



Sustainability Statement

The Common, Barwell

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Revision History

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About Environmental Economics

Our team of experienced consultants specialise in construction and building energy. We have qualifications in sustainability, energy, engineering, building physics and construction as well as environmental, quality management and auditing.

We develop flexible, practical, cost-effective specifications for our clients through identifying solutions and delivering design advice. This includes the following disciplines:

- *Energy Reports*
- *Sustainability Statements*
- *Compliance assessments and advice covering*
 - *Part L (SAP) & Future Homes Standard*
 - *Part F (ventilation)*
 - *Part G (water)*
 - *Part O (overheating)*
- *Overheating - TM59 dynamic modelling*
- *Overheating – simple method*
- *Life cycle carbon assessments*
- *Net zero carbon assessments*
- *BREEAM*
- *SBEM (existing and new build)*
- *Minimum Energy Efficiency Standards (MEES)*
- *Thermal Bridging (Psi value calculations)*

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1. Executive Summary

- 1.1.1. Environmental Economics Ltd has been commissioned by David Wilson Homes East Midlands to prepare a sustainability statement for the residential site The Common, Barwell. This document sets out how the development proposal presents a positive sustainable development.
- 1.1.2. As part of the sustainable development strategy, the proposed development has been designed to consider sustainability in accordance with the National Planning Policy Framework (NPPF), the Hinckley and Bosworth Borough Council Local Plan 2006-2026, and Condition 31 of the Outline Planning Permission.
- 1.1.3. The proposed development is designed to achieve carbon emissions in line with both Part L 2021 and Future Homes Standard through the employment of low and zero carbon technologies. The site will be constructed in accordance with the relevant building regulations applicable at the commencement of development.
- 1.1.4. Enhanced building fabric specification with a Fabric-First approach including high efficiency insulation.
- 1.1.5. The use of smart meters will provide occupiers with real time data which will allow occupiers to manage their energy consumption, save money and reduce Carbon. This is particularly important as the UK migrates towards half-hourly pricing levels and the proposed smart grid system.
- 1.1.6. Potential overheating risk will be assessed in accordance with Approved Document O.
- 1.1.7. The proposed development is situated in Flood Zone 1, the lowest probability evaluated by the Environment Agency.
- 1.1.8. Water efficiency has been reviewed as part of the design process and a Part G compliant specification will be adopted, resulting in the higher standard (lower water use) of 110 litres/person/day.
- 1.1.9. While the development is still at an early stage of the design process, it is considered that the proposal meets or exceeds the required level of sustainability across all given criteria.

2. Project Overview

2.1. Description of Site

- 2.1.1. The site proposal consists of the construction of 90 residential dwellings including detached, semi-detached and terraced housing.
- 2.1.2. The proposed site plan is shown in Appendix A.

2.2. Brief

- 2.2.1. This report is required to address Condition 31 of the Outline Planning Permission, as follows:
- 2.2.2. Condition 31:
'The reserved matters application submitted for approval by the LPA shall include details of the proposed Sustainability Commitments that shall be in general accordance with the Energy Statement by Mainer dated 18 December 2023.'
- 2.2.3. The planning authority for this site is Hinckley and Bosworth Borough Council. The local plan containing the relevant planning policy is the Hinckley and Bosworth Borough Council Local Plan 2006-2026.
- 2.2.4. Within the Local Plan there are several relevant policies which are addressed herein.
- 2.2.5. Spatial Objective 12: Climate Change and Resource Efficiency
To minimise the impacts of climate change by promoting the prudent use of resources through sustainable patterns of development, investment in green infrastructure, minimising the use of resources and energy, increasing reuse and recycling of natural resources, increasing the use of renewable energy technologies and minimising pollution, including greenhouse gas emissions.
- 2.2.6. Policy 24: Sustainable Design and Technology
The council will require all development (as detailed below) in Hinckley, Burbage, Barwell and Earl Shilton to meet the following requirements, unless it would make the development unviable: Residential developments to meet the Code for Sustainable Homes at the following levels:
- *Minimum of Code Level 3 to 2013*
 - *Minimum of Code Level 4 from 2013 - 2016*
 - *Code level 6 from 2016 onwards*
- Residential developments in Key Rural Centres and Rural Villages will be expected to meet the sustainability targets set out in Building a Greener Future.*
- Schools, hospitals and offices developments to meet, at a minimum, BREEAM (or equivalent) assessment rating of 'very good'. From 2016 they will be required to meet, at a minimum, BREEAM (or equivalent) assessment rating of 'excellent'.*
- The Code/BREEAM level to be met will be set at the time of determination of detailed planning permission or reserved matters unless other legislation/guidance requires a higher level at the time of construction.*

- 2.2.7. The Code for Sustainable Homes is no longer a regulatory requirement for development. The development therefore must achieve compliance with the relevant version of building regulations (Part L or Future Homes Standard) applicable at the time of construction.
- 2.2.8. This report seeks to address the planning policies relevant for the proposed site and present a sustainable strategy.
- 2.2.9. It should be noted that there is currently a new Local Plan (Hinckley and Bosworth Local Plan 2024-2045), which is currently undergoing Regulation 18 consultation. Should this local plan be adopted prior to a decision being made on this application this could require updates to this document.
- 2.2.10. This report should be read in conjunction with other reports prepared for this development.

