Bird in Eye Farm, Uckfield

Element	Design Specification
Ground Floor U-Value (W/m ² .K)	0.12
Exposed Floor U-Value (W/m ² .K)	0.15
External Wall U-Value (W/m ² .K)	0.17
Wall to Garage (W/m ² .K)	0.17
Bay Roof U-Value (W/m ² .K)	0.15
Cold Pitch Roof U-Value (W/m ² .K)	0.11
Glazing U-Value – including Frame (W/m ² .K)	1.30
Glazing G Value	0.63

Door U-Value (W/m ² .K)	1.20
Design Air Permeability (m ³ /(h.m ²)@50Pa)	4.0
Thermal Bridging	Bespoke construction details to be implemented
Space Heating	Samsung electric ASHP, feeding Radiators
Heating Controls	Time and temperature zone controls through arrangement of plumbing with delayed start thermostat
Domestic Hot Water	From ASHP; 250L Cylinder with thermostat in heated space with loss factor no greater than 1.9 kWh/day, fully insulated pipework and on separate timer
Ventilation	System 4 – MVHR with SFP of 0.5, and efficiency of 85%
Low Energy Lighting	100% Low Energy

The total calculated CO₂ emissions for Land at Bird in Eye Farm, Uckfield is **63,706 kg/CO₂ per annum**, which is a reduction of 66.0% (or a reduction of 123,668 kg/CO₂ per annum) over the Baseline. Please refer to Appendix 3 for SAP results.

Table 6 - Development's Dwelling Emission Rate and associated on-site CO₂ reductions

	CO ₂ emissions	
	kg/CO ₂ per annum	% reduction
Target Emission Rate (TER, Baseline): Compliant with AD L 2021	187,374	-
Proposed Development's Dwelling Emission Rate (DER):	63,706	66.0%

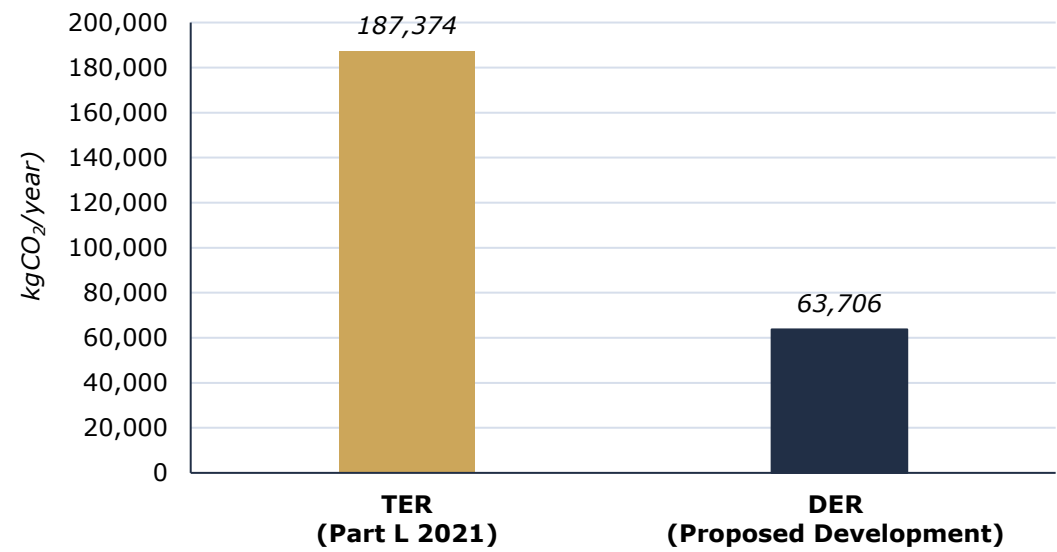


Figure 3 - TER and DER emissions summary

Additionally, the total energy demand for the development is projected to decrease by 24.9%. For a comprehensive breakdown of the energy demand for the various representative units, please refer to Appendix 3.

3. MAINS WATER CONSUMPTION

3.1 Introduction

The water consumption of a dwelling has a significant impact on not only direct operational running costs (i.e. water consumption charges), but also indirectly through additional energy usage and the heating of water for domestic use. This is, in part, reflected in SAP 10.2 methodology which assumes reduced energy consumption should a dwelling be compliant with Approved Document Part G 2015 (incorporating May 2024 amendments).

The standard of 105 litres of water per person per day can be met using the following specification as set out in Table 7 below. A detailed water-efficiency calculation, demonstrating how compliance with this standard will be met, can be found in Appendix 4.

