Energy Statement

Mount Clare House, Wandsworth

AKA Capability LLP

03/10/2025

Consult Sustainability

Contents

Executive Summary

Consult Sustainability Limited has been appointed to prepare a planning stage Energy Statement Assessment for the proposed refurbishment known as Mount Clare House, Wandsworth. The report has been prepared to outline the measures incorporated into the proposed refurbishment to reduce energy demand and CO_2 emissions in support of the planning application.

The development is located within the jurisdiction of the London borough of Wandsworth and the Greater London Authority. Wandsworth and the GLA require developments to seek to maximise energy efficiency and reduce carbon emissions through its design and demonstrate how emissions savings have been maximised at each stage of the energy hierarchy towards achieving minimal carbon emissions.

The proposed refurbishment consists of the retention and refurbishment of existing accommodation buildings for use as temporary hostel accommodation (207 units / 264 bedrooms), with associated landscaping and cycle parking.

Energy demand and CO_2 emission figures are based on draft energy modelling undertaken using IESVE software. Calculations are based on IES modelling comparing the building fabric and services of the proposed refurbishment against a notional building built following Appendix 3 of the GLA' guidance on preparing energy statements.

For the purposes of carbon reduction reporting, the current Part L 2021 GLA Carbon Emission Reporting spreadsheet has been completed and incorporated into the report. For developments should seek to achieve a 35% reduction in carbon emissions against a notional baseline.

Following the energy hierarchy, this development will adopt the following strategy:

Be lean: Reduce energy demand and improve operational efficiency by upgrading the building fabric through the installation of additional roof and floor insulation, repairing windows and cracks to lower air permeability, and replacing windows in some locations. Furthermore, new lighting will be installed with smart controls as well as smart thermostats for controlling space heating. These measures enhance thermal performance beyond existing conditions and contribute to reduced energy demand, as further detailed within this report**.**

Be clean: No opportunities are feasible under this stage of the hierarchy for this refurbishment scope, as further detailed within this report.

Be green: A range of "Be Green" measures were explored at this stage, including on-site renewable energy technologies (such as solar PV, solar thermal and heat pumps) and other low/zero carbon options. While these opportunities were assessed in principle, they have not been implemented within the scheme due to site constraints, technical limitations, or viability considerations.

Summary

The development will follow the energy hierarchy and achieve:

- An **28%** reduction in regulated CO_2 emissions through enhanced building fabric measures (Lean Stage).
- The scheme has focused on a fabric first approach to reduce energy consumption and carbon emissions, thereby an overall 28% total reduction in regulated CO2 emissions through the lean stage measures only.
- Given the nature of the proposed development and the intention to avoid substantial works, achieving a 28% reduction over the Appendix 3 notional building is regarded as significant. It demonstrates the client's and design team's commitment to a fabric-first approach in reducing energy demand and carbon emissions.

Table 1: Total carbon dioxide savings achieved by the proposed scheme

	Total Regulated Emissions (Tonnes Co_2 / year)	CO_2 savings (Tonnes CO_2 / year)	Percentage Savings (%)
Part L 2021 Baseline	160.6	-	-
Be Lean	115.9	44.6	28%
Be Clean	115.9	-	-
Be Green	115.9	-	-
Cumulative	115.9	44.6	28%

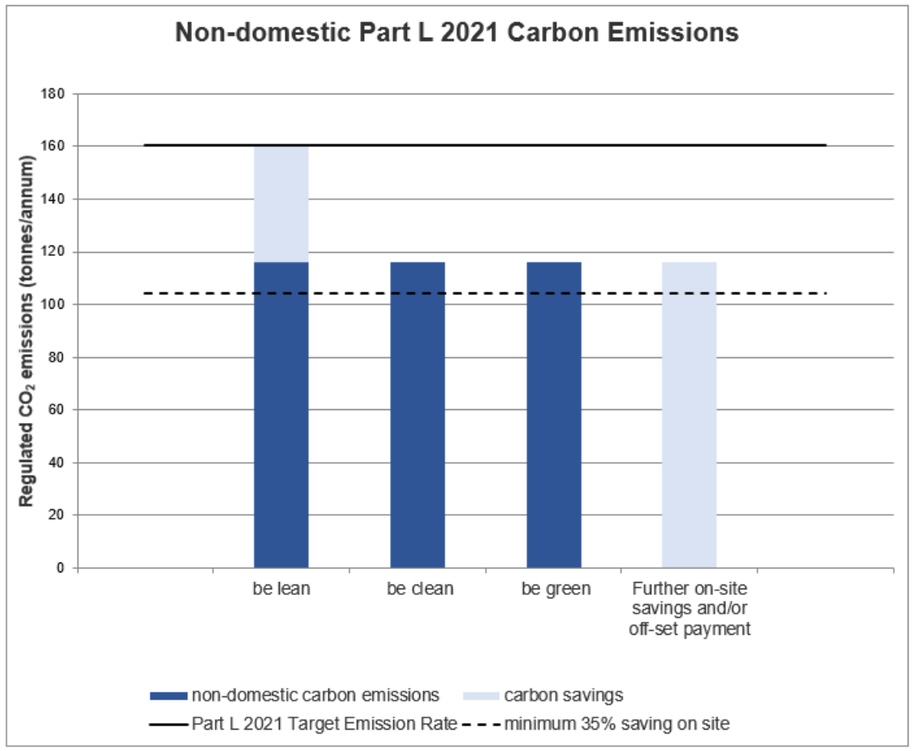

Figure 1: Carbon Emissions across the Energy Hierarchy

Introduction

Consult Sustainability Limited has been appointed to prepare a planning stage Energy Statement Assessment for the proposed refurbishment known at Mount Clare House, Wandsworth for the scheme detailed below.

The proposed refurbishment consists of the retention and refurbishment of existing accommodation buildings for use as temporary hostel accommodation (207 units / 264 bedrooms), with associated landscaping and cycle parking.

This report has been prepared by Mr S Searle who is a Member of the Royal Institution of Chartered Surveyors (MRICS 0854781) and accredited On-Construction domestic Energy Assessor (OCDEA Elmhurst EES/022737).

Energy demand and CO_2 emission figures are based on draft energy modelling undertaken using IESVE software. Calculations are based on IES modelling comparing the building fabric and services of the proposed refurbishment against a notional building built following Appendix 3 of the GLA' guidance on preparing energy assessments.

An image of the proposed ground floor of Picasso House is included below:

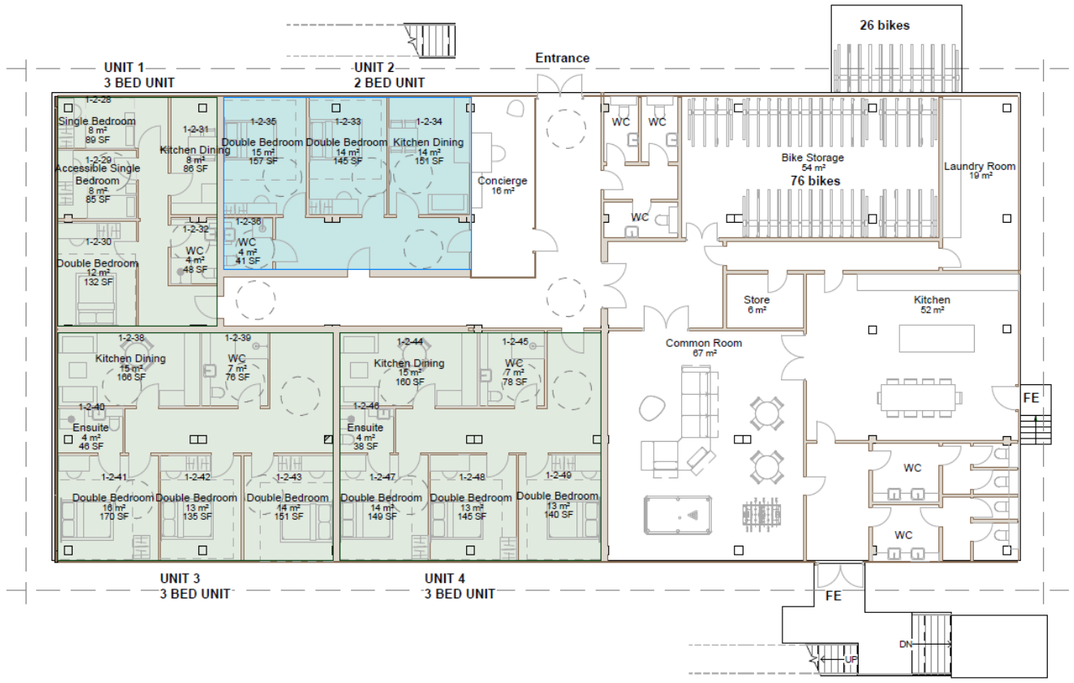

Figure 2: Proposed Ground Floor of Picasso House

Planning Requirements

National Policy - NPPF

At national level, National Planning Policy Framework (2024) sets out the Governments planning policies for England, identifying how the planning system should support the transition to net zero by 2050 and take account of all climate impacts including overheating, water scarcity, storm and flood risks and coastal change. The NPPF should help to shape places in ways that contribute to radical reductions in greenhouse gas emissions, minimise vulnerability and improve resilience; encourage the reuse of existing resources, including the conversion of existing buildings; and support renewable and low carbon energy and associated infrastructure.

Local planning authorities must take a proactive approach to mitigating and adapting to climate change, considering the long-term implications for flood risk, coastal change, water supply, biodiversity and landscapes, and the risk of overheating from rising temperatures in line with the objectives and provisions of the Climate Change Act 2008.

New development should be planned for in ways that:

a) avoid increased vulnerability to the range of impacts arising from climate change. When a new development is brought forward in areas which are vulnerable, care should be taken to ensure that risks can be managed through suitable adaptation measures, including through the planning of green infrastructure; and
b) can help to reduce greenhouse gas emissions, such as through its location, orientation, and design. Any local requirements for the sustainability of buildings should reflect the Government's policy for national technical standards.

To help increase the use and supply of renewable and low carbon energy and heat, plans should:

a) provide a positive strategy for energy from these sources, which maximises the potential for suitable development, while ensuring that adverse impacts are addressed satisfactorily (including cumulative landscape and visual impacts).
b) consider identifying suitable areas for renewable and low carbon energy sources, and supporting infrastructure, where this would help secure their development; and
c) identify opportunities for development to draw its energy supply from decentralised, renewable, or low carbon energy supply systems and for co-locating potential heat customers and suppliers.

Local planning authorities should support community-led initiatives for renewable and low carbon energy. This should include developments outside areas identified in local plans or other strategic policies that are being taken forward through neighborhood planning.

In determining planning applications, local planning authorities should expect new development to:

a) comply with any development plan policies on local requirements for decentralised energy supply unless it can be demonstrated by the applicant, having regard to the type of development involved and its design, that this is not feasible or viable; and
b) take account of landform, layout, building orientation, massing, and landscaping to minimise energy consumption..

When determining planning applications for renewable and low carbon development, local planning authorities should:

a) not require applicants to demonstrate the overall need for renewable or low carbon energy, and give significant weight to the benefits associated with renewable and low carbon energy generation and the proposal's contribution to a net zero future;
b) recognise that small-scale and community-led projects provide a valuable contribution to cutting greenhouse gas emissions;
c) in the case of applications for the repowering and life-extension of existing renewable sites, give significant weight to the benefits of utilising an established site.

Local Policy - Wandsworth Local Plan 2033

At a local level, Wandsworth's Local Plan 2033, sets out the energy requirements for all developments. The Wandsworth Local Plan 2023-2038, and its accompanying "Tackling Climate Change" policies (LP10-LP14), provide the strategic climate, energy, and sustainability framework for development in the borough. Once the design and fabric of new development has minimised the energy needed for heating, cooling and power, the residual energy should be supplied as efficiently as possible using the energy hierarchy.

Policy LP10: Responding to the Climate Crisis

A. Developments are required to mitigate and adapt to climate change over their intended lifetime, reflected through a sustainability statement and measures such as energy conservation, efficiency, and low / renewable energy generation.
B. Where practicable, developments should achieve BREEAM 'Outstanding', BRE Home Quality Mark, or Passivhaus standards.
C. The policy text states: "Where conflict between climate change objectives and the conservation of heritage assets is unavoidable, the public benefit of mitigating the effects of climate change will be weighed against any harm to the significance of the heritage asset"
D. Supporting text (paragraph 15.10) refers to that heritage balancing test.
E. LP10 also requires connection where feasible to decentralised energy networks (DEN) in growth areas and major developments to incorporate on-site DEN where needed.

Policy LP11: Energy Infrastructure

A. New development is expected to connect to any existing Decentralised Energy Network (DEN) or, where that is not feasible, follow an alternative energy strategy, provided it offers efficiency, clean and decarbonised supply, in alignment with the London Plan energy hierarchy. Wandsworth Borough Council+2Wandsworth Borough Council+2
B. If no network currently exists, development should be designed to allow future connection to DEN. Wandsworth Borough Council+2Wandsworth Borough Council+2
C. In planning obligations, developers may be required to make contributions or secure installation, maintenance, and responsibility for DEN and associated infrastructure

PLANNING SUMMARY

THE DEVELOPMENT IS LOCATED WITHIN THE JURISDICTION OF WANDSWORTH BOROUGH COUNCIL WHO REQUIRE DEVELOPMENTS TO SEEK TO MAXIMISE ENERGY EFFICIENCY AND REDUCE CARBON EMISSIONS THROUGH ITS DESIGN, STRUCTURE, ORIENTATION AND POSITIONING, LANDSCAPING AND RELEVANT TECHNOLOGY AND DEMONSTRATE HOW EMISSIONS SAVINGS HAVE BEEN MAXIMISED AT EACH STAGE OF THE ENERGY HIERARCHY TOWARDS ACHIEVING MINIMAL CARBON EMISSIONS.

