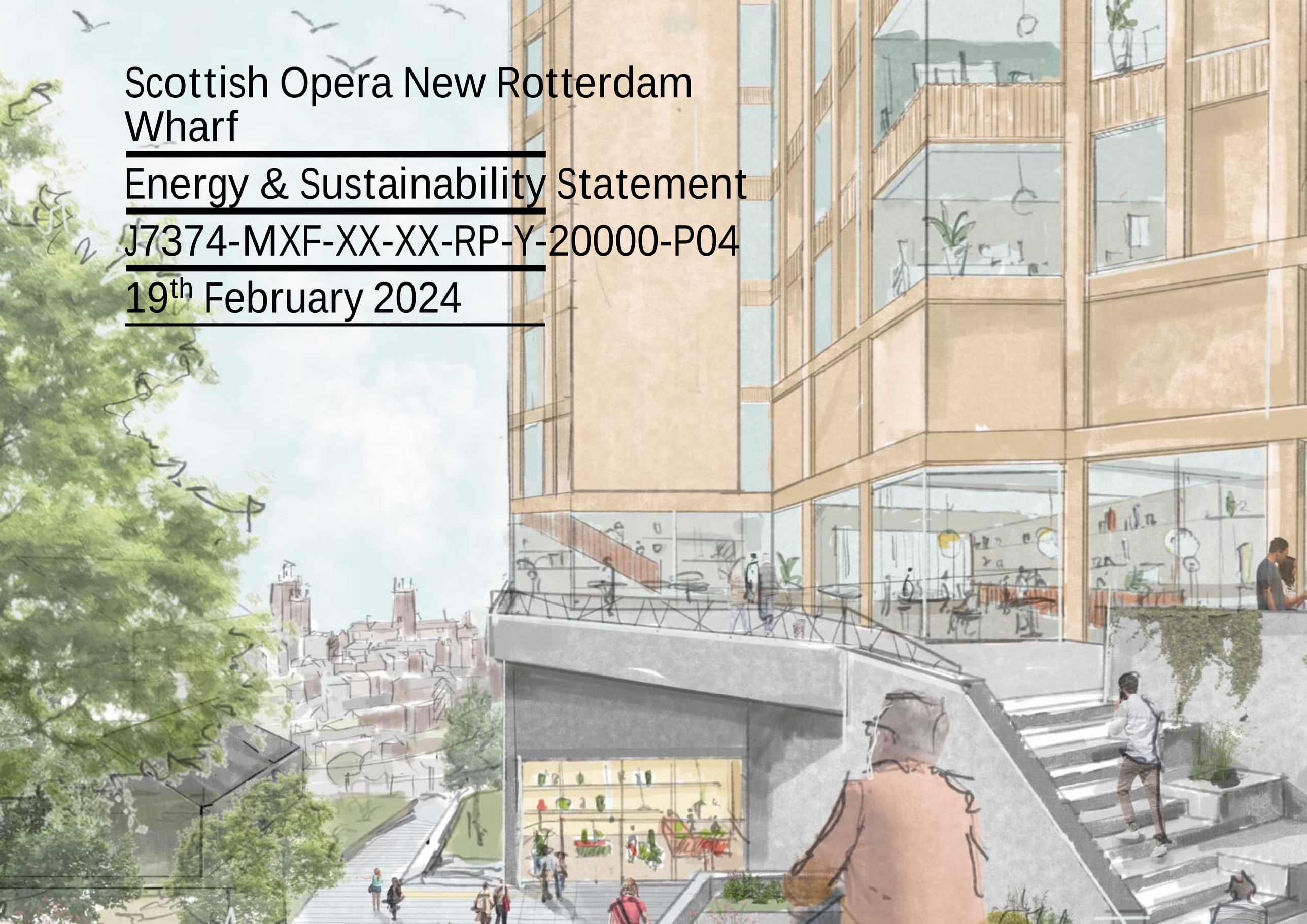
Scottish Opera New Rotterdam Wharf

Energy & Sustainability Statement

J7374-MXF-XX-XX-RP-Y-20000-P04

19th February 2024



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ISSUE HISTORY

Issue	Date	Description
P04	19/02/24	For Planning Submission

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Engineer (Initials)	Role
MF	Sustainability Consultant
IB	Principal Sustainability Consultant
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1.0 EXECUTIVE SUMMARY

This Energy and Sustainability Statement summarises how the proposed New Rotterdam Wharf development fulfils the energy and sustainability requirements set out in National Planning Policy Framework 4 and the Glasgow City Development Plan. It describes the key design aspects and strategies that will be adopted during the construction and operational phases of the development.

1.1 Planning Requirements

There are several key policy documents that the proposed development must comply with in relation to sustainability, most notably those below:

- National Planning Policy Framework 4 (2021)
- Glasgow City Development Plan (2017)
- City Development Plan Supplementary Guidance
- SG5: Resource Management
- Glasgow City Council Local Heat and Energy Efficiency Strategy
- Building Standards Section 6 and Section 7

A summary of these policies is provided in *APPENDIX I – Sustainability Focused Planning Policy* and how the development adheres to these policies is outlined in Sections 3-8 of this statement. The table in section 1.2 summarises how each policy is addressed.

Figure 1 - Planning Policy Documents

1.2 Energy and Sustainability Strategy

Energy Efficient Design
Energy modelling of the New Rotterdam Wharf development demonstrates that it complies with applicable energy planning policies and incorporates measures to minimise and adapt to climate change.