2.3. Building Regulations

- 2.3.1. All newbuild development must comply with Building Regulations. The Approved Document L 2021 (AD-L 2021) provides for a 31% reduction in Carbon emissions over the previous 2013 edition. It is understood that part or all of The Common, Barwell will be developed in accordance with AD-L 2021.
- 2.3.2. Parts of this development may also fall under the upcoming Future Homes Standard, which was expected to be published in 2025, now expected in the first quarter of 2026, and represents an improvement on current (Part L 2021) building regulations by approximately 49%.
- 2.3.3. There are two transitional periods proposed for the adoption and implementation of the FHS. It is therefore likely that some or all of the units on site will fall under FHS regulations.
- 2.3.4. The former government minister Christopher Pincher is quoted as saying, "A new home built to Future Homes Standard in 2025 is to have 75-80% lower carbon emissions than Part L 2013.
- 2.3.5. Based on the above statement and the 31% betterment from Part L1A 2013 to Part L1A 2021 regulations, it can be reasoned that the likely betterment over current regulations (Part L 2021) will be 49%, as shown below:

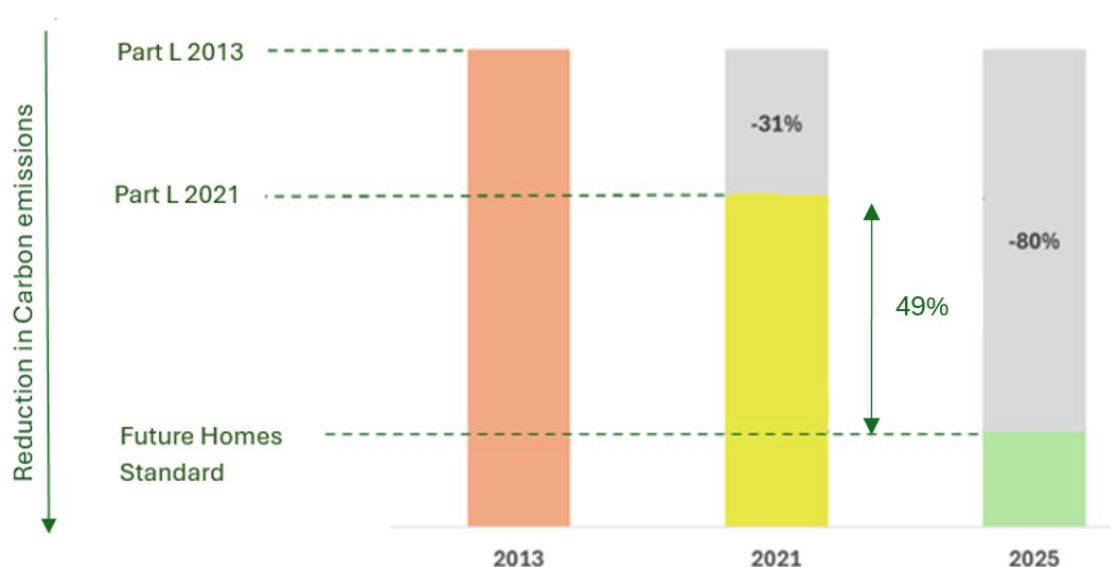


Figure 1: Regulatory targets for Carbon emissions. Percentage figures are reductions over Part L 2013 baseline.

3. Sustainability Appraisal

3.1. Green Guide Specification

3.1.1. The Green Guide is used to examine the environmental impact of the construction materials commonly used within dwellings.

3.1.2. The standard specification of materials used by Barratt Homes consists of predominantly 'A' and 'A+' Green Guide rated elements. 'A+' rated construction elements include: pitched roof construction, internal upper floors, internal timber partitions and external cavity walls.

3.1.3. Table 1 below shows a sample of materials used by Barratt Homes and their Green Guide rating.

Table 1

<i>Element</i>	<i>Green Guide Equivalent (online)</i>	<i>Code</i>	<i>Rating</i>
Ground Floor Option A (Beam and Aircrete Block)	Screed on insulation laid on grouted beam and Aircrete block flooring.	820140014	B
Ground Floor Option B (Beam and EPS Block)	Structural topping on beam and expanded polystyrene flooring	820140015	A+
Internal Upper Floors	Chipboard decking on timber I joists	807280024	A+
Wall – External Cavity (single & 2 storey) – Brick	Brickwork outer leaf, insulation, Aircrete blockwork inner leaf, cement mortar, plasterboard on battens, paint	806170615	A+
Wall – Internal Partition (timber) non loadbearing	Timber stud, plasterboard, paint	809760003	A+
Wall – Internal Partitions (masonry) (Used in very small number of cases)	Medium dense solid blockwork, plasterboard, paint	809180008	B
Wall – Party (cavity)	Robust Detail E-WM-22: Twin leaf 100mm min. solid medium dense blocks (1350-1600kg/m ³), with 100mm min. cavity including proprietary glass wool acoustic roll, type A wall ties, with gypsum-based board (9.8kg/m ²) on dabs and paint to each side	1118190007	C
Windows	PVC-U window with steel reinforcement, double glazed	813100009	A
Insulation	Glass wool insulation - density 12 kg/m ³	815320001	A+
Pitched Roof	Timber trussed rafters and joists with insulation, roofing underlay, counterbattens, battens and concrete plain tiles	812410017	A+

3.2. Responsible Sourcing

- 3.2.1. BDW has an established network of responsible sourcing certified suppliers that have been carefully selected to align with sustainability and responsible sourcing policies.
- 3.2.2. Materials used within construction of the proposed development will be at a certified standard, proving the materials sourced have been done so with sustainability in mind.
- 3.2.3. Responsible sourcing of materials can come in a variety of certifications including: BES 6001, FSC, PEFC and EMS.
- 3.2.4. Appendix B shows a wide range of Barratt's suppliers with material responsible sourcing certification including:
- *Wallboard supplier British Gypsum;*
 - *Aggregate/cement product supplier Tarmac;*
 - *Aircrete block supplier H+H Celcon;*
 - *Timber frame supplier Oregon Timber Frame.*
- 3.2.5. Additionally, the site aims to utilise timber that is procured sustainably and independently accredited by either the FSC or PEFC schemes. The Barratt Redrow Sustainable Procurement Policy can be seen in Appendix C. The policy sets a high standard of sustainability when sourcing materials.