Energy Hierarchy

Be Lean

Fabric First: Energy Efficiency Standards - Use less energy and manage demand during operation through fabric and servicing improvements and the incorporation of flexibility measures. Demand reduction measures specific to the scheme are encouraged at the earliest design stage of a development and aim to reduce to demand of energy.

Measures typically include passive design: both architectural and building fabric measures, and active design: energy efficient services. It is possible to exceed Building Regulations requirements through demand reduction (Be Lean) measures alone.

Improving the envelope performance beyond the minimum Building Regulations standards can help to reduce the annual CO_2 emissions associated with the dwellings' heating demand, by limiting the heat loss though the buildings' fabric.

After assessing the contribution of the passive elements to the overall energy balance, the aim is to further reduce CO_2 emissions by selecting efficient mechanical and electrical systems and efficient controls to manage the energy used during operation.

Be Clean

Supply Energy Efficiently - Exploit local energy resources (such as secondary heat) and supply energy efficiently and cleanly by connecting to district heating networks. A 'clean' energy supply refers to the energy efficiency of heating, cooling, and power systems. Planning applications should demonstrate how the heating, cooling and power systems have been selected to minimise CO_2 emissions.

Be Green

Low Carbon/ Renewable Technologies - Maximise opportunities for renewable energy by producing, storing and using renewable energy on-site.

Use of renewable energy in developments is encouraged at the 'Be Green' third stage. Each renewable energy technology technically feasible and each should be considered in the Energy Assessment.

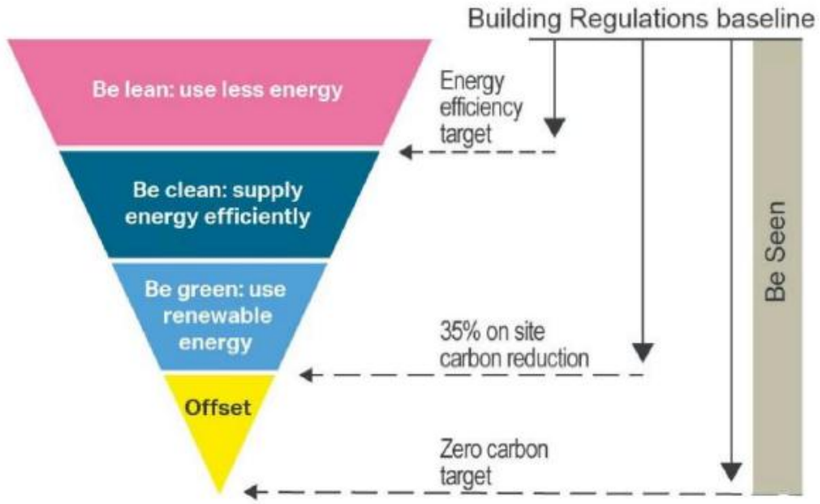

FIGURE 3: LONDON PLAN ENERGY HIERARCHY

Energy Proposals

Be Lean – Energy Efficiency Standards

Fabric Measures

Energy efficiency measures for the building are proposed to be incorporated to reduce the energy demand and CO_2 emission of the development.

The development will adopt a fabric first approach. For the bungalow, a new building fabric will be installed, with new walls, roofs and floors incorporating U-values that far exceed those within the notional building. For Picasso house and the remaining residential blocks, the floors and roofs will be insulated so that the U-values are reduced below the notional building.

Table 1 below outlines the proposed fabric standards against the GLA Guidance on Preparing Energy Assessments Appendix 3 notional values, together with the percentage improvement against each of the measures.

TABLE 1 – PROPOSED FABRIC MEASURES

	Domestic (New) - Approved Document L1 2021				
	A	**B**	**C**	**B**	**C**
Element	GLA Guidance on Preparing Energy Assessments Appendix 3	**Proposed U-Values (W/m^2K)**	**Improvement (%)**	**Proposed U-Values Bungalow (W/m^2K)**	**Improvement (%)**
External Walls	0.55	**0.35**	36%	**0.18**	67%
Roofs	0.18	**0.15**	17%	**0.15**	17%
Floors	0.25	**0.15**	40%	**0.15**	40%
Windows/Doors	1.40	**2.0**	-43%	**1.40**	0%
Air tightness $m^3/hr/m^2$	25.0	**10.0**	60%	**10.0**	60%

Windows

The contractor shall seek to **retain the existing windows within Picasso House and the residential blocks**, with works limited to repair and refurbishment where necessary to ensure continued performance. Where necessary, the windows will be replaced with new windows with a U-value of 1.4. **For the bungalow, new windows** will be installed with a U-value of 1.4.

For the new windows, a glazing g-value of **0.40** has been assumed within the energy modelling to provide a balance between beneficial solar gain and the reduction of overheating risk.

Air Tightness

Good site quality standards will be adhered to achieve a high-performance building with a low air permeability rate. All of the buildings will be sealed with cracks repaired to ensure that air permeability will not exceed **$10m^3/hr/m^2$ at 50 Pascals** or less, against the notional target of $25.00m^3/hr/m^2$.

Low air permeability will be achieved through ensuring diligence during construction and making sure all punctures through the building envelope are adequately sealed.

Lighting

Installing efficient low energy light fittings internally and externally can significantly reduce a building's overall lighting load hence lowering its annual CO_2 emissions. To reduce the energy consumption associated with artificial lighting, energy-efficient fittings will be specified for 100% of internal and external lighting.

Lighting throughout will achieve the following minimum lumens per circuit watt: LED 100lm/W with controls and sensors in communal areas to ensure that lights are not on when spaces are unoccupied.

Ventilation

The units will be naturally ventilated by the openable windows with extract ventilation supplied to kitchens and bathrooms.

Heating / Hot Water

The existing communal boiler will be retained in order to provide the heating and hot water for the buildings, as it remains in good condition and continues to have sufficient service life. The system will therefore continue to provide space heating and hot water efficiently. Heat demand will be limited due to the enhanced fabric standards of the building.

BE LEAN SUMMARY

THE PROPOSAL IS TO CONSTRUCT THE DWELLINGS TO HIGH THERMAL PERFORMANCE STANDARDS WITH U-VALUES SIGNIFICANTLY EXCEEDING CURRENT MINIMUM BUILDING REGULATION TARGETS.

THE PROPOSED BUILDING ENHANCEMENTS WILL RESULT IN AN 28% REDUCTION IN REGULATED CO_2 EMISSIONS AGAINST GLA GUIDANCE ON PREPARING ENERGY ASSESSMENTS APPENDIX 3 NOTIONAL VALUES.

Be Clean – Supply Energy Efficiently

Consideration has been given to connection to local existing or planned heat network to supply an efficient means of supplying heating and hot water.

Following a review of the London Heat Map, no existing heat networks are known to exist in close proximity to the proposed site and no networks are proposed.

Consideration has also been given to the exploitation of local and secondary energy opportunities to maximise the use of locally available energy sources whilst minimising primary energy demand and carbon emissions.

No opportunities exist for the exploitation of local energy opportunities.

The use of low-emission combined heat and power has also been considered, however, at this scale it is not economic to install, (and where CHP is installed it tends to have lower electrical efficiencies and therefore higher carbon emissions). There are also growing concerns about the air quality impacts of gas-engine CHP at this scale.

With the Governments current drive to move away from fossil fuels and with the increasing decarbonisation of grid electricity, gas is not proposed for use on this development, and it is proposed that electric heat pumps are used to supply hot water as outlined in the Be Green stage below.

BE CLEAN SUMMARY

NO OPPORTUNITIES HAVE BEEN IDENTIFIED TO EXIST FOR THE EXPLOITATION OF LOCAL ENERGY OPPORTUNITIES.

Be Green – Low Carbon/ Renewable Technology Consideration

Feasible Renewable Energy Technology

A reduction in carbon emissions using on-site renewable energy may be achieved through several technologies to generate heat or power. In deciding the most suitable technology consideration has been given to:

- **Carbon reduction effectiveness** – The estimated reduction in CO_2 emission as a result of the installation of the technology.
- **Cost feasibility** – The cost of installation relative to the overall cost of the development.
- **Practicality** – The physical practicality of installing the technology.
- **Planning restrictions** – Whether planning restrictions would prevent installation of the technology i.e. conservation areas, Listed buildings etc.
- **Site related constraints** – Whether specific site conditions would prevent the installation of a technology i.e. heavily shaded reducing efficiency of solar panels.
- **Operating noise consideration** – The expected level of noise associated with a technology and whether this would cause undue disturbance to occupiers or neighbouring properties.

GSHP

Ground Source Heat Pumps (GSHPs)	
CO_2 reduction effectiveness:	Estimated potential 60-70% reduction in CO_2 emissions.
Cost feasibility:	High.
Practicality:	Practical for new buildings with high fabric efficiency standards and low energy demand.
Planning restrictions:	No abnormal planning restrictions.
Site related constraints:	Insufficient space exists within the development boundaries for the incorporation of horizontal 'Slinky's'. Thermogeological assessment of ground conditions plus identification of underground services would need to be established to determine the suitability for bore holes.
Operating noise:	Low.
Ongoing maintenance:	Medium - None to boreholes, annual maintenance requirement for heat pumps.
Overall Feasibility:	**Not considered feasible for this development.**

ASHP

Air Source/Exhaust Air Heat Pumps (ASHP/EAHPs)	
CO_2 reduction effectiveness:	Estimated potential 40-60% reduction in CO_2 emissions.
Cost feasibility:	Medium - dependent on detailed design.
Practicality:	Practical for new buildings with high fabric efficiency standards and low energy demand.
Planning restrictions:	Consideration of location of internal and/or externally mounted plant & equipment and operating noise. ASHPs would need to be located externally, in proximity to the dwellings, either disguised or discreetly hidden to reduce their visual impact. EAHPs can be located internally within the store cupboards against an external wall.
Site related constraints:	None.
Operating noise:	Low - consideration will be required to the siting of the heat pumps to ensure disturbance is not caused to the occupiers or neighbouring properties.
Ongoing maintenance:	Medium - Annual maintenance requirement for heat pumps.
Overall Feasibility:	**Not considered feasible for this development.**

PV

Photovoltaics (PV)	
CO_2 reduction effectiveness:	Significant % reductions available, limited only by available roof area. Unlikely to reach planning CO_2 emission targets alone.
Cost feasibility:	Low – Circa £1k-1.5k/kWp.
Practicality:	PV easy to install and can be fed to the building to provide a reduction in the energy demand, fuel bills and CO_2 emissions. Due to the small building footprint and the number of building storeys, there is limited roof space to accommodate sufficient PV panels to provide meaningful systems to each dwelling.
Planning restrictions:	Consideration of externally mounted panels.
Site related constraints:	None.
Operating noise:	None.
Ongoing maintenance:	Low – Annual cleaning of panels.
Overall Feasibility:	**Not considered feasible for this development.**

Solar Thermal

Solar Thermal	
CO_2 reduction effectiveness:	Reduction in CO_2 emissions limited by available roof space and demand for hot water. Estimated potential 5-10% reduction in CO_2 emissions.
Cost feasibility:	Medium.
Practicality:	Panels are easy to install and heat generated can be fed to the building to provide a reduction in the hot water energy demand, fuel bills and CO_2 emissions. In taller blocks of flats, however, greater heat losses can be expected through distribution and these losses can contribute to building overheating.
Planning restrictions:	Consideration of externally mounted panels.
Site related constraints:	None.
Operating noise:	Negligible.
Ongoing maintenance:	Medium – Annual maintenance requirements of mechanical plant.
Overall Feasibility:	**Not considered feasible for this development.**

Wind Turbines

Wind Turbines	
CO_2 reduction effectiveness:	Estimated potential 3-5% reduction in CO_2 emissions
Cost feasibility:	Medium – High.
Practicality:	The standalone wind turbine would require sufficient open space on the site to locate the turbine and be far enough away from buildings to be able to work effectively. Building mounted wind turbines have not been shown to be highly effective.
Planning restrictions:	Consideration of higher impact externally mounted plant and effect on neighbouring properties.
Site related constraints:	Limitations on available roof space, wind speed and efficiency of this technology.
Operating noise:	Medium-High
Ongoing maintenance:	High – Annual maintenance of motors.
Overall Feasibility:	**Not considered feasible for this development.**

Be Green Summary

A range of "Be Green" measures were explored at this stage, including on-site renewable energy technologies (such as solar PV, solar thermal and heat pumps) and other low/zero carbon options. While these opportunities were assessed in principle, they have not been implemented within the scheme due to site constraints, technical limitations or viability considerations.

Summary

In consideration of the energy hierarchy the following is proposed:

Be lean: Reduce energy demand and improve operational efficiency by upgrading the building fabric through the installation of additional roof and floor insulation, repairing windows and cracks to lower air permeability, and replacing windows in some locations. Furthermore, new lighting will be installed with smart controls as well as smart thermostats for controlling space heating.

Be clean: No opportunities are feasible under this stage of the hierarchy for this refurbishment scope, as further detailed within this report.