Passive design measures have been proposed which include highly efficient fabric, natural ventilation, efficient mechanical ventilation with heat recovery and high efficiency lighting.

Provision of a heat network using Air Source Heat Pumps (ASHP) is being proposed as the primary source to deliver domestic hot water and heating in the buildings. In addition, solar PV is proposed on appropriate areas of roof to maximise CO_2 reductions achieved on site.

The building's energy usage will be monitored with a comprehensive set of energy sub-meters. Further, occupants will also be able to monitor and manage their energy usage.

Thermal analysis has been undertaken to inform the building design and minimise the risk of overheating with passive design measures such as openable windows and external shading elements. An overheating risk analysis has been undertaken for the development.

Low and Zero Carbon Technology
A Low and Zero Carbon Generating Technology (LZCGT) feasibility study was carried out for the development. This looked into the potential for using a variety of technologies. Suitability, carbon emissions, and cost were considered, and it was concluded that PVs and ASHPs are the most suitable technologies for this application.

Resource Management
To comply with policy CDP5, the intention is to source materials responsibly and reduce embodied carbon impacts by specifying low carbon and locally sourced material options where possible. All the timber will be FSC certified and legally sourced.

The management, disposal and recycling of waste generated during the construction and operational phases will be managed efficiently and meet targets set in the City Development Plan (CDP5).

The development aims to promote a circular economy approach that improves resource efficiency and innovation. Designing for future adaptability will be central to the development ensuring that any products and materials used are suitable for long term use and ease of adaption to minimise lifetime embodied carbon emissions.

Health and Wellbeing
The health and wellbeing of occupants has been coded into the development of the energy and sustainability strategies for the development. A noise impact assessment has been carried out and recommendations made to ensure the impact of the development on the surrounding area is low for local residents. Air quality and overheating have also been central to the building fabric design and the M&E strategy developed.

Sustainable Travel
The development will provide both cycle and car parking in line with the requirements in the CDP Supplementary Guidance (SG8). This will include Electric Vehicle charging spaces and cyclist facilities in the Scottish Opera building. Connections will be established to nearby cycle, walking and wheeling pathways. The development is located close to amenities, including public transport facilities, promoting the idea of Local Living and the 20-minute neighbourhood.

Landscape Design
The proposal aims to enhance the ecological benefits of the site by creating outdoor spaces which positively contribute to biodiversity through species-rich planting, and increased provision of higher quality outdoor spaces. This shall be met through:

- Standard trees
- Roof garden
- Raingardens
- Planted areas around the site
- Connection to the nearby canal
- Permeable paving

Water Efficiency and Flood Risk
The development is aiming to reduce mains water consumption. This reduction will be achieved by specifying low flow and low flush fittings, providing water metering, a leak detection system, and flow control devices.

A Flood Risk Assessment has been completed for the development and confirms the site as low-risk from all types of flooding. A surface water drainage strategy has been developed using best practice and using a combination of Sustainable Drainage Systems (SUDS), including green roofs, raingardens, and permeable/porous pavement.

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New Rotterdam Wharf Policy Matrix

Policy No	Theme	Energy Efficient Design	Low and Zero Carbon Technology	Resource Management	Sustainable Travel	Landscape Design	Water Efficiency and Flood Risk
Glasgow City Development Plan 2017							
CDP1	The Placemaking Principle	✓		✓	✓	✓	✓
CDP2	Sustainable Spatial Strategy				✓	✓	✓
CDP5	Resource Management	✓	✓	✓			
CDP7	Natural Environment					✓	
CDP8	Water Environment						✓
CDP10	Meeting Housing Needs				✓		
CDP11	Sustainable Transport				✓		
CDP Supplementary Guidance							
SG1	The Placemaking Principle	✓		✓	✓	✓	✓
SG2	Sustainable Spatial Strategy				✓	✓	✓
SG5	Resource Management	✓	✓	✓			
SG7	Natural Environment					✓	
SG8	Water Environment						✓
SG10	Meeting Housing Needs				✓		
SG11	Sustainable Transport				✓		
National Planning Framework 4							
P1	Tackling the Climate and nature crises	✓		✓		✓	✓
P2	Climate mitigation and adaptation	✓					
P3	Biodiversity					✓	
P9	Brownfield, vacant and derelict land, and empty buildings					✓	
P11	Energy	✓	✓				
P12	Zero waste			✓			
P13	Sustainable transport				✓		
P14	Design, quality and place	✓		✓	✓	✓	
P15	Local Living and 20 minute neighbourhoods				✓		
P18	Infrastructure	✓	✓				
P19	Heat and cooling	✓	✓				
P20	Blue and green infratructure					✓	✓
P22	Flood risk and water management						✓

Figure 2 – Map of Response to Policy

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2.0 INTRODUCTION

2.1 Development Summary

The proposal is for a new rehearsal and office space for Scottish Opera, and two Blocks of Purpose-Built Student Accommodation (PBSA). The construction of this development will allow Scottish Opera to streamline their operations into one site and create a cultural centre, incorporating several sites spread across the city.

The Scottish Opera (SO) building comprises basement, ground floor and first floor, then two 2-storey pavilions on the roof, surrounding a courtyard garden. The orchestra rehearsal space uses the full height of the main building. The building will be connected to the existing Scottish Opera Production Studios adjacent. The existing building will be reconfigured internally, and the entrance to the existing building developed.