3.3. Waste Management

- 3.3.1. Appendix D shows an extract of BDW's Sustainability Framework 2020+ that sets targets for waste management including at least 95% construction waste diverted from landfill as well as continued reductions in construction waste intensity.
- 3.3.2. The scheme aims to use waste reduction procedures to enable waste reduction and diversion of waste from landfill. The goal is to minimise waste and maximise re-use of resources in response to climate change. BDW achieved 97% of construction waste diverted from landfill in 2018 and BDW's Sustainability Framework 2020+ sets targets to continue diversion from landfill and reduce construction waste intensity.

3.4. Flood Risk

- 3.4.1. Appendix E shows the Environment Agency Flood Risk Map for the site location.
- 3.4.2. All residential development on site will be within Flood Zone 1, the lowest probability evaluated by the Environment Agency. Flood Zone 1 is defined as land with less than 1 in 1000 annual probability of river or sea flooding.
- 3.4.3. Zone 1 flood risk is considered best practice for a positive sustainable development and would be well located for a site that is resilient to climate change.

3.5. Sustainable Urban Drainage

- 3.5.1. A Sustainable Urban Drainage Assessment has been carried out for the site.
- 3.5.2. The assessments carried out consider any potential drainage and flood risk issues which could arise from the development and put forward recommendations to mitigate these impacts.
- 3.5.3. Full details of the recommendations put forward can be found in the associated report.

3.6. Ecology

- 3.6.1. A full Ecology Assessment has been carried out for the site.
- 3.6.2. The Ecology Assessment takes into account any habitats and species which could be impacted by the proposed development and puts forth recommendations on how to minimise any potential impacts and protect or improve any habitats.
- 3.6.3. Full details of the recommended approach can be found in the associated report.

3.7. Electric Vehicle Charging

- 3.7.1. Providing EV charging points or the ability to retrofit EV charging points is an exemplary measure for sustainability and promotes sustainable lifestyles for residents.
- 3.7.2. With the provision of EV charging points, residents would have ready opportunity to purchase / lease EV's and have immediate secure charging infrastructure. This aligns with current government policy to stop the sale of new petrol and diesel cars by 2035 (GOV.UK, April 2025).
- 3.7.3. The BEAMA Guide to Electric Vehicle Infrastructure (BEAMA, 2015) illustrates the various "Modes" of electric car charging, with Mode 1 being the slowest, and Mode 4 the fastest. Mode 1 is not recommended and Mode 4 is only recommended for public and commercial use. Modes 2 to 3 are suitable for dedicated charging of EV's at domestic properties. Please refer to Figure 2 below which shows common infrastructure side connections for Mode 2 and 3.

CONNECTOR TYPE	BS 1363	BS EN 60309-2	BS EN 62196-2 TYPE 2	BS EN 62196-2 TYPE 3
				
MODE	2	2	3	3
MAX POWER (kW) (at mains voltage i.e. harmonised EU voltages)	Single phase - 3	Single phase - 28.8 Three phase - 86.6	Single phase - 16.1 Three phase - 43.7	Single phase - 7.4 Three phase - 43.7
NOTES	Standard UK household plug & socket-outlet system	Standard industrial plug & socket-outlet system	Specialist EV	Specialist EV

Figure 2 – Common infrastructure options for Mode 2 and 3 EV charging points (BEAMA, 2015)

- 3.7.4. It is currently proposed that there will be provision of one EV charging point for all plots on this development.
- 3.7.5. In line with Part S, these EV charging points will be 7kW. The manufacturer of these charging points will be determined during detailed design stage.
- 3.7.6. The development therefore complies with Approved Document S of the 2021 Building Regulations.

3.8. Water Use

3.8.1. The design team will implement a specification which complies with the optional requirement of 110 litres/person/day as set out in Approved Document G 2015 with 2016 amendments (AD-G).

3.8.2. While the build specifications are not yet set, the table below provides an example of a compliant strategy, delivering reduced water consumption of 110litres/person/day.

		(1)	(2)	(3)	(4)
Installation type	Unit of measure	Capacity / flow rate	Use factor	Fixed use (litres/ person/ day)	Litres/ person/day = [(1) × (2)] + (3)
WC (dual flush)	Full flush volume (litres)	4	1.46	0.00	5.84
WC (dual flush)	Part flush volume (litres)	2.6	2.96	0.00	7.696
Taps (excluding kitchen/utility room taps)	Flow rate (litres/minute)	5	1.58	1.58	9.48
Bath (where shower also present)	Capacity to overflow (litres)	170	0.11	0.00	18.7
Shower (where bath also present)	Flow rate (litres/minute)	9	4.37	0.00	39.33
Kitchen/utility room sink taps	Flow rate (litres/minute)	5	0.44	10.36	12.56
Washing machine	Litres/kg dry load	8.17	2.1	0.00	17.157
Dishwasher	Litres/place setting	1.25	3.6	0.00	4.5
	(5)	Total calculated use = (Sum column 4)			115.3
	(6)	Contribution from greywater (litres/person/day) from Table 4.6			0
	(7)	Contribution from rainwater (litres/person/day) from Table 5.5			0
	(8)	Normalisation factor			0.91
	(9)	Total water consumption = [(5) – (6) – (7)] x (8)			104.9
	(10)	External water use			5.0
Approved Document G	(11)	Total water consumption = (9) + (10) (litres/person/day)			109.9

3.8.3. Alternative component consumption rates are available which can achieve the required water consumption. The rates provided are representative only.

