



Dakota, Manchester Airport

Sustainability Statement

On Behalf of
Evans Dakota Hotels Ltd

Revision No: P04
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1. Executive Summary

1.1 General

The sustainability statement has been prepared on behalf of Evans Dakota Hotels Ltd and is in support of the proposed erection of a 7 storey 154 bedroom hotel, with associated car parking, feature vehicular drop-off area and canopy, service yard, landscaping and highways works to existing access at Bailey Lane, Manchester Airport.

The statement addresses the sustainability and energy requirements as set out within the Manchester's Local Development Framework 'Core Strategy Development Plan Document' adopted 11th July 2012.

The scheme will provide an improvement on a Building Regulation Part L 2021 building by 0.51kg/m²/annum of CO₂ emissions. This is equivalent to a 4.19% saving in the predicted CO₂ emissions compared to the 2021 Building Regulations Target Emission Rate.

A 4.19% saving in the predicted CO₂ emissions compared to the 2021 Building Regulations compliant building, significantly exceeds the 15% reduction when compared to the 2010 compliant building as required by policy EN6 of the adopted Manchester's Local Development Framework 'Core Strategy Development Plan Document' (2012).

The proposed development will meet the aims of the policies EN4 and EN6 of the adopted Manchester's Local Development Framework 'Core Strategy Development Plan Document' (2012) through the utilisation of the energy hierarchy.

The proposed development will meet the aims of the policies EN8 and DM1 of the adopted Manchester's Local Development Framework 'Core Strategy Development Plan Document' (2012) through the incorporation of measures to mitigate against the impacts of climate change, and sustainability measures in line with the principles of the BREEAM scheme.

2. Introduction

2.1 General

The sustainability statement has been prepared on behalf of Evans Dakota Hotels Ltd and is in support of the proposed erection of a 7 storey 154 bedroom hotel, with associated car parking, feature vehicular drop-off area and canopy, service yard, landscaping and highways works to existing access at Bailey Lane, Manchester Airport.

The statement addresses the sustainability and energy requirements as set out within the Manchester's Local Development Framework 'Core Strategy Development Plan Document' adopted 11th July 2012.

3. Policy Review

3.1 General

This section summarises the policy context for the development sustainability statement, with a focus upon energy and carbon reduction and the various policies from international to local level.

3.2 National Planning Policy Framework

The National Planning Policy Framework (NPPF or the Framework) was introduced in March 2012 to set out government planning policy for England, removing all regional level planning policy in favour of 'a framework within which local people and their accountable councils can produce their own distinctive local and neighbourhood plans, which reflect the needs and priorities of their communities.'

A number of iterations have since been published. The Framework was revised on the 20 July 2021, replacing the previous update in February 2019. All new Local and Neighbourhood Plans and reviews must align with the policies of the Framework 2021.

The Framework states clearly that the purpose of planning is to help deliver sustainable development and defines three mutually dependent pillars that must be equally considered in order to achieve this:

- Economic;
- Social; and
- Environmental.

There is a clear focus upon:

- Promoting high-quality design for new homes and places;
- Offering stronger protection for the environment;
- Constructing the right number of homes in the right places; and
- Focusing on greater responsibility and accountability of councils and developers for housing delivery.

3.3 Local Sustainability Policy

3.3.1 Core Strategy Development Plan Document

The Manchester's Local Development Framework 'Core Strategy Development Plan Document' was adopted by Manchester City Council 11th July 2012 and contains the following policies relating to Sustainability:

EN4 Reducing CO₂ Emissions by Enabling Low and Zero Carbon Development

The Council will seek to reduce fuel poverty and decouple growth in the economy, growth in CO₂ emissions, and rising fossil fuel prices, through the following actions:

- All development must follow the principle of the Energy Hierarchy, being designed:

- to reduce the need for energy through design features that provide passive heating, natural lighting and cooling
- to reduce the need for energy through energy efficient features such as improved insulation and glazing
- to meet residual energy requirements through the use of low or zero carbon energy generating technologies

Wherever possible new development and retrofit projects, including energy generation plant, must be located and designed in a manner that allows advantage to be taken of opportunities for low and zero carbon energy supplies.

Where possible new development and retrofit projects will be used as a mechanism to help improve energy efficiency and provide low and zero carbon energy supplies to existing buildings.

Where appropriate new development and retrofit projects will be required to connect to and/or make contributions to low or zero carbon energy schemes and/or to incorporate provision to enable future connection to any existing / potential decentralised energy schemes.

The use of building materials with low embodied carbon in new development and refurbishment schemes.

EN6 Target Framework for CO₂ reductions from low or zero carbon energy supplies

Applications for residential development of 10 or more units and all other development over 1,000 sq m will be expected as a minimum to meet the target shown in Tables 12.1 or 12.2, unless this can be shown not to be viable. This should be demonstrated through an energy statement, submitted as part of the Design and Access Statement. Such a statement will be expected to set out the projected regulated energy demand and associated CO₂ emissions for all phases of the development.

Developments smaller than the above threshold, but involving the erection of a building or substantial improvement to an existing building will also be expected to meet the minimum target, where viable, but will not be expected to submit an energy statement.

The target framework relates to three broad development locations and their potential for low and zero carbon, decentralised energy. The areas are defined as follows

- Target 1 Network development areas: Locations where the proximity of new and existing buildings, the mix of uses and density of development provide the right conditions to support district heating (and cooling).
- Target 2 Electricity intense areas: Locations where the predominant building type has an all electric fit-out such as retail units and leisure complexes.
- Target 3 Micro-generation areas: Locations where lower densities and a fragmented mix of uses tend to mean that only building scale solutions are practical.

Table 12.1 Domestic CO₂ emissions reduction targets

Target	% Minimum requirement
Target 1: Network development area	CHP/district heating anchor or connection or where not feasible a 15% increase on Part L 2010
Target 2: Electricity intense buildings	+15% increase on Part L 2010
Target 3: Micro generation area	+15%increase on Part L 2010

Table 12.2 Non-domestic CO₂ emissions reduction targets

Target	% Minimum requirement
Target 1: Network development area	CHP/district heating anchor or connection or where not feasible a 15% increase on Part L 2010
Target 2: Electricity intense buildings (Applies to commercial uses with a high proportion of emissions from electricity use (>45 kg CO ₂ /m ²))	+10% increase on Part L 2010
Target 3: Micro generation area	+15%increase on Part L 2010

Where the CO₂ emissions reduction required under any future revision to Part L of the building regulations becomes greater than the '% Minimum requirement', the reduction required under building regulations would apply.

Where the Council identifies an 'allowable solution', for example within an energy proposals plan, that would produce higher carbon reductions at no extra cost than that of achieving the '% Minimum requirement' (or required under building regulations if greater) the higher percentage reduction will be required. The cost comparison is based on the cost of incorporating the 'allowable solution' at design stage.

The energy statement will be required to be submitted at the outset of any proposed development (outline application or before). Developers will be permitted to use green infrastructure elements such as green roofs, green walls, street trees and waterways to contribute to compliance with CO₂ mitigation, subject to the energy statement incorporating evidence such as modelling to demonstrate compliance.

Guidance on what the energy statement should contain and how to decide which target applies to a development proposal is given in Appendix A.

EN8 Adaptation to Climate Change

All new development will be expected to be adaptable to climate change in terms of the design, layout, siting and function of both buildings and associated external spaces. In achieving developments which are adaptable to climate change developers should have regard to the following, although this is not an exhaustive list:

- Minimisation of flood risk by appropriate siting, drainage, and treatment of surface areas to ensure rain water permeability

- Reduction in urban heat island effect through the use of Green Infrastructure such as green roofs, green walls, increased tree cover and waterways
- The need to control overheating of buildings through passive design
- The opportunity to provide linked and diverse green space to enhance natural habitats which will assist species adaptation

Developers will be permitted to use green infrastructure elements such as green roofs, green walls, street trees and waterways to contribute to compliance with CO₂ mitigation under Policy EN6, subject to sufficient evidence to quantify their contribution to compliance.

