Status: Official

Energy Statement
Alconbury Weald – The Glade – Third Building

ALC-PEV-XX-XX-RP-N-0001

28/05/2025

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Document History

Issue	Date	Comment	Author	Chk'd
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1. Executive Summary

Pick Everard have been appointed to the Glade project 'Third Building' to provide an Energy Statement to support the production of the reserved matters submission.

The proposed application is for the development of up to 5No. Retail Units with associated landscaping, infrastructure and related works. The buildings are classified as Class E

This statement provides a summary of the energy strategy for the proposed Alconbury Weald Glade Project 'Third Building' development located in Huntington, Cambridgeshire. The statement describes the assessment of options considered for reducing CO_2 emissions through energy efficiency measures, the efficient supply of heat and the use of on-site renewable energy technologies, having regard to the characteristics of the site and the local environment.

A policy review has been undertaken and is outlined in section 3. In line with the national and local policy requirements, together with the client brief, the proposed development is targeting:

- Exceeding compliance with Part L of the Building Regulations and Outline Planning Conditions
- Maximisation of energy efficient features and the incorporation of renewable and low carbon technologies

The strategy has been developed using the energy hierarchy 'Be Lean, Clean and Green'. This strategy utilises a fabric first approach to maximise reduction in energy through passive design measures.

The following table provides a summary of the energy strategy utilised for the 'Third Building'

Fabric Improvements	2% betterment achieved against the Part L baseline High efficiency building fabric and building services have been utilised to reduce carbon emissions and energy demand through good practice passive energy efficiency measures.
Air Source Heat Pump Technology	An additional 12% betterment can be achieved using ASHP technology with a total reduction for the two stages of 14% reduction against the Part L baseline
Photovoltaics	An additional 11% betterment can be achieved through the use of PV technology with a total reduction of 25% reduction against the Part L baseline.

Overall, with the measures outlined within the energy statement it is anticipated that the percentage energy reduction from the baseline case would achieve a 25% carbon reduction beyond the Part L Building regulations baseline notional building. This is in line with the requirements of Condition Twenty.

2. Introduction

Pick Everard have been appointed to the Glade project 'Third Building' to provide an Energy Statement to support the production of the reserved matters submission.

The application site is located along the eastern boundary of Alconbury Weald Key Phase 1, with The Boulevard to the southeast, the CCC Civic Hub to the west and future Key Phases to the northeast.

The application is for a small retail terraced unit as part of the Neighbourhood Centre for Key Phase 1, to compliment the proposed other uses and enhance the neighbourhood centre for the community. The buildings are classified as A1/A2 (Retail & Offices).

The purpose of this report is to support the planning application and to demonstrate the means by which the development will meet the energy efficiency, low carbon and renewable energy requirements of the national Building Regulations, and Huntingdonshire District Council Plan requirements.

The Energy statement proposes recommendations regarding the approach to optimising energy efficiency for the terraced unit development and highlights the relevant regulatory and planning policies together with the proposed development energy targets.

The strategy highlighted within the energy statement sets out the proposed measures to meet Huntingdonshire District Council Plan requirements. The proposed calculations within the report are based upon Part L calculation methodology and should not be classified as a predictive assessment of future energy usage. The energy figures provided follow the National Calculation Methodology NCM guidance in the production of a Simplified Building Energy Model. The latest software has been used which follows the new specifications of the notional building for the 2021 edition, these are used to determine the CO2 emissions and primary energy targets, and the latest version has been defined to deliver a 27% reduction in CO2 emissions on average across the new non-domestic building mix relative to Part L 2013.

3. Planning Policy

The relevant planning policy includes:

- The National Planning Policy Framework (2024)
- Building regulations approved document Part L
- Huntingdonshire District Council

In more detail:

National Planning Policy Framework (2024)

The National Planning Policy Framework (NPPF) was originally published in March 2012 and superseded all Planning Policy Statements (PPS) and Planning Policy Guidance (PPG) documents. The latest version of the National Planning Policy Framework was published in February 2025 and sets out the Government's economic, environmental and social planning policies for England. In combination, these policies articulate the Government's vision of sustainable development, which should be interpreted and applied locally to meet local aspirations.