3.8.4. The calculated results show that utilisation of the representative component's water consumption can achieve a maximum of 105 litres per person per day internally, and additional external water use of 5 litres per person per day.

3.9. Overheating Risk

- 3.9.1. Extreme temperatures have an adverse effect on health and wellbeing. 'Overheating' occurs when the building temperature exceeds the limits of thermal comfort. Since UK weather data records began in 1884, the ten warmest years have all occurred since 2003, including 2020, 2022 and 2023. Future temperatures should be considered across a building's lifetime to ensure further thermal comfort. Furthermore, advances in air tightness and thermal insulation levels have exacerbated overheating risk.
- 3.9.2. The Building Regulations (Amendment) (England), 2021, requires all residential buildings limit overheating risk by limiting unwanted solar gains in summer and by providing an adequate means of removing excess heat from the indoor environment. This can be assessed either by using the simplified method, which is set out in Section 1 of Approved Document O (ADO), or by using the dynamic thermal modelling method, as set out in Section 2 of ADO, which is based on CIBSE TM59.
- 3.9.3. There are many factors to consider when assessing overheating risk, such as the building orientation, cross ventilation, glazing area, window openable area, total solar transmittance of glazing, building fabric efficiency, solar shading and ventilation provision.
- 3.9.4. Solutions to mitigate overheating risk include improving shading, which limits solar gains, and increasing ventilation, which can help purge habitable rooms of hot air. Shading solutions include low g-factor glazing, brise soleil, shutters and overhangs. Ventilation solutions include low-noise extract fans, mechanical ventilation (if heat recovery is specified, it must include a summer bypass), and ceiling fans. All ventilation systems must meet the noise requirements set out in Approved Document F.
- 3.9.5. The safety and reasonable enjoyment of the residence of all occupants must be considered when designing overheating solutions. If all strategies to passively cool the building are insufficient, then mechanical cooling may be used.

4. Energy Performance

4.1. Assessment Methodology

4.1.1. Environmental Economics will model the proposed dwellings using the software Design SAP 10 by Elmhurst and approved by BRE. The software provides a number of outputs, and based on the provided specification for this proposed development, we are able to assess the following areas for our calculations:

- *Building regulations compliance, including:*
 - *Carbon emissions (kg CO₂/m²/year);*
 - *Primary Energy Demand (kWh/m²/annum);*
 - *Fabric Energy Efficiency (kWh/m²/annum).*
- *Energy usage per year (kWh/annum);*
- *Energy costs per year (£/annum);*
- *More detailed breakdowns by end use (space heating, water heating, cooking, lighting, appliances).*

4.1.2. Each of these outputs can be used in different ways to analyse the performance of the dwelling. The total regulated carbon emissions for each property is based upon:

- *Space heating;*
- *Water heating;*
- *Electricity for pumps and fans;*
- *Electricity for lighting.*

4.1.3. SAP software is issued by independent software suppliers, and checked and approved on behalf of government by the Building Research Establishment (BRE).

4.1.4. The dwellings on the proposed development will be assessed using this methodology once detailed planning approval is received and the layout is fixed.

4.2. Design Philosophy

- 4.2.1. Upgrades have been made to a number of elements from a standard build specification in order to improve energy efficiency across the development.
- 4.2.2. The proposed development adopts nationally recognised design and construction principles as the industry moves towards zero carbon. The principles are illustrated in Figure 3 below.

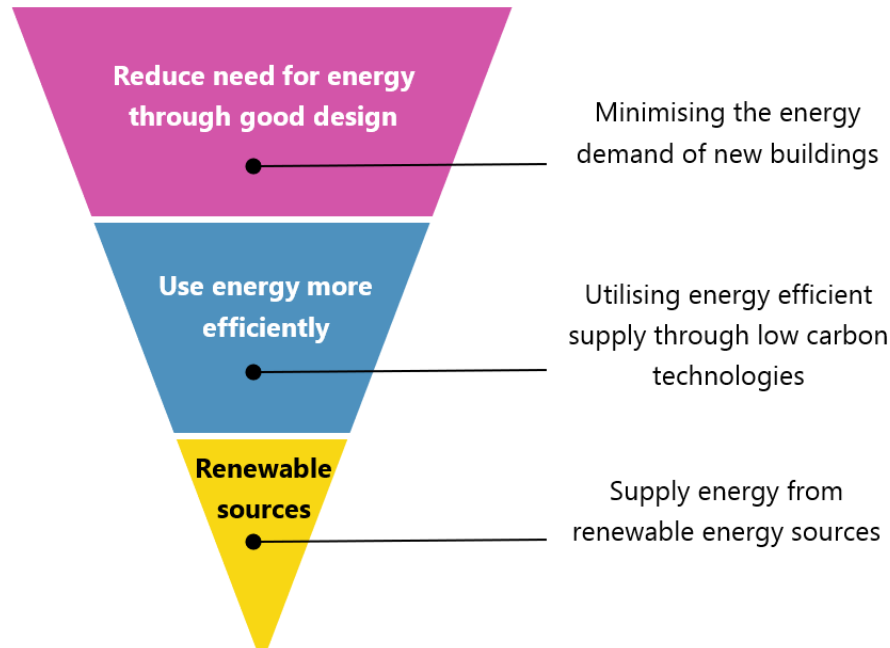


Figure 3 – The Energy Hierarchy

- 4.2.3. In order to reduce the residual carbon emissions a number of improvements were made to the standard material and product specification. These improvements include:
- *Upgraded heating and hot water controls*
 - *Delayed start thermostat*
 - *Design air permeability of 4.00m3/hr/m2*
 - *Bespoke thermal bridging details*

4.3. Fabric Improvements Part L1A 2021

4.3.1. The building fabric for all dwellings was improved from the minimum standards required to an enhanced specification. These fabric improvements reduce the space heating requirement upon a property. The improvements have been made through a combination of upgraded materials and increased insulation thicknesses. Enhanced glazing with a larger transmittance factor allowing for increased solar gains will also be used. Changes to the U-Value of external elements for dwellings built to Part L 2021 are shown in Table 2 below.

