

Land adjacent to Windhover Roundabout, Bursledon

Energy Strategy

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Executive Summary



This Energy Strategy has been prepared by Ramboll on behalf of Wates to support the outline planning application (all matters reserved except for access) for employment development (Use Class B2/B8) of up to 18,580 square metres together with ancillary offices (Use Class E(g)(iii)) and other ancillary buildings, structures, parking, servicing and manoeuvring areas, landscaping and sustainable urban drainage features, following demolition of existing buildings. Hereafter referred as the ‘Proposed Development’.

The Proposed Development site address is Land adjacent to Windhover Roundabout and between Bursledon Road (A3024) and West End Road (A27), Bursledon, Hants, SO31 8BN.

The Proposed Development will mainly comprise:

- Site preparation works, including vegetation removal and creation of development plateaus;
- Provision of up to circa 18,580 sqm of floorspace comprising warehousing space, ancillary office and other space;
- Provision of associated private vehicle car parking spaces and HGV spaces, together with service yards and HGV loading spaces.
- Provision of ancillary external structures such as sprinkler tanks;
- Creation of Site access from A3024 Bursledon Road and A27 West End Road, together with provision of signals and other works to the existing highway; and
- Provision of hard and soft site landscaping, including new planting and provision of swales and other sustainable urban drainage features.

The relevant authority for this development site is Eastleigh Borough Council, in Hampshire. The requirements of this Council and other relevant authorities (including national requirements, i.e. Part L 2021 of the Building Regulations) have been considered within the preparation of this Energy Strategy.

Considering the outline nature of the Proposed Development, three options have been assessed for the energy strategy:

- Option 1: Heating and cooling via Variable Refrigerant Flow (VRF) to office, and no space heating to warehouse spaces.
- Option 2: Heating and cooling via Air Source Heat Pump (ASHP) and Fan Coil Units (FCUs) to office, and space heating via ASHP with radiant panels to warehouse spaces.
- Option 3: Heating and cooling via VRF to office areas, and space heating via ASHP with radiant panels to warehouse spaces.

Considering the outline status of this planning application, and using an illustrative masterplan (276504 -TOR-XX-ZZ-DR-A-P102 – D), three different energy strategy options have been considered. In this case, the energy strategy for the Proposed Development meets and exceeds the Part L 2021 of the Building Regulations targets and achieves the minimum 15% carbon emissions reductions target through onsite Low and Zero Carbon (LZC) technologies as per Policy DM2 of the Eastleigh Borough Local Plan for all three energy strategy options proposed. This is achieved by incorporating a combination of low and zero carbon technologies (heat pumps and PV panels on the roof).

The options assessed for the Proposed Development incorporate energy efficient building fabric and buildings services, energy efficient low zero carbon and renewable technologies.

Through these measures outlined in Section 6 of this report, the Proposed Development is achieving and exceeding the requirements in carbon emissions beyond the baseline scheme (Part L 2021 compliant scheme).

An overview of results is shown in Table E.1 and Figure E.1.

In addition, the number of Ene 01 credits under BREEAM UK New Construction V6.1 scheme were assessed for all three options. This confirms that all options would exceed the minimum of 4no Ene 01 credits required for BREEAM Excellent rating. Please refer to BREEAM Pre-Assessment (RUK2021N00014-RAM-RP-00191) document.

Figure E.1 – Bar charts showing estimated CO2 percentage savings for each option.

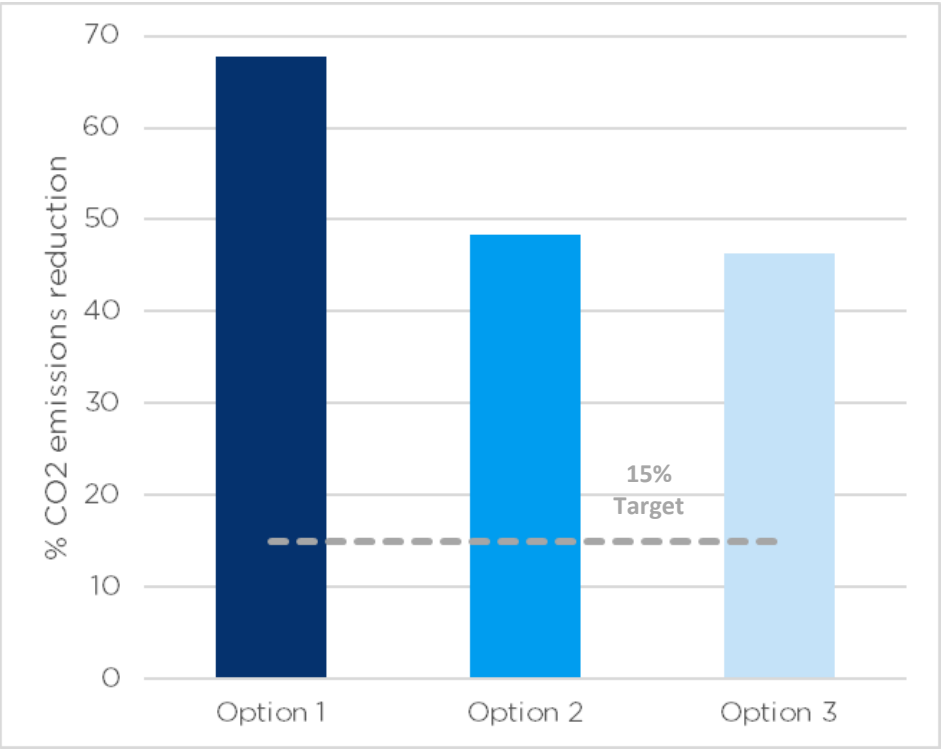


Table E.1 – Overview of results.

	% CO2 emissions reduction	BREEAM ENE01 Credits	Description
Option 1	67.8%	8	VRF (heating/cooling to office), and unheated warehouse
Option 2	48.3%	8	ASHP with FCU (heating/cooling to office), ASHP with radiant panels space heating to warehouse
Option 3	46.4%	8	VRF (heating/cooling to office), ASHP with radiant panels space heating to warehouse

1. Introduction

1.1 Background

Ramboll UK Limited ('Ramboll') has been appointed by Wates Developments Limited (the 'Client') to undertake an Energy Strategy for the outline planning application (all matters reserved except for access) for employment development (Use Class B2/B8) of up to 18,580 square metres together with ancillary offices (Use Class E(g)(iii)) and other ancillary buildings, structures, parking, servicing and manoeuvring areas, landscaping and sustainable urban drainage features, following demolition of existing buildings. Hereafter referred as the 'Proposed Development'.

The Proposed Development site address is Land adjacent to Windhover Roundabout and between Bursledon Road (A3024) and West End Road (A27), Bursledon, Hants, SO31 8BN.

1.2 Objective and Scope of Works

This report sets out a sustainable design and construction philosophy in response to the following planning policies:

Current National level policies:

- National Planning Policy Framework – NPPF (Feb 2025);
- Climate Change Act 2008; and
- Building Regulations Part L 2021.

Current Local and Regional level policies are:

1. Eastleigh Borough Council Local Plan 2016-2036 (April 2022):
 - Policy DM1 General Criteria for new Development;
 - Policy DM2 Environmentally Sustainable Development;
 - Policy DM3 Adaptation to Climate Change; and
 - Policy DM4 Zero or Low Carbon Energy.
2. Supplementary Planning Documents (SPDs):
 - a. Environmentally Sustainable Development (2009):
 - Policy ESD 5: Passive Solar Heat Gain
 - Policy ESD 6: Carbon Dioxide Reduction
 - b. Planning Obligation and Background Paper (2008):
 - Energy and Climate Change

Please refer to Section 6 where further details are provided regarding above relevant policies.

The aim of this document is to demonstrate a formal design response and commitment to achieve compliance with the policies defined above, and set out the vision, strategy and core policies for the Proposed Development and building specification.

Dynamic simulation analysis and recognised design calculations have been undertaken and provided for the Proposed Development to demonstrate compliance with Part L 2021 (Volume 2) of the Building Regulations and planning policy carbon reduction targets.

Overall, this report aims to demonstrate that the Proposed Development considers energy, carbon emissions and key sustainability issues to meet the above mentioned regulatory and planning policy requirements.

1.3 Limitations and Constraints

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This energy strategy for this outline application assesses the known building 'shell' specification using three potential fit-out mechanical and electrical system solution specifications. Final fit-out will be determined at reserved matters application stage, or by the future tenant (end user) if they are taking ownership during the detailed or reserved matters application. This document shows efficiencies required for the three options calculated to achieve compliance with national regulations and local planning policies.

2. Site Details

2.1 Site location and description

The Site is located on the Land adjacent to Windhover Roundabout and between Bursledon Road (A3024) and West End Road (A27), Bursledon, Hants, SO31 8BN, close to Junction 8 of the M27 motorway as seen in Figure 2.1.

The Site is circa 4.63 ha (11.4 acres) and comprises predominantly undeveloped agricultural pastureland, but with potential for some Made Ground to be present in limited areas of the Site. The Site takes the form of two connected grassland fields with a patch of tall ruderals and a wet flush along its eastern edge. The Site also includes a small collection of agricultural-type buildings sited on an area of hard standing within its southeastern part. Topographically the Site falls to its south-west towards Bursledon Road and rises north-east towards West End Road.

The surrounding context is a mixture of agricultural fields, woodland, residential and commercial development.

The Site is adjacent to new residential development and a Tesco Extra store to the south. To the north and north-east of the Site is deciduous woodland as well as open grassland. To the east is a row of detached and semi-detached houses interspersed with fields and woodland.

The Site does not form part of any Conversation Area, and no Listed Buildings are located on Site. The nearest designated heritage assets are the Grade II* Bursledon Windmill and Grade II Granary, which form part of the Bursledon Windmill Conservation Area, located approximately 300 m south-east of the Site.

2.2 Proposed Development

In accordance with this description of development, an illustrative masterplan has been prepared which shows the following elements:

- (Unit 1) Warehousing unit totalling 9,586 SqM (103,188 SqFt) comprising Use Class B2/B8 space and ancillary Use Class E office space;
- (Unit 2) Warehousing unit totalling 7,209 SqM (77,599 SqFt) comprising Use Class B2/B8 space and ancillary Use Class E office space;
- Provision of up to circa 175 car parking spaces and up to circa 41 HGV spaces, together with service yards and HGV loading spaces;
- Provision of ancillary external structures such as sprinkler tanks;
- Creation of site access from A3024 Bursledon Road and A27 West End Road, together with provision of signals and other works to the existing highway; and
- Provision of site landscaping, including new planting and provision of swales and other sustainable urban drainage features.