Be green: A range of "Be Green" measures were explored at this stage, including on-site renewable energy technologies (such as solar PV, solar thermal and heat pumps) and other low/zero carbon options. While these opportunities were assessed in principle, they have not been implemented within the scheme due to site constraints, technical limitations or viability considerations.

Given the nature of the proposed development and the intention to avoid substantial works, achieving a 28% reduction over the appendix 3 notional building is regarded as significant. It demonstrates the client's and design team's commitment to a fabric-first approach in reducing energy demand and carbon emissions.

TABLE 2: TOTAL CARBON DIOXIDE SAVINGS ACHIEVED BY THE PROPOSED SCHEME

	Total Regulated Emissions (Tonnes Co_2 / year)	CO_2 savings (Tonnes CO_2 / year)	Percentage Savings (%)
Part L 2021 Baseline	160.6	-	-
Be Lean	115.9	44.6	28%
Be Clean	115.9	-	-
Be Green	115.9	-	-
Cumulative	115.9	44.6	28%

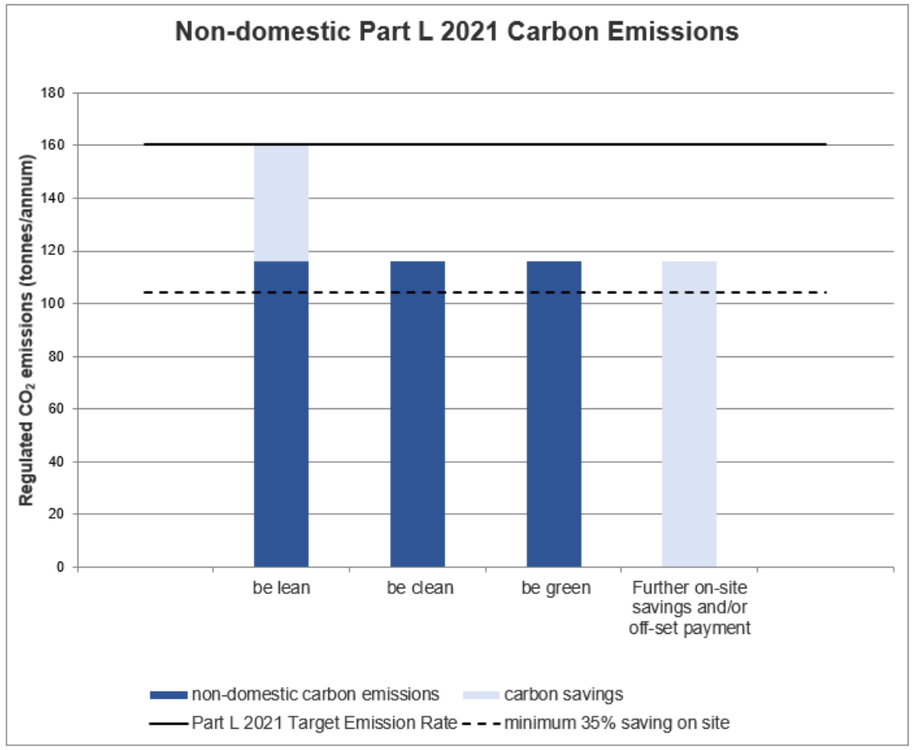

FIGURE 5: CARBON EMISSIONS ACROSS THE ENERGY HIERARCHY

Appendix A – BRUKL Reports

BRUKL Output Document

HM Government

Compliance with England Building Regulations Part L 2021

Project name

Mount Clare House Existing

As built

Date: Tue Sep 30 15:28:50 2025

Administrative information

Building Details

Address: MInstead Gardens, Roehampton Gate, London, SW15 4EE

Certifier details

Name: Oliver Butler

Telephone number: 07984796826

Address: 30 Tweedy Road, London, BR1 3FE

Certification tool

Calculation engine: SBEM

Calculation engine version: v6.1.e.2

Interface to calculation engine: Virtual Environment

Interface to calculation engine version: v7.0.29

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

Foundation area [m^2]: 2301.16

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

The building does not comply with England Building Regulations Part L 2021

Target CO_2 emission rate (TER), $kgCO_2/m^2$.annum	14.04	
Building CO_2 emission rate (BER), $kgCO_2/m^2$.annum	33.09	
Target primary energy rate (TPER), kWh_{PE}/m^2.annum	81.57	
Building primary energy rate (BPER), kWh_{PE}/m^2.annum	186.55	
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	0.55	0.55	PC000000_W1
Floors	0.18	0.23	0.25	PC000000_F
Pitched roofs	0.16	-	-	No heat loss pitched roofs
Flat roofs	0.18	0.21	0.22	PC000000_C_A0
Windows** and roof windows	1.6	1.46	1.46	PC000000_W1_O0
Rooflights***	2.2	-	-	No external rooflights
Personnel doors^	1.6	1.4	1.4	PC000003_W1_O0
Vehicle access & similar large doors	1.3	-	-	No external vehicle access doors
High usage entrance doors	3	-	-	No external high usage entrance doors

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

$U_{a\text{-}Calc}$ = 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	25

Building services

For details on the standard values listed below, system-specific guidance, and additional regulatory requirements, refer to the Approved Documents.

Whole building lighting automatic monitoring & targeting with alarms for out-of-range values	YES
Whole building electric power factor achieved by power factor correction	<0.9

1- Notional System

	Heating efficiency	**Cooling efficiency**	**Radiant efficiency**	**SFP [W/(l/s)]**	**HR efficiency**
This system	0.84	-	-	-	-
Standard value	1	N/A	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO

1- SYST0001-DHW

	Water heating efficiency	**Storage loss factor [kWh/litre per day]**
This building	Hot water provided by HVAC system	-
Standard value	N/A	N/A

"No zones in project where local mechanical ventilation, exhaust, or terminal unit is applicable"

General lighting and display lighting	**General luminaire**	**Display light source**	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m²]**
Standard value	95	80	0.3
Picasso GF Laundry Room	95	-	-
Picasso GF Office	95	-	-
Picasso GF WC	95	-	-
Picasso GF WC	95	-	-
Picasso GF WC	95	-	-
Picasso GF WC	95	-	-
Picasso GF Kitchen	95	-	-
Picasso GF Office	95	-	-
Picasso GF Corridor	95	-	-
Picasso GF WC	95	-	-
Picasso GF WC	95	-	-
Picasso GF Corridor	95	-	-
Picasso GF Store	95	-	-
Picasso GF Store	95	-	-
Picasso GF Kitchen	95	-	-
Picasso GF Dining Room	95	-	-
Picasso GF Common Room	95	-	-
Picasso GF Common Room	95	-	-
Picasso GF Reception Kiosk	95	15	9
Picasso GF Store	95	-	-
Picasso GF Store	95	-	-
Picasso GF Store	95	-	-
Picasso GF Reception	95	15	9
Picasso GF Corridor	95	-	-
Picasso FF Bed S	95	-	-
Picasso FF EnSuite	95	-	-

General lighting and display lighting	General luminaire	Display light source	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m²]**
Standard value	95	80	0.3
Picasso FF Bed S	95	-	-
Picasso FF EnSuite	95	-	-
Picasso FF Bed D	95	-	-
Picasso FF Bed S	95	-	-
Picasso FF Bed D	95	-	-
Picasso FF Entrance	95	-	-
Picasso FF Kitchen 2	95	-	-
Picasso FF WC	95	-	-
Picasso FF Entrance	95	-	-
Picasso FF EnSuite	95	-	-
Picasso FF Bed S	95	-	-
Picasso FF Kitchen 2	95	-	-
Picasso FF Bed S	95	-	-
Picasso FF WC	95	-	-
Picasso FF WC	95	-	-
Picasso FF Entrance	95	-	-
Picasso FF WC	95	-	-
Picasso FF Bed S	95	-	-
Picasso FF Kitchen 2	95	-	-
Picasso FF Bed S	95	-	-
Picasso FF Entrance	95	-	-
Picasso FF Kitchen 3	95	-	-
Picasso FF Bed D	95	-	-
Picasso FF Entrance	95	-	-
Picasso FF Kitchen	95	-	-
Picasso FF Store	95	-	-
Picasso FF WC	95	-	-
Picasso FF WC	95	-	-
Picasso FF WC	95	-	-
Picasso FF WC	95	-	-
Picasso FF Bed D	95	-	-
Picasso FF Bed D	95	-	-
Picasso FF Bed D	95	-	-
Picasso FF EnSuite	95	-	-
Picasso FF Kitchen 3	95	-	-
Picasso FF Corridor	95	-	-
Picasso FF Bed S	95	-	-
Picasso FF Bed S	95	-	-
Picasso FF WC	95	-	-
Picasso FF Bed S	95	-	-
Picasso FF Bed S	95	-	-
Picasso FF Kitchen 3	95	-	-
Picasso FF Corridor	95	-	-

General lighting and display lighting	General luminaire	Display light source	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m²]**
Standard value	95	80	0.3
Picasso FF Entrance	95	-	-
Picasso FF Kitchen 3	95	-	-
Picasso FF WC	95	-	-
Picasso FF WC	95	-	-
Picasso FF Bed S	95	-	-
Picasso FF Bed D	95	-	-
Picasso FF Store	95	-	-
Picasso FF Bed D	95	-	-
Picasso FF Bed S	95	-	-
Picasso FF Bed S	95	-	-
Picasso FF WC	95	-	-
Picasso FF Corridor	95	-	-
Picasso FF Bed S	95	-	-
Picasso FF WC	95	-	-
Picasso FF Store	95	-	-
Picasso FF Bed S	95	-	-
Bungalow Living	95	-	-
Bungalow Bed D	95	-	-
Bungalow WC	95	-	-
Bungalow Bed D	95	-	-
Bungalow Entrance	95	-	-
Bungalow Living	95	-	-
Bungalow Bed D	95	-	-
Bungalow EnSuite	95	-	-
Bungalow Entrance	95	-	-
Bungalow EnSuite	95	-	-
Bungalow Bed D	95	-	-
Residents GF Corridor	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF Bed S	95	-	-
Residents GF Corridor	95	-	-
Residents FF Corridor	95	-	-

General lighting and display lighting	General luminaire	Display light source	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m²]**
Standard value	95	80	0.3
Residents FF Bed S	95	-	-
Residents FF Corridor	95	-	-
Residents FF EnSuite	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF EnSuite	95	-	-
Residents FF EnSuite	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF EnSuite	95	-	-
Residents FF EnSuite	95	-	-
Residents FF Bed S	95	-	-
Residents FF Corridor	95	-	-
Residents FF Bed S	95	-	-
Residents GF Corridor	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF Bed S	95	-	-
Residents GF Corridor	95	-	-
Residents FF Corridor	95	-	-
Residents FF Bed S	95	-	-
Residents FF Corridor	95	-	-
Residents FF EnSuite	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF EnSuite	95	-	-
Residents FF EnSuite	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-

General lighting and display lighting	General luminaire	Display light source	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m²]**
Standard value	95	80	0.3
Residents FF EnSuite	95	-	-
Residents FF EnSuite	95	-	-
Residents FF Bed S	95	-	-
Residents FF Corridor	95	-	-
Residents FF Bed S	95	-	-
Residents GF Corridor	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF Bed S	95	-	-
Residents GF Corridor	95	-	-
Residents FF Corridor	95	-	-
Residents FF Bed S	95	-	-
Residents FF Corridor	95	-	-
Residents FF EnSuite	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF EnSuite	95	-	-
Residents FF EnSuite	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF EnSuite	95	-	-
Residents FF EnSuite	95	-	-
Residents FF Bed S	95	-	-
Residents FF Corridor	95	-	-
Residents FF Bed S	95	-	-
Residents GF Corridor	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF EnSuite	95	-	-

General lighting and display lighting	General luminaire	Display light source	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m²]**
Standard value	95	80	0.3
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF Bed S	95	-	-
Residents GF Corridor	95	-	-
Residents FF Corridor	95	-	-
Residents FF Bed S	95	-	-
Residents FF Corridor	95	-	-
Residents FF EnSuite	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF EnSuite	95	-	-
Residents FF EnSuite	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF EnSuite	95	-	-
Residents FF EnSuite	95	-	-
Residents FF Bed S	95	-	-
Residents FF Corridor	95	-	-
Residents FF Bed S	95	-	-
Residents GF Corridor	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF Bed S	95	-	-
Residents GF Corridor	95	-	-
Residents FF Corridor	95	-	-
Residents FF Bed S	95	-	-

General lighting and display lighting	General luminaire	Display light source	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m²]**
Standard value	95	80	0.3
Residents FF Corridor	95	-	-
Residents FF EnSuite	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF EnSuite	95	-	-
Residents FF EnSuite	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF EnSuite	95	-	-
Residents FF EnSuite	95	-	-
Residents FF Bed S	95	-	-
Residents FF Corridor	95	-	-
Residents FF Bed S	95	-	-
Residents GF Corridor	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF Bed S	95	-	-
Residents GF Corridor	95	-	-
Residents FF Corridor	95	-	-
Residents FF Bed S	95	-	-
Residents FF Corridor	95	-	-
Residents FF EnSuite	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF EnSuite	95	-	-
Residents FF EnSuite	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF EnSuite	95	-	-