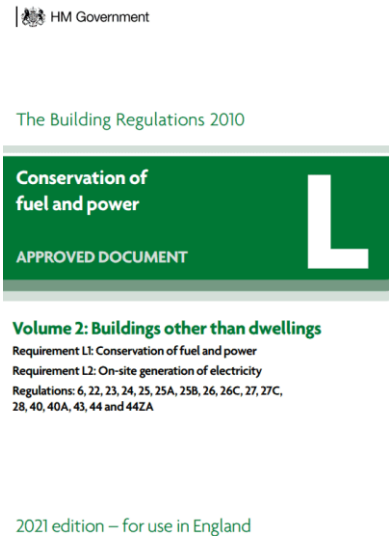
It provides a framework within which local people and their accountable councils can produce their own distinctive local and neighbourhood plans, which reflect the needs and priorities of their communities. The NPPF states that: "Planning law requires that applications for permission be determined in accordance with the development plan (local plans), unless material considerations indicate otherwise"

Building Regulations: Approved Document Part L

Approved document Part L, Conservation of Fuel and Power provided guidance on the building regulations related to energy efficiency and conservation of fuel and power in buildings.

The approved document is divided into two volumes: Volume 1 for dwellings and Volume 2 for buildings other than dwellings. The document specifies requirements for insulation, air tightness, building fabric and energy related systems to ensure buildings are energy efficiency.

Part L of the Building Regulations is the mechanism by which the government is driving reductions in the regulated CO2 emissions for new buildings.



Huntingdonshire District Council – Core Strategy

The Core strategy gives guidance on climate change and sustainable growth. According to Policy CS 1 (Sustainable Development in Huntingdonshire), it is required:

"Minimising the use of non-renewable sources and construction materials and resources and maximising opportunities for renewable and low carbon energy sources and on-site renewable energy provision and improving energy efficiency"



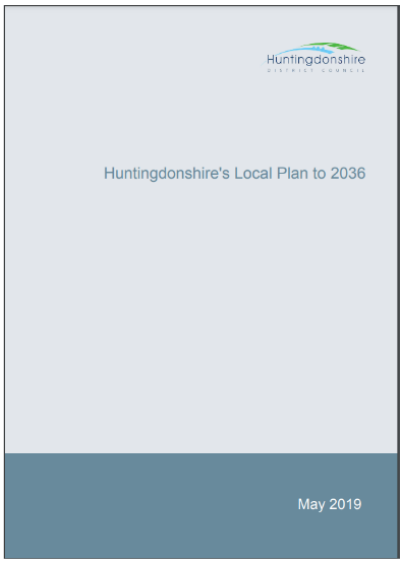
Huntingdonshire Local Plan to 2036 (May 2019)

The Huntingdonshire Local Plan to 2036 is the plan for future sustainable development in the district (known as the development plan). The Local Plan performs two specific roles:

– It identifies key areas of land for development (known as allocations) to deliver the homes, jobs and services needed in the district, and

– Includes policies against which all planning applications are considered

The Policy LP 35 emphasizes that proposal for a renewable or low carbon energy generating scheme, other than wind energy, will be supported where it is demonstrated that all potential adverse impacts including cumulative impacts are or can be made acceptable.



Decarbonisation of the electricity grid

The UK has seen substantial progress transitioning from an energy supply sector served primarily from burning coal to a wide scale up take of both grid- and local-scale renewable energy. The result of this is an electricity grid which has rapidly decarbonised; around 65% since 2012.

With the continued future decarbonisation likely to reduce the emissions associated with consuming grid electricity by over 90% by ~2035, using electricity to heat buildings has and will continue to become ever more favourable from a CO2 emissions perspective.

Summary

The Proposed Development will have a reduced effect on climate change by reducing CO2 emissions associated with energy use.

As principal targets, the proposed development is targeting:

– Exceeding compliance with Part L of Building Regulations.

– Maximisation of energy efficiency features and the integration of renewable and low carbon energy such as ASHP (Air Source Heat Pump) and PV (Photovoltaic panels).

– 25% carbon reduction compared to a Part L compliant baseline has been achieved through a combination of passive and active design measures and low or zero carbon technologies

– No inclusion of Wind Energy.

4. Methodology

The Energy Hierarchy is effective workflow to guide sustainable energy policy and decision-making. This is in line with Local and National Policies. In carrying out this feasibility study, the design team will follow the principles of the energy efficiency hierarchy as laid out below:



Lean

Use less energy and manage demand during operation through fabric and servicing improvements and the incorporation of flexibility measures. This may include employ passive design techniques to design buildings which maximise natural light, solar heat and ventilation and high performing building fabric to reduce heat losses and preventing occupier discomfort.