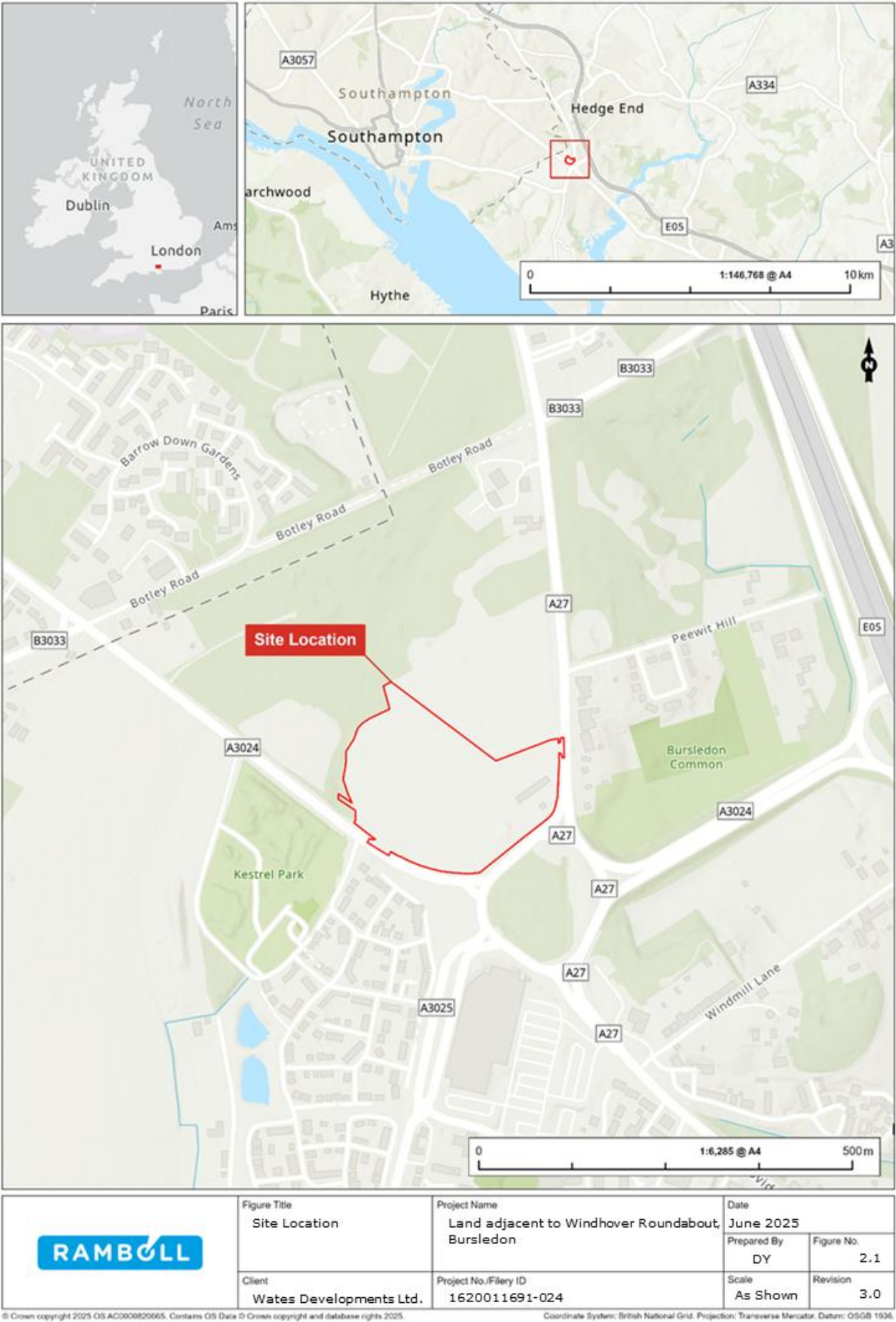


Figure 2.1 – Site Location

3. Policy Objectives



The relevant authority for this development Site is Eastleigh Borough Council. The requirements of this Council and other relevant authorities (including national requirements) have been considered within the preparation of this Energy Strategy. The key planning framework applicable to the energy aspects of the development is outlined below:

3.1 National Level Policies

There are a number of national policies and regulations related to energy, those most relevant to the energy assessment of new developments are detailed below.

National Planning Policy Framework – NPPF (2024)

The National Planning Policy Framework (NPPF) was updated in December 2024, with a minor update in February 2025, and superseded the former planning policy statements (PPS) documents. The NPPF is designed to make the planning system less complex and more accessible; to protect the environment and promote sustainable growth. It provides a framework within which local people and their respective councils can produce their own distinctive local and neighbourhood plans, which reflect the needs and priorities of their communities.

At the heart of the National Planning Policy Framework is a presumption in favour of sustainable development. The three dimensions of sustainable development can be defined as the economic, social and environmental.

The NPPF aims to strengthen local decision making, with the use of decision-taking in a positive way, as a means of fostering the delivery of sustainable development. However, the NPPF also highlights that pursuing sustainable development requires careful attention to the viability and costs in plan-making and decision-taking. Plans should be deliverable. Therefore, the sites and the scale of development identified in the plan should not be subject to such a scale of obligations and policy burdens, that their ability to be developed viably is threatened.

Climate Change Act, 2008

The Government has introduced legislation and several policies during recent years focusing on the reduction of CO2 emissions. The Climate Change Act (2008) sets a legally binding target for the reduction in UK carbon dioxide emissions. Upon ratification of the Kyoto Protocol, the UK committed to a reduction in its CO2 emissions by 80% compared to 1990 levels (by 2050). In addition, under the Climate Change Act an interim target of a 34% reduction by 2020 was set.

In order to enforce these targets, the Government is using the Building Regulations: Part L 2013 (Conservation of fuel and power) which set the standards to which all new and existing buildings must comply.

Building Regulations Part L

Building Regulations are statutory instruments that seek to ensure that the policies set out within any relevant UK legislation are carried out. Building regulations approval is required for the majority of building work carried out in the UK.

Part L of these regulations covers the requirements with respect to the conservation of fuel and power in all building types. It controls the insulation values of building fabric elements and openings, the air permeability of the structure, the heating efficiency of heating, ventilation and air conditioning systems together with hot water storage and lighting efficiency. It also sets out the requirements for calculating the carbon dioxide emissions and the Carbon Emission Targets for each building type.

An update of Part L has recently been released which is in-force for new projects registered on and after 15 June 2022. The approved software platforms to calculate compliance with Part L 2021 have been approved for use. Part L 2021 is split into two sections:

- Part L Volume 1: Dwellings; and
- Part L Volume 2: Buildings other than dwellings.

Due to the development being of an industrial type, the proposed development will need to comply with Part L Volume 2 criteria. This scheme has been assessed to comply with the new Part L 2021 of the Building Regulations.

3.2 Local and Regional Level Policies

Planning policy for the Site is set out in the policies denoted below; these set out an integrated social, economic and environmental framework for future development within Eastleigh. The planning guidance documents noted below contain several policies relating to energy; those most relevant to the energy assessment of new developments are detailed below.

Eastleigh Local Plan (2016-2036)

The Local Plan for Eastleigh Borough sets out the policies and plans to guide future development to 2036. It reflects the Council’s strategic priorities: a green Borough, a healthy community and a prosperous place.

Policy DM1 – General Criteria for New Development

All new development should (as relevant):

- Not have an unacceptable impact on, and where possible should enhance:
 - Residential amenities of both new and existing residents, the character and appearance of urban areas, the countryside, and the coast,
 - Biodiversity (avoiding significant adverse impacts); and
 - The significance of heritage assets.
- Make efficient use of the site, maximise opportunities to increase density and have regard to potential development opportunities on adjoining land,
- Take full and proper account of the context of the site including the character, appearance, and land uses of the locality or neighbourhood, and be compatible with adjoining uses and be well integrated with these in terms of mass, scale, materials, layout, density design and siting both in itself and in relation to adjoining buildings, spaces and views. Where adjoining development is poor in urban design terms, new development should contribute to improving the character of the area,
- Not involve the loss of or damage to trees, woodlands, hedgerows, ponds, priority habitats or other landscape features of value to the character of the area, for appearance or biodiversity unless they can be replaced with features of equivalent or enhanced value, (recognizing that some species and habitats may be irreplaceable),
- Include a landscape scheme covering the design and layout of external space,
- Protect and enhance public rights of way and National Trails and provide fully connected green infrastructure that interlaces the development and connects into the wider network,
- Provide satisfactory management arrangements for all landscape, green infrastructure and biodiversity enhancement,
- Incorporate provision for people with disabilities and create accessible communities that cater for all,
- Incorporate design measures to inhibit criminal and anti-social behaviour,
- Incorporate provision for on-site waste management, and
- Include provision for public art associated with new large-scale development in accordance with the council’s adapted Public Art Strategy.

3. Policy Objectives – Continued



Policy DM2 – Environmentally sustainable development

1. The Eastleigh Borough Council requires that:
 - a. all non-domestic development that is above 500 sq.m of floorspace measured externally (including extensions and conversions to existing buildings) must achieve BREEAM ‘excellent’ (or equivalent) or BREEAM ‘very good’ plus ‘Passivhaus’ certification including a 15% improvement in predicted carbon emissions, compared with the building regulations current at the time, through low or zero carbon energy generation on site or in a Borough location agreed by the Council.
 - b. all other larger developments above 10,000 sq.m of floorspace should also seek to fund post occupancy evaluation (POE) in addition to the above.
2. In addition to the above, all development above 500 sq.m of floorspace measured externally (including extensions and conversions to existing buildings) and external spaces within the curtilage serving developments of this size should where practical and viable:
 - a. incorporate energy-efficient passive design principles, the best use of natural daylight and natural ventilation systems wherever possible,
 - b. connect to any existing near or adjacent low carbon local energy network unless this is proved unviable,
 - c. use recycled, low embodied carbon, low environmental impact and locally sourced materials in construction where possible,
 - d. be designed with sufficient flexibility to enable the life of the building to be extended by re-use for other purposes where feasible.

Policy DM3 – Adaptation to Climate Change

All development should be designed to adapt to the predicted climate change impacts for the Eastleigh Borough.

- a. To reduce the potential impacts of surface water flooding, sustainable drainage systems need to be implemented as part of an integrated SuDS strategy for the site in accordance with policy DM6 (Sustainable surface water management and watercourse management) and as part of the landscape framework for the site including green open space and green roofs where appropriate.

- b. New development should have a cooling strategy which can include:
 - i. cooling through generous green infrastructure and tree,
 - ii. areas of shade,
 - iii. water cooling,
 - iv. building design and orientation to reduce overheating,
 - v. ‘Cool roofs’ or green roofs and green walls,
 - vi. porous cool pavements.
- c. To adapt to water stress, new development should be designed to reduce demand. Measures can include:
 - i. water efficient appliances, fittings and leak detection devices for non-residential development,
 - ii. rainwater harvesting and grey water recycling,
 - iii. drought resistant landscape design and planting.

Supplemented Planning Documents (SPDs)

1. Environmentally Sustainable Development (ESD), 2009

This SPD focuses on making development within the Eastleigh Borough environmentally sustainable, by defining ‘essential requirements’ for development. Essential requirements noted as applicable to non-residential development of more than 500 sqm of gross external floorspace that are applicable to this report are:

- a. ESD 5 Passive Solar Heat Gain: The Council requires all non-residential development over 1,000 sqm to make full use of potential passive solar heat gain through orientation, building design and landscape design (while avoiding excessive summer heat gain and glare) within a framework of good urban design unless there are particular site or building use factor which make it unfeasible. This should be clearly demonstrated in the Design and Access Statement.
- b. ESD 6 Carbon Dioxide Reduction: The Council requires all new non-residential development to achieve at least 15% carbon dioxide emissions reductions via local low/zero carbon energy. Please note this is in line with Local Plan Policy DM2.

Due to the outline planning status of the Proposed Development, the ESD 5 Passive Solar Heat Gain policy would be more applicable during its detailed planning application or Reserved Matters Application (RMA) process, when glazing ratio and external shading elements will be fully considered and designed.

2. Planning Obligation and Background Paper (2008)

This SPD seeks to provide additional guidance on the legal and policy basis for negotiating planning obligation, increase developers’ awareness of planning obligations and contributions and provide transparency to the process of negotiation.

The only principal matter associated to the Proposed Development that could be relevant to this report is:

- a. Energy and Climate Change

4. Assessment Methodology

The National Calculation Method (NCM) for the Energy Performance of Buildings Directive (EPBD) is defined by the Department for Levelling Up, Housing, and Communities (DLUHC) and it is the procedure for demonstrating compliance with the Building Regulations for buildings other than dwellings. Depending on the complexity of the assessment, either the Simplified Building Energy Model (SBEM) or Dynamic Simulation Methodology (DSM) can be used. Both of these tools are Government approved.