General lighting and display lighting	General luminaire	Display light source	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m²]**
Standard value	95	80	0.3
Residents FF EnSuite	95	-	-
Residents FF Bed S	95	-	-
Residents FF Corridor	95	-	-
Residents FF Bed S	95	-	-
Residents GF Corridor	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF Bed S	95	-	-
Residents GF Corridor	95	-	-
Residents FF Corridor	95	-	-
Residents FF Bed S	95	-	-
Residents FF Corridor	95	-	-
Residents FF EnSuite	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF EnSuite	95	-	-
Residents FF EnSuite	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF EnSuite	95	-	-
Residents FF EnSuite	95	-	-
Residents FF Bed S	95	-	-
Residents FF Corridor	95	-	-
Residents FF Bed S	95	-	-
Residents GF Corridor	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-

General lighting and display lighting	General luminaire	Display light source	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m²]**
Standard value	95	80	0.3
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF Bed S	95	-	-
Residents GF Corridor	95	-	-
Residents FF Corridor	95	-	-
Residents FF Bed S	95	-	-
Residents FF Corridor	95	-	-
Residents FF EnSuite	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF EnSuite	95	-	-
Residents FF EnSuite	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF EnSuite	95	-	-
Residents FF EnSuite	95	-	-
Residents FF Bed S	95	-	-
Residents FF Corridor	95	-	-
Residents FF Bed S	95	-	-
Residents GF Corridor	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF Bed S	95	-	-
Residents GF Corridor	95	-	-
Residents FF Corridor	95	-	-
Residents FF Bed S	95	-	-
Residents FF Corridor	95	-	-

General lighting and display lighting	General luminaire	Display light source	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m²]**
Standard value	95	80	0.3
Residents FF EnSuite	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF EnSuite	95	-	-
Residents FF EnSuite	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF EnSuite	95	-	-
Residents FF EnSuite	95	-	-
Residents FF Bed S	95	-	-
Residents FF Corridor	95	-	-
Residents FF Bed S	95	-	-
Residents GF Corridor	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF Bed S	95	-	-
Residents GF Corridor	95	-	-
Residents FF Corridor	95	-	-
Residents FF Bed S	95	-	-
Residents FF Corridor	95	-	-
Residents FF EnSuite	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF EnSuite	95	-	-
Residents FF EnSuite	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF EnSuite	95	-	-
Residents FF EnSuite	95	-	-

General lighting and display lighting	General luminaire	Display light source	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m²]**
Standard value	95	80	0.3
Residents FF Bed S	95	-	-
Residents FF Corridor	95	-	-
Residents FF Bed S	95	-	-
Residents GF Corridor	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF Bed S	95	-	-
Residents GF Corridor	95	-	-
Residents FF Corridor	95	-	-
Residents FF Bed S	95	-	-
Residents FF Corridor	95	-	-
Residents FF EnSuite	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF EnSuite	95	-	-
Residents FF EnSuite	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF EnSuite	95	-	-
Residents FF EnSuite	95	-	-
Residents FF Bed S	95	-	-
Residents FF Corridor	95	-	-
Residents FF Bed S	95	-	-
Residents GF Corridor	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-

General lighting and display lighting	General luminaire	Display light source	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m²]**
Standard value	95	80	0.3
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF Bed S	95	-	-
Residents GF Corridor	95	-	-
Residents FF Corridor	95	-	-
Residents FF Bed S	95	-	-
Residents FF Corridor	95	-	-
Residents FF EnSuite	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF EnSuite	95	-	-
Residents FF EnSuite	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF EnSuite	95	-	-
Residents FF EnSuite	95	-	-
Residents FF Bed S	95	-	-
Residents FF Corridor	95	-	-
Residents FF Bed S	95	-	-
Residents GF Corridor	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF Bed S	95	-	-
Residents GF Corridor	95	-	-
Residents FF Corridor	95	-	-
Residents FF Bed S	95	-	-
Residents FF Corridor	95	-	-
Residents FF EnSuite	95	-	-

General lighting and display lighting	General luminaire	Display light source	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m²]**
Standard value	95	80	0.3
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF EnSuite	95	-	-
Residents FF EnSuite	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF EnSuite	95	-	-
Residents FF EnSuite	95	-	-
Residents FF Bed S	95	-	-
Residents FF Corridor	95	-	-
Residents FF Bed S	95	-	-
Residents GF Corridor	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF Bed S	95	-	-
Residents GF Corridor	95	-	-
Residents FF Corridor	95	-	-
Residents FF Bed S	95	-	-
Residents FF Corridor	95	-	-
Residents FF EnSuite	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF EnSuite	95	-	-
Residents FF EnSuite	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF EnSuite	95	-	-
Residents FF EnSuite	95	-	-
Residents FF Bed S	95	-	-

General lighting and display lighting	General luminaire	Display light source	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m²]**
Standard value	95	80	0.3
Residents FF Corridor	95	-	-
Residents FF Bed S	95	-	-
Residents GF Corridor	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF EnSuite	95	-	-
Residents GF Bed S	95	-	-
Residents GF Bed S	95	-	-
Residents GF Corridor	95	-	-
Residents FF Corridor	95	-	-
Residents FF Bed S	95	-	-
Residents FF Corridor	95	-	-
Residents FF EnSuite	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF EnSuite	95	-	-
Residents FF EnSuite	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF Bed S	95	-	-
Residents FF EnSuite	95	-	-
Residents FF EnSuite	95	-	-
Residents FF Bed S	95	-	-
Residents FF Corridor	95	-	-
Residents FF Bed S	95	-	-

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?
Picasso GF Office	YES (+76%)	NO
Picasso GF Office	YES (+83%)	NO
Picasso GF Dining Room	YES (+134.1%)	NO
Picasso GF Reception Kiosk	N/A	N/A
Picasso GF Reception	N/A	N/A
Picasso FF Bed S	NO (-56.7%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
Picasso FF Bed S	NO (-33.1%)	NO
Picasso FF Bed D	YES (+2.9%)	NO
Picasso FF Bed S	YES (+1.5%)	NO
Picasso FF Bed D	NO (-53.1%)	NO
Picasso FF Bed S	NO (-37.9%)	NO
Picasso FF Bed S	NO (-34.4%)	NO
Picasso FF Bed S	NO (-75.1%)	NO
Picasso FF Bed S	NO (-36.7%)	NO
Picasso FF Bed D	NO (-56.9%)	NO
Picasso FF Bed D	NO (-61.9%)	NO
Picasso FF Bed D	NO (-57%)	NO
Picasso FF Bed D	NO (-68.6%)	NO
Picasso FF Bed S	NO (-43.3%)	NO
Picasso FF Bed S	NO (-44%)	NO
Picasso FF Bed S	NO (-40.2%)	NO
Picasso FF Bed S	NO (-43.1%)	NO
Picasso FF Bed S	NO (-28.6%)	NO
Picasso FF Bed D	NO (-52.6%)	NO
Picasso FF Bed D	NO (-77.3%)	NO
Picasso FF Bed S	NO (-44.7%)	NO
Picasso FF Bed S	NO (-40.9%)	NO
Picasso FF Bed S	NO (-44.2%)	NO
Picasso FF Bed S	NO (-44%)	NO
Bungalow Bed D	NO (-48.5%)	NO
Bungalow Bed D	NO (-20%)	NO
Bungalow Bed D	NO (-15.8%)	NO
Bungalow Bed D	NO (-71.3%)	NO
Residents GF Bed S	NO (-21.4%)	NO
Residents GF Bed S	NO (-19.3%)	NO
Residents GF Bed S	NO (-66.8%)	NO
Residents GF Bed S	NO (-39.7%)	NO
Residents GF Bed S	NO (-56.3%)	NO
Residents GF Bed S	YES (+75.3%)	NO
Residents GF Bed S	NO (-66.9%)	NO
Residents FF Bed S	YES (+131.2%)	NO
Residents FF Bed S	YES (+75.3%)	NO
Residents FF Bed S	NO (-19%)	NO
Residents FF Bed S	NO (-21.9%)	NO
Residents FF Bed S	N/A	N/A
Residents FF Bed S	NO (-56.2%)	NO
Residents FF Bed S	NO (-39.7%)	NO
Residents FF Bed S	NO (-66.8%)	NO
Residents FF Bed S	NO (-66.8%)	NO
Residents GF Bed S	NO (-21.4%)	NO
Residents GF Bed S	NO (-19.3%)	NO
Residents GF Bed S	NO (-66.8%)	NO
Residents GF Bed S	NO (-39.7%)	NO
Residents GF Bed S	NO (-56.3%)	NO
Residents GF Bed S	YES (+75.3%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
Residents GF Bed S	NO (-38.6%)	NO
Residents FF Bed S	YES (+137%)	NO
Residents FF Bed S	YES (+75.3%)	NO
Residents FF Bed S	NO (-19%)	NO
Residents FF Bed S	NO (-21.9%)	NO
Residents FF Bed S	N/A	N/A
Residents FF Bed S	NO (-56.2%)	NO
Residents FF Bed S	NO (-39.7%)	NO
Residents FF Bed S	NO (-66.8%)	NO
Residents FF Bed S	NO (-38.6%)	NO
Residents GF Bed S	NO (-21.4%)	NO
Residents GF Bed S	NO (-56.6%)	NO
Residents GF Bed S	NO (-66.8%)	NO
Residents GF Bed S	NO (-39.7%)	NO
Residents GF Bed S	NO (-56.3%)	NO
Residents GF Bed S	YES (+79.8%)	NO
Residents GF Bed S	NO (-38.6%)	NO
Residents FF Bed S	YES (+131.2%)	NO
Residents FF Bed S	YES (+79.8%)	NO
Residents FF Bed S	NO (-56.6%)	NO
Residents FF Bed S	NO (-21.9%)	NO
Residents FF Bed S	N/A	N/A
Residents FF Bed S	NO (-56.2%)	NO
Residents FF Bed S	NO (-39.7%)	NO
Residents FF Bed S	NO (-66.8%)	NO
Residents FF Bed S	NO (-38.6%)	NO
Residents GF Bed S	NO (-21%)	NO
Residents GF Bed S	NO (-18.9%)	NO
Residents GF Bed S	NO (-66.9%)	NO
Residents GF Bed S	NO (-40%)	NO
Residents GF Bed S	NO (-56.1%)	NO
Residents GF Bed S	YES (+130.9%)	NO
Residents GF Bed S	NO (-67%)	NO
Residents FF Bed S	YES (+75.5%)	NO
Residents FF Bed S	YES (+130.9%)	NO
Residents FF Bed S	NO (-18.6%)	NO
Residents FF Bed S	NO (-21.5%)	NO
Residents FF Bed S	N/A	N/A
Residents FF Bed S	NO (-56%)	NO
Residents FF Bed S	NO (-40%)	NO
Residents FF Bed S	NO (-67%)	NO
Residents FF Bed S	NO (-67%)	NO
Residents GF Bed S	NO (-21%)	NO
Residents GF Bed S	NO (-18.9%)	NO
Residents GF Bed S	NO (-66.9%)	NO
Residents GF Bed S	NO (-40%)	NO
Residents GF Bed S	NO (-56.1%)	NO
Residents GF Bed S	YES (+130.9%)	NO
Residents GF Bed S	NO (-38.9%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
Residents FF Bed S	YES (+79.9%)	NO
Residents FF Bed S	YES (+130.9%)	NO
Residents FF Bed S	NO (-18.6%)	NO
Residents FF Bed S	NO (-21.5%)	NO
Residents FF Bed S	N/A	N/A
Residents FF Bed S	NO (-56%)	NO
Residents FF Bed S	NO (-40%)	NO
Residents FF Bed S	NO (-67%)	NO
Residents FF Bed S	NO (-38.9%)	NO
Residents GF Bed S	NO (-21%)	NO
Residents GF Bed S	NO (-56.4%)	NO
Residents GF Bed S	NO (-66.9%)	NO
Residents GF Bed S	NO (-40%)	NO
Residents GF Bed S	NO (-56.1%)	NO
Residents GF Bed S	YES (+136.8%)	NO
Residents GF Bed S	NO (-38.9%)	NO
Residents FF Bed S	YES (+75.5%)	NO
Residents FF Bed S	YES (+136.8%)	NO
Residents FF Bed S	NO (-56.4%)	NO
Residents FF Bed S	NO (-21.5%)	NO
Residents FF Bed S	N/A	N/A
Residents FF Bed S	NO (-56%)	NO
Residents FF Bed S	NO (-40%)	NO
Residents FF Bed S	NO (-67%)	NO
Residents FF Bed S	NO (-38.9%)	NO
Residents GF Bed S	NO (-40.3%)	NO
Residents GF Bed S	NO (-38.7%)	NO
Residents GF Bed S	NO (-56.2%)	NO
Residents GF Bed S	NO (-20.6%)	NO
Residents GF Bed S	NO (-66.9%)	NO
Residents GF Bed S	YES (+130.9%)	NO
Residents GF Bed S	NO (-56.4%)	NO
Residents FF Bed S	YES (+75.5%)	NO
Residents FF Bed S	YES (+130.9%)	NO
Residents FF Bed S	NO (-38.5%)	NO
Residents FF Bed S	NO (-40.7%)	NO
Residents FF Bed S	N/A	N/A
Residents FF Bed S	NO (-66.7%)	NO
Residents FF Bed S	NO (-20.6%)	NO
Residents FF Bed S	NO (-56.3%)	NO
Residents FF Bed S	NO (-56.3%)	NO
Residents GF Bed S	NO (-40.3%)	NO
Residents GF Bed S	NO (-38.7%)	NO
Residents GF Bed S	NO (-56.2%)	NO
Residents GF Bed S	NO (-20.6%)	NO
Residents GF Bed S	NO (-66.9%)	NO
Residents GF Bed S	YES (+130.9%)	NO
Residents GF Bed S	NO (-19.1%)	NO
Residents FF Bed S	YES (+79.9%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
Residents FF Bed S	YES (+130.9%)	NO
Residents FF Bed S	NO (-38.5%)	NO
Residents FF Bed S	NO (-40.7%)	NO
Residents FF Bed S	N/A	N/A
Residents FF Bed S	NO (-66.7%)	NO
Residents FF Bed S	NO (-20.6%)	NO
Residents FF Bed S	NO (-56.3%)	NO
Residents FF Bed S	NO (-19.1%)	NO
Residents GF Bed S	NO (-40.3%)	NO
Residents GF Bed S	NO (-67.1%)	NO
Residents GF Bed S	NO (-56.2%)	NO
Residents GF Bed S	NO (-20.6%)	NO
Residents GF Bed S	NO (-66.9%)	NO
Residents GF Bed S	YES (+136.8%)	NO
Residents GF Bed S	NO (-19.1%)	NO
Residents FF Bed S	YES (+75.5%)	NO
Residents FF Bed S	YES (+136.8%)	NO
Residents FF Bed S	NO (-67%)	NO
Residents FF Bed S	NO (-40.7%)	NO
Residents FF Bed S	N/A	N/A
Residents FF Bed S	NO (-66.7%)	NO
Residents FF Bed S	NO (-20.6%)	NO
Residents FF Bed S	NO (-56.3%)	NO
Residents FF Bed S	NO (-19.1%)	NO
Residents GF Bed S	NO (-40.1%)	NO
Residents GF Bed S	NO (-38.4%)	NO
Residents GF Bed S	NO (-56.4%)	NO
Residents GF Bed S	NO (-20.9%)	NO
Residents GF Bed S	NO (-66.7%)	NO
Residents GF Bed S	YES (+131.9%)	NO
Residents GF Bed S	NO (-56.6%)	NO
Residents FF Bed S	YES (+74.7%)	NO
Residents FF Bed S	YES (+131.9%)	NO
Residents FF Bed S	NO (-38.3%)	NO
Residents FF Bed S	NO (-40.4%)	NO
Residents FF Bed S	N/A	N/A
Residents FF Bed S	NO (-66.6%)	NO
Residents FF Bed S	NO (-20.9%)	NO
Residents FF Bed S	NO (-56.5%)	NO
Residents FF Bed S	NO (-56.5%)	NO
Residents GF Bed S	NO (-40.1%)	NO
Residents GF Bed S	NO (-38.4%)	NO
Residents GF Bed S	NO (-56.4%)	NO
Residents GF Bed S	NO (-20.9%)	NO
Residents GF Bed S	NO (-66.7%)	NO
Residents GF Bed S	YES (+131.9%)	NO
Residents GF Bed S	NO (-19.5%)	NO
Residents FF Bed S	YES (+79.2%)	NO
Residents FF Bed S	YES (+131.9%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
Residents FF Bed S	NO (-38.3%)	NO
Residents FF Bed S	NO (-40.4%)	NO
Residents FF Bed S	N/A	N/A
Residents FF Bed S	NO (-66.6%)	NO
Residents FF Bed S	NO (-20.9%)	NO
Residents FF Bed S	NO (-56.5%)	NO
Residents FF Bed S	NO (-19.5%)	NO
Residents GF Bed S	NO (-40.1%)	NO
Residents GF Bed S	NO (-66.9%)	NO
Residents GF Bed S	NO (-56.4%)	NO
Residents GF Bed S	NO (-20.9%)	NO
Residents GF Bed S	NO (-66.7%)	NO
Residents GF Bed S	YES (+137.9%)	NO
Residents GF Bed S	NO (-19.5%)	NO
Residents FF Bed S	YES (+74.7%)	NO
Residents FF Bed S	YES (+137.9%)	NO
Residents FF Bed S	NO (-66.9%)	NO
Residents FF Bed S	NO (-40.4%)	NO
Residents FF Bed S	N/A	N/A
Residents FF Bed S	NO (-66.6%)	NO
Residents FF Bed S	NO (-20.9%)	NO
Residents FF Bed S	NO (-56.5%)	NO
Residents FF Bed S	NO (-19.5%)	NO
Residents GF Bed S	NO (-21.4%)	NO
Residents GF Bed S	NO (-56.6%)	NO
Residents GF Bed S	NO (-66.8%)	NO
Residents GF Bed S	NO (-39.7%)	NO
Residents GF Bed S	NO (-94.7%)	NO
Residents GF Bed S	YES (+75.3%)	NO
Residents GF Bed S	NO (-63.3%)	NO
Residents FF Bed S	YES (+131.2%)	NO
Residents FF Bed S	YES (+75.3%)	NO
Residents FF Bed S	NO (-56.6%)	NO
Residents FF Bed S	NO (-21.9%)	NO
Residents FF Bed S	N/A	N/A
Residents FF Bed S	NO (-94.7%)	NO
Residents FF Bed S	NO (-39.7%)	NO
Residents FF Bed S	NO (-66.8%)	NO
Residents FF Bed S	NO (-63.3%)	NO
Residents GF Bed S	NO (-21.4%)	NO
Residents GF Bed S	N/A	N/A
Residents GF Bed S	NO (-97.6%)	NO
Residents GF Bed S	NO (-39.7%)	NO
Residents GF Bed S	NO (-56.3%)	NO
Residents GF Bed S	YES (+75.3%)	NO
Residents GF Bed S	NO (-63.3%)	NO
Residents FF Bed S	YES (+131.2%)	NO
Residents FF Bed S	YES (+75.3%)	NO
Residents FF Bed S	N/A	N/A