Table 2 –Build Specification

<i>Element</i>	<i>Minimum Standard</i>	<i>Improved Specification</i>	
-	<i>W/m²k</i>	<i>Description</i>	<i>W/m²k</i>
Walls	0.26	Full fill cavity	0.23
Roof	0.16	500mm Mineral Wool Horizontal Ceiling, Loft Space	0.09
		Sloping Ceiling to have 100mm PUR between joists, and 55mm PUR Board underlaid	0.15
Floors	0.18	225mm TE Platinum Insulation	0.10 - 0.12
Doors	1.60	Double glazed Low-E, u-PVC frame	1.00 - 1.60
Glazing	1.60	Double glazed Low-E, u-PVC frame	1.30

4.3.2. Please note that this specification is not finalised and is subject to change up until detailed design stage.

4.3.3. As improvements are made to the thermal conductivity of main elements, thermal bridging and air permeability becomes increasingly significant in the overall fabric performance. Bespoke thermal bridging designs have been utilised, which achieve much lower heat loss levels in comparison with standard practice.

4.3.4. As a result of following these junction details and focusing on build quality air permeability will also decrease. A target air pressure rating of 4.00m³/hr.m² has been set for all houses on site which is an improvement on the maximum allowable rating in the 2021 Building Regulations.

4.4. Future Homes Standard

- 4.4.1. Owing to the timeline of this development it is expected that a proportion of the site may be constructed in accordance with the Future Homes Standard.
- 4.4.2. As of the time of writing, requirements for FHS have not been finalised. There are currently two options which are under UK Government consultation, as shown in Tables 3 and 4 below in comparison to the current requirements under Part L 2021:

Table 3 – FHS Services Comparison with Part L 2021

	<i>Part L 2021</i>	<i>FHS Option 1</i>	<i>FHS Option 2</i>
Space +Water Heating	Mains Gas boiler	Heat Pump – ErP A++	Heat Pump – ErP A++
Water Storage	Loss = $0.85 \times (0.2 + 0.051 V^{2/3})$ kWh/Day	120mm Insulation	120mm Insulation
Lighting	80 l/w	120 l/w	120 l/w
WWHRS	Y	Y*	N
Ventilation	Natural with intermittent fans	Continuous dMEV, 0.15 w/l.s	Natural with intermittent fans
Airtightness	5m ³ /m ² /hr @ 50Pa	4m ³ /m ² /hr @ 50Pa	5m ³ /m ² /hr @ 50Pa
PV	Y	Y**	N

*WWHRS removed from notional dwelling for single story dwellings.

**PV to be removed from notional dwelling for blocks of flats >15 stories or in the case where buildings have limited roof space.

Table 4 – FHS Notional U-Values Comparison with Part L 2021

	<i>Part L 2021</i>	<i>FHS (2023 Consultation)</i>
Floor (W/m²K)	0.13	0.13
Wall (W/m²K)	0.18	0.18
Roof (W/m²K)	0.11	0.11
Window (W/m²K)	1.2	1.2
Door (W/m²K)	1.00	1.00

- 4.4.3. At the time of writing, one cannot check with compliance due to the lack of approved software. The performance figures above are published by DLUHC in order to provide the industry with guidance. Until working software is available, it is suggested compliance specifications are matched to the tables above.
- 4.4.4. There are currently also two options for transitional periods as stated below:
- *Option 1 – 6 month period between publication and regulations coming into force followed by a 12 month transitional period.*
 - *Option 2 – 12 month period between publication and regulations coming into force followed by a 12 month transitional period.*

4.5. Building Services & Renewable Energy (LZCT)

- 4.5.1. The systems used in a property to supply hot water and heating, as well as control it, are important to the overall energy demand of a property. AD-L 2021 includes requirements for efficiency and controls of such equipment, including space heating, water heating, ventilation and lighting.
- 4.5.2. The design of building services which provide space heating and domestic hot water, ventilation, and lighting, must be considered in a holistic way in order to avoid unintended consequences and to maximise the benefits from such systems
- 4.5.3. After due consideration of the potential LZCT available (shown in Appendix F) the design team propose to adopt the following technologies which provide benefits / compliance with national and local policies as listed:
- **Photovoltaic (PV) panels:**
 - Low noise and visual pollution;
 - Efficient low-carbon source of renewable energy.
 - **PV diverters:**
 - Connects to the immersion heater within hot water cylinder;
 - Utilises energy from PV panels to heat hot water, reducing demand on gas.
 - **Waste Water Heat Recovery (WWHR):**
 - Passive technology, no maintenance required;
 - Recovers waste heat from shower, pre-heats incoming cold. This mitigates the amount of hot water required from the hot water cylinder;
 - Typical systems recover ~60% waste heat.
 - **Flue Gas Heat Recovery (FGHR):**
 - Recovers waste heat from the flue of a boiler;
 - The waste heat is utilised to pre-heat incoming mains cold supply, thereby reducing the energy required from the boiler to lift the incoming main water to the required temperature.
 - **Air source heat pump (ASHP):**
 - No connection to the gas grid;
 - Uses grid electricity as the fuel;
 - Provides 100% space heating and domestic hot water;
 - Minimum co-efficient of performance over 2.5 (250% efficient);
 - ASHP are defined as LZCT. For every 1 kWh of grid electricity consumed they deliver approx. 3kWh into the dwelling (300% efficient). 2kWh is taken from ambient air;
 - Delivers very good performance within Building Regulations assessments;
 - Significant reduction in primary energy demand due to the Coefficient of Performance (COP).