Table 7 - Water calculations for new dwellings at Bird in Eye, Uckfield.

Element	Performance
Kitchen Taps flow rate	5 Litres per minute
Other basin Taps flow rate	4 Litres per minute
WCs Flush Volume	6/3 Litres
Shower Flow rate	8 Litres per minute
Bath Volume	150 Litres
Dishwasher water consumption	1.25 litres per place setting
Washing-machine water consumption	8.17 litres per Kg

4. Waste and Recycling

4.1 Introduction

The Applicant will implement an environmental management policy and provide a mandatory Resource Management Plan (RMP). This plan will outline the strategy for minimising landfill use and promoting recycling by sorting waste streams.

The Applicant will also manage recycling and waste efficiently, adhering to the principles of the waste hierarchy. This approach prioritises re-use, followed by recycling and composting, with energy recovery and disposal as last resorts. The goal is to reduce waste generation from the outset and ensure waste is diverted from landfill.

Specific waste minimisation targets will be established, and the RMP will detail the actions undertaken to achieve these targets. Procedures for estimating, monitoring, and measuring site waste will be followed to track progress.

In collaboration with the end user, a comprehensive waste strategy will be developed and implemented. This strategy will include ample, clearly labelled storage for recyclable materials, both inside and outside the buildings.

5. Site Management

5.1 Introduction

The Applicant will comply with an environmental management framework, such as the Considerate Constructors Scheme. This adherence will help ensure that the site is managed responsibly, with consideration for environmental and social impacts.

Additionally, the Applicant will monitor and minimise the use of resources, including on-site energy and water consumption, as well as pollution and off-site energy use. These efforts should align with current 'best practice' targets set by the Department of Trade and Industry (DTI).

6. Materials

6.1 Introduction

The Applicant will implement an environmental materials policy for sourcing construction products.

Whenever possible, materials will be sourced locally to reduce the environmental impact associated with transportation.

The selection of materials will consider the level of responsible sourcing certification they hold. The Applicant will make efforts to use locally sourced timber, adhering to the UK government's timber procurement policy. All timber specified for the project will be obtained from sustainable sources, such as FSC or PEFC-certified suppliers, whenever possible.

The Applicant will ensure that existing materials on-site will be reused where feasible. New materials will be evaluated for their potential for future reuse and recycling. The use of new aggregates will be minimised by incorporating recycled aggregates and prioritising waste reduction strategies.

7. Air Quality and Pollution

7.1 Introduction

VOLATILE ORGANIC COMPOUNDS

Volatile Organic Compounds (VOCs) in paint are a significant concern due to their environmental and health impacts. VOCs are organic chemicals with high vapour pressures that allow them to evaporate into the atmosphere. Solvents, in particular, are problematic within buildings. To promote a healthy indoor environment, the Applicant will ensure that all internal finishes and fittings will be specified to have low solvent content and minimal VOC emissions.

CONSTRUCTION SITE PRACTICES

Good construction site practices are essential for controlling and preventing pollution, and the Applicant will make efforts to minimise any negative impact on air quality from construction activities, which can contribute to air pollution, including land clearing, operating diesel engines, demolition, handling toxic materials, and generating dust (from materials like concrete, cement, wood, and stone).

DUST CONTROL AND REGULAR INSPECTIONS

Several measures will be implemented on-site to reduce pollution. Dust will be controlled using fine water sprays to dampen down the site. Regular inspections will be conducted to check for spillages, and care will be taken to prevent washing contaminants into waterways or drainage systems.

CONSTRUCTION WASTE MANAGEMENT

Construction waste skips will be covered when leaving the site to prevent debris from spreading. No materials will be burned on-site to avoid releasing harmful pollutants into the air. Noise pollution will be mitigated by handling materials carefully and using modern equipment and generators.

8. Smart Metering

8.1 Introduction

The Applicant will install digital Smart Meters to provide users with precise data on their energy consumption, allowing them to identify usage patterns, trends, and seasonal variations. This information will empower users to make informed adjustments to reduce their energy consumption.

Additionally, Smart Meters will equip network operators and energy suppliers for future integration with Smart Grid technologies.