In order to identify the energy consumption and consequential carbon dioxide emissions, a DSM assessment was carried out. Images of this model are shown in Figures 4.1 and 4.2. The energy demand calculated using the NCM methodology is relative to the Regulated Emissions which includes the energy consumed to power space heating, domestic hot water, cooling, ventilation, and internal lighting systems.

The Actual Building Emission Rate (BER) and the Notional Building Target Emission Rate (TER) are the headline carbon dioxide emission figures which the SBEM-DSM Calculations measure. These figures will determine whether a new building (actual) passes or fails on its carbon dioxide emission target (notional building) set within Part L of the Building Regulations. Therefore, the BER must be better than TER ($BER < TER$) to pass Part L of the building regulations.

The Proposed Development target a minimum of 15% better than Part L 2021 notional baseline TER, in line with Eastleigh Borough Council Local Plan (Adopted 2022) Policy DM2.

The results of the indicative calculations should not be used for any other purpose other than those for which they are intended (namely as a basis for this energy strategy). Formal assessments will be required at a later stage in the development process to satisfy Building Control requirements.

The closest weather files relevant to this location are from Southampton, which is located approx. 8.1 miles from the Site. Therefore, the model used the Southampton Test Reference Year (TRY) weather data. This data is provided by CIBSE to IES for use in calculations.

A TRY weather file of the type used in this simulation consists of weather data from a historical sequence of 12 non-consecutive months selected from the last 30 years' weather data for the relevant location. The individual months are selected based on their correlation with the average weather conditions for that month over the 30-year selection period and combined to make a 12-month compilation of "typical" months.

The design for this project will attain a final carbon emission rating that goes beyond the one required to comply with Approved Document Part L Volume 2 2021 of the Building Regulations.

The proposed energy strategy approach is based on a recognised structure of reduction in carbon dioxide emissions through:

- Reducing the building energy consumption by optimising the design and construction of the building form and fabric and applying energy efficiency measures to ensure less energy is required.
- Supplying the energy from Low and Zero Carbon (LZC) Energy Sources.

Overall, it is more expensive to implement both carbon reduction and sustainability measures the further along the design process, as the opportunities available diminish. This highlights the importance of early consideration of these measures within the design process.

A passive, well insulated envelope will last for the life of the building with this being difficult to upgrade once building work is complete. The services installed within the building have a shorter life span and can be replaced / upgraded later, when their lifetime will have expired and new more efficient services will be available. Once the most efficient building envelope and services are provided, the installation of LZC technologies should be considered.

Baseline

The first step is to establish the "Baseline TER" in tonnes carbon per annum for the Proposed Development. The TER is calculated in accordance with the Part L 2021 requirements and sets the highest carbon level permissible in Part L Building Regulations for the Proposed development.

Proposed Development

Considering its outline planning application status, this assessment has been based on an illustrative masterplan (276504 -TOR-XX-ZZ-DR-A-P102 – D) and associated building planning drawings which have been submitted as part of the planning application.

Energy efficiency measures were considered to the building envelope (building fabric / air tightness) and assumptions to the mechanical and electrical systems were made to reduce building energy demands with appropriate controls to optimise the use of systems. In addition, LZC (ASHPs and PV array) technologies were also assumed as part of its energy strategy.

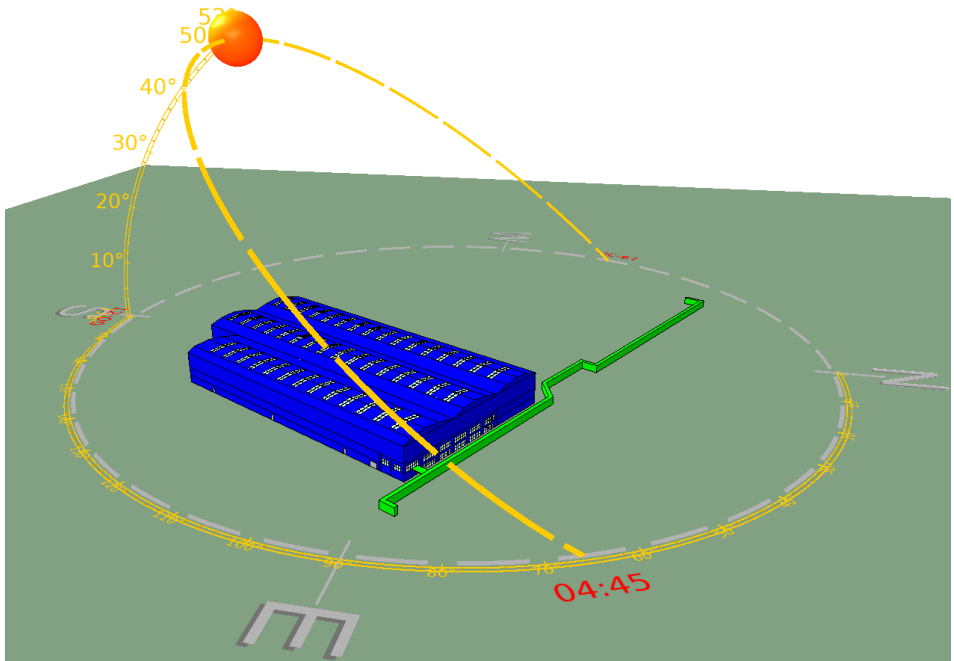


Figure 4.1 – Image of the IESVE model for Unit 1.

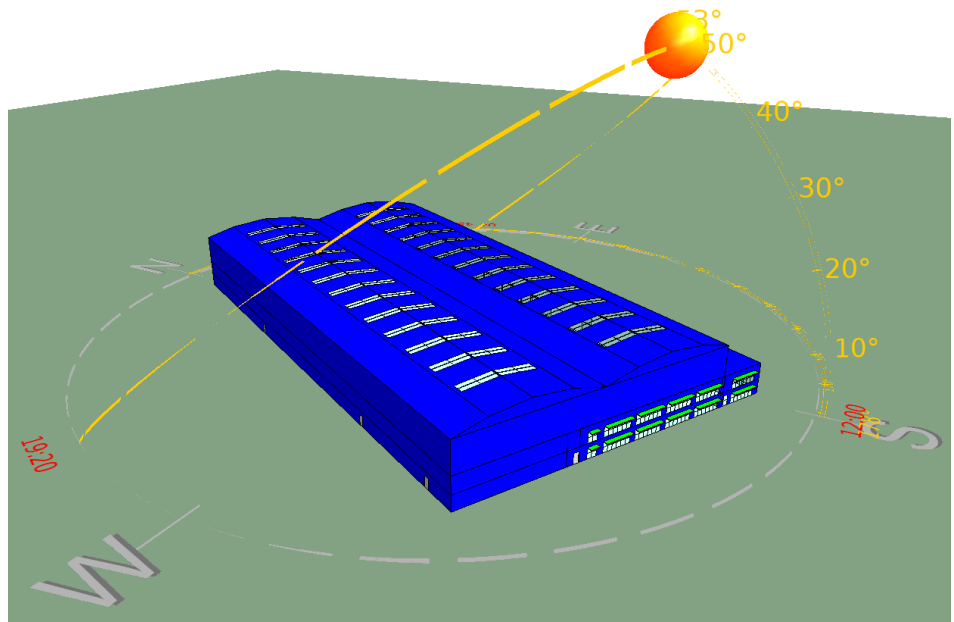


Figure 4.2 – Image of the IESVE model for Unit 2.

4. Assessment Methodology



4.1 Calculations for non-residential buildings

For non-residential buildings, the energy demands, and carbon emissions are calculated using the Part L 2021 methodology within the Integrated Environmental Solutions Virtual Environment (IES-VE) software, version 2024.1.0.0. The results from the analysis are presented in Building Regulations Part L 2021 (BRUKL) output document.

The illustrative proposed drawings for Unit 1 and Unit 2 comprises a warehouse and ancillary offices. Therefore, the NCM templates assigned to assess the building for compliance with Part L have used the building type B8: Storage or Distribution.

Table 4.1 shows the NCM templates assigned to the Proposed Development.

Space type	Thermal template
Warehouse	NCM Ware: 24x7 warehouse storage
Office	NCM Ware: Office (open)
Reception	NCM Ware: Reception
Circulation	NCM Ware: circulation
Store	NCM Ware: Cupboard
Kitchen	NCM Ware: eating and drinking
Toilet	NCM Ware: Toilet

Table 4.1 – NCM Templates used for the Part L assessment.

Please note that this outline planning application is for a warehouse development (Use Classes B2 and B8 applied flexibly). Although building Use Class B8 has been selected for energy strategy modelling purpose, compliance with Policy DM2 is also anticipated when Use Class B2 is selected in the future. This would be achieved by incorporating a combination of low and zero carbon technologies (heat pumps and PV panels on the roof).

5. Proposed Development

Considering the outline status of this planning application and using an illustrative masterplan (276504 -TOR-XX-ZZ-DR-A-P102 – D) with proposed Unit 1 and Unit 2 drawings, three options for the energy strategy have been appraised in this study. These mainly differ in terms of HVAC strategy, and in terms of fabric performance. An overview of the three options assessed is as follows, with a more detailed description of each option in the next sections:

- Option 1: VRF (heating/cooling to office), and unheated warehouse
- Option 2: ASHP with FCUs (heating/cooling to office), and ASHP with radiant panels for space heating to warehouse
- Option 3: VRF (heating/cooling to office), and ASHP with radiant panels for space heating to warehouse

Minimising energy use through design has been considered. A number of architectural and building fabric measures (passive design), energy efficient services (active design measures), appraisal of low zero carbon and renewable technologies have been explored and are expected to be integrated within its detailed planning application or RMA process.

5.1 Passive Design Measures

The following passive design measures have been considered at this outline planning stage, and they are expected to be further considered during detailed planning or RMA submission. These passive design measures have been included in order to limit, as far as practically possible, the energy demands and CO₂ emissions arising from the Proposed Development:

- Current office arrangements do not include a deep plan which maximise good daylight access. Likewise, warehouse spaces have rooflight proposed which provides good daylight access;
- High performing façade with optimised U-values could be included within current designs, considering its flexible Use Classes B2 and B8;
- Illustrative proportion of glazing and a glazing g-value were included to minimise solar gain in the summer, but also to maximise solar gain in winter;
- External shading elements have been included within the illustrative proposed Unit 2 drawings (276504 -TOR-02-RF-DR-A-P208 – B) which will decrease overheating risk in summertime and decrease its cooling load;
- Air Tightness target of 3 m3/hr/m2 @ 50Pa or less.

Table 5.1 summarises the fabric parameters of the Proposed Development for each assessed option.

Table 5.1 – Fabric parameters.

Proposed Development – Passive Design Measures				
		Option 1	Option 2	Option 3
U value (W/m2K)	Roof	0.15	0.13	0.15
	External Walls	0.18	0.15	0.18
	Ground Floor	0.15	0.13	0.15
	Glazing	1.40	1.30	1.40
	Rooflights	2.0	1.80	2.0
	Vehicle Doors	-	-	-
	External doors	1.40	1.30	1.40
	G value	0.35	0.29	0.35
Glazing Parameters	Light Transmittance	0.70	0.65	0.70
	Frame Factor (%)	10	10	10
	G value	0.55	0.50	0.55
Rooflights Parameters	Light Transmittance	0.70	0.65	0.70
	Frame Factor	10	10	10
Air Permeability (m3/hr m2@50 Pa)		3.0	3.0	3.0

5.2 Active Design Measures

In addition to passive design measures, a number of active design measures assumptions were made to the illustrative proposed Unit 1 and Unit 2, to limit the demand for primary energy. Please note they are not onerous and are likely to be included within their building design during detailed planning application or RMA.