DM1 Development Management

All development should have regard to the following specific issues for which more detailed guidance may be given within a supplementary planning document:-

- Appropriate siting, layout, scale, form, massing, materials and detail.
- Impact on the surrounding areas in terms of the design, scale and appearance of the proposed development. Development should have regard to the character of the surrounding area.
- Effects on amenity, including privacy, light, noise, vibration, air quality, odours, litter, vermin, birds, road safety and traffic generation. This could also include proposals which would be sensitive to existing environmental conditions, such as noise.
- Accessibility: buildings and neighbourhoods fully accessible to disabled people, access to new development by sustainable transport modes.
- Community safety and crime prevention.
- Design for health.
- Adequacy of internal accommodation and external amenity space.
- Refuse storage and collection.
- Vehicular access and car parking.
- Effects relating to biodiversity, landscape, archaeological or built heritage.
- Green Infrastructure including open space, both public and private.
- The use of alternatives to peat-based products in landscaping/gardens within development schemes.
- Flood risk and drainage.
- Existing or proposed hazardous installations.
- Subject to scheme viability, developers will be required to demonstrate that new development incorporates sustainable construction techniques as follows (In terms of

energy targets this policy should be read alongside policy EN6 and the higher target will apply):-

a) For new residential development meet as a minimum the following Code for Sustainable Homes standards. This will apply until a higher national standard is required:

- Year 2010 – Code Level 3;
- Year 2013 - Code Level 4;
- Year 2016 - Code Level 6; and

(b) For new commercial developments to demonstrate best practice which will include the application of the BREEAM (Building Research Establishment Environmental Assessment Method) standards. By 2019 provisions similar to the Code for Sustainable Homes will also apply to all new non-domestic buildings.

4. Energy

4.1 General

The requirements of policies EN4 'Reducing CO₂ Emissions by Enabling Low and Zero Carbon Development' and EN6 'Target Framework for CO₂ reductions from low or zero carbon energy supplies' of the adopted Manchester's Local Development Framework 'Core Strategy Development Plan Document' (2012) are addressed in the following sections.

4.2 Energy Statement Methodology

Policy 'EN6 Target Framework for CO₂ reductions from low or zero carbon energy supplies' of the Manchester's Local Development Framework 'Core Strategy Development Plan Document' (2012) includes guidance within Appendix A on what the energy statement should contain and how to decide which target applies to a development proposal. The headings are:

- A. Set out the baseline information
- B. Calculate the total energy demand of the completed development
- C. Calculate the equivalent annual carbon emissions from the completed development
- D. Apply the appropriate carbon emissions reduction target
- E. Apply the energy hierarchy
- F. Consider all appropriate low carbon, renewable and/or decentralised energy
- G. technologies
- H. Assessment of least cost technology option

4.3 Set out the baseline information

The proposed development is a deluxe hotel consisting of 154 bedrooms, restaurant/ bar areas plus staff and ancillary spaces. External areas associated with the development include parking, electric vehicle charging spaces, service yard, soft landscaping and a valet parking service area.

4.4 Calculate the total energy demand of the completed development

The development has been modelled using the computer modelling package EDSL Tas Part L2 2021 Version 9.5.6 interfaced to SBEM Version 6.1.e.0 which is based on BRE's standard calculation tool and uses a dynamic simulation method for checking compliance.

The geographically nearest CIBSE Test Reference Year (TRY) has been used which is Manchester.

The energy model has been produced to predict the actual energy consumption of the building. When a simulation is performed, a 'notional' building is created. This building has the same shape and patterns of use as the actual designed building, but makes standard assumptions regarding the heating, cooling and ventilation plant, lighting and building fabric. The energy consumption of this building is predicted using the software.

A copy of the initial Part L 2021 BRUKL output document is included within appendix A. This confirms the expected regulated energy consumption to be 62.33kWh/m².annum, a total of 457,004 kWh/annum.

4.5 Calculate the equivalent annual carbon emissions from the completed development

A copy of the initial Part L 2021 BRUKL output document is included within appendix A. This confirms the expected CO₂ emissions to be 11.67 kgCO₂/m².annum, a total of 85,564 kgCO₂/annum.

4.6 Apply the appropriate carbon emissions reduction target

The reduction targets for '3. Micro generation area' are applicable to the proposed development as it only has hotel use identified rather than a mixture of at least three separate uses, and is not adjacent to an existing district heat network. As there is a lower density or fragmented mix of uses, it is feasible to assume that building scale solutions will be the only viable option.

The appropriate target is therefore a 15% reduction in carbon emissions against Part L 2010 of the Building Regulations.

Since Part L 2010 of the Building Regulations was issued, there have been two further iterations in 2013 and 2021 which reduce the target for carbon emissions within non-domestic buildings beyond the 2010 targets.

The tighter carbon compliance standards between iterations of the Building Regulations resulted in:

- An average 9% improvement for non-domestic building types between 2010 and 2013.
- A 27% improvement for non-domestic building types between 2013 and 2021.

The proposed scheme will be required to comply with the current Part L 2021 requirements of the Building Regulations, therefore by complying with the carbon emissions target for the latest iteration, it will meet the 15% reduction as required by policy EN6 of the adopted Manchester's Local Development Framework 'Core Strategy Development Plan Document' (2012).

4.7 Apply the energy hierarchy

The energy hierarchy is a classification of energy strategies, prioritised to assist progress towards a more sustainable energy system. It is represented in the figure below and highlights the priority of each step within the hierarchy as you progress downwards through the strata.

Energy demand reduction provides the greatest opportunity for minimising a building's potential CO₂ emissions. Design strategies typically include building form and fabric measures (passive design) and energy efficient building services (active design). Focusing on form and fabric in particular at an early stage in the build process is often the most cost-effective way to reduce energy consumption and CO₂ emissions. Following demand reduction measures, the residual CO₂ emissions can be reduced through low or zero carbon technologies.

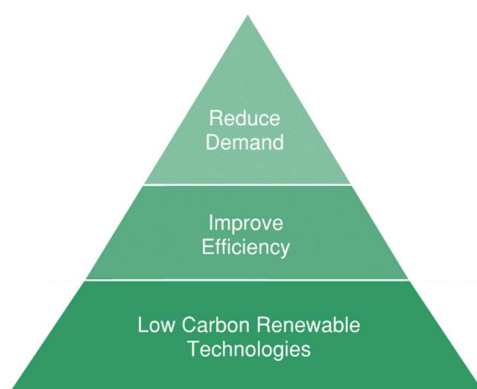


Image 1: Energy hierarchy

Prioritising a reduction in overall energy demand is the most effective way in which to minimise environmental impacts associated with energy use. The use of efficient technologies and renewables to supply the remaining load results in lower greenhouse gas emissions as compared with the use of conventional alternatives.

Cost effective measures can be adopted to reduce energy demand without making a significant impact on the design, appearance or character of the building. It is intended to implement energy efficiency measures to improve on the minimum standards required in Part L of the Building Regulations.

4.7.1 Reduce Demand

In order to reduce overall energy demand the following improved U-values and air permeability will be targeted to increase the thermal efficiency of the building envelope. These figures meet or exceed the notional fabric values as stated within Part L of the Building Regulations.

Element	U-value
Ground Floor	0.15
External Walls	0.18
Roof	0.18
Windows	1.60 G-value = 0.29 Light transmittance = 60%
Doors	1.60
Air Permeability	5

Table 1: Proposed building envelope values

4.7.2 Improve Efficiency

Once the heat loss through the external building envelope has been reduced through passive design measures, the efficiency of the delivered building services can be addressed to further reduce the heating, ventilation, cooling and lighting demand within a building. The following active design measures are proposed to improve the efficient use of energy at the development:

- Improved efficiency of the space heating, cooling and hot water.
- Use of energy efficient lighting.

- Use of intelligent lighting controls.
- Use of variable speed pumps, fans and drives to match supply and demand.
- Improve efficiency of heat recovery to mechanical ventilation systems.

The efficiency of the proposed building services shall meet or exceed the limiting values as stated within Part L of the Building Regulations.