Both PBSA blocks are made up of two intersecting volumes of differing scales. The north block rises 20 storeys above Edington Street at its western side, whilst at the eastern side the lower volume is 13 storeys high – although with the 3-storey difference in height between Edington Street and the canal towpath, this north eastern volume only rises 10 storeys above the level of the canal towpath.

The south block rises 15 storeys above Edington Street at its western side, whilst at the eastern side the lower volume is 10 storeys high - although with the 3-storey difference in height between Edington Street and the canal towpath, this south eastern volume only rises 7 storeys above the level of the canal towpath.

Figure 3 – Image of proposed Development

2.2 Site Location

The site is located in North Glasgow. The site sits between the existing Scottish Opera Production Studio and the Forth and Clyde Canal, neighbouring the historic Spiers Wharf. There are a variety of other creative and cultural workplaces and buildings in the surrounding area, such as the newly developed Civic House and Wallace Studios – part of the Royal Conservatoire of Scotland. The site is well connected by road and public transport and can be reached on foot from major transport hubs due to its proximity to Glasgow City Centre.

It is a brownfield site, so by developing here the project complies with *CDP 2 Sustainable Spatial Strategy*. As the site location is next to the existing SO Production Studios, this allows the buildings to be connected and concentrates SO's operations at one site, rather than at separate sites across Greater Glasgow. This will reduce travel between the locations, allowing the organisation to operate more efficiently.

Figure 4 - Site Location as existing

3.0 ENERGY EFFICIENT DESIGN

Throughout the design of the New Rotterdam Wharf development, considerations of energy efficiency in the building and system design have been paramount.

A holistic design approach has been taken, tailored to meet the guidance and principles set out in Supplementary Guidance SG1 (Part 2 Section 1 Sustainable Development). Various tools and approaches have been used to ensure energy efficient design, including detailed studies to optimise and balance the competing needs of daylight and overheating risk, and use of a well-established energy hierarchy to prioritise the most impactful and best value energy reduction measures. The potential impact on surrounding buildings has also been considered via a daylight and sunlight assessment and external CFD modelling to ensure no unacceptable overshading or unforeseen wind patterns are introduced to the area.

In this section we describe these studies, before working through the energy hierarchy to describe the efficiency measures implemented at each stage.

3.1 Environmental Design Measures

In response to Glasgow City Development Plan CDP1 and CDP5 + SG1 and SG5 + National Planning Framework 4 Policy 1, Policy 2 and Policy 11

Environmental analysis studies have been carried out to inform the overarching design principles for the new development. This has included sophisticated daylight modelling, analysis of comfort and summertime temperatures and detailed computational fluid dynamics (CFD) modelling of wind patterns.

Glazing ratios have been optimised to balance good daylight and occupant wellbeing with efficient thermal performance and avoiding excessive solar gain in summer months that can lead to overheating as the effects of climate change become apparent.

The interior daylighting for studio flats was examined and the results were highly positive in terms of interior daylighting. No rooms studied failed the daylighting recommendations from the National Annex of BE EN 17037:2018. Care has been taken with the arrangement of spaces and locating studios of different sizes. Further detail on this is given in the '*Daylight and Sunlight Report*'

Careful consideration has been given to placement of different types of accommodation. Larger studios with kitchens, which benefit from higher daylight levels, are placed on southern façades. This, coupled with the placing of smaller studios on northern façades, allow them to reach the recommended daylight illuminances. The façade design influenced by this daylighting analysis was tested in the overheating risk assessment and found to be compatible with a low overheating risk.

The impact on daylight to surrounding properties was also studied and found to be negligible. Further details are set out in the attached document '*Daylight and Sunlight Report*'.

CFD modelling of the changes to wind patterns as a result of the development has shown that the development does not have an adverse effect on the surrounding area. In fact, it has a beneficial effect on Speirs Wharf by providing shelter and reducing wind speeds. Furthermore, no downdraught effect was recorded in the model. Refer to *Wind Microclimate Report* for further details.

There is some channelling effect to the north-west of the development. However, any risk of discomfort for passers-by in the reasonable worst-case scenario of strong wind from the south-west can be mitigated by careful landscaping. A further simulation has been run with a more careful rendition of the geometry of the area, which is stepped. This is already enough to considerably reduce wind speed in the area. Considering that the complete landscaping will also include some soft elements, such as small trees, bushes, etc. our studies have deemed this to be sufficient to considerably reduce potential discomfort in this area.