Clean

To employ highly efficient and low carbon sources of heat (and where applicable, cooling) to provide a comfortable environment and supply heating and domestic hot water.



Green

To supplement buildings with low and zero carbon sources of electrical generation, supported as required with capture and storage, with the goal of reducing the electrical consumption from the grid.

4.1 Be Lean

The aim of this aspect is to encourage designers to adopt measures which reduce energy consumption and associated carbon emissions, while minimising reliance on active building services systems. The passive design measures are those which reduce the demand for energy within the units without consuming energy in the process. The application of passive design principles offers the following potential benefits to end users and clients:

- Reduced energy demand without too significant additional costs.
- Measures are relatively straightforward to include provided they are considered during the early stages of the project.

A 'fabric first' approach has been taken in order to reduce the energy demand and CO2 emissions from the proposed development. The proposed development will benefit from an efficient thermal envelope. Heat losses and gains will be controlled by the optimisation of the fabric of each unit. Reducing the thermal transmittance of the building envelope where appropriate will help to reduce both heating and cooling requirements and result in lower energy requirements.

Ventilation loads are expected to be low however the fan energy consumption, will have an impact on the energy required for the development, therefore the following measures are proposed:

- High efficiency ventilation units with low SFPs.
- High efficiency heat recovery systems where required

It is anticipated that the Proposed Development will be supplied with efficient electric lighting fittings such as 'Light Emitting Diodes' (LED) and will incorporate automatic lighting controls including presence or absence detection and daylight dimming where required.

4.1.1 Building Fabric Performance

The table below demonstrates the proposed building fabric and the Part L limiting values for reference.

Building Elements	Part L Limiting Values (W/m2K)	NCM Notional Building Values (W/m2K)	Proposed Values (W/m2K)
	Retail Unit A-E		
External Wall	0.26	0.15	**0.15**
Ground Floor	0.18	0.18	**0.09**
Roof	0.16	0.18	**0.12**
External Windows (U value/G value/VLT)	1.6/0.4/0.71	1.4/0.29/0.6	**1.4 / 0.4 / 0.71**
Door	1.6	1.4	**1.4**
Air permeability (m3/m2hr@50 pa)	8	3	**3**

Table 1 – Proposed Building Fabric Targets

4.1.2 Building Services

The table below demonstrates the proposed services strategy for the retail units

	Retail Unit A-E		
	Heating Efficiency	Cooling SEER	Cooling EER
Air Source Heat Pump	4.0	6.6	3.5
Electric Panel Heaters	1.0	n/a	n/a
	Specific Fan Power (w/l/s)		
Local Extract	0.3		
	Lighting Efficacy (lumens per circuit watt)		
Lighting	100		
	Renewable Capacity (kw)		
Photovoltaics	**5**		

Table 2 – Proposed System Targets (Clean and Green strategies)

4.2 Be Clean

This stage of the energy hierarchy refers to the use of heat networks or on-site combined heat and power in order to provide energy and reducing consumption from the national grid, through the generation of electricity, heating and cooling on-site. There are currently no local district heating systems in the close proximity to the development; therefore, district heating cannot be proposed.

CHP and CCHP engines can work more efficiently than their traditional counterparts, i.e. grid electricity and gas boilers. It is estimated that where thermal demand is adequate, CHP or CCHP can achieve reductions in primary energy demand relative to traditional sources of approximately 30%. Such plant is more efficient than deriving electricity from the grid as the heat generated in the process of creating the electricity can be used on-site, and the electricity does not have to travel great distances over the national grid before use, thus minimising transmissive losses. However, the rapid decarbonisation of the electricity grid has reduced the carbon emission saving potential of CHP, as it relies on burning fossil fuel to generate electricity. As the carbon intensity of the grid electricity decreases, the use of CHP will become less favourable. Therefore, a CHP is not proposed to be installed for this development.

4.3 Be Green

Following significant energy consumption reduction from the "Be Lean" stage, Low Carbon and Renewable technologies have been taken into consideration as part of the design development.

Air source heat pump

Air Source Heat Pumps (ASHP) use a refrigeration cycle to extract heat from the air. The efficiency of the system is therefore dependent on outside air temperature. The system can be run in reverse to provide cooling.