4.8 Consider all appropriate low carbon, renewable and/or decentralised energy technologies

The feasibility of a number of potentially appropriate renewable energy technologies have been discussed for the proposed development.

Technology	Suitable?	Observations
Air source heat pumps	✓	Proposed within the energy efficient design to provide space heating and cooling.
Ground source heat pumps	X	Feasible solution, however preference for capital cost would be for ASHP.
Biomass hot water	X	Not compatible with ASHP. Insufficient plant, fuel storage and delivery space at ground floor for fuel storage. Fuel delivery difficulties.
Solar water heating	X	Available roof space to be utilised for solar photovoltaics.
Photovoltaics	✓	Roof space available.
Wind turbines	X	Poor yield within urbanised area and likely planning issues in proximity to the airport.
CHP (Combined Heat and Power)	X	Feasible solution for hot water generation, however ASHP preferred as electric only to futureproof the building.

Table 2: LZC technologies comparison

It is proposed for the use of VRF air source heat pumps within the bedrooms, foyer, restaurant/bar, reception and offices to provide heating and cooling. Only the heating aspect of the heat pumps will be considered a low carbon technology.

The only suitable option for the hotel which would be compatible with the air source heat pumps is the incorporation of a solar photovoltaic array to generate zero carbon energy. A potential 604m² area could be used for a solar photovoltaics into the south-west facing roof areas as a source of zero carbon energy.

Potential carbon emission savings from biomass are significant however there is limited ground floor area for biomass fuel storage and plant space. This solution would not be a preferred choice of the operator who prefer similar technologies to their other developments.

The use of a CHP system to generate all or a percentage of the hot water would be a feasible solution, however due to the lower carbon factor of the grid electricity under the new Building Regulations, it

does not provide a carbon saving as great as the air source heat pump option. It would also not allow the building to be considered 'electric only'.

It is acknowledged that there is a potential energy saving from solar water heating, however this technology is not compatible with the proposed air source heat pump system. The limited available roof space is also dedicated to solar photovoltaics.

A wind turbine would be able to provide zero carbon energy, however the yield would be compromised by the urbanised surroundings creating greater wind turbulence, and potential planning issues within close proximity to the airport.

4.8.1 Summary

The energy model has been run for the building with the BRUKL output document included within Appendix A. This demonstrates compliance with England building regulations Part L2 2021 sections 1 and 2 as shown in table 3 below.

Target CO ₂ emission rate (TER), kgCO ₂ /m ² .annum	12.18	
Building CO ₂ emission rate (BER), kgCO ₂ /m ² .annum	11.67	
Target primary energy rate (TPER), kWh _{PE} /m ² .annum	132.24	
Building primary energy rate (BPER), kWh _{PE} /m ² .annum	124.46	
Do the building's emission and primary energy rates exceed the targets?	BER=<TER	BPER=<TPER

Table 3: BRUKL targets summary

The scheme will provide an improvement on a Building Regulation Part L 2021 building by 0.51kg/m²/annum of CO₂ emissions. This is equivalent to a 4.19% saving in the predicted CO₂ emissions compared to the 2021 Building Regulations Target Emission Rate.

The appropriate target carbon reduction for the scheme has been identified as a 15% reduction in carbon emissions against Part L 2010 of the Building Regulations. Due to the tighter carbon compliance standards between iterations of the Building Regulations, a 2021 compliant building has a circa 34% cumulative improvement in carbon emissions beyond a 2010 compliant building.

A 4.19% saving in the predicted CO₂ emissions compared to the 2021 Building Regulations compliant building, significantly exceeds the 15% reduction when compared to the 2010 compliant building as required by policy EN6 of the adopted Manchester's Local Development Framework 'Core Strategy Development Plan Document' (2012).

The proposed development will meet the aims of the policies EN4 and EN6 of the adopted Manchester's Local Development Framework 'Core Strategy Development Plan Document' (2012) through the utilisation of the energy hierarchy.

5. Sustainability Appraisal

5.1 Adaptation to climate change

The requirements of policy EN8 'Adaptation to Climate Change' of the adopted Manchester's Local Development Framework 'Core Strategy Development Plan Document' (2012) are addressed in the following sections

5.1.1 Flood risk and surface water

A flood risk assessment has been undertaken for the site by JPG which confirms the proposed development lies within Flood Zone 1 based upon the Environment Agency maps. This confirms the site is at a low risk of flooding from a watercourse and/or sea with less than a 1:1000-annual probability of river or sea flooding.

Flooding from other sources has also been considered within the FRA summarising that all potential sources of flood risk are deemed low.

5.1.2 Green infrastructure & green spaces

To be completed once BNG and ecology report received.

5.2 Development management

The requirements of policy DM1 'Development Management' of the adopted Manchester's Local Development Framework 'Core Strategy Development Plan Document' (2012) are addressed in the following sections

5.2.1 BREEAM

It is understood that through discussions at the Pre-App stage with Manchester City Council that there is no specific BREEAM rating requirement for the scheme.

The principles of BREEAM to encourage sustainable design and construction will be incorporated within the proposed development, however formal certification to a specific rating level will not be undertaken. Specific sustainability measures to be incorporated into the proposed development in line with the BREEAM criteria include:

- Responsible construction site practices.
- Provision of electric vehicle charging points.
- Materials chosen with low embodied carbon and responsibly sourced where possible.
- Use of low and zero carbon technologies.

5.3 Summary

The proposed development will meet the aims of the policies EN8 and DM1 of the adopted Manchester's Local Development Framework 'Core Strategy Development Plan Document' (2012) through the incorporation of measures to mitigate against the impacts of climate change, and sustainability measures in line with the principles of the BREEAM scheme.

6. Summary

The sustainability statement has been prepared on behalf of Evans Dakota Hotels Ltd and is in support of the proposed Dakota Hotel, Bailey Lane, Manchester Airport.

The scheme will provide an improvement on a Building Regulation Part L 2021 building by 0.51kg/m²/annum of CO₂ emissions. This is equivalent to a 4.19% saving in the predicted CO₂ emissions compared to the 2021 Building Regulations Target Emission Rate.

A 4.19% saving in the predicted CO₂ emissions compared to the 2021 Building Regulations compliant building, significantly exceeds the 15% reduction when compared to the 2010 compliant building as required by policy EN6 of the adopted Manchester's Local Development Framework 'Core Strategy Development Plan Document' (2012).

The proposed development will meet the aims of the policies EN4 and EN6 of the adopted Manchester's Local Development Framework 'Core Strategy Development Plan Document' (2012) through the utilisation of the energy hierarchy.

The proposed development will meet the aims of the policies EN8 and DM1 of the adopted Manchester's Local Development Framework 'Core Strategy Development Plan Document' (2012) through the incorporation of measures to mitigate against the impacts of climate change, and sustainability measures in line with the principles of the BREEAM scheme.

Appendix A: Initial Part L BRUKL

Project name

Dakota Manchester Airport

As designed

Date: Fri May 03 12:16:13 2024

Administrative information

Building Details

Address: Dakota Hotel, Manchester Airport,
MANCHESTER,

Certifier details

Name: Sam Jones

Telephone number: 0113 730 3430

Address: Craven House, 14-18 York Road, WETHERBY,
LS22 6SL

Certification tool

Calculation engine: TAS

Calculation engine version: "v9.5.6"

Interface to calculation engine: TAS

Interface to calculation engine version: v9.5.6

BRUKL compliance module version: v6.1.e.0

Foundation area [m²]: 1017.12The CO₂ emission and primary energy rates of the building must not exceed the targets

Target CO ₂ emission rate (TER), kgCO ₂ /m ² annum	12.18
Building CO ₂ emission rate (BER), kgCO ₂ /m ² annum	11.67
Target primary energy rate (TPER), kWh _{PE} /m ² annum	132.24
Building primary energy rate (BPER), kWh _{PE} /m ² annum	124.46
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-Limit}	U _{a-Calc}	U _{i-Calc}	First surface with maximum value
Walls*	0.26	0.18	0.18	External Wall
Floors	0.18	0.15	0.15	Ground Floor
Pitched roofs	0.16	-	-	No pitched roofs in project
Flat roofs	0.18	0.18	0.18	Roof
Windows** and roof windows	1.6	1.6	1.6	Window 1-6F 1.46m*2.035m (Half)
Rooflights***	2.2	-	-	No rooflights in project
Personnel doors [^]	1.6	1.6	1.6	Door 2.10m*2.10m
Vehicle access & similar large doors	1.3	-	-	No vehicle access or similar large doors in project
High usage entrance doors	3	-	-	No high usage entrance doors in project
U _{a-Limit} = Limiting area-weighted average U-values [W/(m ² K)] U _{a-Calc} = Calculated area-weighted average U-values [W/(m ² K)] U _{i-Calc} = Calculated maximum individual element U-values [W/(m ² K)] * 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 ² K 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	NO
Whole building electric power factor achieved by power factor correction	<0.9

1- Elec Panel - Stores

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

2- VRF Mech Vent - Bedroom (154 Zones)

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	4	6.85	-	-	0.8
Standard value	2.5*	5	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO
* Standard shown is for all types >12 kW output, except absorption and gas engine heat pumps.					