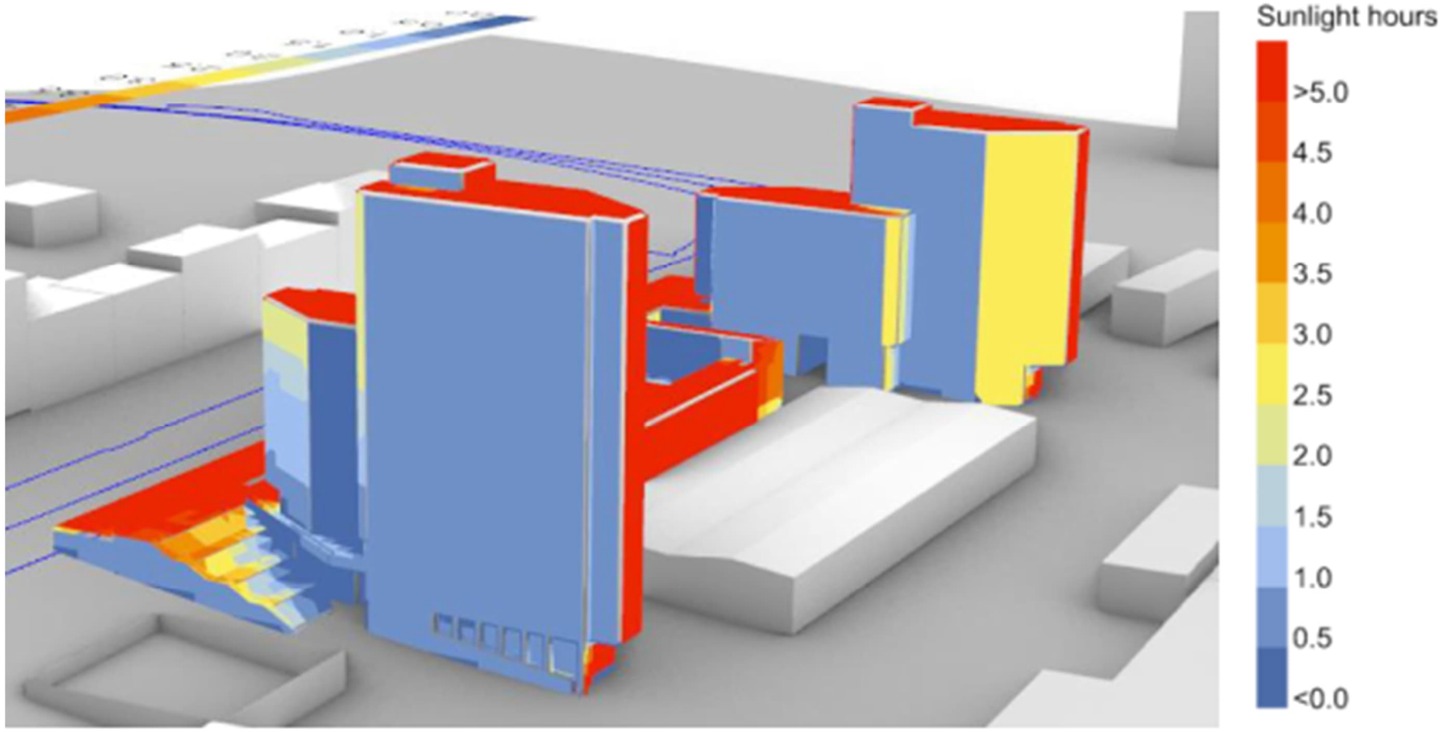

Figure 5 - Sunlight Hours Simulation

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3.2 Resource Management

In response to Glasgow City Development Plan CDP1 and CDP5 + SG1, 5. Detailed Design and SG5, 6. Waste + National Planning Framework 4 Policy 2, Policy 11 and Policy 19

Energy Hierarchy
In the design of this development, the energy hierarchy illustrated in Error! Reference source not found. has been followed.

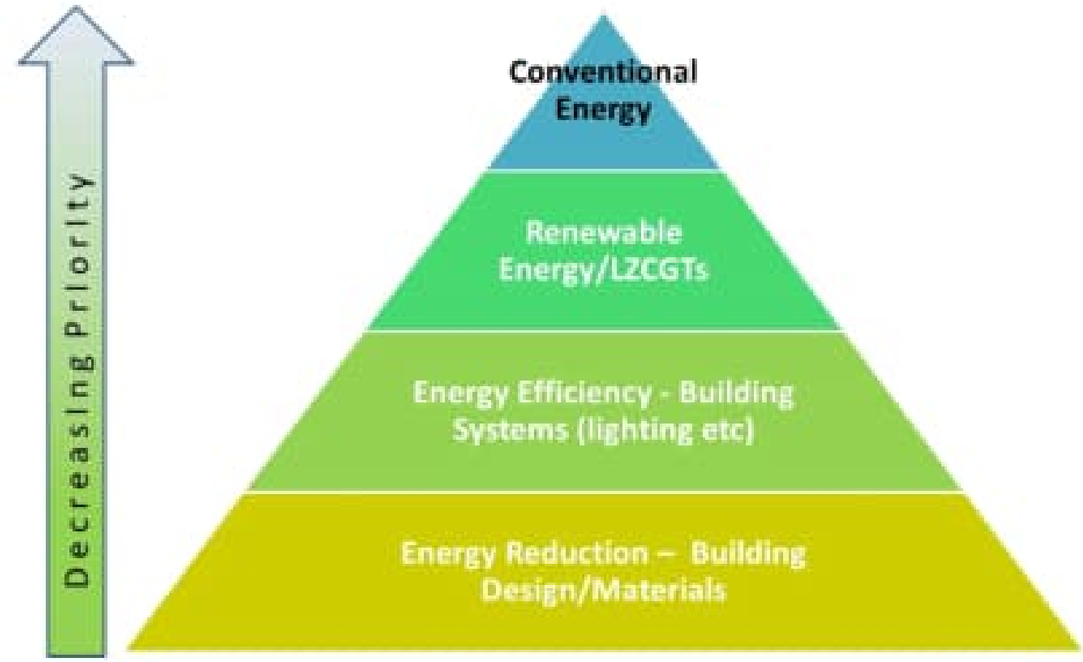
This scheme places the cheapest and most effective means of reducing energy consumption at the bottom of the pyramid, and thus prioritises them above all other measures. Measures implemented at this stage of the hierarchy are primarily passive, and consequently low cost, yet, if carefully considered, they can have the biggest impact on the building's energy consumption – for example, building form, orientation, building fabric and façade design. A series of workshops have been held with passive design experts and the wider design team to optimise these aspects of design.