- 4.5.4. It is currently proposed that PV panels and WWHR will be used to improve dwelling performance to the level required for Part L 2021. The amount of PV which will be required for this development is to be calculated at the detailed design stage.
- 4.5.5. For FHS it is currently proposed that ASHP, PV and WWHR will be utilised to improve dwelling performance to the required levels. It is currently not possible to fully detail the extent of PV to be provided or the number of houses that will be served by ASHP. Calculations for these elements will be carried out at detailed design stage.
- 4.5.6. ASHP will only be provided to plots which fall under the FHS.
- 4.5.7. For Part L 2021 it is currently proposed to provide heating and hot water via mains gas boilers.
- 4.5.8. Where installed, hot water cylinders can lose a significant amount of energy. To minimise this energy loss and corresponding carbon emissions, cylinders which have higher levels of insulation in comparison to typical hot water cylinders will be used.
- 4.5.9. All pipes connected to hot water storage vessels should be insulated for at least 1m from their points of connection or to the point at which they become concealed
- 4.5.10. The future direction of travel for the UK is to implement a low carbon electricity network which will become the main fuel for residential heating and hot water. However, as the development is a low density housing project with a lack of land available for an energy centre, guidance issued by the Greater London Authority (below) suggests that heat networks are currently inappropriate for this kind of development:
- 9.34. Depending of the density of development, it may not always be appropriate to connect individual houses to heat networks. This is due to the higher network heat losses that typically occur when supplying individual houses that generally have a lower heat density compared to apartments. They also have a higher cost of connection.*
- 4.5.11. Lighting provision will be from LED low energy fittings achieving a minimum efficacy of 100 lamp lumens per circuit watt, an improvement of over 50% from AD-L 2013 performance levels.
- 4.5.12. Smart meters will be installed on all properties, providing:
- Real time information on energy use both in terms of consumption and cost
 - Occupier can manage their energy, save money and reduce carbon emissions
 - Smart meters will also allow for easier switching between suppliers
 - Facilitate a more reactive, price driven, demand-response
 - End estimated billing and eliminate the need for meter readers to visit premises

5. Conclusion

- 5.1.1. This sustainability statement has been produced for the residential site The Common, Barwell.
- 5.1.2. The development strategy sets a high standard of overall sustainability with measures that include:
- Building elements with highest standard 'A+' Green Guide ratings including upper floors, external cavity walls, internal partitions, insulation and pitched roof;
 - Material suppliers with responsible sourcing certification guided by a high-quality sustainable procurement policy;
 - Effective waste management procedures to minimise waste;
 - The implementation of drainage and ecology assessments;
 - The provision of EV charging points to all plots;
 - Efficient internal and external water use in line with building regulations;
 - Enhanced building fabric specification with a Fabric-First approach including high efficiency insulation and provision of efficient appliances;
 - Use of PV and/or WWHR to achieve the efficiency levels required under Part L 2021;
 - Use of ASHP to achieve the efficiency levels required under Future Homes Standard.
- 5.1.3. It should be noted that future policies and building regulations may require an update to the sustainability measures within this report.
- 5.1.4. The proposed site is found to present a positive sustainable development based on the assessed sustainability criteria.

Appendix A – Proposed Site Layout



Appendix B – Responsible Sourcing Certificates



Certificate of Registration

RESPONSIBLE SOURCING OF PRODUCTS

This is to certify that:

Saint-Gobain Construction Products
UK Limited
T/A British Gypsum
Head Office
East Leake,
Loughborough
LE12 6HX
United Kingdom

Holds Certificate Number: BES 613170

and complies with the requirements of BES 6001: Issue 3.1 - Framework Standard for the Responsible Sourcing of Products for the following scope. This Responsible Sourcing certification has been carried out under licence using BRE's Responsible Sourcing scheme methodology and underpinning processes.

Gyproc plasterboard, Glasroc specialist board, Thistle plaster, Gyproc cove, Gyproc ready-mix joint cement - Performance rating Excellent.

For and on behalf of BSI:

Matt Page, Managing Director Assurance - UK & Ireland

Original Registration Date: 2014-10-13

Latest Revision Date: 2023-09-01

Effective Date: 2023-09-01

Expiry Date: 2026-08-31



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Information and Contact: BSI, Kitemark Court, Davy Avenue, Knowlhill, Milton Keynes MK5 8PR, Tel: + 44 345 080 9000
BSI Assurance UK Limited, registered in England under number 7805321 at 389 Chiswick High Road, London W4 4AL, UK.
A Member of the BSI Group of Companies.



Certificate of Registration

Responsible Sourcing of Products

This is to certify that:



Tarmac Cement & Lime Limited
Part of Tarmac Holdings Limited
T3, Ground Floor
Trinity Park, Bickenhill Lane
Solithull
Birmingham
B37 7ES
United Kingdom

Holds Certificate Number: **BES 568430**

and complies with the requirements of BES 6001: Issue 4.0 – Framework Standard for the Responsible Sourcing of Products for the following scope. This responsible sourcing certification has been carried out under licence using BRE's responsible Sourcing scheme methodology and underpinning processes.