3- Mech Vent - En-suites (154 Zones)

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	1	-	-	-	0.8
Standard value	N/A	N/A	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO

4- VRF Mech Vent - Eatdrink, Recep, Office (5 Zones)

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	3.51	5.92	-	1.5	0.8
Standard value	2.5*	5	N/A	2^	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO
* Standard shown is for all types >12 kW output, except absorption and gas engine heat pumps.					
^ Limiting SFP may be increased by the amounts specified in the Approved Documents if the installation includes particular components.					

5- Ext Only Elec Panels - Linen Stores (7 Zones)

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

6- Elec Panel - Circulation, stairs

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

7- Mech Vent Elec Panel - Changing, WC, Offices (9 Zones)

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	1	-	-	1.5	0.8
Standard value	N/A	N/A	N/A	1.9^	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO
^ Limiting SFP may be increased by the amounts specified in the Approved Documents if the installation includes particular components.					

8- Mech Vent DX Cooling - Kitchen (C1_FoodPrep 1)

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	0	5.92	-	1.6	0.7
Standard value	N/A	5	N/A	1.5^	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO

^ Limiting SFP may be increased by the amounts specified in the Approved Documents if the installation includes particular components.

1- SCOP 3.44

	Water heating efficiency	Storage loss factor [kWh/litre per day]
This building	3.44	0
Standard value	2*	N/A

* Standard shown is for all types except absorption and gas engine heat pumps.

Zone-level mechanical ventilation, exhaust, and terminal units

ID	System type in the Approved Documents
A	Local supply or extract ventilation units
B	Zonal supply system where the fan is remote from the zone
C	Zonal extract system where the fan is remote from the zone
D	Zonal balanced supply and extract ventilation system
E	Local balanced supply and extract ventilation units
F	Other local ventilation units
G	Fan assisted terminal variable air volume units
H	Fan coil units
I	Kitchen extract with the fan remote from the zone and a grease filter

NB: Limiting SFP may be increased by the amounts specified in the Approved Documents if the installation includes particular components.

Zone name	SFP [W/(l/s)]										HR efficiency	
	ID of system type	A	B	C	D	E	F	G	H	I	Zone	Standard
	Standard value	0.3	1.1	0.5	2.3	2	0.5	0.5	0.4	1		
C1_Bath 1		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 2		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 3		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 4		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 5		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 6		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 7		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 8		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 9		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 10		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 11		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 12		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 13		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 14		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 15		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 16		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 17		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 18		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 19		-	-	-	-	1.1	-	-	-	-	-	N/A

Zone name		SFP [W/(l/s)]									HR efficiency	
ID of system type		A	B	C	D	E	F	G	H	I		
Standard value		0.3	1.1	0.5	2.3	2	0.5	0.5	0.4	1	Zone	Standard
C1_Bath 20		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 21		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 22		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 23		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 24		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 25		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 26		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 27		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 28		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 29		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 30		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 31		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 32		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 33		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 34		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 35		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 36		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 37		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 38		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 39		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 40		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 41		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 42		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 43		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 44		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 45		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 46		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 47		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 48		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 49		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 50		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 51		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 52		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 53		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 54		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 55		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 56		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 57		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 58		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 59		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 60		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 61		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 62		-	-	-	-	1.1	-	-	-	-	-	N/A

Zone name		SFP [W/(l/s)]									HR efficiency	
ID of system type		A	B	C	D	E	F	G	H	I		
Standard value		0.3	1.1	0.5	2.3	2	0.5	0.5	0.4	1	Zone	Standard
C1_Bath 63		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 64		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 65		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 66		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 67		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 68		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 69		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 70		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 71		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 72		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 73		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 74		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 75		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 76		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 77		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 78		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 79		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 80		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 81		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 82		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 83		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 84		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 85		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 86		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 87		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 88		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 89		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 90		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 91		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 92		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 93		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 94		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 95		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 96		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 97		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 98		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 99		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 100		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 101		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 102		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 103		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 104		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 105		-	-	-	-	1.1	-	-	-	-	-	N/A

Zone name		SFP [W/(l/s)]									HR efficiency	
ID of system type		A	B	C	D	E	F	G	H	I		
Standard value		0.3	1.1	0.5	2.3	2	0.5	0.5	0.4	1	Zone	Standard
C1_Bath 106		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 107		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 108		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 109		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 110		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 111		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 112		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 113		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 114		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 115		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 116		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 117		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 118		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 119		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 120		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 121		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 122		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 123		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 124		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 125		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 126		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 127		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 128		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 129		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 130		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 131		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 132		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 133		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 134		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 135		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 136		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 137		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 138		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 139		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 140		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 141		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 142		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 143		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 144		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 145		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 146		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 147		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 148		-	-	-	-	1.1	-	-	-	-	-	N/A

Zone name		SFP [W/(l/s)]									HR efficiency	
ID of system type		A	B	C	D	E	F	G	H	I		
Standard value		0.3	1.1	0.5	2.3	2	0.5	0.5	0.4	1	Zone	Standard
C1_Bath 149		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 150		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 151		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 152		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 153		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bath 154		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 1		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 2		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 3		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 4		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 5		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 6		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 7		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 8		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 9		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 10		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 11		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 12		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 13		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 14		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 15		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 16		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 17		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 18		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 19		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 20		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 21		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 22		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 23		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 24		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 25		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 26		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 27		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 28		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 29		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 30		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 31		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 32		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 33		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 34		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 35		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 36		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 37		-	-	-	-	1.1	-	-	-	-	-	N/A

Zone name	SFP [W/(l/s)]										HR efficiency	
ID of system type	A	B	C	D	E	F	G	H	I			
Standard value	0.3	1.1	0.5	2.3	2	0.5	0.5	0.4	1		Zone	Standard
C1_Bedroom 38	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 39	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 40	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 41	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 42	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 43	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 44	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 45	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 46	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 47	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 48	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 49	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 50	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 51	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 52	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 53	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 54	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 55	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 56	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 57	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 58	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 59	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 60	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 61	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 62	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 63	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 64	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 65	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 66	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 67	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 68	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 69	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 70	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 71	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 72	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 73	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 74	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 75	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 76	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 77	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 78	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 79	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 80	-	-	-	-	1.1	-	-	-	-	-	-	N/A

Zone name	SFP [W/(l/s)]										HR efficiency	
ID of system type	A	B	C	D	E	F	G	H	I			
Standard value	0.3	1.1	0.5	2.3	2	0.5	0.5	0.4	1		Zone	Standard
C1_Bedroom 81	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 82	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 83	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 84	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 85	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 86	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 87	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 88	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 89	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 90	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 91	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 92	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 93	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 94	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 95	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 96	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 97	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 98	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 99	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 100	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 101	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 102	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 103	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 104	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 105	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 106	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 107	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 108	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 109	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 110	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 111	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 112	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 113	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 114	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 115	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 116	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 117	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 118	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 119	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 120	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 121	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 122	-	-	-	-	1.1	-	-	-	-	-	-	N/A
C1_Bedroom 123	-	-	-	-	1.1	-	-	-	-	-	-	N/A