The subsequent step implements demand reduction measures via the building's active systems. As well as selecting and specifying efficient plant and equipment, such as pumps, fans and light fittings, the way in which they are configured and operated is also key at this stage – with system architecture and controls having a significant impact on the operational energy of the specified systems.

Having reduced the building's energy demand in the first two stages, the hierarchy now switches focus to supplying the remaining energy needs efficiently – where possible, using low or zero carbon generating technologies. This technology can be expensive, and so careful consideration of its suitability both for the site and for the building's energy strategy is required. Refer to Section 4.0 for the LZCGT feasibility study for this development.

Finally, any remaining energy needs of the development must be met through conventional sources – in this case, via a connection to the electricity grid. However, where the previous stages have been successful, there should be a much reduced energy demand left to meet.

Figure 6 - Energy Hierarchy



Energy Reduction - Building Design/Materials
Fabric Performance

Heat loss, and consequently much of the heating energy demand, is reduced by achieving low building fabric U-values. The Section 6 notional building achieves a very high standard of thermal performance, and so serves as a useful benchmark against which to compare performance. However, a balance must be achieved – beyond a certain insulation thickness, additional energy savings diminish and more of the useful floor area is lost to the construction thicknesses – this is particularly relevant to external wall build-ups. As such, it makes more sense to focus improvements on the roof and floor where a greater insulation depth is more easily accommodated. Refer to Error! Reference source not found. for a summary of the proposed fabric performance for this development, alongside those of the notional building.

Table 1 - Building Fabric

Fabric Element	Building Fabric Performance		
	Section 6 Notional Building	Proposed Targets (W/m²K)	
		PBSA	Scottish Opera
U-values			
Windows	1.2	0.8	1.2
Ground/Exposed Floors	0.13	0.1	0.1
External Walls	0.15	0.15	0.15
Roof	0.11	0.1	0.1
Air Permeability (m³/h.m²@50Pa)	4	4	4

Air Tightness
A high level of air tightness is important for the energy efficiency of buildings and the comfort of occupants. Targeting a low air tightness figure means the benefits of improved insulation and energy efficient systems are maintained as air leakage is minimised an most benefit is achieved from having a controlled ventilation system, such as MVHR. The target air tightness is shown in Error! Reference source not found..

Solar Control
Excessive solar heat gains are mitigated through a combination of shading from the roof, structural elements of the façade, surrounding buildings, and the use of solar control glass. The two PBSA blocks are orientated with their long façades facing due north and south, thus facilitating straightforward solar measures and optimising passive winter solar heating.

An architectural mesh is proposed for the Scottish Opera building to assist in limitation of solar gains.

Energy Efficiency - Building Systems
Space Heating and DHW

The heating strategy across the development has been tailored to prioritise high efficiency systems where they will have the most impact, while minimising distribution losses and embodied carbon. To do this the energy demand of the different building types has been carefully considered – refer to Figure 7 and Figure 8 for charts illustrating this breakdown for the PBSA and Scottish Opera Rehearsal Building.

As can be seen, the dominant load for the PBSA blocks is expected to be domestic hot water (DHW). This is due to the high-density of residential accommodation in the blocks – with each resident using broadly the same amount of DHW, this load increases proportionally to the number of rooms in the block. On the other hand, the larger the block, the slower the increase in demand for heating – due to improved form factor and consequent limited amount of external envelope per room. This is reflected across the many similar developments we have designed and is an important consideration in the energy strategy.

For the PBSA blocks a strategy comprising a heat pump to generate DHW, with space heating provided by local electric panel heaters is proposed. As well as matching the most efficient technology to the highest demand, this approach also facilitates easy maintenance, resilience, and minimises auxiliary energy use. A reversible heat pump is proposed to provide heating and cooling for the communal amenity spaces in the PBSA blocks.

On the other hand, as can be seen, the dominant load for the rehearsal building is space heating, with a relatively small DHW load – which again fits with expectations for buildings of this type. Additionally, it is expected that DHW use in this building will consist of low demands, widely distributed across the building – in other words, primarily handwashing associated with the WCs.

The proposal for the rehearsal building is therefore a heat pump to provide space heating, coupled with instantaneous point of use water heaters. Again, this responds to the load characteristics of the building – matching the most efficient heat source with the highest demand, while also avoiding the use of extensive storage and distribution, with its associated high heat losses, to meet a relatively modest demand for DHW.

As noted in Section 4.0, the site lies within a secondary indicative heat network zone. There are currently no local decentralised heat networks (DHN) available in the local area but as part of the Glasgow City Council *Local Heat and Energy Efficiency Strategy* it is proposed that this will become available in the future.

At this point the strategy for each of the buildings is to use centralised air source heat pumps for each building. In future when these have reached the end of their design life if there is a DHN available the development's heating and hot water systems can be adapted to allow the DHN to be utilised without significant upgrades to the distribution systems within each building. In line with NPF4 Policy 19, the heat generation and delivery systems for the NRW development are being designed with this in mind – allowing for a future connection to a low temperature 5th generation network, whereby a local water source heat pump (WSHP) could use the network as a primary heat source. Refer to Section 4.0 for further details.