9. CONCLUSIONS AND RECOMMENDATIONS

The Applicant has explored various options to reduce the CO₂ emissions and overall energy demand for the site at Bird in Eye Farm, Bird in Eye Hill, Uckfield. This Energy and Sustainability Statement outlines a set of feasible solutions that, when implemented, will ensure the development complies with relevant national planning policies and the Wealden District Local Plan Core Strategy's sustainable development policies. The Applicant demonstrates a strong commitment to delivering a sustainable development at Bird In Eye Farm, Uckfield, as evidenced by the following:

- The adoption of energy-efficient design and high-efficiency building services has resulted in a 66.0% reduction in CO₂ emissions and a 24.9% reduction in energy demand. These reductions surpass the requirements set by Part L1A 2021 and Policy WCS14 of the Wealden District Local Plan Core Strategy. Additionally, there is a 31% increase in performance compared to the Part L1A 2013 calculations presented in the previous version of this report.
- Designing the development to achieve a mains water consumption target of 105 litres or less per person per day, with an additional allowance of 5 litres for external use.
- Addressing sustainability aspects such as waste management, site management, sustainable materials sourcing, air quality and pollution control, and smart metering to deliver an environmentally responsible development.

The following combination of measures, summarised in Table 8 below, are included in the design of the Development:

Table 8 - Measures incorporated to deliver the energy efficient and sustainable development

Energy Efficiency	▪ Energy-efficient building fabric and insulation to all heat loss floors, walls and roofs. ▪ Quality of build will be confirmed by achieving good air-tightness results throughout. ▪ Efficient-building services including high-efficiency space heating and domestic hot water systems. ▪ Efficient MVHR system throughout ▪ Low-energy lighting throughout the building.
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Sustainable design	▪ Implementing water-efficient appliances and flow restrictors to reduce consumption and operational costs. ▪ Developing a Resource Management Plan (RMP) to minimise landfill use, prioritise recycling, and set waste reduction targets. ▪ Adhering to the Considerate Constructors Scheme, focusing on resource efficiency and pollution control. ▪ Sourcing materials locally and responsibly, prioritising certified sustainable timber, and reusing materials where feasible. ▪ Minimising VOC emissions in paints and fittings, controlling dust, and properly managing waste and noise on-site. ▪ Installing digital Smart Meters to monitor energy consumption and support future Smart Grid integration.
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The impact of the energy efficient design measures is illustrated in Figure 4.

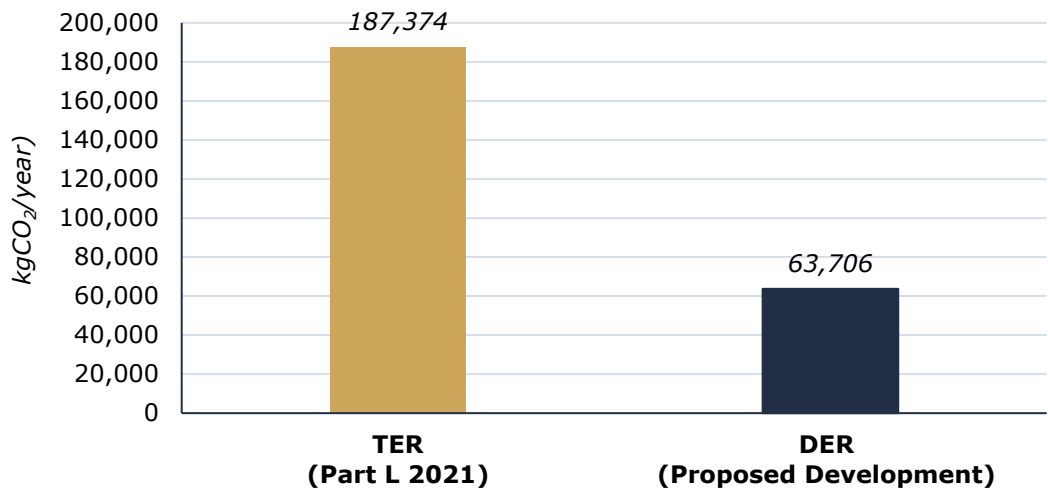


Figure 4 - How the Development complies with the relevant energy requirements.

The CO₂ emissions and percentage savings are set out in Table 9.