Zone name		SFP [W/(l/s)]									HR efficiency	
ID of system type		A	B	C	D	E	F	G	H	I	Zone	Standard
Standard value		0.3	1.1	0.5	2.3	2	0.5	0.5	0.4	1		
C1_Bedroom 124		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 125		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 126		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 127		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 128		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 129		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 130		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 131		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 132		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 133		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 134		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 135		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 136		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 137		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 138		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 139		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 140		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 141		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 142		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 143		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 144		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 145		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 146		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 147		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 148		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 149		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 150		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 151		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 152		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 153		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Bedroom 154		-	-	-	-	1.1	-	-	-	-	-	N/A
C1_Store - Linen 1		0.3	-	-	-	-	-	-	-	-	-	N/A
C1_Store - Linen 2		0.3	-	-	-	-	-	-	-	-	-	N/A
C1_Store - Linen 3		0.3	-	-	-	-	-	-	-	-	-	N/A
C1_Store - Linen 4		0.3	-	-	-	-	-	-	-	-	-	N/A
C1_Store - Linen 5		0.3	-	-	-	-	-	-	-	-	-	N/A
C1_Store - Linen 6		0.3	-	-	-	-	-	-	-	-	-	N/A
C1_Store - Linen 7		0.3	-	-	-	-	-	-	-	-	-	N/A