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
Residents FF Bed S	NO (-21.9%)	NO
Residents FF Bed S	N/A	N/A
Residents FF Bed S	NO (-56.2%)	NO
Residents FF Bed S	NO (-39.7%)	NO
Residents FF Bed S	NO (-97.6%)	NO
Residents FF Bed S	NO (-63.3%)	NO
Residents GF Bed S	NO (-21.4%)	NO
Residents GF Bed S	NO (-56.6%)	NO
Residents GF Bed S	NO (-35.6%)	NO
Residents GF Bed S	NO (-39.7%)	NO
Residents GF Bed S	NO (-56.3%)	NO
Residents GF Bed S	YES (+75.3%)	NO
Residents GF Bed S	NO (-92.4%)	NO
Residents FF Bed S	YES (+131.2%)	NO
Residents FF Bed S	YES (+75.3%)	NO
Residents FF Bed S	NO (-56.6%)	NO
Residents FF Bed S	NO (-21.9%)	NO
Residents FF Bed S	N/A	N/A
Residents FF Bed S	NO (-56.2%)	NO
Residents FF Bed S	NO (-39.7%)	NO
Residents FF Bed S	NO (-35.7%)	NO
Residents FF Bed S	NO (-92.3%)	NO

Regulation 25A: Consideration of high efficiency alternative energy systems

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

Technical Data Sheet (Actual vs. Notional Building)

Building Global Parameters

	Actual	Notional
Floor area [m^2]	4602.3	4602.3
External area [m^2]	12881	12881
Weather	LON	LON
Infiltration [m^3/hm^2@ 50Pa]	25	3
Average conductance [W/K]	5271.77	3840.83
Average U-value [W/m^2K]	0.41	0.3
Alpha value* [%]	17.89	18.55

* 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
	Storage or Distribution
	Hotels
	Residential Institutions: Hospitals and Care Homes
	Residential Institutions: Residential Schools
100	**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/m^2]

	Actual	Notional
Heating	130.04	47.69
Cooling	0	0
Auxiliary	3.28	1.87
Lighting	8.6	6.54
Hot water	19.66	13.7
Equipment*	16.44	16.44
TOTAL**	**161.57**	**69.81**

* 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/m^2]

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

Energy & CO_2 Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m^2]	431.59	281.39
Primary energy [kWh_{PE}/m^2]	186.55	81.57
Total emissions [kg/m^2]	33.09	14.04

HVAC Systems Performance

System Type	Heat dem MJ/m2	Cool dem MJ/m2	Heat con kWh/m2	Cool con kWh/m2	Aux con kWh/m2	Heat SSEEF	Cool SSEER	Heat gen SEFF	Cool gen SEER
[ST] Central heating using water: radiators, [HS] ASHP, [HFT] Natural Gas, [CFT] Electricity									
Actual	350.7	80.9	130	0	3.3	0.75	0	0.84	0
Notional	216.3	65.1	47.7	0	1.6	1.26	0	----	----

Key to terms

Heat dem [MJ/m2] = Heating energy demand
Cool dem [MJ/m2] = Cooling energy demand
Heat con [kWh/m2] = Heating energy consumption
Cool con [kWh/m2] = Cooling energy consumption
Aux con [kWh/m2] = Auxiliary energy consumption
Heat SSEFF = Heating system seasonal efficiency (for notional building, value depends on activity glazing class)
Cool SSEER = Cooling system seasonal energy efficiency ratio
Heat gen SSEFF = Heating generator seasonal efficiency
Cool gen SSEER = Cooling generator seasonal energy efficiency ratio
ST = System type
HS = Heat source
HFT = Heating fuel type
CFT = Cooling fuel type

BRUKL Output Document

HM Government

Compliance with England Building Regulations Part L 2021

Project name

Mount Clare House Proposed

As designed

Date: Tue Sep 30 15:23:51 2025

Administrative information

Building Details

Address: Minstead Gardens, Roehampton Gate, London, SW15 4EE

Certifier details

Name: Oliver Butler

Telephone number: 07984796826

Address: 30 Tweedy Road, London, BR1 3FE

Certification tool

Calculation engine: SBEM

Calculation engine version: v6.1.e.2

Interface to calculation engine: Virtual Environment

Interface to calculation engine version: v7.0.29

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

Foundation area [m^2]: 2301.16

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

The building does not comply with England Building Regulations Part L 2021

Target CO_2 emission rate (TER), $kgCO_2/m^2$.annum	17.61	
Building CO_2 emission rate (BER), $kgCO_2/m^2$.annum	24.22	
Target primary energy rate (TPER), kWh_{PE}/m^2.annum	90.93	
Building primary energy rate (BPER), kWh_{PE}/m^2.annum	137.35	
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	0.35	0.35	PC000000_W1
Floors	0.18	0.15	0.15	PC000000_F
Pitched roofs	0.16	-	-	No heat loss pitched roofs
Flat roofs	0.18	0.15	0.15	PC000000_C_A0
Windows** and roof windows	1.6	2	2	PC000000_W1_O0
Rooflights***	2.2	-	-	No external rooflights
Personnel doors^	1.6	1.4	1.4	PC000003_W1_O0
Vehicle access & similar large doors	1.3	-	-	No external vehicle access doors
High usage entrance doors	3	-	-	No external high usage entrance doors

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

$U_{a\text{-}Calc}$ = 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	10

Building services

For details on the standard values listed below, system-specific guidance, and additional regulatory requirements, refer to the Approved Documents.

Whole building lighting automatic monitoring & targeting with alarms for out-of-range values	YES
Whole building electric power factor achieved by power factor correction	<0.9

1- Improved System

	Heating efficiency	**Cooling efficiency**	**Radiant efficiency**	**SFP [W/(l/s)]**	**HR efficiency**
This system	0.84	-	-	-	-
Standard value	0.93*	N/A	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					YES
* Standard shown is for gas single boiler systems <=2 MW output and overall for multi-boiler systems. For single boiler systems >2 MW or any individual boiler in a multi-boiler system, limiting efficiency is 0.88.					