Table 9 - Development's Target Emission Rate and Dwelling Emission Rate and associated on-site CO₂ reductions

	<i>CO₂ emissions</i>	
	<i>kg/CO₂ per annum</i>	<i>% reduction</i>
Target Emission Rate (TER, Baseline): Compliant with AD L 2021	187,374	-
Proposed Development's Dwelling Emission Rate (DER):	63,706	66.0%

APPENDICES

APPENDIX 1: LIST OF ABBREVIATIONS

AD L 2021	<i>Approved Document Part L of Buildings Regulations 2021</i>
ASHP	<i>Air Source Heat Pump</i>
BER	<i>Building Emission Rate</i>
BRE	<i>Building Research Establishment</i>
CIBSE	<i>Chartered Institution of Building Services Engineers</i>
COP	<i>Coefficient of Performance</i>
DER	<i>Dwelling Emission Rate</i>
DHN	<i>District Heat Network</i>
DHW	<i>Domestic Hot Water</i>
EAHP	<i>Exhaust Air Heat Pump</i>
EVC	<i>Electric Vehicle Charging</i>
FEES	<i>Fabric Energy Efficiency Standard</i>
GLA	<i>Greater Uckfield Authority</i>
LZC	<i>Low and Zero-Carbon technologies</i>
NCM	<i>National Calculation Methodology</i>
PV	<i>Photovoltaics</i>
SAP	<i>Standard Assessment Procedure</i>
SBEM	<i>Simplified Building Energy Model</i>
TER	<i>Target Emission Rate</i>
TFEE	<i>Target Fabric Energy Efficiency</i>
VRF	<i>Variable Refrigerant Flow</i>

APPENDIX 2: PLANNING POLICY AND DESIGN GUIDANCE

The Climate Change Act (2008)

Passed in November 2008, the Climate Change Act mandated that the UK would reduce emissions of six key greenhouse gases, including Carbon Dioxide, by 80% by 2050.

As a consequence, the reduction of carbon dioxide emissions is at the forefront of National, Regional and Local Planning Policy, along with continuing step changes in performance introduced by the Building Regulations Approved Document L (2021).

Approved Document L (2021)

This development is subject to the requirements of Approved Document L (2021). ADL 2021 represented an approximate reduction of 6% in the Target Emission Rate (kg/CO₂/sqm per annum) over the requirements of Approved Document L (2010) for residential development and an aggregate 9% reduction for non-residential development. ADL 2021 has seen a further 31% improvement over these targets.

It also sees the introduction of a Primary Energy Target, a measure of heating demand (kWh/m² per annum) to ensure new-build dwellings with low-carbon heating systems still meet satisfactory energy-efficiency standards.

National Planning Policy Framework (2023)

The National Planning Policy Framework (NPPF) encourages Local Planning Authorities to 'support the transition to a low carbon future in a changing climate, taking full account of flood risk and costal change' (NPPF paragraph 157), 'whilst taking a proactive approach to mitigating and adapting to climate change, taking into account the long-term implication for flood risk, costal change, water supply, biodiversity and landscapes, and the risk of over shading from rising temperatures'. (NPPF Paragraph 158).

Paragraph 160, upholds the requirement for Local Plans to: 'To help increase the use and supply of renewable and low carbon energy and heat, plans should:

- a) provide a positive strategy for energy from these sources, that maximises the potential for suitable development, while ensuring that adverse impacts are addressed satisfactorily (including cumulative landscape and visual impacts);*

b) consider identifying suitable areas of renewable and low carbon energy sources, and supporting infrastructure, where this would help secure their development; and

c) identify opportunities for development to draw its energy supply from decentralised, renewable or low carbon energy supply systems and for collocating potential heat customers and suppliers.'

In paragraph 162, NPPF stipulates that local planning authorities should take account of the benefits of decentralised energy and passive design measures as a means of energy efficiency in new development: 'In determining planning applications, local planning authorities should expect new development to:

a) comply with any development plan policies on local requirements for decentralised energy supply unless it can be demonstrated by the applicant, having regard to the type of development involved and its design, that this is not feasible or viable; and

b) take account of landform, layout, building orientation, massing and landscaping to minimise energy consumption.'

Wealden District Core Strategy Local Plan (2013)

The following policies are applicable to this development from the Wealden District Core Strategy Local Plan:

Policy WCS14 Presumption in Favour of Sustainable Development

When considering development proposals the Council will take a positive approach that reflects the presumption in favour of sustainable development contained in the National Planning Policy Framework. It will always work proactively with applicants jointly to find solutions which mean that proposals can be approved wherever possible, and to secure development that improves the economic, social and environmental conditions in the area.