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
C1_Bath 1		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
C1_Bath 2		95	-	-
C1_Bath 3		95	-	-
C1_Bath 4		95	-	-
C1_Bath 5		95	-	-
C1_Bath 6		95	-	-
C1_Bath 7		95	-	-
C1_Bath 8		95	-	-
C1_Bath 9		95	-	-
C1_Bath 10		95	-	-
C1_Bath 11		95	-	-
C1_Bath 12		95	-	-
C1_Bath 13		95	-	-
C1_Bath 14		95	-	-
C1_Bath 15		95	-	-
C1_Bath 16		95	-	-
C1_Bath 17		95	-	-
C1_Bath 18		95	-	-
C1_Bath 19		95	-	-
C1_Bath 20		95	-	-
C1_Bath 21		95	-	-
C1_Bath 22		95	-	-
C1_Bath 23		95	-	-
C1_Bath 24		95	-	-
C1_Bath 25		95	-	-
C1_Bath 26		95	-	-
C1_Bath 27		95	-	-
C1_Bath 28		95	-	-
C1_Bath 29		95	-	-
C1_Bath 30		95	-	-
C1_Bath 31		95	-	-
C1_Bath 32		95	-	-
C1_Bath 33		95	-	-
C1_Bath 34		95	-	-
C1_Bath 35		95	-	-
C1_Bath 36		95	-	-
C1_Bath 37		95	-	-
C1_Bath 38		95	-	-
C1_Bath 39		95	-	-
C1_Bath 40		95	-	-
C1_Bath 41		95	-	-
C1_Bath 42		95	-	-
C1_Bath 43		95	-	-
C1_Bath 44		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
C1_Bath 45		95	-	-
C1_Bath 46		95	-	-
C1_Bath 47		95	-	-
C1_Bath 48		95	-	-
C1_Bath 49		95	-	-
C1_Bath 50		95	-	-
C1_Bath 51		95	-	-
C1_Bath 52		95	-	-
C1_Bath 53		95	-	-
C1_Bath 54		95	-	-
C1_Bath 55		95	-	-
C1_Bath 56		95	-	-
C1_Bath 57		95	-	-
C1_Bath 58		95	-	-
C1_Bath 59		95	-	-
C1_Bath 60		95	-	-
C1_Bath 61		95	-	-
C1_Bath 62		95	-	-
C1_Bath 63		95	-	-
C1_Bath 64		95	-	-
C1_Bath 65		95	-	-
C1_Bath 66		95	-	-
C1_Bath 67		95	-	-
C1_Bath 68		95	-	-
C1_Bath 69		95	-	-
C1_Bath 70		95	-	-
C1_Bath 71		95	-	-
C1_Bath 72		95	-	-
C1_Bath 73		95	-	-
C1_Bath 74		95	-	-
C1_Bath 75		95	-	-
C1_Bath 76		95	-	-
C1_Bath 77		95	-	-
C1_Bath 78		95	-	-
C1_Bath 79		95	-	-
C1_Bath 80		95	-	-
C1_Bath 81		95	-	-
C1_Bath 82		95	-	-
C1_Bath 83		95	-	-
C1_Bath 84		95	-	-
C1_Bath 85		95	-	-
C1_Bath 86		95	-	-
C1_Bath 87		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
C1_Bath 88		95	-	-
C1_Bath 89		95	-	-
C1_Bath 90		95	-	-
C1_Bath 91		95	-	-
C1_Bath 92		95	-	-
C1_Bath 93		95	-	-
C1_Bath 94		95	-	-
C1_Bath 95		95	-	-
C1_Bath 96		95	-	-
C1_Bath 97		95	-	-
C1_Bath 98		95	-	-
C1_Bath 99		95	-	-
C1_Bath 100		95	-	-
C1_Bath 101		95	-	-
C1_Bath 102		95	-	-
C1_Bath 103		95	-	-
C1_Bath 104		95	-	-
C1_Bath 105		95	-	-
C1_Bath 106		95	-	-
C1_Bath 107		95	-	-
C1_Bath 108		95	-	-
C1_Bath 109		95	-	-
C1_Bath 110		95	-	-
C1_Bath 111		95	-	-
C1_Bath 112		95	-	-
C1_Bath 113		95	-	-
C1_Bath 114		95	-	-
C1_Bath 115		95	-	-
C1_Bath 116		95	-	-
C1_Bath 117		95	-	-
C1_Bath 118		95	-	-
C1_Bath 119		95	-	-
C1_Bath 120		95	-	-
C1_Bath 121		95	-	-
C1_Bath 122		95	-	-
C1_Bath 123		95	-	-
C1_Bath 124		95	-	-
C1_Bath 125		95	-	-
C1_Bath 126		95	-	-
C1_Bath 127		95	-	-
C1_Bath 128		95	-	-
C1_Bath 129		95	-	-
C1_Bath 130		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
C1_Bath 131		95	-	-
C1_Bath 132		95	-	-
C1_Bath 133		95	-	-
C1_Bath 134		95	-	-
C1_Bath 135		95	-	-
C1_Bath 136		95	-	-
C1_Bath 137		95	-	-
C1_Bath 138		95	-	-
C1_Bath 139		95	-	-
C1_Bath 140		95	-	-
C1_Bath 141		95	-	-
C1_Bath 142		95	-	-
C1_Bath 143		95	-	-
C1_Bath 144		95	-	-
C1_Bath 145		95	-	-
C1_Bath 146		95	-	-
C1_Bath 147		95	-	-
C1_Bath 148		95	-	-
C1_Bath 149		95	-	-
C1_Bath 150		95	-	-
C1_Bath 151		95	-	-
C1_Bath 152		95	-	-
C1_Bath 153		95	-	-
C1_Bath 154		95	-	-
C1_Bedroom 1		95	-	-
C1_Bedroom 2		95	-	-
C1_Bedroom 3		95	-	-
C1_Bedroom 4		95	-	-
C1_Bedroom 5		95	-	-
C1_Bedroom 6		95	-	-
C1_Bedroom 7		95	-	-
C1_Bedroom 8		95	-	-
C1_Bedroom 9		95	-	-
C1_Bedroom 10		95	-	-
C1_Bedroom 11		95	-	-
C1_Bedroom 12		95	-	-
C1_Bedroom 13		95	-	-
C1_Bedroom 14		95	-	-
C1_Bedroom 15		95	-	-
C1_Bedroom 16		95	-	-
C1_Bedroom 17		95	-	-
C1_Bedroom 18		95	-	-
C1_Bedroom 19		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
C1_Bedroom 20		95	-	-
C1_Bedroom 21		95	-	-
C1_Bedroom 22		95	-	-
C1_Bedroom 23		95	-	-
C1_Bedroom 24		95	-	-
C1_Bedroom 25		95	-	-
C1_Bedroom 26		95	-	-
C1_Bedroom 27		95	-	-
C1_Bedroom 28		95	-	-
C1_Bedroom 29		95	-	-
C1_Bedroom 30		95	-	-
C1_Bedroom 31		95	-	-
C1_Bedroom 32		95	-	-
C1_Bedroom 33		95	-	-
C1_Bedroom 34		95	-	-
C1_Bedroom 35		95	-	-
C1_Bedroom 36		95	-	-
C1_Bedroom 37		95	-	-
C1_Bedroom 38		95	-	-
C1_Bedroom 39		95	-	-
C1_Bedroom 40		95	-	-
C1_Bedroom 41		95	-	-
C1_Bedroom 42		95	-	-
C1_Bedroom 43		95	-	-
C1_Bedroom 44		95	-	-
C1_Bedroom 45		95	-	-
C1_Bedroom 46		95	-	-
C1_Bedroom 47		95	-	-
C1_Bedroom 48		95	-	-
C1_Bedroom 49		95	-	-
C1_Bedroom 50		95	-	-
C1_Bedroom 51		95	-	-
C1_Bedroom 52		95	-	-
C1_Bedroom 53		95	-	-
C1_Bedroom 54		95	-	-
C1_Bedroom 55		95	-	-
C1_Bedroom 56		95	-	-
C1_Bedroom 57		95	-	-
C1_Bedroom 58		95	-	-
C1_Bedroom 59		95	-	-
C1_Bedroom 60		95	-	-
C1_Bedroom 61		95	-	-
C1_Bedroom 62		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
C1_Bedroom 63		95	-	-
C1_Bedroom 64		95	-	-
C1_Bedroom 65		95	-	-
C1_Bedroom 66		95	-	-
C1_Bedroom 67		95	-	-
C1_Bedroom 68		95	-	-
C1_Bedroom 69		95	-	-
C1_Bedroom 70		95	-	-
C1_Bedroom 71		95	-	-
C1_Bedroom 72		95	-	-
C1_Bedroom 73		95	-	-
C1_Bedroom 74		95	-	-
C1_Bedroom 75		95	-	-
C1_Bedroom 76		95	-	-
C1_Bedroom 77		95	-	-
C1_Bedroom 78		95	-	-
C1_Bedroom 79		95	-	-
C1_Bedroom 80		95	-	-
C1_Bedroom 81		95	-	-
C1_Bedroom 82		95	-	-
C1_Bedroom 83		95	-	-
C1_Bedroom 84		95	-	-
C1_Bedroom 85		95	-	-
C1_Bedroom 86		95	-	-
C1_Bedroom 87		95	-	-
C1_Bedroom 88		95	-	-
C1_Bedroom 89		95	-	-
C1_Bedroom 90		95	-	-
C1_Bedroom 91		95	-	-
C1_Bedroom 92		95	-	-
C1_Bedroom 93		95	-	-
C1_Bedroom 94		95	-	-
C1_Bedroom 95		95	-	-
C1_Bedroom 96		95	-	-
C1_Bedroom 97		95	-	-
C1_Bedroom 98		95	-	-
C1_Bedroom 99		95	-	-
C1_Bedroom 100		95	-	-
C1_Bedroom 101		95	-	-
C1_Bedroom 102		95	-	-
C1_Bedroom 103		95	-	-
C1_Bedroom 104		95	-	-
C1_Bedroom 105		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
C1_Bedroom 106		95	-	-
C1_Bedroom 107		95	-	-
C1_Bedroom 108		95	-	-
C1_Bedroom 109		95	-	-
C1_Bedroom 110		95	-	-
C1_Bedroom 111		95	-	-
C1_Bedroom 112		95	-	-
C1_Bedroom 113		95	-	-
C1_Bedroom 114		95	-	-
C1_Bedroom 115		95	-	-
C1_Bedroom 116		95	-	-
C1_Bedroom 117		95	-	-
C1_Bedroom 118		95	-	-
C1_Bedroom 119		95	-	-
C1_Bedroom 120		95	-	-
C1_Bedroom 121		95	-	-
C1_Bedroom 122		95	-	-
C1_Bedroom 123		95	-	-
C1_Bedroom 124		95	-	-
C1_Bedroom 125		95	-	-
C1_Bedroom 126		95	-	-
C1_Bedroom 127		95	-	-
C1_Bedroom 128		95	-	-
C1_Bedroom 129		95	-	-
C1_Bedroom 130		95	-	-
C1_Bedroom 131		95	-	-
C1_Bedroom 132		95	-	-
C1_Bedroom 133		95	-	-
C1_Bedroom 134		95	-	-
C1_Bedroom 135		95	-	-
C1_Bedroom 136		95	-	-
C1_Bedroom 137		95	-	-
C1_Bedroom 138		95	-	-
C1_Bedroom 139		95	-	-
C1_Bedroom 140		95	-	-
C1_Bedroom 141		95	-	-
C1_Bedroom 142		95	-	-
C1_Bedroom 143		95	-	-
C1_Bedroom 144		95	-	-
C1_Bedroom 145		95	-	-
C1_Bedroom 146		95	-	-
C1_Bedroom 147		95	-	-
C1_Bedroom 148		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
C1_Bedroom 149		95	-	-
C1_Bedroom 150		95	-	-
C1_Bedroom 151		95	-	-
C1_Bedroom 152		95	-	-
C1_Bedroom 153		95	-	-
C1_Bedroom 154		95	-	-
C1_Plant 1		95	-	-
C1_Plant 2		95	-	-
C1_Plant 3		95	-	-
C1_Store 1		95	-	-
C1_Store 2		95	-	-
C1_Store 3		95	-	-
C1_Store 4		95	-	-
C1_Store 5		95	-	-
C1_Store 6		95	-	-
C1_Store 7		95	-	-
C1_Store 8		95	-	-
C1_Store 9		95	-	-
C1_Store 10		95	-	-
C1_Store 11		95	-	-
C1_Store 12		95	-	-
C1_Store 13		95	-	-
C1_Circulation Bdrm Corridors, lifts, stairs 1		95	-	-
C1_Circulation Bdrm Corridors, lifts, stairs 2		95	-	-
C1_Circulation Bdrm Corridors, lifts, stairs 3		95	-	-
C1_Circulation Bdrm Corridors, lifts, stairs 4		95	-	-
C1_Circulation Bdrm Corridors, lifts, stairs 5		95	-	-
C1_Circulation Bdrm Corridors, lifts, stairs 6		95	-	-
C1_Circulation Bdrm Corridors, lifts, stairs 7		95	-	-
C1_Circulation Bdrm Corridors, lifts, stairs 8		95	-	-
C1_Circulation Bdrm Corridors, lifts, stairs 9		95	-	-