1- SYST0002-DHW

	Water heating efficiency	**Storage loss factor [kWh/litre per day]**
This building	Hot water provided by HVAC system	-
Standard value	N/A	N/A

"No zones in project where local mechanical ventilation, exhaust, or terminal unit is applicable"

General lighting and display lighting	**General luminaire**	**Display light source**	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m²]**
Standard value	95	80	0.3
Picasso GF Laundry Room	100	-	-
Picasso GF Office	100	-	-
Picasso GF WC	100	-	-
Picasso GF WC	100	-	-
Picasso GF WC	100	-	-
Picasso GF WC	100	-	-
Picasso GF Kitchen	100	-	-
Picasso GF Office	100	-	-
Picasso GF Corridor	100	-	-
Picasso GF WC	100	-	-
Picasso GF WC	100	-	-
Picasso GF Corridor	100	-	-
Picasso GF Store	100	-	-
Picasso GF Store	100	-	-
Picasso GF Kitchen	100	-	-
Picasso GF Dining Room	100	-	-
Picasso GF Common Room	100	-	-
Picasso GF Common Room	100	-	-
Picasso GF Reception Kiosk	100	85	1.588
Picasso GF Store	100	-	-
Picasso GF Store	100	-	-
Picasso GF Store	100	-	-
Picasso GF Reception	100	85	1.588
Picasso GF Corridor	100	-	-

General lighting and display lighting	General luminaire	Display light source	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m²]**
Standard value	95	80	0.3
Picasso FF Bed S	100	-	-
Picasso FF EnSuite	100	-	-
Picasso FF Bed S	100	-	-
Picasso FF EnSuite	100	-	-
Picasso FF Bed D	100	-	-
Picasso FF Bed S	100	-	-
Picasso FF Bed D	100	-	-
Picasso FF Entrance	100	-	-
Picasso FF Kitchen 2	100	-	-
Picasso FF WC	100	-	-
Picasso FF Entrance	100	-	-
Picasso FF EnSuite	100	-	-
Picasso FF Bed S	100	-	-
Picasso FF Kitchen 2	100	-	-
Picasso FF Bed S	100	-	-
Picasso FF WC	100	-	-
Picasso FF WC	100	-	-
Picasso FF Entrance	100	-	-
Picasso FF WC	100	-	-
Picasso FF Bed S	100	-	-
Picasso FF Kitchen 2	100	-	-
Picasso FF Bed S	100	-	-
Picasso FF Entrance	100	-	-
Picasso FF Kitchen 3	100	-	-
Picasso FF Bed D	100	-	-
Picasso FF Entrance	100	-	-
Picasso FF Kitchen	100	-	-
Picasso FF Store	100	-	-
Picasso FF WC	100	-	-
Picasso FF WC	100	-	-
Picasso FF WC	100	-	-
Picasso FF WC	100	-	-
Picasso FF Bed D	100	-	-
Picasso FF Bed D	100	-	-
Picasso FF Bed D	100	-	-
Picasso FF EnSuite	100	-	-
Picasso FF Kitchen 3	100	-	-
Picasso FF Corridor	100	-	-
Picasso FF Bed S	100	-	-
Picasso FF Bed S	100	-	-
Picasso FF WC	100	-	-
Picasso FF Bed S	100	-	-
Picasso FF Bed S	100	-	-

General lighting and display lighting	General luminaire	Display light source	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m²]**
Standard value	95	80	0.3
Picasso FF Kitchen 3	100	-	-
Picasso FF Corridor	100	-	-
Picasso FF Entrance	100	-	-
Picasso FF Kitchen 3	100	-	-
Picasso FF WC	100	-	-
Picasso FF WC	100	-	-
Picasso FF Bed S	100	-	-
Picasso FF Bed D	100	-	-
Picasso FF Store	100	-	-
Picasso FF Bed D	100	-	-
Picasso FF Bed S	100	-	-
Picasso FF Bed S	100	-	-
Picasso FF WC	100	-	-
Picasso FF Corridor	100	-	-
Picasso FF Bed S	100	-	-
Picasso FF WC	100	-	-
Picasso FF Store	100	-	-
Picasso FF Bed S	100	-	-
Bungalow Living	100	-	-
Bungalow Bed D	100	-	-
Bungalow WC	100	-	-
Bungalow Bed D	100	-	-
Bungalow Entrance	100	-	-
Bungalow Living	100	-	-
Bungalow Bed D	100	-	-
Bungalow EnSuite	100	-	-
Bungalow Entrance	100	-	-
Bungalow EnSuite	100	-	-
Bungalow Bed D	100	-	-
Residents GF Corridor	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF Bed S	100	-	-

General lighting and display lighting	General luminaire	Display light source	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m²]**
Standard value	95	80	0.3
Residents GF Corridor	100	-	-
Residents FF Corridor	100	-	-
Residents FF Bed S	100	-	-
Residents FF Corridor	100	-	-
Residents FF EnSuite	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF EnSuite	100	-	-
Residents FF EnSuite	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF EnSuite	100	-	-
Residents FF EnSuite	100	-	-
Residents FF Bed S	100	-	-
Residents FF Corridor	100	-	-
Residents FF Bed S	100	-	-
Residents GF Corridor	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF Bed S	100	-	-
Residents GF Corridor	100	-	-
Residents FF Corridor	100	-	-
Residents FF Bed S	100	-	-
Residents FF Corridor	100	-	-
Residents FF EnSuite	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF EnSuite	100	-	-
Residents FF EnSuite	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-

General lighting and display lighting	General luminaire	Display light source	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m²]**
Standard value	95	80	0.3
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF EnSuite	100	-	-
Residents FF EnSuite	100	-	-
Residents FF Bed S	100	-	-
Residents FF Corridor	100	-	-
Residents FF Bed S	100	-	-
Residents GF Corridor	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF Bed S	100	-	-
Residents GF Corridor	100	-	-
Residents FF Corridor	100	-	-
Residents FF Bed S	100	-	-
Residents FF Corridor	100	-	-
Residents FF EnSuite	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF EnSuite	100	-	-
Residents FF EnSuite	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF EnSuite	100	-	-
Residents FF EnSuite	100	-	-
Residents FF Bed S	100	-	-
Residents FF Corridor	100	-	-
Residents FF Bed S	100	-	-
Residents GF Corridor	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF Bed S	100	-	-

General lighting and display lighting	General luminaire	Display light source	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m²]**
Standard value	95	80	0.3
Residents GF EnSuite	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF Bed S	100	-	-
Residents GF Corridor	100	-	-
Residents FF Corridor	100	-	-
Residents FF Bed S	100	-	-
Residents FF Corridor	100	-	-
Residents FF EnSuite	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF EnSuite	100	-	-
Residents FF EnSuite	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF EnSuite	100	-	-
Residents FF EnSuite	100	-	-
Residents FF Bed S	100	-	-
Residents FF Corridor	100	-	-
Residents FF Bed S	100	-	-
Residents GF Corridor	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF Bed S	100	-	-
Residents GF Corridor	100	-	-

General lighting and display lighting	General luminaire	Display light source	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m²]**
Standard value	95	80	0.3
Residents FF Corridor	100	-	-
Residents FF Bed S	100	-	-
Residents FF Corridor	100	-	-
Residents FF EnSuite	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF EnSuite	100	-	-
Residents FF EnSuite	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF EnSuite	100	-	-
Residents FF EnSuite	100	-	-
Residents FF Bed S	100	-	-
Residents FF Corridor	100	-	-
Residents FF Bed S	100	-	-
Residents GF Corridor	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF Bed S	100	-	-
Residents GF Corridor	100	-	-
Residents FF Corridor	100	-	-
Residents FF Bed S	100	-	-
Residents FF Corridor	100	-	-
Residents FF EnSuite	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF EnSuite	100	-	-
Residents FF EnSuite	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-

General lighting and display lighting	General luminaire	Display light source	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m²]**
Standard value	95	80	0.3
Residents FF Bed S	100	-	-
Residents FF EnSuite	100	-	-
Residents FF EnSuite	100	-	-
Residents FF Bed S	100	-	-
Residents FF Corridor	100	-	-
Residents FF Bed S	100	-	-
Residents GF Corridor	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF Bed S	100	-	-
Residents GF Corridor	100	-	-
Residents FF Corridor	100	-	-
Residents FF Bed S	100	-	-
Residents FF Corridor	100	-	-
Residents FF EnSuite	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF EnSuite	100	-	-
Residents FF EnSuite	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF EnSuite	100	-	-
Residents FF EnSuite	100	-	-
Residents FF Bed S	100	-	-
Residents FF Corridor	100	-	-
Residents FF Bed S	100	-	-
Residents GF Corridor	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-

General lighting and display lighting	General luminaire	Display light source	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m²]**
Standard value	95	80	0.3
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF Bed S	100	-	-
Residents GF Corridor	100	-	-
Residents FF Corridor	100	-	-
Residents FF Bed S	100	-	-
Residents FF Corridor	100	-	-
Residents FF EnSuite	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF EnSuite	100	-	-
Residents FF EnSuite	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF EnSuite	100	-	-
Residents FF EnSuite	100	-	-
Residents FF Bed S	100	-	-
Residents FF Corridor	100	-	-
Residents FF Bed S	100	-	-
Residents GF Corridor	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF Bed S	100	-	-
Residents GF Corridor	100	-	-
Residents FF Corridor	100	-	-

General lighting and display lighting	General luminaire	Display light source	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m²]**
Standard value	95	80	0.3
Residents FF Bed S	100	-	-
Residents FF Corridor	100	-	-
Residents FF EnSuite	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF EnSuite	100	-	-
Residents FF EnSuite	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF EnSuite	100	-	-
Residents FF EnSuite	100	-	-
Residents FF Bed S	100	-	-
Residents FF Corridor	100	-	-
Residents FF Bed S	100	-	-
Residents GF Corridor	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF Bed S	100	-	-
Residents GF Corridor	100	-	-
Residents FF Corridor	100	-	-
Residents FF Bed S	100	-	-
Residents FF Corridor	100	-	-
Residents FF EnSuite	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF EnSuite	100	-	-
Residents FF EnSuite	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-

General lighting and display lighting	General luminaire	Display light source	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m²]**
Standard value	95	80	0.3
Residents FF EnSuite	100	-	-
Residents FF EnSuite	100	-	-
Residents FF Bed S	100	-	-
Residents FF Corridor	100	-	-
Residents FF Bed S	100	-	-
Residents GF Corridor	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF Bed S	100	-	-
Residents GF Corridor	100	-	-
Residents FF Corridor	100	-	-
Residents FF Bed S	100	-	-
Residents FF Corridor	100	-	-
Residents FF EnSuite	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF EnSuite	100	-	-
Residents FF EnSuite	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF EnSuite	100	-	-
Residents FF EnSuite	100	-	-
Residents FF Bed S	100	-	-
Residents FF Corridor	100	-	-
Residents FF Bed S	100	-	-
Residents GF Corridor	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF EnSuite	100	-	-

General lighting and display lighting	General luminaire	Display light source	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m²]**
Standard value	95	80	0.3
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF Bed S	100	-	-
Residents GF Corridor	100	-	-
Residents FF Corridor	100	-	-
Residents FF Bed S	100	-	-
Residents FF Corridor	100	-	-
Residents FF EnSuite	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF EnSuite	100	-	-
Residents FF EnSuite	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF EnSuite	100	-	-
Residents FF EnSuite	100	-	-
Residents FF Bed S	100	-	-
Residents FF Corridor	100	-	-
Residents FF Bed S	100	-	-
Residents GF Corridor	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF Bed S	100	-	-
Residents GF Corridor	100	-	-
Residents FF Corridor	100	-	-
Residents FF Bed S	100	-	-

General lighting and display lighting	General luminaire	Display light source	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m²]**
Standard value	95	80	0.3
Residents FF Corridor	100	-	-
Residents FF EnSuite	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF EnSuite	100	-	-
Residents FF EnSuite	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF EnSuite	100	-	-
Residents FF EnSuite	100	-	-
Residents FF Bed S	100	-	-
Residents FF Corridor	100	-	-
Residents FF Bed S	100	-	-
Residents GF Corridor	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF Bed S	100	-	-
Residents GF Corridor	100	-	-
Residents FF Corridor	100	-	-
Residents FF Bed S	100	-	-
Residents FF Corridor	100	-	-
Residents FF EnSuite	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF EnSuite	100	-	-
Residents FF EnSuite	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF EnSuite	100	-	-

General lighting and display lighting	General luminaire	Display light source	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m²]**
Standard value	95	80	0.3
Residents FF EnSuite	100	-	-
Residents FF Bed S	100	-	-
Residents FF Corridor	100	-	-
Residents FF Bed S	100	-	-
Residents GF Corridor	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF EnSuite	100	-	-
Residents GF Bed S	100	-	-
Residents GF Bed S	100	-	-
Residents GF Corridor	100	-	-
Residents FF Corridor	100	-	-
Residents FF Bed S	100	-	-
Residents FF Corridor	100	-	-
Residents FF EnSuite	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF EnSuite	100	-	-
Residents FF EnSuite	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF Bed S	100	-	-
Residents FF EnSuite	100	-	-
Residents FF EnSuite	100	-	-
Residents FF Bed S	100	-	-
Residents FF Corridor	100	-	-
Residents FF Bed S	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?
Picasso GF Office	YES (+76.9%)	NO
Picasso GF Office	YES (+84%)	NO
Picasso GF Dining Room	YES (+135.3%)	NO
Picasso GF Reception Kiosk	N/A	N/A