Planning applications that accord with the policies in the Local Plan (and, where relevant, with policies in neighbourhood plans) will be approved without delay, unless material considerations indicate otherwise. Where there are no policies relevant to the application or relevant policies are out of date at the time of making the decision then the Council will grant permission unless material considerations indicate otherwise – taking into account whether:

- *Any adverse impacts of granting permission would significantly and demonstrably outweigh the benefits, when assessed against the policies in the National Planning Policy Framework taken as a whole; or*
- *Specific policies in that Framework indicate that development should be restricted.*

Section 2.11

The Core Strategy should contribute to mitigating climate change by seeking to reduce carbon emissions and other greenhouse gases through: the appropriate selection of areas for growth; providing sustainable transport alternatives to the private motor vehicle; sustainable construction techniques; and use of renewable and low carbon energy sources. Adapting and mitigating climate change is also necessary through avoiding inappropriate development in areas of high flood risk and supporting appropriate flood risk infrastructure; providing for a resilient environment within our built up areas; protecting our landscape; and planning for the future effects of climate change on biodiversity through the green infrastructure network.

Section 7.28

In order to set targets for sustainable construction techniques it is necessary to justify the need for any local targets and not duplicate those provided in other legislation. Work has been undertaken in relation to setting a carbon emission target in both residential and commercial properties and is set out in the Wealden Renewable Energy Study. However, it is proposed that through revisions to Part L of the Building Regulations that national requirements for carbon emission reductions will be introduced (for both domestic and non-domestic buildings). Therefore it will not be necessary to duplicate a similar provision in the Core Strategy.

However, if opportunities arise for decentralised renewable energy in sites allocated in the Strategic Sites or Delivery and Site Allocations DPDs this can be detailed in these documents, and if changes in Building Regulations do not occur further consideration will be made as to the need to implement carbon reduction targets. Criteria for the siting of renewable and or low carbon energy sources will be provided in the Delivery and Site Allocations DPD

APPENDIX 3: SAP RESULTS

Unit identifier (e.g. plot number, dwelling type etc.)	Model total floor area [m ²]	Baseline (compliant with AD L 2021)						Reduced Energy Demand					
		Target Emission Rate (TER) [kgCO ₂ /m ² /yr]	Heating demand [kWh/yr]	Hot water demand [kWh/yr]	Auxiliary demand [kWh/yr]	Lighting [kWh/yr]	Total energy demand [kWh/yr]	Dwelling Emission Rate (DER) [kgCO ₂ /m ² /yr]	Heating demand [kWh/yr]	Hot water demand [kWh/yr]	Auxiliary demand [kWh/yr]	Lighting [kWh/yr]	Total energy demand [kWh/yr]
A2708M	79.4	11.41	192,924	229,826	6,828	16,576	253,230	3.88	54,469	84,309	11,116	17,131	167,025
A3710M	93.6	11.91	330,800	280,889	8,053	19,835	308,777	3.89	86,128	105,002	18,413	21,650	231,193
B2011M	80.6	11.41	201,136	234,181	6,932	17,355	258,467	4.11	61,899	86,054	16,085	18,035	182,073
B3015M	92.0	11.98	318,548	275,155	7,912	18,887	301,954	3.98	87,144	103,075	17,426	20,506	228,151
B3017M	97.4	11.55	354,795	293,985	8,372	20,925	323,283	3.79	90,389	110,438	19,477	23,097	243,401
B3018M	92.2	12.17	327,824	275,642	7,929	19,290	302,861	4.10	94,211	103,128	17,221	20,951	235,510
S4023M	114.3	11.03	540,521	351,521	9,830	27,849	389,200	3.71	133,573	134,162	27,249	32,023	327,008
S4026	133.8	10.80	753,679	415,330	11,507	34,205	461,041	3.58	196,034	157,699	36,214	40,651	430,599

APPENDIX 4: WATER-EFFICIENCY CALCULATIONS

(Please see the following page for water-efficiency calculations)

ENERGIST

WATER EFFICIENCY CALCULATOR

Water efficiency calculator for 3 Bed , Land at Bird in Eye Farm, Uckfield , TN22 5HA

Our reference: CR.BI.TN225HA
Regulation: Part G (2015) Enhanced

Assessor: Dominique Stockford
Date issued: 30-7-2024. Revision:

This Compliance Checklist follows the methodology as listed in Appendix A of UK Building Regulations Approved Document AD G (2016). The targets comply with requirements of Part G (2015) Enhanced as used in England.