- Energy Efficient LED lighting.
- Warehouse units, circulations spaces, stores and office area lighting would be designed with presence detection controls.
- The warehouse unit, circulation, reception and office area lighting would be designed with daylight sensitive controls.
- All fans and pumps would operate with variable speed control.
- Mechanical ventilation with heat recovery would be designed where balanced supply and extract ventilation is required, with a minimum heat recovery efficiency of 80%.
- Insulated hot water pipes, tanks and ducts.
- Energy metering will be in accordance with TM31 recommendations.

5.3 Connection to a District Heating Network

Consideration was given to the possible connection to an existing or proposed area wide decentralised energy network. The UK CHP Development Map (<https://chptools.decc.gov.uk/developmentmap>) is an interactive tool, using an interactive GIS system, which allows users to identify opportunities for decentralised energy projects in the UK. This tool details the existing major heat loads and supplies within the UK as well as existing heat distribution networks. As shown in Figure 5.1, there is no heat network in the vicinity of the development. However, it is recommended to future proof the Mechanical and Electrical (M&E) design to allow connectivity to an area wide heating/cooling network if one become available in the future.

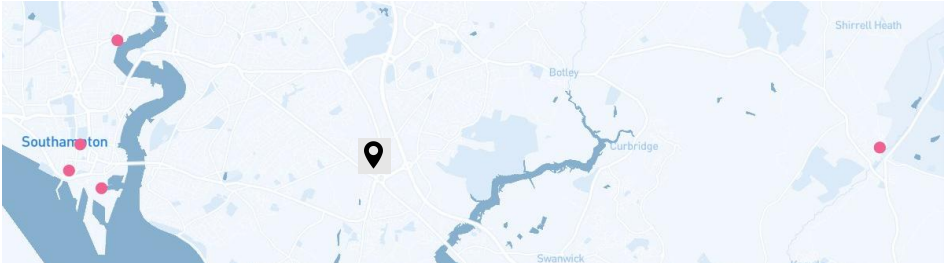


Figure 5.1 – District Heating Network (Credit: UK CHP Development Map). Pink dots are DHNs.

5. Proposed Development

5.4 Proposed systems

The systems reported in Table 5.2 have been assessed for the purpose of this energy strategy. Full inputs are found in Appendix A.

Table 5.2 – Overview of proposed systems.

	Option 1	Option 2	Option 3
Warehouse			
Heating	None	ASHP + Radiant Panels	ASHP + Radiant Panels
Cooling	(cooling is not expected within warehouse spaces)		N/A
Ventilation			Natural
Domestic Hot Water	(Illustrative Unit 1 and Unit 2 drawings do not include WCs/Changing/Kitchenette premisses)		N/A
Office			
Heating	ASHP/VRF	ASHP + FCU	ASHP/VRF
Cooling	ASHP/VRF	ASHP + FCU	ASHP/VRF
Ventilation	Mechanical Ventilation with Heat Recovery (MVHR)		
Domestic Hot Water	ASHP with storage volume 300 litres for Unit 1, and 150 litres for Unit 2		

The efficiencies of the proposed systems are shown in Table 5.3.

Table 5.3 – Efficiencies used for the HVAC systems.

	Option 1	Option 2	Option 3
Heating	3.10	3.30	3.10
Cooling	5.00	5.00	5.00
Ventilation Specific Fan Power (SFP)	1.5 W/l/s	1.35 W/l/s	1.5 W/l/s
Ventilation Heat Recovery	85%	85%	85%
Domestic Hot Water	3.10	3.30	3.10
PV panel module efficiency	22%	22%	22%
Lighting Efficacy	100 lm/W	100 lm/W	100 lm/W

Photovoltaics (PV) Panels are also proposed for the Proposed Development as follows:

- Unit 1: 368 PV panels, approx. 700 sqm,
- Unit 2: 168 PV panels, approx. 320 sqm.

Roof plans showing PV arrays on both units are shown in Figure 5.2.

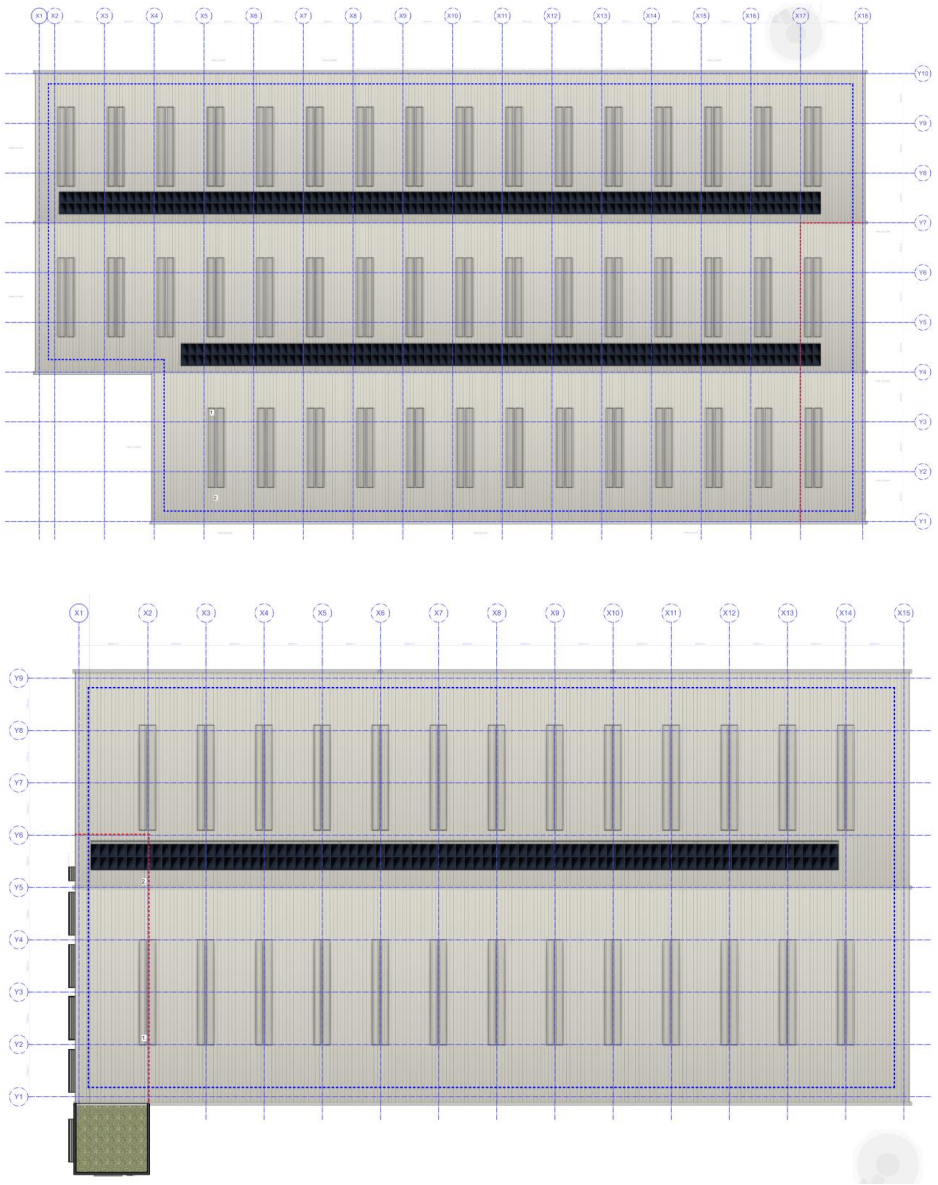


Figure 5.2 – Roof layout showing PV arrays in Unit 1 (top) and Unit 2 (bottom).

6. Results, Conclusions and Recommendations

The energy strategy for the Proposed Development meets and exceeds the Part L 2021 of the Building Regulations targets and achieves the minimum 15% carbon emissions reductions target through onsite LZC/Renewable technologies as per Policy DM2 of the local plan for all options proposed. This is achieved by incorporating a combination of energy efficient measures, low zero carbon and renewable technologies.

The options assessed for the Proposed Development incorporate energy efficient building fabric and buildings services, energy efficient low zero carbon and renewable technologies.

Through these measures outlined in Section 6, the Proposed Development is achieving and exceeding the requirements in carbon emissions beyond the baseline scheme (Part L 2021 compliant scheme).

Results are shown in Tables 6.1, 6.2, and 6.3, and Figures 6.1, 6.2, 6.3 for each option assessed.

In addition, the number of Ene 01 credits under BREEAM UK New Construction V6.1 scheme were assessed for all the options. This confirms that all options would exceed the minimum of 4No Ene 01 credits required for BREEAM Excellent rating. Please refer to BREEAM Pre-Assessment (RUK2021N00014-RAM-RP-00191) document.

Option 1

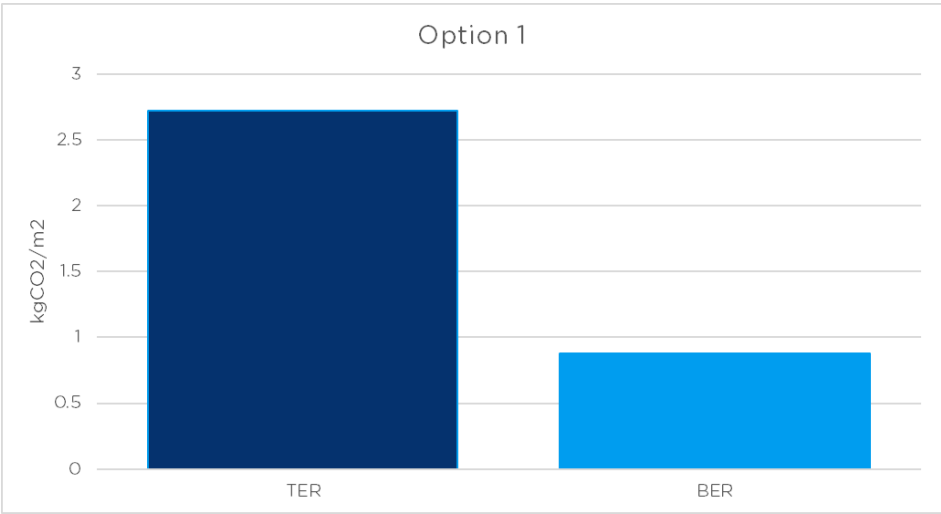


Figure 6.1 – Option 1 comparison of actual and notional emission rates.

Option 2

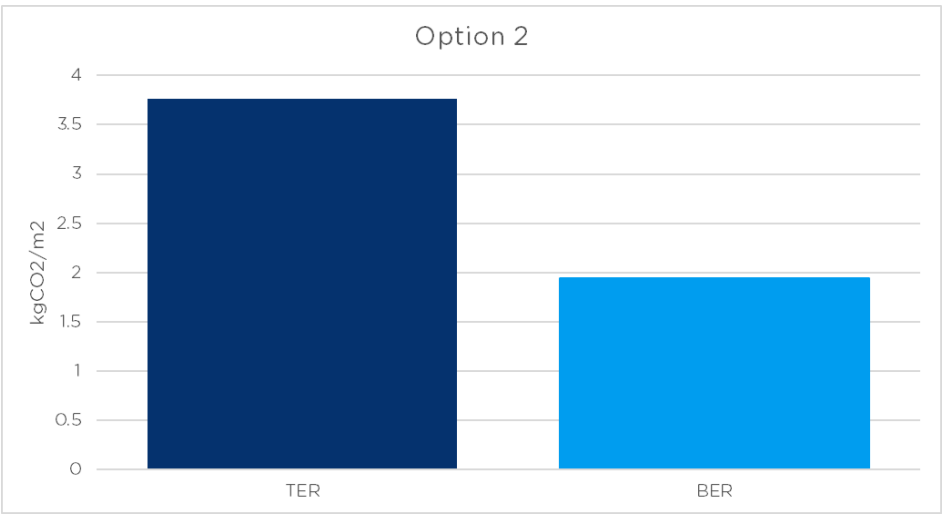


Figure 6.2 – Option 2 comparison of actual and notional emission rates.