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
Picasso GF Reception	N/A	N/A
Picasso FF Bed S	NO (-56.5%)	NO
Picasso FF Bed S	NO (-32.8%)	NO
Picasso FF Bed D	YES (+3.4%)	NO
Picasso FF Bed S	YES (+2%)	NO
Picasso FF Bed D	NO (-52.9%)	NO
Picasso FF Bed S	NO (-37.6%)	NO
Picasso FF Bed S	NO (-34.1%)	NO
Picasso FF Bed S	NO (-75%)	NO
Picasso FF Bed S	NO (-36.3%)	NO
Picasso FF Bed D	NO (-56.7%)	NO
Picasso FF Bed D	NO (-61.7%)	NO
Picasso FF Bed D	NO (-56.8%)	NO
Picasso FF Bed D	NO (-68.4%)	NO
Picasso FF Bed S	NO (-43%)	NO
Picasso FF Bed S	NO (-43.7%)	NO
Picasso FF Bed S	NO (-39.9%)	NO
Picasso FF Bed S	NO (-42.8%)	NO
Picasso FF Bed S	NO (-28.2%)	NO
Picasso FF Bed D	NO (-52.4%)	NO
Picasso FF Bed D	NO (-77.2%)	NO
Picasso FF Bed S	NO (-44.4%)	NO
Picasso FF Bed S	NO (-40.6%)	NO
Picasso FF Bed S	NO (-43.9%)	NO
Picasso FF Bed S	NO (-43.7%)	NO
Bungalow Bed D	NO (-48.2%)	NO
Bungalow Bed D	NO (-19.6%)	NO
Bungalow Bed D	NO (-15.3%)	NO
Bungalow Bed D	NO (-71.1%)	NO
Residents GF Bed S	NO (-21%)	NO
Residents GF Bed S	NO (-18.8%)	NO
Residents GF Bed S	NO (-66.6%)	NO
Residents GF Bed S	NO (-39.4%)	NO
Residents GF Bed S	NO (-56.1%)	NO
Residents GF Bed S	YES (+76.2%)	NO
Residents GF Bed S	NO (-66.7%)	NO
Residents FF Bed S	YES (+132.4%)	NO
Residents FF Bed S	YES (+76.2%)	NO
Residents FF Bed S	NO (-18.6%)	NO
Residents FF Bed S	NO (-21.4%)	NO
Residents FF Bed S	N/A	N/A
Residents FF Bed S	NO (-56%)	NO
Residents FF Bed S	NO (-39.4%)	NO
Residents FF Bed S	NO (-66.6%)	NO
Residents FF Bed S	NO (-66.6%)	NO
Residents GF Bed S	NO (-21%)	NO
Residents GF Bed S	NO (-18.8%)	NO
Residents GF Bed S	NO (-66.6%)	NO
Residents GF Bed S	NO (-39.4%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
Residents GF Bed S	NO (-56.1%)	NO
Residents GF Bed S	YES (+76.2%)	NO
Residents GF Bed S	NO (-38.3%)	NO
Residents FF Bed S	YES (+138.3%)	NO
Residents FF Bed S	YES (+76.2%)	NO
Residents FF Bed S	NO (-18.6%)	NO
Residents FF Bed S	NO (-21.4%)	NO
Residents FF Bed S	N/A	N/A
Residents FF Bed S	NO (-56%)	NO
Residents FF Bed S	NO (-39.4%)	NO
Residents FF Bed S	NO (-66.6%)	NO
Residents FF Bed S	NO (-38.3%)	NO
Residents GF Bed S	NO (-21%)	NO
Residents GF Bed S	NO (-56.4%)	NO
Residents GF Bed S	NO (-66.6%)	NO
Residents GF Bed S	NO (-39.4%)	NO
Residents GF Bed S	NO (-56.1%)	NO
Residents GF Bed S	YES (+80.7%)	NO
Residents GF Bed S	NO (-38.3%)	NO
Residents FF Bed S	YES (+132.4%)	NO
Residents FF Bed S	YES (+80.7%)	NO
Residents FF Bed S	NO (-56.3%)	NO
Residents FF Bed S	NO (-21.4%)	NO
Residents FF Bed S	N/A	N/A
Residents FF Bed S	NO (-56%)	NO
Residents FF Bed S	NO (-39.4%)	NO
Residents FF Bed S	NO (-66.6%)	NO
Residents FF Bed S	NO (-38.3%)	NO
Residents GF Bed S	NO (-20.6%)	NO
Residents GF Bed S	NO (-18.5%)	NO
Residents GF Bed S	NO (-66.7%)	NO
Residents GF Bed S	NO (-39.7%)	NO
Residents GF Bed S	NO (-55.9%)	NO
Residents GF Bed S	YES (+132.1%)	NO
Residents GF Bed S	NO (-66.8%)	NO
Residents FF Bed S	YES (+76.4%)	NO
Residents FF Bed S	YES (+132.1%)	NO
Residents FF Bed S	NO (-18.2%)	NO
Residents FF Bed S	NO (-21.1%)	NO
Residents FF Bed S	N/A	N/A
Residents FF Bed S	NO (-55.8%)	NO
Residents FF Bed S	NO (-39.7%)	NO
Residents FF Bed S	NO (-66.8%)	NO
Residents FF Bed S	NO (-66.8%)	NO
Residents GF Bed S	NO (-20.6%)	NO
Residents GF Bed S	NO (-18.5%)	NO
Residents GF Bed S	NO (-66.7%)	NO
Residents GF Bed S	NO (-39.7%)	NO
Residents GF Bed S	NO (-55.9%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
Residents GF Bed S	YES (+132.1%)	NO
Residents GF Bed S	NO (-38.6%)	NO
Residents FF Bed S	YES (+80.9%)	NO
Residents FF Bed S	YES (+132.1%)	NO
Residents FF Bed S	NO (-18.2%)	NO
Residents FF Bed S	NO (-21.1%)	NO
Residents FF Bed S	N/A	N/A
Residents FF Bed S	NO (-55.8%)	NO
Residents FF Bed S	NO (-39.7%)	NO
Residents FF Bed S	NO (-66.8%)	NO
Residents FF Bed S	NO (-38.6%)	NO
Residents GF Bed S	NO (-20.6%)	NO
Residents GF Bed S	NO (-56.2%)	NO
Residents GF Bed S	NO (-66.7%)	NO
Residents GF Bed S	NO (-39.7%)	NO
Residents GF Bed S	NO (-55.9%)	NO
Residents GF Bed S	YES (+138%)	NO
Residents GF Bed S	NO (-38.6%)	NO
Residents FF Bed S	YES (+76.4%)	NO
Residents FF Bed S	YES (+138%)	NO
Residents FF Bed S	NO (-56.1%)	NO
Residents FF Bed S	NO (-21.1%)	NO
Residents FF Bed S	N/A	N/A
Residents FF Bed S	NO (-55.8%)	NO
Residents FF Bed S	NO (-39.7%)	NO
Residents FF Bed S	NO (-66.8%)	NO
Residents FF Bed S	NO (-38.6%)	NO
Residents GF Bed S	NO (-40%)	NO
Residents GF Bed S	NO (-38.4%)	NO
Residents GF Bed S	NO (-56%)	NO
Residents GF Bed S	NO (-20.2%)	NO
Residents GF Bed S	NO (-66.7%)	NO
Residents GF Bed S	YES (+132.1%)	NO
Residents GF Bed S	NO (-56.1%)	NO
Residents FF Bed S	YES (+76.4%)	NO
Residents FF Bed S	YES (+132.1%)	NO
Residents FF Bed S	NO (-38.2%)	NO
Residents FF Bed S	NO (-40.4%)	NO
Residents FF Bed S	N/A	N/A
Residents FF Bed S	NO (-66.6%)	NO
Residents FF Bed S	NO (-20.2%)	NO
Residents FF Bed S	NO (-56.1%)	NO
Residents FF Bed S	NO (-56.1%)	NO
Residents GF Bed S	NO (-40%)	NO
Residents GF Bed S	NO (-38.4%)	NO
Residents GF Bed S	NO (-56%)	NO
Residents GF Bed S	NO (-20.2%)	NO
Residents GF Bed S	NO (-66.7%)	NO
Residents GF Bed S	YES (+132.1%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
Residents GF Bed S	NO (-18.7%)	NO
Residents FF Bed S	YES (+80.9%)	NO
Residents FF Bed S	YES (+132.1%)	NO
Residents FF Bed S	NO (-38.2%)	NO
Residents FF Bed S	NO (-40.4%)	NO
Residents FF Bed S	N/A	N/A
Residents FF Bed S	NO (-66.6%)	NO
Residents FF Bed S	NO (-20.2%)	NO
Residents FF Bed S	NO (-56.1%)	NO
Residents FF Bed S	NO (-18.7%)	NO
Residents GF Bed S	NO (-40%)	NO
Residents GF Bed S	NO (-66.9%)	NO
Residents GF Bed S	NO (-56%)	NO
Residents GF Bed S	NO (-20.2%)	NO
Residents GF Bed S	NO (-66.7%)	NO
Residents GF Bed S	YES (+138%)	NO
Residents GF Bed S	NO (-18.7%)	NO
Residents FF Bed S	YES (+76.4%)	NO
Residents FF Bed S	YES (+138%)	NO
Residents FF Bed S	NO (-66.8%)	NO
Residents FF Bed S	NO (-40.4%)	NO
Residents FF Bed S	N/A	N/A
Residents FF Bed S	NO (-66.6%)	NO
Residents FF Bed S	NO (-20.2%)	NO
Residents FF Bed S	NO (-56.1%)	NO
Residents FF Bed S	NO (-18.7%)	NO
Residents GF Bed S	NO (-39.8%)	NO
Residents GF Bed S	NO (-38.1%)	NO
Residents GF Bed S	NO (-56.2%)	NO
Residents GF Bed S	NO (-20.5%)	NO
Residents GF Bed S	NO (-66.5%)	NO
Residents GF Bed S	YES (+133.1%)	NO
Residents GF Bed S	NO (-56.3%)	NO
Residents FF Bed S	YES (+75.6%)	NO
Residents FF Bed S	YES (+133.1%)	NO
Residents FF Bed S	NO (-37.9%)	NO
Residents FF Bed S	NO (-40.1%)	NO
Residents FF Bed S	N/A	N/A
Residents FF Bed S	NO (-66.4%)	NO
Residents FF Bed S	NO (-20.5%)	NO
Residents FF Bed S	NO (-56.3%)	NO
Residents FF Bed S	NO (-56.3%)	NO
Residents GF Bed S	NO (-39.8%)	NO
Residents GF Bed S	NO (-38.1%)	NO
Residents GF Bed S	NO (-56.2%)	NO
Residents GF Bed S	NO (-20.5%)	NO
Residents GF Bed S	NO (-66.5%)	NO
Residents GF Bed S	YES (+133.1%)	NO
Residents GF Bed S	NO (-19.1%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
Residents FF Bed S	YES (+80.1%)	NO
Residents FF Bed S	YES (+133.1%)	NO
Residents FF Bed S	NO (-37.9%)	NO
Residents FF Bed S	NO (-40.1%)	NO
Residents FF Bed S	N/A	N/A
Residents FF Bed S	NO (-66.4%)	NO
Residents FF Bed S	NO (-20.5%)	NO
Residents FF Bed S	NO (-56.3%)	NO
Residents FF Bed S	NO (-19.1%)	NO
Residents GF Bed S	NO (-39.8%)	NO
Residents GF Bed S	NO (-66.8%)	NO
Residents GF Bed S	NO (-56.2%)	NO
Residents GF Bed S	NO (-20.5%)	NO
Residents GF Bed S	NO (-66.5%)	NO
Residents GF Bed S	YES (+139.1%)	NO
Residents GF Bed S	NO (-19.1%)	NO
Residents FF Bed S	YES (+75.6%)	NO
Residents FF Bed S	YES (+139.1%)	NO
Residents FF Bed S	NO (-66.7%)	NO
Residents FF Bed S	NO (-40.1%)	NO
Residents FF Bed S	N/A	N/A
Residents FF Bed S	NO (-66.4%)	NO
Residents FF Bed S	NO (-20.5%)	NO
Residents FF Bed S	NO (-56.3%)	NO
Residents FF Bed S	NO (-19.1%)	NO
Residents GF Bed S	NO (-21%)	NO
Residents GF Bed S	NO (-56.4%)	NO
Residents GF Bed S	NO (-66.6%)	NO
Residents GF Bed S	NO (-39.4%)	NO
Residents GF Bed S	NO (-94.7%)	NO
Residents GF Bed S	YES (+76.2%)	NO
Residents GF Bed S	NO (-63.1%)	NO
Residents FF Bed S	YES (+132.4%)	NO
Residents FF Bed S	YES (+76.2%)	NO
Residents FF Bed S	NO (-56.3%)	NO
Residents FF Bed S	NO (-21.4%)	NO
Residents FF Bed S	N/A	N/A
Residents FF Bed S	NO (-94.6%)	NO
Residents FF Bed S	NO (-39.4%)	NO
Residents FF Bed S	NO (-66.6%)	NO
Residents FF Bed S	NO (-63.1%)	NO
Residents GF Bed S	NO (-21%)	NO
Residents GF Bed S	N/A	N/A
Residents GF Bed S	NO (-97.6%)	NO
Residents GF Bed S	NO (-39.4%)	NO
Residents GF Bed S	NO (-56.1%)	NO
Residents GF Bed S	YES (+76.2%)	NO
Residents GF Bed S	NO (-63.1%)	NO
Residents FF Bed S	YES (+132.4%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
Residents FF Bed S	YES (+76.2%)	NO
Residents FF Bed S	N/A	N/A
Residents FF Bed S	NO (-21.4%)	NO
Residents FF Bed S	N/A	N/A
Residents FF Bed S	NO (-56%)	NO
Residents FF Bed S	NO (-39.4%)	NO
Residents FF Bed S	NO (-97.6%)	NO
Residents FF Bed S	NO (-63.1%)	NO
Residents GF Bed S	NO (-21%)	NO
Residents GF Bed S	NO (-56.4%)	NO
Residents GF Bed S	NO (-35.3%)	NO
Residents GF Bed S	NO (-39.4%)	NO
Residents GF Bed S	NO (-56.1%)	NO
Residents GF Bed S	YES (+76.2%)	NO
Residents GF Bed S	NO (-92.3%)	NO
Residents FF Bed S	YES (+132.4%)	NO
Residents FF Bed S	YES (+76.2%)	NO
Residents FF Bed S	NO (-56.3%)	NO
Residents FF Bed S	NO (-21.4%)	NO
Residents FF Bed S	N/A	N/A
Residents FF Bed S	NO (-56%)	NO
Residents FF Bed S	NO (-39.4%)	NO
Residents FF Bed S	NO (-35.4%)	NO
Residents FF Bed S	NO (-92.3%)	NO

Regulation 25A: Consideration of high efficiency alternative energy systems

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

Technical Data Sheet (Actual vs. Notional Building)

Building Global Parameters

	Actual	Notional
Floor area [m^2]	4602.3	4602.3
External area [m^2]	12881	12881
Weather	LON	LON
Infiltration [m^3/hm^2@ 50Pa]	10	3
Average conductance [W/K]	4819.68	3840.83
Average U-value [W/m^2K]	0.37	0.3
Alpha value* [%]	19.57	18.55