Air source heat pumps (ASHP) can be an efficient way of providing both space heating and cooling. External plant would be required and noise from the external units would also require consideration.

Air Source heat pumps (ASHP) are proposed to provide space heating and cooling.

Photovoltaics

Renewable energy from PVs is proposed to be implemented on the scheme. It has been estimated that a PV array can achieve an overall 25% energy consumption reduction when associated to ASHP.

PV array output for the development as follows:

Retail Units: 2,937kWh/annum, (approx. 25m2)

It is worth noting that the building has unobstructed north-west facing exposure.

5. Initial Results

Air source heat pumps (ASHP) have been identified as the most appropriate technology for the Proposed Development. ASHP are proposed to provide space heating and cooling.

The initial Part L simulations carried out, based on the input data detailed in Section 4, estimates that a 14% carbon reduction would be achieved through passive and active design measures and ASHPs.

Photovoltaic (PV) panels have also been identified as a suitable technology for the scheme. It has been estimated that a PV array would contribute to achieve further 11% carbon reduction.

	Building CO2 emission rate kg/CO2.annum	(% betterment over target emission rate)
Reduction from Passive Design and Energy Efficiency Measures	1693	2%
Reduction from ASHP	1474	14%
Reduction from ASHP + PV	1287	25%

Table 3 – Summary of Building CO2 emission rate savings

Overall, it is anticipated that the Proposed Development will achieve a 25% reduction in energy consumption beyond the Building Regulations Part L compliant 'baseline'.

6. Conclusion

Based on the initial energy calculations and the above design parameters, the current RIBA Stage design will be compliant with and indeed exceed Building Regulations Part L. The strategy has been developed using the energy hierarchy 'Be Lean, Clean and Green' utilising a fabric first approach to maximise reduction in energy through passive design measures.

The following table provides a summary of the energy strategy utilised for the 'Third Building'

Fabric Improvements	2% betterment achieved against the Part L baseline High efficiency building fabric and building services have been utilised to reduce carbon emissions and energy demand through good practice passive energy efficiency measures.
Air Source Heat Pump Technology	An additional 12% betterment can be achieved using ASHP technology with a total reduction for the two stages of 14% reduction against the Part L baseline
Photovoltaics	An additional 11% betterment can be achieved through the use of PV technology with a total reduction of 25% reduction against the Part L baseline.

Overall, with the measures outlined within the energy statement it is anticipated that the percentage energy reduction from the baseline case would achieve a 25% carbon reduction beyond the Part L Building regulations baseline notional building and therefore align with the requirements of the Outline Planning Permission.

Appendix A – Brukl Outputs

Fabric Improvements

BRUKL Output Document

HM Government

Compliance with England Building Regulations Part L 2021

Project name

The Glade 'Third Building' As designed

Date: Wed May 21 13:22:33 2025

Administrative information

Building Details

Address: The Glade 'Third Building',

Certifier details

Name:

Telephone number:

Address:

Certification tool

Calculation engine:

Calculation engine version: v6.1.e.0

Interface to calculation engine:

Interface to calculation engine version:

BRUKL compliance module version: v6.1.e.1

Foundation area [m^2]: 359.54

The CO_2 emission and primary energy rates of the building must not exceed the targets

Target CO_2 emission rate (TER), $kgCO_2/m^2$.annum	4.79	
Building CO_2 emission rate (BER), $kgCO_2/m^2$.annum	4.71	
Target primary energy rate (TPER), kWh_{PE}/m^2.annum	50.75	
Building primary energy rate (BPER), kWh_{PE}/m^2.annum	50.23	
Do the building's emission and primary energy rates exceed the targets?	BER =< TER	BPER =< TPER

The performance of the building fabric and fixed building services should achieve reasonable overall standards of energy efficiency

Fabric element	$U_{i\text{-Limit}}$	$U_{i\text{-Calc}}$	$U_{i\text{-Calc}}$	First surface with maximum value
Walls*	0.26	0.15	0.15	Ground Floor - Retail A WC_W_7
Floors	0.18	0.09	0.1	Ground Floor - Retail B WC_S_3
Pitched roofs	0.16	0.12	0.12	Ground Floor - Retail E_R_11
Flat roofs	0.18	-	-	No heat loss flat roofs
Windows** and roof windows	1.6	1.4	1.4	Ground Floor - Retail E_G_5
Rooflights***	2.2	-	-	No external rooflights
Personnel doors^	1.6	-	-	No external personnel doors
Vehicle access & similar large doors	1.3	-	-	No external vehicle access doors
High usage entrance doors	3	-	-	No external high usage entrance doors

$U_{i\text{-Limit}}$ = Limiting area-weighted average U-values [$W/(m^2K)$] $U_{i\text{-Calc}}$ = Calculated maximum individual element U-values [$W/(m^2K)$]

$U_{i\text{-Calc}}$ = Calculated area-weighted average U-values [$W/(m^2K)$]

* Automatic U-value check by the tool does not apply to curtain walls whose limiting standard is similar to that for windows.