Asphalt - performance rating Excellent.

For and on behalf of BSI:

Matt Page, Managing Director Assurance - UK & Ireland

Original Registration Date: 2011-03-10

Latest Revision Date: 2024-02-07

Effective Date: 2024-02-07

Expiry Date: 2027-02-07



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A Member of the BSI Group of Companies.



Certificate of Registration

Responsible Sourcing of Products

This is to certify that:

H+H UK Limited
Ightham Sandpits
Borough Green Road
Ightham
Sevenoaks
TN15 9JB
United Kingdom

Holds Certificate Number:

BES 636778

and complies with the requirements of BES 6001: Issue 4.0 – Framework Standard for the Responsible Sourcing of Products for the following scope. This responsible sourcing certification has been carried out under licence using BRE's responsible Sourcing scheme methodology and underpinning processes.

Product Group: Solar Aircrete Blocks, Standard Aircrete Blocks, High Strength Aircrete Blocks, Super Strength Aircrete Blocks, Coursing Units.
Overall Assessment Score: Very Good.

For and on behalf of BSI:

Matt Page, Managing Director Assurance - UK & Ireland

Original Registration Date: 2015-07-23

Latest Revision Date: 2024-07-11

Effective Date: 2024-07-23

Expiry Date: 2027-07-22



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PEFC International database extract

This extract has been generated on 11.03.2025

Verification link: <https://pefc.org/find-certified/details?cbResetParam=1&EID=E-IFI5J8&CID=C-UFGA0N&LID=L-BU770J>

Oregon Timber Frame - Derby

Oak House, Pioneer Way
Derby
United Kingdom
VAT n°:

Certificate

N°: CATG-PEFC-COC-320
Subcertificate N°:
Type: COC - Multisite
Status: Valid
Validity end: 09.07.2029

Issued by

Certification & Timber Grading (CATG)
29A Princes Crescent
LA4 6BY Morecambe
United Kingdom
sales@catg.co.uk
+441524400632
<http://www.catg.co.uk>

PEFC Trademarks licence

N°: PEFC/16-37-1457
Sublicence N°:
Type: C - Forest related industries
Status: Valid

Issued by

PEFC United Kingdom
Sheffield Technology Parks Cooper Buildings
Arundel Street
S1 2NS Sheffield
United Kingdom
info@pefc.co.uk
+441143072334
<http://www.pefc.co.uk/>

Due to the ongoing military invasion and humanitarian crisis in Ukraine, the Board of PEFC International clarified on March 4 2022 that all timber originating from Russia and Belarus is 'conflict timber' and therefore cannot currently be used in PEFC-certified products. For more information, see: <https://pefc.org/conflict-timber-faq>

PEFC International

International Cointrin Center, Route de Pré-Bois 20, CH-1215, Geneva, Switzerland
+41 22 799 45 40 | data@pefc.org | www.pefc.org

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Appendix C – Sustainable Procurement Policy



Sustainable Procurement policy

Introduction

Our purpose is: *'Making sustainable living a reality, building strong communities'*. The Group is determined to be the leading sustainable national housebuilder. We believe that fundamental to building quality homes is building a positive environmental, social and economic legacy for future generations. Sustainability presents opportunities for business prosperity and growth, encourages innovation and resilience, and improves our products and customer experience.

We purchase significant volumes of materials, and work with many sub-contractors across the UK. Sustainable sourcing of materials and labour is critical to the delivery of our strategy.

Objectives

We are committed to continuously safeguarding the environment and maintaining good labour relations by:

- Working with suppliers, contractors and supply chains to minimise the negative environmental and social impact of the materials, services and labour within our operations and supply chain that are integral to our business; and
- Developing commercial relationships with partners that embrace sustainable practices and spread best practice through the supply chain.

This Policy sets out a framework that we expect our supply chain partners to apply

and relates to both the products/services they provide to us and the operating activities that they and their respective supply chains are engaged in.

Policy

The key elements of our Policy relating to suppliers and subcontractors are:

- Suppliers must ensure compliance to all mandatory legislation that affects their activities and those of their own supply chain;
- Suppliers must conform to the specific requirements of our health, safety, environmental, quality and responsible sourcing requirements as set out in our Trade Specifications; and
- Suppliers must maintain Health and Safety and Environmental Management Systems that are of a suitable standard for the operations they are engaged in. As a preference, organisations should gain certification to ISO45001 and ISO14001.

Suppliers must maintain an ethical sourcing policy, or other policy, that aims to ensure as a minimum that:

- All statutory legislation (in their country of operation) is adhered to;
- Working conditions are safe and healthy; No child, forced or slave labour takes place and the requirements of the International Labour Organization's conventions are complied with;
- All employees are paid a real Living Wage which is the hourly rate set by the Living Wage Foundation, is based on cost of living and is higher than the legal minimum;



- No individual is expected to work excessive hours; and
- There is no discrimination on the grounds of ethnicity, skin colour, gender, sexual orientation, age or other protected characteristic.

Our suppliers and subcontractors must be prepared to demonstrate how they monitor compliance with these requirements on request.

We will use sustainability criteria including environmental & social impact, quality and price in the assessment and selection of future supply sources.