Option 3

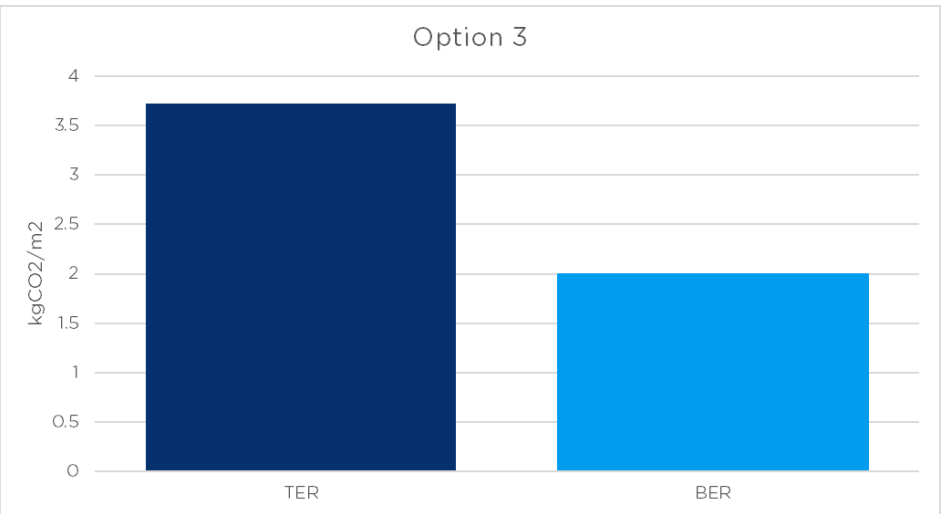


Figure 6.3 – Option 3 comparison of actual and notional emission rates.

Table 6.1 – Option 1 results.

	TER (kgCO2/m2)	BER (kgCO2/m2)
Unit 1	2.76	0.87
Unit 2	2.22	0.97
Total	2.70	0.90
Carbon savings	-67.8	
BREEAM ENE01 Credits	8	

Table 6.2 – Option 2 results.

	TER (kgCO2/m2)	BER (kgCO2/m2)
Unit 1	3.78	1.91
Unit 2	3.47	2.36
Total	3.80	1.90
Carbon savings	-48.3	
BREEAM ENE01 Credits	8	

Table 6.3 – Option 3 results.

	TER (kgCO2/m2)	BER (kgCO2/m2)
Unit 1	3.75	1.97
Unit 2	3.42	2.37
Total	3.70	2.00
Carbon savings	-46.4	
BREEAM ENE01 Credits	8	

7. Risks and Opportunities



Three energy strategy options were considered for the outline application of the Proposed Development which includes a number of design assumptions.

The three options considered are compliant and provides flexibility to the incoming design team. The Proposed Development includes an extensive roof area which could accommodate additional PV panels, if necessary, in the future. They could be used to accommodate changes to the M&E strategy, but also to provide electricity to unregulated energy demand, including electric vehicles (EV) charges.

During detailed planning application, when the M&E strategy will be developed, it is expected that there may be changes to the results. However, the risk of non-compliance with the Policy DM2 of the Eastleigh Borough Local Plan ($\geq 15\%$ carbon emissions reductions target through onsite LZC technologies) is very low.

The only room exceeding the solar gain limits in summer by a very small margin (2.8%) is L01 Staircase in Unit 1, please refer to Appendix C. Additional passive control measures will have to be considered in the future, which could be preferably addressed by the reduction of glazing ratio or inclusion of external shading.

Appendix A

Model Inputs - Option 1

BUILDING SERVICES - SYSTEMS						
Typical Rooms Served	Main Warehouse	Office, Reception, Amenity areas	WC	FOH Circulation	Kitchenette	Store / BOH circulation
IES System Name	HVAC01-Warehouse	HVAC02-Office	HVAC03-WC	HVAC04-Circulation	HVAC05-Kitchenette	
System Type	NONE	Variable refrigerant Flow	Central heat air distribution or radiator	Variable refrigerant Flow	Central heat air distribution or radiator	None
Heating Fuel Source		Heat Pump (Electric): air source	Heat Pump (Electric): air source	Heat Pump (Electric): air source	Heat Pump (Electric): air source	
Heating Efficiency - COP/SCOP		3.1	3.1	3.1	3.1	
Delivery Efficiency						
Cooling Fuel Source		Heat Pump (Electric)		Heat Pump (Electric)		
Cooling Efficiency - EER/SEER		5.00		5.00		
Does the System have provision for metering?		Yes it does		Yes it does		
Does the metering warn 'out of range' values?		Yes it does		Yes it does		
Does equipment qualify for ECA's?		ECA list (after 2001)		ECA list (after 2001)		
Has the ductwork been leakage tested?		Class A		Class A		
Does the AHU meet CEN leakage Standards		Class L2		Class L2		
Ventilation Type	Natural Ventilation	Centralised AHU or MVHR (variable speed differential sensor across pumps)	Centralised AHU or MVHR (variable speed differential sensor across pumps)	Centralised AHU or MVHR (variable speed differential sensor across pumps)	Centralised AHU or MVHR (variable speed differential sensor across pumps)	
Specific Fan power (W/l/s)		1.50	1.50	1.50	1.50	
Terminal Fan power (W/l/s)		-	-	-	-	
Fuel Source		Heat pump	Heat pump	Heat pump	Heat pump	
Heat Recovery Efficiency (%)		85%	85%	85%	85%	
Heat Recovery Type		Plate heat exchanger	Plate heat exchanger	Plate heat exchanger	Plate heat exchanger	
DOMESTIC HOT WATER SYSTEM						
Room Served	Unit 1	Unit 2				
Type	ASHP	ASHP				
Fuel Source	Heat Pump (Electric): air source	Heat Pump (Electric): air source				
Seasonal Efficiency	3.1	3.1				
Total Storage Volume (litres)	300	150				
Insulation type	Insulated	Insulated				
Insulation thickness	-	-				
Storage Losses (kWh/l.day)	0.0047	0.0047				
Delivery Efficiency	90%	90%				
Av. DHW pipe size (for pipework heat loss calcs)	-	-				
Used in conjunction with Heat Pump?	-	-				
Electric Power Factor	Power Factor Correction					
Power Factor	Between 0.90-0.95					
BUILDING SERVICES - RENEWABLES						
	Unit 1	Unit 2				
PV Type	Monocrystalline Silicon	Monocrystalline Silicon				
Orientation (clockwise from north)	118	118				
Inclination (degree tilt)	30	30				
Area (m2)	700	320				

LIGHTING AND CONTROL						
	Type	PIR	Daylight Dimming?	Occupancy sensors	lux	Display Lighting Efficacy (lm/w)
Main Warehouse including waste management	LED	PD	Yes	auto-on-off	100	100
Store	LED	PD	No	manual on-off	100	100
Stairs	LED	PD	No	auto-on-off	100	100
Reception	LED	PD	Yes	manual on-off	300	100
WC	LED	PD	No	auto-on-off	200	100
Open Plan Office	LED	PD	Yes	auto-on-off	300	100
Kitchen	LED	PD	No	auto-on-off	300	100

Appendix A (cont.)

Model Inputs - Option 2

BUILDING SERVICES - SYSTEMS							
Typical Rooms Served	Main Warehouse	Office, Reception, Amenity areas	WC	FOH Circulation	Kitchenette	Store / BOH circulation	
IES System Name	HVAC01-Warehouse	HVAC02-Office	HVAC03-WC	HVAC04-Circulation	HVAC05-Kitchenette		
System Type	Radiators	FCU	Central heat air distribution or radiator	FCU	Central heat air distribution or radiator	None	
Heating Fuel Source	Heat Pump (Electric)	Heat Pump (Electric): air source	Heat Pump (Electric): air source	Heat Pump (Electric): air source	Heat Pump (Electric): air source		
Heating Efficiency - COP/SCOP	3.3	3.3	3.3	3.3	3.3		
Delivery Efficiency							
Cooling Fuel Source		Heat Pump (Electric)		Heat Pump (Electric)			
Cooling Efficiency - EER/SEER		5.00		5.00			
Does the System have provision for metering?		Yes it does		Yes it does			
Does the metering warn 'out of range' values?		Yes it does		Yes it does			
Does equipment qualify for ECA's?		ECA list (after 2001)		ECA list (after 2001)			
Has the ductwork been leakage tested?		Class A		Class A			
Does the AHU meet CEN leakage Standards		Class L2		Class L2			
Ventilation Type	Natural Ventilation	Centralised AHU or MVHR (variable speed differential sensor across pumps)	Centralised AHU or MVHR (variable speed differential sensor across pumps)	Centralised AHU or MVHR (variable speed differential sensor across pumps)	Centralised AHU or MVHR (variable speed differential sensor across pumps)		
Specific Fan power (W/l/s)		1.35	1.35	1.35	1.35		
Terminal Fan power (W/l/s)		0.20	0.20	0.20	0.20		
Fuel Source		Heat pump	Heat pump	Heat pump	Heat pump		
Heat Recovery Efficiency (%)		85%	85%	85%	85%		
Heat Recovery Type		Plate heat exchanger	Plate heat exchanger	Plate heat exchanger	Plate heat exchanger		
DOMESTIC HOT WATER SYSTEM							
Room Served	Unit 1	Unit 2					
Type	ASHP	ASHP					
Fuel Source	Heat Pump (Electric): air source	Heat Pump (Electric): air source					
Seasonal Efficiency (%)	3.3	3.3					
Total Storage Volume (litres)	300	150					
Insulation type	Insulated	Insulated					
Insulation thickness	-	-					
Storage Losses (kWh/l.day)	0.0047	0.0047					
Delivery Efficiency	90%	90%					
Av. DHW pipe size (for pipework heat loss calcs)	-	-					
Used in conjunction with Heat Pump?	-	-					
Electric Power Factor	Power Factor Correction						
Power Factor	Between 0.90-0.95						
BUILDING SERVICES - RENEWABLES							
	Unit 1	Unit 2					
PV Type	Monocrystalline Silicon	Monocrystalline Silicon					
Orientation (clockwise from north)	118	118					
Inclination (degree tilt)	30	30					
Area (m2)	700	320					

LIGHTING AND CONTROL						
	Type	PIR	Daylight Dimming?	Occupancy sensors	lux	Display Lighting Efficacy (lm/w)
Main Warehouse including waste management	LED	PD	Yes	auto-on-off	100	100
Store	LED	PD	No	manual on-off	100	100
Stairs	LED	PD	No	auto-on-off	100	100
Reception	LED	PD	Yes	manual on-off	300	100
WC	LED	PD	No	auto-on-off	200	100
Open Plan Office	LED	PD	Yes	auto-on-off	300	100
Kitchen	LED	PD	No	auto-on-off	300	100

Appendix A (cont.)