** Display windows and similar glazing are excluded from the U-value check. *** Values for rooflights refer to the horizontal position.

^ For fire doors, limiting U-value is 1.8 W/m^2K

NB: Neither roof ventilators (inc. smoke vents) nor swimming pool basins are modelled or checked against the limiting standards by the tool.

Air permeability	Limiting standard	This building
$m^3/(h.m^2)$ at 50 Pa	8	3

Incorporation of ASHP

BRUKL Output Document

HM Government

Compliance with England Building Regulations Part L 2021

Project name

The Glade 'Third Building' As designed

Date: Wed May 21 13:13:55 2025

Administrative information

Building Details

Address: The Glade 'Third Building',

Certifier details

Name:

Telephone number:

Address:

Certification tool

Calculation engine:

Calculation engine version: v6.1.e.0

Interface to calculation engine:

Interface to calculation engine version:

BRUKL compliance module version: v6.1.e.1

Foundation area [m²]: 359.54

The CO_2 emission and primary energy rates of the building must not exceed the targets

Target CO_2 emission rate (TER), $kgCO_2/m^2$.annum	4.79	
Building CO_2 emission rate (BER), $kgCO_2/m^2$.annum	4.1	
Target primary energy rate (TPER), kWh_{PE}/m^2.annum	50.75	
Building primary energy rate (BPER), kWh_{PE}/m^2.annum	44.03	
Do the building's emission and primary energy rates exceed the targets?	BER =< TER	BPER =< TPER

The performance of the building fabric and fixed building services should achieve reasonable overall standards of energy efficiency

Fabric element	$U_{a\text{-}Limit}$	$U_{a\text{-}Calc}$	$U_{i\text{-}Calc}$	First surface with maximum value
Walls*	0.26	0.15	0.15	Ground Floor - Retail A WC_W_7
Floors	0.18	0.09	0.1	Ground Floor - Retail B WC_S_3
Pitched roofs	0.16	0.12	0.12	Ground Floor - Retail E_R_11
Flat roofs	0.18	-	-	No heat loss flat roofs
Windows** and roof windows	1.6	1.4	1.4	Ground Floor - Retail E_G_5
Rooflights***	2.2	-	-	No external rooflights
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Air permeability	Limiting standard	This building
$m^3/(h.m^2)$ at 50 Pa	8	3

Incorporation of P.V.

BRUKL Output Document

HM Government

Compliance with England Building Regulations Part L 2021

Project name

The Glade 'Third Building' As designed

Date: Wed May 21 13:24:41 2025

Administrative information

Building Details

Address: The Glade 'Third Building',

Certifier details

Name:

Telephone number:

Address:

Certification tool

Calculation engine:

Calculation engine version: v6.1.e.0

Interface to calculation engine:

Interface to calculation engine version:

BRUKL compliance module version: v6.1.e.1

Foundation area [m²]: 359.54

The CO_2 emission and primary energy rates of the building must not exceed the targets

Target CO_2 emission rate (TER), $kgCO_2/m^2.annum$	4.79	
Building CO_2 emission rate (BER), $kgCO_2/m^2.annum$	3.58	
Target primary energy rate (TPER), $kWh_{PE}/m^2.annum$	50.75	
Building primary energy rate (BPER), $kWh_{PE}/m^2.annum$	37.85	
Do the building's emission and primary energy rates exceed the targets?	BER =< TER	BPER =< TPER

The performance of the building fabric and fixed building services should achieve reasonable overall standards of energy efficiency

Fabric element	$U_{a\text{-}Limit}$	$U_{a\text{-}Calc}$	$U_{i\text{-}Calc}$	First surface with maximum value
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Air permeability	Limiting standard	This building
$m^3/(h.m^2)$ at 50 Pa	8	3

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