Table A1: The water efficiency calculator

Installation type	Unit of measure	Capacity / Flow rate	Use factor	Fixed use litres/person/day	Litres per person per day
WC (single flush)	Flush volume (litres)	0.0	4.42	0	0.00
WC (dual flush)	Full flush volume (litres)	6.0	1.46	0	8.76
	Part flush volume (litres)	3.0	2.96	0	8.88
WCs (multiple fittings)	Average effective flushing volume (litres)	0.0	4.42	0	0.00
Taps (excluding kitchen / utility room taps)	Flow rate (litres per minute)	4.0	1.58	1.58	7.90
Bath (where shower also present)	Capacity to overflow (litres)	150.0	0.11	0	16.50
Shower (where bath also present)	Flow rate (litres per minute)	8.0	4.37	0	34.96
Bath only	Capacity to overflow (litres)	0.0	0.50	0	0.00
Shower only	Flow rate (litres per minute)	0.0	5.60	0	0.00
Kitchen / utility room sink taps	Flow rate (litres per minute)	5.0	0.44	10.36	12.56
Washing machine	Litres/kg of dry load	8.2	2.10	0	17.16
Dishwasher	Litres/place setting	1.3	3.60	0	4.50
Waste disposal unit	Litres/use	0.0	3.08	0	0.00
Water softener	Litres/person/day	0.0	1.00	0	0.00
Total calculated use					111.22
Contribution from greywater (litres/person/day) from Table 4.6					0.00
Contribution from rainwater (litres/person/day) from Table 5.5					0.00
Normalisation factor					0.91
Total water consumption					101.21
External water use					0.00
Total water consumption (litres/person/day)					101.21

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Maximum target

105.00

Table A2: Consumption calculator

Table A2.1: Taps (excluding kitchen sink taps)

Tap fitting type	Flow rate (litres/min)	Quantity	Total per fitting type
Taps	4.0	6	24.00
Total (Sum of all quantities)		6	
Total (Sum of all totals per fitting type)			24.00
Average flow rate (litres/min)			4.00
Maximum flow rate (litres/min)			4.00
Proportionate flow rate (litres/min)			2.80

Table A2.2: Baths

Bath fitting type	Capacity to overflow (litres)	Quantity	Total per fitting type
Bath	150.0	1	150.0
Total (Sum of all quantities)		1	
Total (Sum of all totals per fitting type)			150.0
Average capacity to overflow (litres)			150.0
Highest capacity to overflow (litres)			150.0
Proportionate capacity to overflow (litres)			105.0

Table A2.3: Taps (kitchen and utility room)

Tap fitting type	Flow rate (litres/min)	Quantity	Total per fitting type
Kitchen	5.00	2	10.00
Total (Sum of all quantities)		2	
Total (Sum of all totals per fitting type)			10.00
Average flow rate (litres/min)			5.00
Maximum flow rate (litres/min)			5.00
Proportionate flow rate (litres/min)			3.50

Table A2.4: Dishwashers

Type of dishwasher	Litres per place setting	Quantity	Total per fitting type
Default assumed	1.25	1	1.25
Total (Sum of all quantities)		1	
Total (Sum of all totals per fitting type)			1.25
Average (litres per place setting)			1.25
Highest (litres per place setting)			1.25
Proportionate (litres per place setting)			0.88

Table A2.5: Washing machines

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Type of washing machine	Litres per kg dry load	Quantity	Total per fitting type
Default assumed	8.17	1	8.17
Total (Sum of all quantities)		1	
Total (Sum of all totals per fitting type)			8.17
Average (litres per kg of dry load)			8.17
Highest (litres per kg of dry load)			8.17
Proportionate (litres per kg of dry load)			5.72

Table A2.6: Showers

Shower fitting type	Flow rate (litres/min)	Quantity	Total per fitting type
Shower	8.00	2	16.00
Total (Sum of all quantities)		2	
Total (Sum of all totals per fitting type)			16.00
Average flow rate (litres/min)			8.00
Highest flow rate (litres/min)			8.00
Proportionate flow rate (litres/min)			5.60

Table A2.7: WCs

WC type	Effective flushing volume (litres)	Quantity	Total per fitting type
Toilet	3.99	3	11.97
Total (Sum of all quantities)		3	
Total (Sum of all totals per fitting type)			11.97
Average effective flushing volume (litres)			3.99

Table A3: Water softener consumption calculation

Not applicable. Water softener not included.

Table A4: Greywater demand calculations

Not applicable. No greywater system present.

Table A5: Rainwater collection calculation

Not applicable. No rainwater system present.