C1_Circulation Bdrm Corridors, lifts, stairs 10		95	-	-
C1_Circulation Bdrm Corridors, lifts, stairs 11		95	-	-
C1_Circulation Bdrm Corridors, lifts, stairs 12		95	-	-
C1_Circulation Bdrm Corridors, lifts, stairs 13		95	-	-
C1_Circulation Bdrm Corridors, lifts, stairs 14		95	-	-
C1_Circulation Bdrm Corridors, lifts, stairs 15		95	-	-
C1_Circulation Bdrm Corridors, lifts, stairs 16		95	-	-
C1_Circulation Bdrm Corridors, lifts, stairs 17		95	-	-
C1_Circulation Bdrm Corridors, lifts, stairs 18		95	-	-
C1_Circulation Bdrm Corridors, lifts, stairs 19		95	-	-
C1_Circulation Bdrm Corridors, lifts, stairs 20		95	-	-
C1_Circulation Bdrm Corridors, lifts, stairs 21		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
C1_Circulation Bdrm Corridors, lifts, stairs 22		95	-	-
C1_Circulation Bdrm Corridors, lifts, stairs 23		95	-	-
C1_Circulation Bdrm Corridors, lifts, stairs 24		95	-	-
C1_Circulation Bdrm Corridors, lifts, stairs 25		95	-	-
C1_Circulation Bdrm Corridors, lifts, stairs 26		95	-	-
C1_Circulation Bdrm Corridors, lifts, stairs 27		95	-	-
C1_Circulation Bdrm Corridors, lifts, stairs 28		95	-	-
C1_Circulation Bdrm Corridors, lifts, stairs 29		95	-	-
C1_Circulation Bdrm Corridors, lifts, stairs 30		95	-	-
C1_Circulation Bdrm Corridors, lifts, stairs 31		95	-	-
C1_Circulation Bdrm Corridors, lifts, stairs 32		95	-	-
C1_Circulation Bdrm Corridors, lifts, stairs 33		95	-	-
C1_Circulation Bdrm Corridors, lifts, stairs 34		95	-	-
C1_Circulation Bdrm Corridors, lifts, stairs 35		95	-	-
C1_Circulation Bdrm Corridors, lifts, stairs 36		95	-	-
C1_Circulation Bdrm Corridors, lifts, stairs 37		95	-	-
C1_Circulation Bdrm Corridors, lifts, stairs 38		95	-	-
C1_Circulation Bdrm Corridors, lifts, stairs 39		95	-	-
C1_Circulation Bdrm Corridors, lifts, stairs 40		95	-	-
C1_Circulation Bdrm Corridors, lifts, stairs 41		95	-	-
C1_Circulation Bdrm Corridors, lifts, stairs 42		95	-	-
C1_Circulation Bdrm Corridors, lifts, stairs 43		95	-	-
C1_Circulation Bdrm Corridors, lifts, stairs 44		95	-	-
C1_Circulation Bdrm Corridors, lifts, stairs 45		95	-	-
C1_Circulation Bdrm Corridors, lifts, stairs 46		95	-	-
C1_Circulation Bdrm Corridors, lifts, stairs 47		95	-	-
C1_Circulation Bdrm Corridors, lifts, stairs 48		95	-	-
C1_Circulation Bdrm Corridors, lifts, stairs 49		95	-	-
C1_Circulation Bdrm Corridors, lifts, stairs 50		95	-	-
C1_Circulation Bdrm Corridors, lifts, stairs 51		95	-	-
C1_Circulation Bdrm Corridors, lifts, stairs 52		95	-	-
C1_Store - Linen 1		95	-	-
C1_Store - Linen 2		95	-	-
C1_Store - Linen 3		95	-	-
C1_Store - Linen 4		95	-	-
C1_Store - Linen 5		95	-	-
C1_Store - Linen 6		95	-	-
C1_Store - Linen 7		95	-	-
C1_Office 1		95	-	-
C1_Office 3		95	-	-
C1_Office 4		95	-	-
C1_Office 5		95	-	-
C1_Office 6		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
C1_Toilet 1		95	-	-
C1_Toilet 2		95	-	-
C1_Toilet 3		95	-	-
C1_Reception 1		95	95	-
C1_FoodPrep 1		95	-	-
C1_EatDrink 1		95	95	-
C1_EatDrink 2		95	95	-
C1_Circulation 1		95	-	-
C1_Changing 1		95	-	-
C1_Changing 2		95	-	-
C1_EatDrink 3		95	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?
C1_Bedroom 1	NO (-25%)	NO
C1_Bedroom 2	NO (-19%)	NO
C1_Bedroom 3	NO (-19%)	NO
C1_Bedroom 4	NO (-29%)	NO
C1_Bedroom 5	NO (-22%)	NO
C1_Bedroom 6	NO (-18%)	NO
C1_Bedroom 7	NO (-18%)	NO
C1_Bedroom 8	NO (-19%)	NO
C1_Bedroom 9	NO (-18%)	NO
C1_Bedroom 10	NO (-19%)	NO
C1_Bedroom 11	NO (-18%)	NO
C1_Bedroom 12	NO (-19%)	NO
C1_Bedroom 13	NO (-19%)	NO
C1_Bedroom 14	NO (-19%)	NO
C1_Bedroom 15	NO (-72%)	NO
C1_Bedroom 16	NO (-33%)	NO
C1_Bedroom 17	NO (-38%)	NO
C1_Bedroom 18	NO (-38%)	NO
C1_Bedroom 19	NO (-37%)	NO
C1_Bedroom 20	NO (-37%)	NO
C1_Bedroom 21	NO (-38%)	NO
C1_Bedroom 22	NO (-37%)	NO
C1_Bedroom 23	NO (-38%)	NO
C1_Bedroom 24	NO (-37%)	NO
C1_Bedroom 25	NO (-38%)	NO
C1_Bedroom 26	NO (-38%)	NO
C1_Bedroom 27	NO (-38%)	NO
C1_Bedroom 28	NO (-25%)	NO
C1_Bedroom 29	NO (-19%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
C1_Bedroom 30	NO (-19%)	NO
C1_Bedroom 31	NO (-29%)	NO
C1_Bedroom 32	NO (-22%)	NO
C1_Bedroom 33	NO (-18%)	NO
C1_Bedroom 34	NO (-18%)	NO
C1_Bedroom 35	NO (-19%)	NO
C1_Bedroom 36	NO (-18%)	NO
C1_Bedroom 37	NO (-19%)	NO
C1_Bedroom 38	NO (-18%)	NO
C1_Bedroom 39	NO (-19%)	NO
C1_Bedroom 40	NO (-19%)	NO
C1_Bedroom 41	NO (-19%)	NO
C1_Bedroom 42	NO (-72%)	NO
C1_Bedroom 43	NO (-33%)	NO
C1_Bedroom 44	NO (-38%)	NO
C1_Bedroom 45	NO (-38%)	NO
C1_Bedroom 46	NO (-37%)	NO
C1_Bedroom 47	NO (-37%)	NO
C1_Bedroom 48	NO (-38%)	NO
C1_Bedroom 49	NO (-37%)	NO
C1_Bedroom 50	NO (-38%)	NO
C1_Bedroom 51	NO (-37%)	NO
C1_Bedroom 52	NO (-38%)	NO
C1_Bedroom 53	NO (-38%)	NO
C1_Bedroom 54	NO (-38%)	NO
C1_Bedroom 55	NO (-25%)	NO
C1_Bedroom 56	NO (-19%)	NO
C1_Bedroom 57	NO (-19%)	NO
C1_Bedroom 58	NO (-29%)	NO
C1_Bedroom 59	NO (-22%)	NO
C1_Bedroom 60	NO (-18%)	NO
C1_Bedroom 61	NO (-18%)	NO
C1_Bedroom 62	NO (-19%)	NO
C1_Bedroom 63	NO (-18%)	NO
C1_Bedroom 64	NO (-19%)	NO
C1_Bedroom 65	NO (-18%)	NO
C1_Bedroom 66	NO (-19%)	NO
C1_Bedroom 67	NO (-19%)	NO
C1_Bedroom 68	NO (-19%)	NO
C1_Bedroom 69	NO (-72%)	NO
C1_Bedroom 70	NO (-33%)	NO
C1_Bedroom 71	NO (-38%)	NO
C1_Bedroom 72	NO (-38%)	NO
C1_Bedroom 73	NO (-37%)	NO
C1_Bedroom 74	NO (-37%)	NO
C1_Bedroom 75	NO (-38%)	NO
C1_Bedroom 76	NO (-37%)	NO
C1_Bedroom 77	NO (-38%)	NO
C1_Bedroom 78	NO (-37%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
C1_Bedroom 79	NO (-38%)	NO
C1_Bedroom 80	NO (-38%)	NO
C1_Bedroom 81	NO (-38%)	NO
C1_Bedroom 82	NO (-25%)	NO
C1_Bedroom 83	NO (-19%)	NO
C1_Bedroom 84	NO (-19%)	NO
C1_Bedroom 85	NO (-29%)	NO
C1_Bedroom 86	NO (-22%)	NO
C1_Bedroom 87	NO (-18%)	NO
C1_Bedroom 88	NO (-18%)	NO
C1_Bedroom 89	NO (-19%)	NO
C1_Bedroom 90	NO (-18%)	NO
C1_Bedroom 91	NO (-19%)	NO
C1_Bedroom 92	NO (-18%)	NO
C1_Bedroom 93	NO (-19%)	NO
C1_Bedroom 94	NO (-19%)	NO
C1_Bedroom 95	NO (-19%)	NO
C1_Bedroom 96	NO (-72%)	NO
C1_Bedroom 97	NO (-33%)	NO
C1_Bedroom 98	NO (-38%)	NO
C1_Bedroom 99	NO (-38%)	NO
C1_Bedroom 100	NO (-37%)	NO
C1_Bedroom 101	NO (-37%)	NO
C1_Bedroom 102	NO (-38%)	NO
C1_Bedroom 103	NO (-37%)	NO
C1_Bedroom 104	NO (-38%)	NO
C1_Bedroom 105	NO (-37%)	NO
C1_Bedroom 106	NO (-38%)	NO
C1_Bedroom 107	NO (-38%)	NO
C1_Bedroom 108	NO (-38%)	NO
C1_Bedroom 109	NO (-25%)	NO
C1_Bedroom 110	NO (-19%)	NO
C1_Bedroom 111	NO (-19%)	NO
C1_Bedroom 112	NO (-29%)	NO
C1_Bedroom 113	NO (-22%)	NO
C1_Bedroom 114	NO (-18%)	NO
C1_Bedroom 115	NO (-18%)	NO
C1_Bedroom 116	NO (-19%)	NO
C1_Bedroom 117	NO (-18%)	NO
C1_Bedroom 118	NO (-19%)	NO
C1_Bedroom 119	NO (-18%)	NO
C1_Bedroom 120	NO (-19%)	NO
C1_Bedroom 121	NO (-19%)	NO
C1_Bedroom 122	NO (-19%)	NO
C1_Bedroom 123	NO (-72%)	NO
C1_Bedroom 124	NO (-33%)	NO
C1_Bedroom 125	NO (-38%)	NO
C1_Bedroom 126	NO (-38%)	NO
C1_Bedroom 127	NO (-37%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
C1_Bedroom 128	NO (-37%)	NO
C1_Bedroom 129	NO (-38%)	NO
C1_Bedroom 130	NO (-37%)	NO
C1_Bedroom 131	NO (-38%)	NO
C1_Bedroom 132	NO (-37%)	NO
C1_Bedroom 133	NO (-38%)	NO
C1_Bedroom 134	NO (-38%)	NO
C1_Bedroom 135	NO (-38%)	NO
C1_Bedroom 136	NO (-34%)	NO
C1_Bedroom 137	NO (-16%)	NO
C1_Bedroom 138	NO (-27%)	NO
C1_Bedroom 139	NO (-18%)	NO
C1_Bedroom 140	NO (-18%)	NO
C1_Bedroom 141	NO (-19%)	NO
C1_Bedroom 142	NO (-18%)	NO
C1_Bedroom 143	NO (-19%)	NO
C1_Bedroom 144	NO (-18%)	NO
C1_Bedroom 145	NO (-19%)	NO
C1_Bedroom 146	NO (-19%)	NO
C1_Bedroom 147	NO (-19%)	NO
C1_Bedroom 148	NO (-72%)	NO
C1_Bedroom 149	NO (-35%)	NO
C1_Bedroom 150	NO (-38%)	NO
C1_Bedroom 151	NO (-37%)	NO
C1_Bedroom 152	NO (-37%)	NO
C1_Bedroom 153	NO (-38%)	NO
C1_Bedroom 154	NO (-37%)	NO
C1_Office 1	YES (+8%)	NO
C1_Office 3	N/A	N/A
C1_Office 4	N/A	N/A
C1_Office 5	N/A	N/A
C1_Office 6	N/A	N/A
C1_Reception 1	NO (-18%)	NO
C1_FoodPrep 1	N/A	N/A
C1_EatDrink 1	NO (-5%)	NO
C1_EatDrink 2	YES (+8%)	NO
C1_EatDrink 3	N/A	N/A