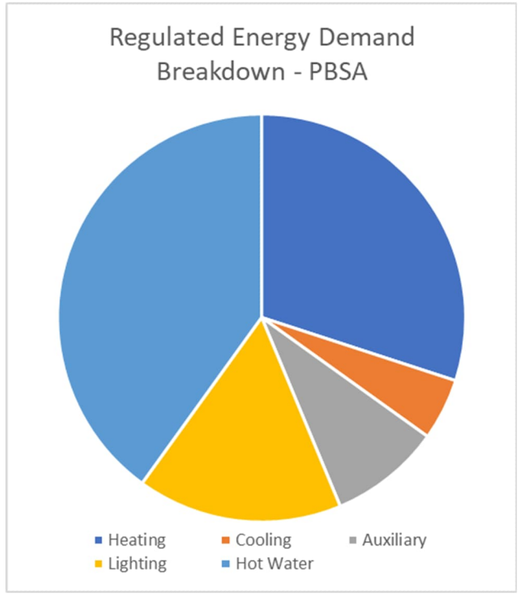


Figure 7: Regulated Energy Demand Breakdown for the PBSA

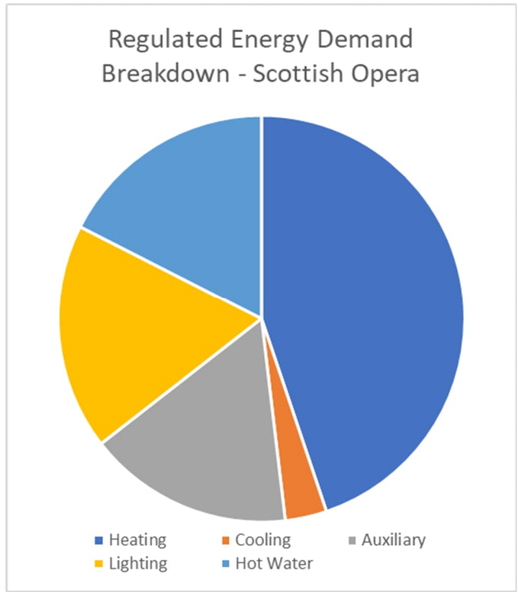


Figure 8: Regulated Energy Demand Breakdown for the Rehearsal Building

Cooling
In general, and where possible, the use of active cooling is being avoided in this development. An overheating risk assessment has been carried out in accordance with Section 3 of the Non-Domestic Technical Handbook and has demonstrated that all student rooms comply with the criteria without the use of mechanical cooling.

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However, in some locations, where occupant density is expected to be very high, or as is particularly relevant to the rehearsal building, where spaces are particularly acoustically sensitive, it has been necessary to propose active cooling.

These systems could also be a high efficiency VRF technology – capable of providing several times more cooling output than electricity consumed. As can be seen from the energy demand breakdown charts, thanks to the passive design measures implemented at stage one of the energy hierarchy, cooling demand forms only a very small proportion of the total building loads, with energy consumed many times smaller thanks to the efficiency of the proposed VRF.

Ventilation
After the building fabric, the fresh air provided to occupied spaces constitutes the next most significant source of heat losses in a building. While background ventilation rates cannot be reduced while maintaining a comfortable and healthy indoor environment, it is possible to reduce the associated heat losses via Mechanical ventilation with heat recovery (MVHR). In this system, heat is transferred from the warm extracted air to the cold incoming air via fan and heat exchanger.

It is therefore proposed that occupied spaces will be ventilated via MVHR. Fresh air can be supplied in winter without the associated heat losses and a facility can be included to bypass the heat exchanger in summer, thus allowing the fresh air to contribute to the 'free' cooling of the space. Demand control of ventilation will be incorporated to reduce ventilation rates when occupancies are lower.

Lighting
Lighting technology has advanced quickly in recent years with current LEDs delivering extremely high efficiencies – permitting both low-energy artificial lighting and limiting the impact of lighting on overheating risk.