We will include appropriate sustainability criteria in our tender and contract documentation. Where materials can be ethically sourced (and are economically viable and have equivalent quality and technical performance to alternative offerings), a preference will be given to materials that:

- a) Have a recycled content;
- b) Minimise ecological damage and declines in biodiversity;
- c) Have low embodied carbon as demonstrated by an appropriate method such as an Environmental Product Declaration (EPD);
- d) Utilise less resources and less virgin material by design;
- e) Can be re-used, recycled or recovered;
- f) Minimise packaging waste;
- g) Minimise the use of water;
- h) Use local resources; and

We will provide training for our internal procurement teams on a risk basis. This policy underpins our Group Sustainability, Climate Change and Environment Policies, and is supported by our Timber Sourcing Policy.

This policy is reviewed annually and is approved by the Group Board. It is communicated to key stakeholders and is available on our website.

**David Thomas
Chief Executive
22 October 2024**

Appendix D – Waste Management Targets

Barratt Developments, October 2019

barrattddevelopments.co.uk/sustainability

5

INNOVATIVE EFFICIENT CONSTRUCTION

Our ambition is to minimise our use of materials and energy, reduce waste generation and maximise low carbon opportunities in all aspects of our business through innovation and development.



MODERN METHODS OF CONSTRUCTION (MMC)

OUR TARGET

To apply MMC based products and systems in 20% of our homes by 2020 and 25% by 2025.

ACTIONS

- Increase roll out of low embodied carbon timber frame, offsite ground floor systems and large format blocks.
- Investigate a viable MMC system for apartments.

CONSTRUCTION WASTE

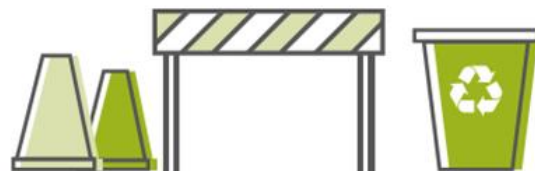
OUR TARGET

To reduce construction waste intensity by 20% from 2015 levels by 2025 (to 5.67t per 100m² legally completed build area).

To maintain diversion from landfill rate at 95% for construction waste.

ACTIONS

- Use the findings from our traditional/timber frame build comparison study to inform our waste reduction plans.
- Increase uptake of suitably sized plasterboards across divisions to avoid off-cuts.
- Work with suppliers and sub-contractors to find ways to reduce waste from chipboard packs and single-use plastics across our supply chain.
- Return 300,000 pallets for repairing, re-use and recycling.



Appendix E – Flood Risk Map (Zone 1)



Flood map for planning

Your reference	Location (easting/northing)	Created
The Common, Barwell	445051/296596	11 December 2025 15:59

Your selected location is in flood zone 1, an area with a low probability of flooding.

You will need to do a flood risk assessment if your site is **any of the following**:

- bigger than 1 hectare (ha)
- in an area with critical drainage problems as notified by the Environment Agency
- identified as being at increased flood risk in future by the local authority's strategic flood risk assessment
- at risk from other sources of flooding (such as surface water or reservoirs) and its development would increase the vulnerability of its use (such as constructing an office on an undeveloped site or converting a shop to a dwelling)

Notes

The flood map for planning shows river and sea flooding data only. It doesn't include other sources of flooding. It is for use in development planning and flood risk assessments.

This information relates to the selected location and is not specific to any property within it. The map is updated regularly and is correct at the time of printing.

Flood risk data is covered by the Open Government Licence which sets out the terms and conditions for using government data. <https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3>

Use of the address and mapping data is subject to Ordnance Survey public viewing terms under Crown copyright and database rights 2025 AC0000807064. <https://flood-map-for-planning.service.gov.uk/os-terms>



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Appendix F – Low and Zero Carbon Technologies

Description		Advantages	Disadvantages	Adopted?
Solar Hot Water (SHW)	SHW systems generate energy which is used to heat stored water (in a special solar hot water cylinder) which offsets the energy required for the boiler, thereby reducing fuel use and reducing carbon emissions.	Meets approximately 50% hot water demand for a dwelling	PV cells provide more efficient use of roof area compared to SHW	
Air Source Heat Pumps (ASHP)	ASHP provide heating and hot water to a home through thermal energy gathered from air outside the dwelling.	- Net zero ready complying with UK Government policy to reach net zero carbon by 2050. - This is achieved by utilizing low carbon grid electricity. - Typical CoP of 3.5 leading to large energy and carbon savings.	Requires professional commissioning to ensure optimal performance. This ensures cost parity with gas systems.	 (FHS plots)
Ground Source Heat Pumps (GSHP)	GSHP provide heating and hot water to a dwelling through geothermal effects.	CoP can be greater than that of ASHPs	- Rely on having appropriate ground conditions - Expensive to install	
Biomass Heating Systems	Biomass heating systems burn fuels, considered carbon neutral, to heat the water required for a dwelling.	- Large variety of systems available - Good carbon savings when replacing electrical hot water system	High maintenance	
Wind Turbines	Wind turbines provide electricity directly to a dwelling. They can be added to a property in two ways: pole mounted or building mounted.	Large-scale pole mounted turbines provide great financial return	- Pole mounted requires a lot of space - Building mounted have lower power output	

Subject to final SAP calculations, the following technologies could be considered for the scheme:

Description		Advantages	Disadvantages	Adopted?
Photovoltaic (PV) Cells	Generates electricity from solar energy from the sun.	• Provides carbon savings • Excess electricity can be exported to the grid • Low maintenance	• Additional capital cost	✓
Waste Water Heat Recovery (WWHR)	Recovers the energy that is lost from the waste water that is generated from showers.	• Reduces load on the main DHW system, leading to greater energy/carbon savings • Passive design requiring very low maintenance	• Additional capital cost	✓