Model Inputs - Option 3

BUILDING SERVICES - SYSTEMS						
Typical Rooms Served	Main Warehouse	Office, Reception, Amenity areas	WC	FOH Circulation	Kitchenette	Store / BOH circulation
IES System Name	HVAC01-Warehouse	HVAC02-Office	HVAC03-WC	HVAC04-Circulation	HVAC05-Kitchenette	
System Type	Radiators	FCU	Central heat air distribution or radiator	FCU	Central heat air distribution or radiator	
Heating Fuel Source	Heat Pump (Electric)	Heat Pump (Electric): air source	Heat Pump (Electric): air source	Heat Pump (Electric): air source	Heat Pump (Electric): air source	
Heating Efficiency - COP/SCOP	3.1	3.1	3.1	3.1	3.1	
Delivery Efficiency						
Cooling Fuel Source		Heat Pump (Electric)		Heat Pump (Electric)		
Cooling Efficiency - EER/SEER		5.00		5.00		
Does the System have provision for metering?		Yes it does		Yes it does		
Does the metering warn 'out of range' values?		Yes it does		Yes it does		
Does equipment qualify for ECA's?		ECA list (after 2001)		ECA list (after 2001)		
Has the ductwork been leakage tested?		Class A		Class A		
Does the AHU meet CEN leakage Standards		Class L2		Class L2		
Ventilation Type	Natural Ventilation	Centralised AHU or MVHR (variable speed differential sensor across pumps)	Centralised AHU or MVHR (variable speed differential sensor across pumps)	Centralised AHU or MVHR (variable speed differential sensor across pumps)	Centralised AHU or MVHR (variable speed differential sensor across pumps)	
Specific Fan power (W/l/s)		1.50	1.50	1.50	1.50	
Terminal Fan power (W/l/s)		-	-	-	-	
Fuel Source		Heat pump	Heat pump	Heat pump	Heat pump	
Heat Recovery Efficiency (%)		85%	85%	85%	85%	
Heat Recovery Type		Plate heat exchanger	Plate heat exchanger	Plate heat exchanger	Plate heat exchanger	
DOMESTIC HOT WATER SYSTEM						
Room Served	Unit 1	Unit 2				
Type	ASHP	ASHP				
Fuel Source	Heat Pump (Electric): air source	Heat Pump (Electric): air source				
Seasonal Efficiency (%)	3.1	3.1				
Total Storage Volume (litres)	300	150				
Insulation type	Insulated	Insulated				
Insulation thickness	-	-				
Storage Losses (kWh/l.day)	0.0047	0.0047				
Delivery Efficiency	90%	90%				
Av. DHW pipe size (for pipework heat loss calcs)	-	-				
Used in conjunction with Heat Pump?	-	-				
Electric Power Factor	Power Factor Correction					
Power Factor	0.90-0.95					
BUILDING SERVICES - RENEWABLES						
	Unit 1	Unit 2				
PV Type	Monocrystalline Silicon	Monocrystalline Silicon				
Orientation (clockwise from north)	118	118				
Inclination (degree tilt)	30	30				
Area (m2)	700	320				

LIGHTING AND CONTROL						
	Type	PIR	Daylight Dimming?	Occupancy sensors	lux	Display Lighting Efficacy (lm/w)
Main Warehouse including waste management	LED	PD	Yes	auto-on-off	100	100
Store	LED	PD	No	manual on-off	100	100
Stairs	LED	PD	No	auto-on-off	100	100
Reception	LED	PD	Yes	manual on-off	300	100
WC	LED	PD	No	auto-on-off	200	100
Open Plan Office	LED	PD	Yes	auto-on-off	300	100
Kitchen	LED	PD	No	auto-on-off	300	100

Appendix B



BRUKL Output Document - Option 1, Unit 1

BRUKL Output Document

Compliance with England Building Regulations Part L 2021

Project name

Burlesdon Unit 1 Option 1 (Be Green)

As designed

Date: Thu Jun 05 16:56:30 2025

Administrative information

Building Details

Address: Address 1, City, Postcode

Certification tool

Calculation engine: Apache
Calculation engine version: 7.0.28
Interface to calculation engine: IES Virtual Environment
Interface to calculation engine version: 7.0.28
BRUKL compliance module version: v6.1.e.1

Certifier details

Name: Name
Telephone number: Phone
Address: Street Address, City, Postcode

Foundation area [m²]: 449.93

The CO₂ emission and primary energy rates of the building must not exceed the targets

Target CO ₂ emission rate (TER), kgCO ₂ /m²·annum	2.76
Building CO ₂ emission rate (BER), kgCO ₂ /m²·annum	0.87
Target primary energy rate (TPER), kWh _{pe} /m²·annum	30.08
Building primary energy rate (BPER), kWh _{pe} /m²·annum	8.41
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 -Limit	U _a -Calc	U _i -Calc	First surface with maximum value
Walls*	0.26	0.18	0.18	NT000000:Surf[3]
Floors	0.18	0.15	0.15	NT000000:Surf[0]
Pitched roofs	0.16	0.15	0.15	NT00002E:Surf[81]
Flat roofs	0.18	0.15	0.15	NT00002E:Surf[80]
Windows** and roof windows	1.6	1.4	1.4	NT00000E:Surf[0]
Rooflights***	2.2	2.01	2.01	NT00002E:Surf[2]
Personnel doors^	1.6	1.4	1.4	NT000000:Surf[1]
Vehicle access & similar large doors	1.3	1.3	1.3	NT000000:Surf[10]
High usage entrance doors	3	-	-	No high usage entrance doors in building

U_a-Limit = Limiting area-weighted average U-values [W/(m²K)]
U_a-Calc = Calculated area-weighted average U-values [W/(m²K)]
U_i-Calc = Calculated maximum individual element U-values [W/(m²K)]
* 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/m²K
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
m³/(h.m²) at 50 Pa	8	3

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Technical Data Sheet (Actual vs. Notional Building)

Building Global Parameters

	Actual	Notional
Floor area [m²]	9585.6	9585.6
External area [m²]	23788.9	23788.9
Weather	SOU	SOU
Infiltration [m³/hm²@ 50Pa]	3	4
Average conductance [W/K]	6445.23	4199.76
Average U-value [W/m²K]	0.27	0.18
Alpha value* [%]	17.62	10

* Percentage of the building's average heat transfer coefficient which is due to thermal bridging

Building Use

% Area	Building Type
	Retail/Financial and Professional Services
	Restaurants and Cafes/Drinking Establishments/Takeaways
	Offices and Workshop Businesses
	General Industrial and Special Industrial Groups
100	Storage or Distribution
	Hotels
	Residential Institutions: Hospitals and Care Homes
	Residential Institutions: Residential Schools
	Residential Institutions: Universities and Colleges
	Secure Residential Institutions
	Residential Spaces
	Non-residential Institutions: Community/Day Centre
	Non-residential Institutions: Libraries, Museums, and Galleries
	Non-residential Institutions: Education
	Non-residential Institutions: Primary Health Care Building
	Non-residential Institutions: Crown and County Courts
	General Assembly and Leisure, Night Clubs, and Theatres
	Others: Passenger Terminals
	Others: Emergency Services
	Others: Miscellaneous 24hr Activities
	Others: Car Parks 24 hrs
	Others: Stand Alone Utility Block

Energy Consumption by End Use [kWh/m²]

	Actual	Notional
Heating	0.59	0.58
Cooling	0.57	0.19
Auxiliary	0.69	1.22
Lighting	12	12.4
Hot water	6.39	5.99
Equipment*	43.06	43.06
TOTAL**	20.24	20.38

* Energy used by equipment does not count towards the total for consumption or calculating emissions.
** Total is net of any electrical energy displaced by CHP generators, if applicable.

Energy Production by Technology [kWh/m²]

	Actual	Notional
Photovoltaic systems	14.88	0
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0
Displaced electricity	14.88	0

Energy & CO₂ Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m²]	13.74	8.92
Primary energy [kWh _{pe} /m²]	8.41	30.08
Total emissions [kg/m²]	0.87	2.76

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March 2026

Land adjacent to Windhover Roundabout, Bursledon - Energy Strategy

Appendix B (cont.)



BRUKL Output Document - Option 1, Unit 2

BRUKL Output Document

HM Government

Compliance with England Building Regulations Part L 2021

Project name

Burlesdon Unit 2 Option 1 (Be Green)

As designed

Date: Thu Jun 05 16:59:57 2025

Administrative information

Building Details

Address: Address 1, City, Postcode

Certification tool

Calculation engine: Apache

Calculation engine version: 7.0.28

Interface to calculation engine: IES Virtual Environment

Interface to calculation engine version: 7.0.28

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

Certifier details

Name: Name

Telephone number: Phone

Address: Street Address, City, Postcode

Foundation area [m²]: 391.42

The CO₂ emission and primary energy rates of the building must not exceed the targets

Target CO ₂ emission rate (TER), kgCO ₂ /m²annum	2.22
Building CO ₂ emission rate (BER), kgCO ₂ /m²annum	0.97
Target primary energy rate (TPER), kWh _{pe} /m²annum	24.16
Building primary energy rate (BPER), kWh _{pe} /m²annum	10.01
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-Limit}	U _{a-Calc}	U _{i-Calc}	First surface with maximum value
Walls*	0.26	0.18	0.18	NT000006:Surf[1]
Floors	0.18	0.15	0.15	NT000006:Surf[0]
Pitched roofs	0.16	0.15	0.15	NT000052:Surf[55]
Flat roofs	0.18	0.15	0.15	NT00001C:Surf[0]
Windows** and roof windows	1.6	1.4	1.4	NT000004:Surf[1]
Rooflights***	2.2	2.01	2.01	NT000052:Surf[2]
Personnel doors^	1.6	1.44	2.2	NT00005B:Surf[23]
Vehicle access & similar large doors	1.3	1.3	1.3	NT000003:Surf[9]
High usage entrance doors	3	-	-	No high usage entrance doors in building

U_{a-Limit} = Limiting area-weighted average U-values [W/(m²K)]

U_{a-Calc} = Calculated area-weighted average U-values [W/(m²K)]

U_{i-Calc} = Calculated maximum individual element U-values [W/(m²K)]

* 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/m²K

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
m³/(h.m²) at 50 Pa	8	3

Page 1 of 5

Technical Data Sheet (Actual vs. Notional Building)

Building Global Parameters

	Actual	Notional
Floor area [m²]	7172.3	7172.3
External area [m²]	18325.1	18325.1
Weather	SOU	SOU
Infiltration [m³/hm²@ 50Pa]	3	4
Average conductance [W/K]	4776.07	3266.56
Average U-value [W/m²K]	0.26	0.18
Alpha value* [%]	18.45	10

* Percentage of the building's average heat transfer coefficient which is due to thermal bridging

Building Use

% Area	Building Type
	Retail/Financial and Professional Services
	Restaurants and Cafes/Drinking Establishments/Takeaways
	Offices and Workshop Businesses
	General Industrial and Special Industrial Groups
100	Storage or Distribution
	Hotels
	Residential Institutions: Hospitals and Care Homes
	Residential Institutions: Residential Schools
	Residential Institutions: Universities and Colleges
	Secure Residential Institutions
	Residential Spaces
	Non-residential Institutions: Community/Day Centre
	Non-residential Institutions: Libraries, Museums, and Galleries
	Non-residential Institutions: Education
	Non-residential Institutions: Primary Health Care Building
	Non-residential Institutions: Crown and County Courts
	General Assembly and Leisure, Night Clubs, and Theatres
	Others: Passenger Terminals
	Others: Emergency Services
	Others: Miscellaneous 24hr Activities
	Others: Car Parks 24 hrs
	Others: Stand Alone Utility Block

Energy Consumption by End Use [kWh/m²]

	Actual	Notional
Heating	0.58	0.55
Cooling	0.75	0.31
Auxiliary	0.7	1.52
Lighting	11.89	12.38
Hot water	1.7	1.61
Equipment*	43.23	43.23
TOTAL**	15.62	16.37

* Energy used by equipment does not count towards the total for consumption or calculating emissions.