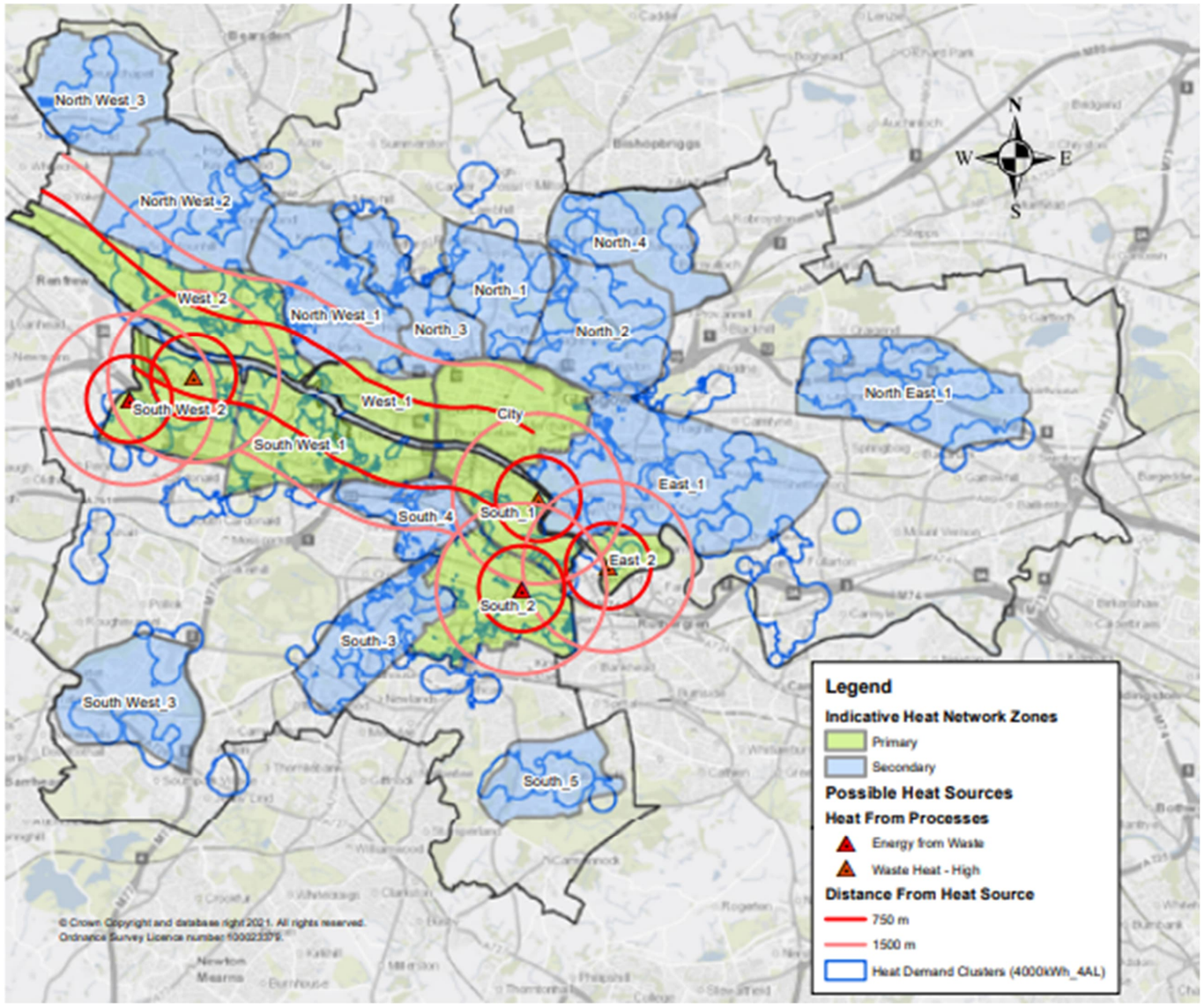
High efficiency LEDs are proposed throughout the development, with automatic controls incorporated to further reduce lighting energy.

Energy Monitoring
Connected heat, electrical and water meters will monitor energy use to allow the building occupants to understand and monitor where energy is being used.

Additionally, there is a consideration for some soft landings processes to be included. This could involve the creation of a Building user Guide, which would allow future occupants to use the systems more efficiently.

Renewable Energy/LZCGTs
The opportunity for integrating renewable energy on-site will be maximised in line with Policy CDP 5 of the Glasgow City Development Plan in order to reduce energy demand on site and contribute to meeting greenhouse emission targets. This will also align with the aspirations of NPF4 to increase renewable generation across Scotland.

In the following section, a comprehensive renewable energy feasibility study is outlined to determine the most appropriate and effective LZCGTs for the development.



4.0 LOW AND ZERO CARBON TECHNOLOGY

4.1 Feasibility

In response to Glasgow City Development Plan CDP1 and CDP5 + SG1 and SG5, 7 + National Planning Framework 4 Policy 1. Policy 2 and Policy 11

As part of the response to CDP5, a low and zero carbon generating technology (LZCGT) feasibility study has been carried out, considering potential LZCGTs which may contribute to a reduction in energy demand on site, and associated carbon emissions.

Error! Reference source not found. outlines an initial assessment of the available LZCGTs, summarising the pros and cons of each in relation to this site, and which can be discounted on the grounds of fundamental site constraints that make their use impractical or impossible. The remaining LZCGTs will be taken forward for further analysis in the next section.

The potentially feasible technologies – PVs, District Heating, Wind and Air Source Heat Pumps (ASHP) – are explored in more detail in the summary table on the following pages. Here, the advantages, disadvantages, and project suitability of the LZCGTs are set out in more detail and proposals for inclusion in the project established.

4.2 Decentralised heating networks and the LHEES

The site and proposed buildings have been assessed in the context of the newly published Glasgow City Council Local Heat and Energy Efficiency Strategy (LHEES).

The New Rotterdam Whaft development is located within a Secondary Indicative Heat Network Zone (*IHNZ: North 3).* The site is near the South Eastern boundary of IHNZ: North 3 and close to IHNZ North 1.

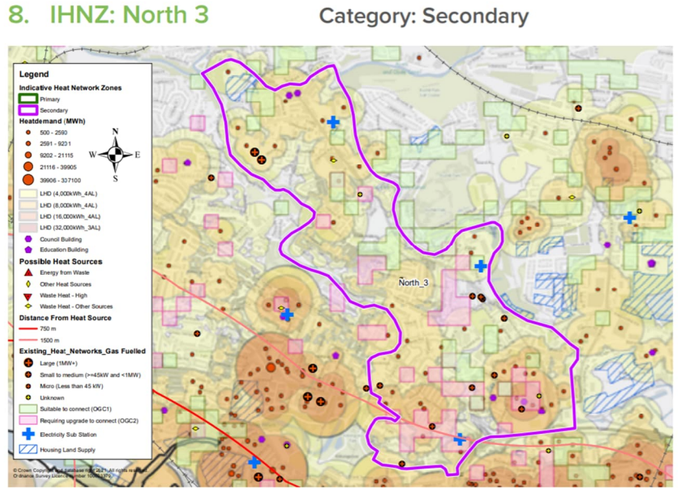
The LHEES identifies the Forth and Clyde canal as a potential heat extraction source for the local IHNZ. However, although the New Rotterdam Wharf site is in close proximity to the Spiers Wharf basin of the public canal, an important schedule monument, the canal wall, forms a barrier between the site and the water source.