Regulation 25A: Consideration of high efficiency alternative energy systems

Were alternative energy systems considered and analysed as part of the design process?	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]	7332	7332
External area [m ²]	6539	6539
Weather	MAN	MAN
Infiltration [m ³ /hm ² @ 50Pa]	5	3
Average conductance [W/K]	3092	2464
Average U-value [W/m ² K]	0.47	0.38
Alpha value* [%]	25.11	10.11

* 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
100	Hotels
	Residential Institutions: Hospitals and Care Homes
	Residential Institutions: Residential Schools
	Residential Institutions: Universities and Colleges
	Secure Residential Institutions
	Residential Spaces
	Non-residential Institutions: Community/Day Centre
	Non-residential Institutions: Libraries, Museums, and Galleries
	Non-residential Institutions: Education
	Non-residential Institutions: Primary Health Care Building
	Non-residential Institutions: Crown and County Courts
	General Assembly and Leisure, Night Clubs, and Theatres
	Others: Passenger Terminals
	Others: Emergency Services
	Others: Miscellaneous 24hr Activities
	Others: Car Parks 24 hrs
	Others: Stand Alone Utility Block

Energy Consumption by End Use [kWh/m²]

	Actual	Notional
Heating	13.33	4.76
Cooling	1.34	2.46
Auxiliary	8.7	6.04
Lighting	10.47	8.03
Hot water	64.05	71.21
Equipment*	62.33	62.33
TOTAL**	97.89	92.51

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

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

Energy Production by Technology [kWh/m²]

	Actual	Notional
Photovoltaic systems	16.64	3
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0
<i>Displaced electricity</i>	<i>16.64</i>	<i>3</i>

Energy & CO₂ Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m ²]	93.56	67
Primary energy [kWh _{PE} /m ²]	124.46	132.24
Total emissions [kg/m ²]	11.67	12.18

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 SSEFF	Cool SSEER	Heat gen SEFF	Cool gen SEER
[ST] Other local room heater - unfanned, [HS] Direct or storage electric heater, [HFT] Electricity, [CFT] Electricity									
Actual	109.7	0	30.5	0	0	1	0	1	0
Notional	56.6	0	11.7	0	0	1.34	0	----	----
[ST] Variable refrigerant flow, [HS] ASHP, [HFT] Electricity, [CFT] Electricity									
Actual	33.8	28.2	2.3	1.1	4.8	4	6.85	4	6.85
Notional	5.2	38.6	0.6	2.4	3	2.64	4.4	----	----
[ST] Other local room heater - unfanned, [HS] Direct or storage electric heater, [HFT] Electricity, [CFT] Electricity									
Actual	235.3	0	65.4	0	29.9	1	0	1	0
Notional	110	0	22.8	0	24.7	1.34	0	----	----
[ST] Split or multi-split system, [HS] ASHP, [HFT] Electricity, [CFT] Electricity									
Actual	24	70.6	1.9	3.3	15.9	3.51	5.92	3.51	5.92
Notional	5.9	112.6	0.6	7.1	7.3	2.64	4.4	----	----
[ST] Other local room heater - unfanned, [HS] Direct or storage electric heater, [HFT] Electricity, [CFT] Electricity									
Actual	61.8	0	17.2	0	16.1	1	0	1	0
Notional	41.8	0	8.7	0	21.4	1.34	0	----	----
[ST] Other local room heater - unfanned, [HS] Direct or storage electric heater, [HFT] Electricity, [CFT] Electricity									
Actual	54.3	0	15.1	0	0	1	0	1	0
Notional	39.8	0	8.3	0	0	1.34	0	----	----
[ST] Other local room heater - unfanned, [HS] Direct or storage electric heater, [HFT] Electricity, [CFT] Electricity									
Actual	33.8	0	9.4	0	9.6	1	0	1	0
Notional	2.9	0	0.6	0	10.2	1.34	0	----	----
[ST] Split or multi-split system, [HS] ASHP, [HFT] Electricity, [CFT] Electricity									
Actual	0	623.5	0	29.3	31.6	0	5.92	0	5.92
Notional	0	700.8	0	44.2	13.5	0	4.4	----	----

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