** Total is net of any electrical energy displaced by CHP generators, if applicable.

Energy Production by Technology [kWh/m²]

	Actual	Notional
Photovoltaic systems	9.09	0
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0
Displaced electricity	9.09	0

Energy & CO₂ Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m²]	15.85	10.71
Primary energy [kWh _{pe} /m²]	10.01	24.16
Total emissions [kg/m²]	0.97	2.22

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Appendix B (cont.)



BRUKL Output Document - Option 2, Unit 1

BRUKL Output Document

HM Government

Compliance with England Building Regulations Part L 2021

Project name

Burlesdon Unit 1 Option 2 (Be Green)As designed

Date: Thu Jun 05 16:06:35 2025

Administrative information

Building Details

Address: Address 1, City, Postcode

Certifier details

Name: Name

Telephone number: Phone

Address: Street Address, City, Postcode

Certification tool

Calculation engine: Apache

Calculation engine version: 7.0.28

Interface to calculation engine: IES Virtual Environment

Interface to calculation engine version: 7.0.28

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

Foundation area [m²]: 4761.71

The CO₂ emission and primary energy rates of the building must not exceed the targets

Target CO ₂ emission rate (TER), kgCO ₂ /m²:annum	3.78
Building CO ₂ emission rate (BER), kgCO ₂ /m²:annum	1.91
Target primary energy rate (TPER), kWh _{PE} /m²:annum	40.65
Building primary energy rate (BPER), kWh _{PE} /m²:annum	19.29
Do the building's emission and primary energy rates exceed the targets?	BER <= TERBPER <= TPER

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

Fabric element	U _{a-Limit}	U _{a-Calc}	U _{i-Calc}	First surface with maximum value
Walls*	0.26	0.15	0.15	NT000000:Surf[3]
Floors	0.18	0.13	0.13	NT000000:Surf[0]
Pitched roofs	0.16	0.13	0.13	NT00002E:Surf[81]
Flat roofs	0.18	0.13	0.13	NT00002E:Surf[80]
Windows** and roof windows	1.6	1.3	1.3	NT00000E:Surf[0]
Rooflights***	2.2	1.8	1.8	NT00002E:Surf[2]
Personnel doors^	1.6	1.3	1.3	NT000000:Surf[1]
Vehicle access & similar large doors	1.3	1.3	1.3	NT000000:Surf[10]
High usage entrance doors	3	-	-	No high usage entrance doors in building

U_{a-Limit} = Limiting area-weighted average U-values [W/(m²K)]

U_{a-Calc} = Calculated area-weighted average U-values [W/(m²K)]

U_{i-Calc} = Calculated maximum individual element U-values [W/(m²K)]

* 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/m²K

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
m³/(h.m²) at 50 Pa	8	3

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March 2026

Technical Data Sheet (Actual vs. Notional Building)

Building Global Parameters

	Actual	Notional
Floor area [m²]	9585.6	9585.6
External area [m²]	23788.9	23788.9
Weather	SOU	SOU
Infiltration [m³/hm²@ 50Pa]	3	4
Average conductance [W/K]	5679.36	4199.76
Average U-value [W/m²K]	0.24	0.18
Alpha value* [%]	17.66	10

* Percentage of the building's average heat transfer coefficient which is due to thermal bridging

Building Use

% Area	Building Type
	Retail/Financial and Professional Services
	Restaurants and Cafes/Drinking Establishments/Takeaways
	Offices and Workshop Businesses
	General Industrial and Special Industrial Groups
100	Storage or Distribution
	Hotels
	Residential Institutions: Hospitals and Care Homes
	Residential Institutions: Residential Schools
	Residential Institutions: Universities and Colleges
	Secure Residential Institutions
	Residential Spaces
	Non-residential Institutions: Community/Day Centre
	Non-residential Institutions: Libraries, Museums, and Galleries
	Non-residential Institutions: Education
	Non-residential Institutions: Primary Health Care Building
	Non-residential Institutions: Crown and County Courts
	General Assembly and Leisure, Night Clubs, and Theatres
	Others: Passenger Terminals
	Others: Emergency Services
	Others: Miscellaneous 24hr Activities
	Others: Car Parks 24 hrs
	Others: Stand Alone Utility Block

Energy Consumption by End Use [kWh/m²]

	Actual	Notional
Heating	3.76	5.12
Cooling	0.44	0.1
Auxiliary	5.14	3.74
Lighting	12	12.4
Hot water	6	5.99
Equipment*	43.06	43.06
TOTAL**	27.34	27.35

* Energy used by equipment does not count towards the total for consumption or calculating emissions.

** Total is net of any electrical energy displaced by CHP generators, if applicable.

Energy Production by Technology [kWh/m²]

	Actual	Notional
Photovoltaic systems	14.88	0
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0
Displaced electricity	14.88	0

Energy & CO₂ Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m²]	48.21	52.89
Primary energy [kWh _{PE} /m²]	19.29	40.65
Total emissions [kg/m²]	1.91	3.78

Page 5 of 6

Land adjacent to Windhover Roundabout, Bursledon - Energy Strategy

Appendix B (cont.)



BRUKL Output Document - Option 2, Unit 2

BRUKL Output Document

HM Government

Compliance with England Building Regulations Part L 2021

Project name

Burlesdon Unit 2 Option 2 (Be Green)As designed

Date: Thu Jun 05 16:28:44 2025

Administrative information

Building Details

Address: Address 1, City, Postcode

Certification tool

Calculation engine: Apache

Calculation engine version: 7.0.28

Interface to calculation engine: IES Virtual Environment

Interface to calculation engine version: 7.0.28

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

Certifier details

Name: Name

Telephone number: Phone

Address: Street Address, City, Postcode

Foundation area [m²]: 3556.95

The CO₂ emission and primary energy rates of the building must not exceed the targets

Target CO ₂ emission rate (TER), kgCO ₂ /m²annum	3.47
Building CO ₂ emission rate (BER), kgCO ₂ /m²annum	2.36
Target primary energy rate (TPER), kWh _{PE} /m²annum	37.14
Building primary energy rate (BPER), kWh _{PE} /m²annum	24.4
Do the building's emission and primary energy rates exceed the targets?	BER <= TERBPER <= TPER

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

Fabric element	U _{a-Limit}	U _{a-Calc}	U _{i-Calc}	First surface with maximum value
Walls*	0.26	0.15	0.15	NT000006:Surf[1]
Floors	0.18	0.13	0.13	NT000006:Surf[0]
Pitched roofs	0.16	0.13	0.13	NT000052:Surf[55]
Flat roofs	0.18	0.13	0.13	NT00001C:Surf[0]
Windows** and roof windows	1.6	1.3	1.3	NT00005F:Surf[13]
Rooflights***	2.2	1.8	1.8	NT000052:Surf[2]
Personnel doors^	1.6	1.34	2.2	NT00005B:Surf[23]
Vehicle access & similar large doors	1.3	1.3	1.3	NT000003:Surf[9]
High usage entrance doors	3	-	-	No high usage entrance doors in building

U_{a-Limit} = Limiting area-weighted average U-values [W/(m²K)]

U_{a-Calc} = Calculated area-weighted average U-values [W/(m²K)]

U_{i-Calc} = Calculated maximum individual element U-values [W/(m²K)]

* 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/m²K

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
m³/(h.m²) at 50 Pa	8	3

Page 1 of 6

Technical Data Sheet (Actual vs. Notional Building)

Building Global Parameters

	Actual	Notional
Floor area [m²]	7172.3	7172.3
External area [m²]	18325.1	18325.1
Weather	SOU	SOU
Infiltration [m³/hm²@ 50Pa]	3	4
Average conductance [W/K]	4199.31	3266.56
Average U-value [W/m²K]	0.23	0.18
Alpha value* [%]	18.5	10

* Percentage of the building's average heat transfer coefficient which is due to thermal bridging

Building Use

% Area	Building Type
	Retail/Financial and Professional Services
	Restaurants and Cafes/Drinking Establishments/Takeaways
	Offices and Workshop Businesses
	General Industrial and Special Industrial Groups
100	Storage or Distribution
	Hotels
	Residential Institutions: Hospitals and Care Homes
	Residential Institutions: Residential Schools
	Residential Institutions: Universities and Colleges
	Secure Residential Institutions
	Residential Spaces
	Non-residential Institutions: Community/Day Centre
	Non-residential Institutions: Libraries, Museums, and Galleries
	Non-residential Institutions: Education
	Non-residential Institutions: Primary Health Care Building
	Non-residential Institutions: Crown and County Courts
	General Assembly and Leisure, Night Clubs, and Theatres
	Others: Passenger Terminals
	Others: Emergency Services
	Others: Miscellaneous 24hr Activities
	Others: Car Parks 24 hrs
	Others: Stand Alone Utility Block

Energy Consumption by End Use [kWh/m²]

	Actual	Notional
Heating	5.51	6.61
Cooling	0.59	0.21
Auxiliary	5.39	4.1
Lighting	11.89	12.38
Hot water	1.6	1.61
Equipment*	43.23	43.23
TOTAL**	24.99	24.91

* Energy used by equipment does not count towards the total for consumption or calculating emissions.

** Total is net of any electrical energy displaced by CHP generators, if applicable.

Energy Production by Technology [kWh/m²]

	Actual	Notional
Photovoltaic systems	9.09	0
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0
Displaced electricity	9.09	0

Energy & CO₂ Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m²]	70.02	69.59
Primary energy [kWh _{PE} /m²]	24.4	37.14
Total emissions [kg/m²]	2.36	3.47

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Appendix B (cont.)



BRUKL Output Document - Option 3, Unit 1

BRUKL Output Document

HM Government

Compliance with England Building Regulations Part L 2021

Project name

Burlesdon Unit 1 Option 3 (Be Green)

As designed

Date: Thu Jun 05 01:15:12 2025

Administrative information

Building Details

Address: Address 1, City, Postcode

Certifier details

Name: Name

Telephone number: Phone

Address: Street Address, City, Postcode

Certification tool

Calculation engine: Apache

Calculation engine version: 7.0.28

Interface to calculation engine: IES Virtual Environment

Interface to calculation engine version: 7.0.28

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

Foundation area [m²]: 4761.71

The CO₂ emission and primary energy rates of the building must not exceed the targets

Target CO ₂ emission rate (TER), kgCO ₂ /m²annum	3.75
Building CO ₂ emission rate (BER), kgCO ₂ /m²annum	1.97
Target primary energy rate (TPER), kWh _{pe} /m²annum	40.26
Building primary energy rate (BPER), kWh _{pe} /m²annum	19.88
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 -Limit	U _a -Calc	U _i -Calc	First surface with maximum value
Walls*	0.26	0.18	0.18	NT000000:Surf[3]
Floors	0.18	0.15	0.15	NT000000:Surf[0]
Pitched roofs	0.16	0.15	0.15	NT00002E:Surf[81]
Flat roofs	0.18	0.15	0.15	NT00002E:Surf[80]
Windows** and roof windows	1.6	1.4	1.4	NT00000E:Surf[0]
Rooflights***	2.2	2.01	2.01	NT00002E:Surf[2]
Personnel doors^	1.6	1.4	1.4	NT000000:Surf[1]
Vehicle access & similar large doors	1.3	1.3	1.3	NT000000:Surf[10]
High usage entrance doors	3	-	-	No high usage entrance doors in building