* 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
	Storage or Distribution
	Hotels
	Residential Institutions: Hospitals and Care Homes
	Residential Institutions: Residential Schools
100	**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/m^2]

	Actual	Notional
Heating	89.17	69.87
Cooling	0	0
Auxiliary	3.11	1.87
Lighting	6.64	6.54
Hot water	19.66	20.3
Equipment*	16.44	16.44
TOTAL**	**118.58**	**98.58**

* 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/m^2]

	Actual	Notional
Photovoltaic systems	0	16.69
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0
Displaced electricity	*0*	*16.69*

Energy & CO_2 Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m^2]	358.49	281.39
Primary energy [kWh_{PE}/m^2]	137.35	90.93
Total emissions [kg/m^2]	24.22	17.61

HVAC Systems Performance

System Type		Heat dem MJ/m2	Cool dem MJ/m2	Heat con kWh/m2	Cool con kWh/m2	Aux con kWh/m2	Heat SSEEF	Cool SSEER	Heat gen SEFF	Cool gen SEER
[ST] Central heating using water: radiators, [HS] LTHW boiler, [HFT] Natural Gas, [CFT] Electricity										
	Actual	253.3	105.2	89.2	0	3.1	0.79	0	0.84	0
	Notional	216.3	65.1	69.9	0	1.6	0.86	0	----	----

Key to terms

Heat dem [MJ/m2] = Heating energy demand
Cool dem [MJ/m2] = Cooling energy demand
Heat con [kWh/m2] = Heating energy consumption
Cool con [kWh/m2] = Cooling energy consumption
Aux con [kWh/m2] = Auxiliary energy consumption
Heat SSEFF = Heating system seasonal efficiency (for notional building, value depends on activity glazing class)
Cool SSEER = Cooling system seasonal energy efficiency ratio
Heat gen SSEFF = Heating generator seasonal efficiency
Cool gen SSEER = Cooling generator seasonal energy efficiency ratio
ST = System type
HS = Heat source
HFT = Heating fuel type
CFT = Cooling fuel type

BRUKL Output Document

HM Government

Compliance with England Building Regulations Part L 2021

Project name

Mount Clare House - Existing Bungalow

As built

Date: Wed Oct 01 16:27:56 2025

Administrative information

Building Details

Address: Minstead Gardens, Roehampton Gate, London, SW15 4EE

Certifier details

Name: Oliver Butler

Telephone number: 07984796826

Address: 30 Tweedy Road, London, BR1 3FE

Certification tool

Calculation engine: SBEM

Calculation engine version: v6.1.e.2

Interface to calculation engine: Virtual Environment

Interface to calculation engine version: v7.0.29

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

Foundation area [m^2]: 2301.16

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

The building does not comply with England Building Regulations Part L 2021

Target CO_2 emission rate (TER), $kgCO_2/m^2$.annum	22.48	
Building CO_2 emission rate (BER), $kgCO_2/m^2$.annum	57.69	
Target primary energy rate (TPER), kWh_{PE}/m^2.annum	131.85	
Building primary energy rate (BPER), kWh_{PE}/m^2.annum	319.08	
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	0.55	0.55	BN000001_W1
Floors	0.18	0.25	0.25	BN000001_F
Pitched roofs	0.16	-	-	No heat loss pitched roofs
Flat roofs	0.18	0.18	0.18	BN000001_C
Windows** and roof windows	1.6	1.46	1.46	BN000001_W1_O0
Rooflights***	2.2	-	-	No external rooflights
Personnel doors^	1.6	1.4	1.4	BN000003_W1_O6
Vehicle access & similar large doors	1.3	-	-	No external vehicle access doors
High usage entrance doors	3	-	-	No external high usage entrance doors

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

$U_{a\text{-}Calc}$ = 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	25

Building services

For details on the standard values listed below, system-specific guidance, and additional regulatory requirements, refer to the Approved Documents.

Whole building lighting automatic monitoring & targeting with alarms for out-of-range values	YES
Whole building electric power factor achieved by power factor correction	<0.9

1- Notional System

	Heating efficiency	**Cooling efficiency**	**Radiant efficiency**	**SFP [W/(l/s)]**	**HR efficiency**
This system	0.84	-	-	-	-
Standard value	1	N/A	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO

1- SYST0001-DHW

	Water heating efficiency	**Storage loss factor [kWh/litre per day]**
This building	Hot water provided by HVAC system	-
Standard value	N/A	N/A

"No zones in project where local mechanical ventilation, exhaust, or terminal unit is applicable"

General lighting and display lighting	**General luminaire**	**Display light source**	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m²]**
Standard value	95	80	0.3
Bungalow Living	95	-	-
Bungalow Bed D	95	-	-
Bungalow WC	95	-	-
Bungalow Bed D	95	-	-
Bungalow Entrance	95	-	-
Bungalow Living	95	-	-
Bungalow Bed D	95	-	-
Bungalow EnSuite	95	-	-
Bungalow Entrance	95	-	-
Bungalow EnSuite	95	-	-
Bungalow Bed D	95	-	-

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?**
Bungalow Bed D	NO (-48.5%)	NO
Bungalow Bed D	NO (-20%)	NO
Bungalow Bed D	NO (-15.8%)	NO
Bungalow Bed D	NO (-71.3%)	NO

Regulation 25A: Consideration of high efficiency alternative energy systems

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

Technical Data Sheet (Actual vs. Notional Building)

Building Global Parameters

	Actual	Notional
Floor area [m^2]	143.3	143.3
External area [m^2]	426.6	426.6
Weather	LON	LON
Infiltration [m^3/hm^2@ 50Pa]	25	3
Average conductance [W/K]	177.49	139.83
Average U-value [W/m^2K]	0.42	0.33
Alpha value* [%]	29.69	25.24

* 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
	Storage or Distribution
	Hotels
	Residential Institutions: Hospitals and Care Homes
	Residential Institutions: Residential Schools
100	**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/m^2]

	Actual	Notional
Heating	242.1	70.03
Cooling	0	0
Auxiliary	3.59	7.92
Lighting	9.1	7.2
Hot water	24.18	27.22
Equipment*	15.39	15.39
TOTAL**	**278.96**	**112.38**

* 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/m^2]

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

Energy & CO_2 Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m^2]	717.95	392.04
Primary energy [kWh_{PE}/m^2]	319.08	131.85
Total emissions [kg/m^2]	57.69	22.48

HVAC Systems Performance

System Type		Heat dem MJ/m2	Cool dem MJ/m2	Heat con kWh/m2	Cool con kWh/m2	Aux con kWh/m2	Heat SSEEF	Cool SSEER	Heat gen SEFF	Cool gen SEER
[ST] Central heating using water: radiators, [HS] ASHP, [HFT] Natural Gas, [CFT] Electricity										
	Actual	652.8	65.1	242.1	0	3.6	0.75	0	0.84	0
	Notional	317.7	74.4	70	0	1.7	1.26	0	----	----

Key to terms

Heat dem [MJ/m2] = Heating energy demand
Cool dem [MJ/m2] = Cooling energy demand
Heat con [kWh/m2] = Heating energy consumption
Cool con [kWh/m2] = Cooling energy consumption
Aux con [kWh/m2] = Auxiliary energy consumption
Heat SSEFF = Heating system seasonal efficiency (for notional building, value depends on activity glazing class)
Cool SSEER = Cooling system seasonal energy efficiency ratio
Heat gen SSEFF = Heating generator seasonal efficiency
Cool gen SSEER = Cooling generator seasonal energy efficiency ratio
ST = System type
HS = Heat source
HFT = Heating fuel type
CFT = Cooling fuel type

BRUKL Output Document

HM Government

Compliance with England Building Regulations Part L 2021

Project name

Improved - Bungalow

As designed

Date: Wed Oct 01 17:11:51 2025

Administrative information

Building Details

Address: Minstead Gardens, Roehampton Gate, London, SW15 4EE

Certifier details

Name: Oliver Butler

Telephone number: 07984796826

Address: 30 Tweedy Road, London, BR1 3FE

Certification tool

Calculation engine: SBEM

Calculation engine version: v6.1.e.2

Interface to calculation engine: Virtual Environment

Interface to calculation engine version: v7.0.29

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

Foundation area [m^2]: 2301.16

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

The building does not comply with England Building Regulations Part L 2021

Target CO_2 emission rate (TER), $kgCO_2/m^2$.annum	0	
Building CO_2 emission rate (BER), $kgCO_2/m^2$.annum	31.09	
Target primary energy rate (TPER), kWh_{PE}/m^2.annum	0	
Building primary energy rate (BPER), kWh_{PE}/m^2.annum	174.46	
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	0.18	0.18	BN000001_W1
Floors	0.18	0.15	0.15	BN000001_F
Pitched roofs	0.16	-	-	No heat loss pitched roofs
Flat roofs	0.18	0.15	0.15	BN000001_C
Windows** and roof windows	1.6	1.4	1.4	BN000001_W1_O0
Rooflights***	2.2	-	-	No external rooflights
Personnel doors^	1.6	1.4	1.4	BN000003_W1_O6
Vehicle access & similar large doors	1.3	-	-	No external vehicle access doors
High usage entrance doors	3	-	-	No external high usage entrance doors

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

$U_{a\text{-}Calc}$ = 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	5

Building services

For details on the standard values listed below, system-specific guidance, and additional regulatory requirements, refer to the Approved Documents.

Whole building lighting automatic monitoring & targeting with alarms for out-of-range values	YES
Whole building electric power factor achieved by power factor correction	<0.9

1- Improved System

	Heating efficiency	**Cooling efficiency**	**Radiant efficiency**	**SFP [W/(l/s)]**	**HR efficiency**
This system	0.84	-	-	-	-
Standard value	0.93*	N/A	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					YES
* Standard shown is for gas single boiler systems <=2 MW output and overall for multi-boiler systems. For single boiler systems >2 MW or any individual boiler in a multi-boiler system, limiting efficiency is 0.88.					

1- SYST0002-DHW

	Water heating efficiency	**Storage loss factor [kWh/litre per day]**
This building	Hot water provided by HVAC system	-
Standard value	N/A	N/A

"No zones in project where local mechanical ventilation, exhaust, or terminal unit is applicable"

General lighting and display lighting	**General luminaire**	**Display light source**	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m²]**
Standard value	95	80	0.3
Bungalow Living	100	-	-
Bungalow Bed D	100	-	-
Bungalow WC	100	-	-
Bungalow Bed D	100	-	-
Bungalow Entrance	100	-	-
Bungalow Living	100	-	-
Bungalow Bed D	100	-	-
Bungalow EnSuite	100	-	-
Bungalow Entrance	100	-	-
Bungalow EnSuite	100	-	-
Bungalow Bed D	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?**
Bungalow Bed D	NO (-48.2%)	NO
Bungalow Bed D	NO (-19.6%)	NO
Bungalow Bed D	NO (-15.3%)	NO
Bungalow Bed D	NO (-71.1%)	NO

Regulation 25A: Consideration of high efficiency alternative energy systems

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

Technical Data Sheet (Actual vs. Notional Building)

Building Global Parameters

	Actual	Notional
Floor area [m^2]	143.3	143.3
External area [m^2]	426.6	426.6
Weather	LON	LON
Infiltration [m^3/hm^2@ 50Pa]	5	3
Average conductance [W/K]	120.71	139.83
Average U-value [W/m^2K]	0.28	0.33
Alpha value* [%]	43.65	25.24

* 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
	Storage or Distribution
	Hotels
	Residential Institutions: Hospitals and Care Homes
	Residential Institutions: Residential Schools
100	**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/m^2]

	Actual	Notional
Heating	117.08	102.61
Cooling	0	0
Auxiliary	3.41	7.92
Lighting	6.72	7.2
Hot water	24.18	40.75
Equipment*	15.39	15.39
TOTAL**	**151.38**	**158.47**

* 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/m^2]

	Actual	Notional
Photovoltaic systems	0	536.08
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0
Displaced electricity	*0*	*536.08*

Energy & CO_2 Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m^2]	414.14	392.04
Primary energy [kWh_{PE}/m^2]	174.46	-604.55
Total emissions [kg/m^2]	31.09	-37.09

HVAC Systems Performance

System Type		Heat dem MJ/m2	Cool dem MJ/m2	Heat con kWh/m2	Cool con kWh/m2	Aux con kWh/m2	Heat SSEEF	Cool SSEER	Heat gen SEFF	Cool gen SEER
[ST] Central heating using water: radiators, [HS] LTHW boiler, [HFT] Natural Gas, [CFT] Electricity										
	Actual	332.6	81.6	117.1	0	3.4	0.79	0	0.84	0
	Notional	317.7	74.4	102.6	0	1.7	0.86	0	----	----

Key to terms

Heat dem [MJ/m2] = Heating energy demand
Cool dem [MJ/m2] = Cooling energy demand
Heat con [kWh/m2] = Heating energy consumption
Cool con [kWh/m2] = Cooling energy consumption
Aux con [kWh/m2] = Auxiliary energy consumption
Heat SSEFF = Heating system seasonal efficiency (for notional building, value depends on activity glazing class)
Cool SSEER = Cooling system seasonal energy efficiency ratio
Heat gen SSEFF = Heating generator seasonal efficiency
Cool gen SSEER = Cooling generator seasonal energy efficiency ratio
ST = System type
HS = Heat source
HFT = Heating fuel type
CFT = Cooling fuel type

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