U_a-Limit = Limiting area-weighted average U-values [W/(m²K)]

U_a-Calc = Calculated area-weighted average U-values [W/(m²K)]

U_i-Calc = Calculated maximum individual element U-values [W/(m²K)]

* 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/m²K

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
m³/(h.m²) at 50 Pa	8	3

Page 1 of 6

Technical Data Sheet (Actual vs. Notional Building)

Building Global Parameters

	Actual	Notional
Floor area [m²]	9585.6	9585.6
External area [m²]	23788.9	23788.9
Weather	SOU	SOU
Infiltration [m³/hm²@ 50Pa]	3	4
Average conductance [W/K]	6445.23	4199.76
Average U-value [W/m²K]	0.27	0.18
Alpha value* [%]	17.62	10

* Percentage of the building's average heat transfer coefficient which is due to thermal bridging

Building Use

% Area	Building Type
	Retail/Financial and Professional Services
	Restaurants and Cafes/Drinking Establishments/Takeaways
	Offices and Workshop Businesses
	General Industrial and Special Industrial Groups
100	Storage or Distribution
	Hotels
	Residential Institutions: Hospitals and Care Homes
	Residential Institutions: Residential Schools
	Residential Institutions: Universities and Colleges
	Secure Residential Institutions
	Residential Spaces
	Non-residential Institutions: Community/Day Centre
	Non-residential Institutions: Libraries, Museums, and Galleries
	Non-residential Institutions: Education
	Non-residential Institutions: Primary Health Care Building
	Non-residential Institutions: Crown and County Courts
	General Assembly and Leisure, Night Clubs, and Theatres
	Others: Passenger Terminals
	Others: Emergency Services
	Others: Miscellaneous 24hr Activities
	Others: Car Parks 24 hrs
	Others: Stand Alone Utility Block

Energy Consumption by End Use [kWh/m²]

	Actual	Notional
Heating	4.41	5.16
Cooling	0.49	0.1
Auxiliary	4.41	3.43
Lighting	12	12.4
Hot water	6.39	5.99
Equipment*	43.06	43.06
TOTAL**	27.71	27.08

* Energy used by equipment does not count towards the total for consumption or calculating emissions.

** Total is net of any electrical energy displaced by CHP generators, if applicable.

Energy Production by Technology [kWh/m²]

	Actual	Notional
Photovoltaic systems	14.88	0
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0
Displaced electricity	14.88	0

Energy & CO₂ Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m²]	52.86	53.35
Primary energy [kWh _{pe} /m²]	19.88	40.26
Total emissions [kg/m²]	1.97	3.75

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March 2026

Land adjacent to Windhover Roundabout, Bursledon - Energy Strategy

Appendix B (cont.)



BRUKL Output Document - Option 3, Unit 2

BRUKL Output Document

HM Government

Compliance with England Building Regulations Part L 2021

Project name

Burlesdon Unit 2 Option 3 (Be Green)As designed

Date: Thu Jun 05 01:05:00 2025

Administrative information

Building Details

Address: Address 1, City, Postcode

Certification tool

Calculation engine: Apache

Calculation engine version: 7.0.28

Interface to calculation engine: IES Virtual Environment

Interface to calculation engine version: 7.0.28

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

Certifier details

Name: Name

Telephone number: Phone

Address: Street Address, City, Postcode

Foundation area [m²]: 3556.95

The CO₂ emission and primary energy rates of the building must not exceed the targets

Target CO ₂ emission rate (TER), kgCO ₂ /m²annum	3.42
Building CO ₂ emission rate (BER), kgCO ₂ /m²annum	2.37
Target primary energy rate (TPER), kWh _e /m²annum	36.56
Building primary energy rate (BPER), kWh _e /m²annum	24.46
Do the building's emission and primary energy rates exceed the targets?	BER <= TERBPER <= TPER

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

Fabric element	U _{a-Limit}	U _{a-Calc}	U _{i-Calc}	First surface with maximum value
Walls*	0.26	0.18	0.18	NT000006:Surf[1]
Floors	0.18	0.15	0.15	NT000006:Surf[0]
Pitched roofs	0.16	0.15	0.15	NT000052:Surf[55]
Flat roofs	0.18	0.15	0.15	NT00001C:Surf[0]
Windows** and roof windows	1.6	1.4	1.4	NT000004:Surf[1]
Rooflights***	2.2	2.01	2.01	NT000052:Surf[2]
Personnel doors^	1.6	1.44	2.2	NT00005B:Surf[23]
Vehicle access & similar large doors	1.3	1.3	1.3	NT000003:Surf[9]
High usage entrance doors	3	-	-	No high usage entrance doors in building
U _{a-Limit} = Limiting area-weighted average U-values [W/(m²K)] U _{a-Calc} = Calculated area-weighted average U-values [W/(m²K)] U _{i-Calc} = Calculated maximum individual element U-values [W/(m²K)] * 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/m²K 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		
m³/(h.m²) at 50 Pa	8	3		

Page 1 of 5

Technical Data Sheet (Actual vs. Notional Building)

Building Global Parameters

	Actual	Notional
Floor area [m²]	7172.3	7172.3
External area [m²]	18325.1	18325.1
Weather	SOU	SOU
Infiltration [m³/hm²@ 50Pa]	3	4
Average conductance [W/K]	4776.07	3266.56
Average U-value [W/m²K]	0.26	0.18
Alpha value* [%]	18.45	10

* Percentage of the building's average heat transfer coefficient which is due to thermal bridging

Building Use

% Area	Building Type
	Retail/Financial and Professional Services
	Restaurants and Cafes/Drinking Establishments/Takeaways
	Offices and Workshop Businesses
	General Industrial and Special Industrial Groups
100	Storage or Distribution
	Hotels
	Residential Institutions: Hospitals and Care Homes
	Residential Institutions: Residential Schools
	Residential Institutions: Universities and Colleges
	Secure Residential Institutions
	Residential Spaces
	Non-residential Institutions: Community/Day Centre
	Non-residential Institutions: Libraries, Museums, and Galleries
	Non-residential Institutions: Education
	Non-residential Institutions: Primary Health Care Building
	Non-residential Institutions: Crown and County Courts
	General Assembly and Leisure, Night Clubs, and Theatres
	Others: Passenger Terminals
	Others: Emergency Services
	Others: Miscellaneous 24hr Activities
	Others: Car Parks 24 hrs
	Others: Stand Alone Utility Block

Energy Consumption by End Use [kWh/m²]

	Actual	Notional
Heating	6.39	6.61
Cooling	0.66	0.21
Auxiliary	4.35	3.71
Lighting	11.89	12.38
Hot water	1.7	1.61
Equipment*	43.23	43.23
TOTAL**	24.99	24.52

* Energy used by equipment does not count towards the total for consumption or calculating emissions.
** Total is net of any electrical energy displaced by CHP generators, if applicable.

Energy Production by Technology [kWh/m²]

	Actual	Notional
Photovoltaic systems	9.09	0
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0
Displaced electricity	9.09	0

Energy & CO₂ Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m²]	75.57	69.59
Primary energy [kWh _e /m²]	24.46	36.56
Total emissions [kg/m²]	2.37	3.42

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Appendix C



BRUKL Output Document - Passive Control Measures to Limit Solar Gains in Summer

Unit 1

General lighting and display lighting		Display light source	
Zone name	General luminaire	Efficacy [lm/W]	Power density [W/m²]
Standard value	95	80	0.3
Unit 1_Warehouse +00	100	-	-
Unit 1_FOH Circulation - L00	100	-	-
Unit 1_Accessible Shower/WC - L00	100	-	-
Unit 1_Shower_01 - L00	100	-	-
Unit 1_Shower_02 - L00	100	-	-
Unit 1_WC Circulation - L00	100	-	-
Unit 1_Male Female WC - L00	100	-	-
Unit 1_Break/Welfare - L00	100	-	-
Unit 1_Staircase 02 - L00	100	-	-
Unit 1_Office - L00	100	-	-
Unit 1_Store/Plant - L00	100	-	-
Unit 1_FOH Staircase 01 - L00	100	-	-
Unit 1_Staircase 02 - L01	100	-	-
Unit 1_Office - L01	100	-	-
Unit 1_Kitchen - L01	100	-	-
Unit 1_Staircase 01 - L01	100	-	-
Unit 1_Cleaner/Store - L01	100	-	-
Unit 1_Wait/Reception - L01	100	80	1.688
Unit 1_Accessible WC - L01	100	-	-
Unit 1_WC Circulation - L01	100	-	-
Unit 1_Male Female WC - L01	100	-	-

The spaces in the building should have appropriate passive control measures to limit solar gains in summer

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
Unit 1_Warehouse +00	N/A	N/A
Unit 1_FOH Circulation - L00	NO (-68%)	NO
Unit 1_WC Circulation - L00	N/A	N/A
Unit 1_Break/Welfare - L00	N/A	N/A
Unit 1_Office - L00	NO (-52.7%)	NO
Unit 1_FOH Staircase 01 - L00	N/A	N/A
Unit 1_Office - L01	NO (-25.6%)	NO
Unit 1_Kitchen - L01	N/A	N/A
Unit 1_Staircase 01 - L01	YES (+2.8%)	NO
Unit 1_Wait/Reception - L01	NO (-24.6%)	NO
Unit 1_WC Circulation - L01	N/A	N/A

Regulation 25A: Consideration of high efficiency alternative energy systems

Were alternative energy systems considered and analysed as part of the design process?	YES
Is evidence of such assessment available as a separate submission?	NO
Are any such measures included in the proposed design?	YES

Unit 2

General lighting and display lighting		Display light source	
Zone name	General luminaire	Efficacy [lm/W]	Power density [W/m²]
Standard value	95	80	0.3
Unit 2_Accessible WC - L00	100	-	-
Unit 2_Cleaners Store - L01	100	-	-
Unit 2_Fire Escape Stair - L00	100	-	-
Unit 2_Fire Escape Stair - L01	100	-	-
Unit 2_Kitchen - L01	100	-	-
Unit 2_Open Plan Office - L00	100	-	-
Unit 2_Open Plan Office - L01	100	-	-
Unit 2_Store - L01	100	-	-
Unit 2_Store (under stair) - L00	100	-	-
Unit 2_Store_1 - L00	100	-	-
Unit 2_Store_2 - L00	100	-	-
Unit 2_Visitor WC - L00	100	-	-
Unit 2_Warehouse +00	100	-	-
Unit 2_FOH Staircase - L00	100	-	-
Unit 2_Wait/Reception - L00	100	80	2.663
Unit 2_FOH Circulation - L01	100	-	-
Unit 2_FOH Staircase - L01	100	-	-
Unit 2_Female WC - L01	100	-	-
Unit 2_Male WC - L01	100	-	-

The spaces in the building should have appropriate passive control measures to limit solar gains in summer

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
Unit 2_Kitchen - L01	N/A	N/A
Unit 2_Open Plan Office - L00	NO (-27.1%)	NO
Unit 2_Open Plan Office - L01	NO (-27%)	NO
Unit 2_Warehouse +00	NO (-43.7%)	NO
Unit 2_FOH Staircase - L00	NO (-78.6%)	NO
Unit 2_Wait/Reception - L00	NO (-25.9%)	NO
Unit 2_FOH Circulation - L01	NO (-75.5%)	NO
Unit 2_FOH Staircase - L01	NO (-94.5%)	NO

Regulation 25A: Consideration of high efficiency alternative energy systems

Were alternative energy systems considered and analysed as part of the design process?	YES
Is evidence of such assessment available as a separate submission?	NO
Are any such measures included in the proposed design?	YES

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