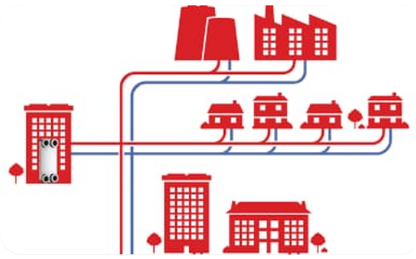
As assessment was made that the need to protect the scheduled monument (to avoid any risk of undermining its retaining structure and foundations) outweighed potential benefits of installing pipework for a heat extraction system. This was also balanced by the good availability of other LZCGTs, specifically air source heat pumps (for heating and hot water) and photovoltaic panels.

Nevertheless, the heating and hot water systems for both of the PBSA blocks and the Scottish Opera building will be designed to accept future connection to a decentralised heat network. Please refer to sections on LZCGT below

LZCGT	Suitability
Photovoltaic (PV)	Yes – Straightforward installation and low maintenance. Produces high value form of energy. Large majority of electricity generated likely to be used on site to cover base load of the PBSA and Scottish Opera. Minimal overshading will permit good yields for panels installed.
CHP	No – A key principle of the scheme is to avoid fossil fuels. Furthermore, as the electricity grid in Scotland decarbonises the viability for CHP decreases. CHP would also have negative impact on local air quality.
District Heating	Yes – At the time of writing no district heating networks exist near the proposed site; however, as the site lies within a secondary indicative heat network zone, systems are to be design with a potential future connection in mind.
Biomass	No – The location of the site makes this technology unviable, due to emissions from combustion, impact on local air quality and disruption from fuel deliveries.
Solar Thermal	No – Limited roof space means the DHW demand in the PBSA blocks cannot be met by this technology. Highest yield will be produced during the time of lowest occupancy for the PBSA blocks (summer) – risks damaging the system. PVs are more effective at lowering carbon emissions.
Wind	No – Small scale wind turbines, for example on the upper roofs of the PBSA blocks, were quickly discounted due to risk of high shadow flicker for residents of the neighbouring properties, coupled with low output and low-capacity factor.
Hydro	No – There is no local source of hydroelectric power.
Heat Pump – Water Source Heat Pump	No – While there is a canal adjacent to site, this has been investigated and found not to be a feasible source for a WSHP – the canals walls for a barrier between the canal and site and as a scheduled monument the canal walls cannot be breached.
Heat Pump – Ground Source Heat Pump	No – Insufficient ground space available for the ground loop to meet developments demands.
Heat Pump – Air Source Heat Pump	Yes – Can generate heat efficiently year-round. Discrete location required for outdoor units, with care to be taken over acoustic mitigation measures.
Geothermal	No – The location of the site makes this technology unviable.

Figure 9 - Site Overview and local IHNZ



			
Technology Name	Photovoltaics (PV)	Air Source Heat Pump (ASHP)	District Heat Network – Future Connection
Location	External - building mounted	Located in a plant room with good access to outside air	Internal plantroom/Remote Energy Centre
Purpose	Generates electricity, supplying the building's electricity demand and exporting and remaining power to the grid	Multiple ASHP units will generates low temperature hot water for space heating. Separate ASHP systems will generate domestic hot water.	As part of the Glasgow City Council LHEES, a future Network could provide space heating and DHW to the PBSA and Scottish Opera buildings.
Benefits	• Easy to install • Lightweight, low plant space requirements • Provide Zero carbon electricity • Modular systems mean additional PV panels can be added in the future	• Heat is extracted from the air to heat the building and the hot water so reducing the electrical load and CO_2 emissions. • Widely used technology • Reversible air source heat pumps will be used for specific systems to provide cooling. This applies to e.g. a gym area of the PBSA blocks and the Rehearsal/performance spaces of the Scottish Opera Buildings. This opens the possibility of heat recovery. VRF heat recovery systems could also be used where this is shown to provide additional efficiencies.	• Centralisation of plant allows economies of scale and efficient technology to be used • Use of local WSHP allows use of low temperature network, thus increasing its efficiency • Low plant space requirement • Low maintenance • Can generate high temperatures for DHW
Challenges	• Large area of roof space needs to be dedicated to PV panels to generate a meaningful amount of electricity • Requires direct sunshine (no overshading) to function efficiently	• Efficiency falls in cold weather where demand peaks so distribution temperatures must be carefully controlled • Not as efficient as a ground source heat pump for winter heating • Discrete location required for siting of external units	• No networks currently available local to site • There will always be some additional heat lost in underground distribution • Depending on heat generation technology, will be subject to disadvantages of that technology
Project Suitability	PV has a strong proven record as a dependable LZCGT that has low maintenance requirements. The nature of the site with little or no overshadowing to the roof will maximise the potential of any installed PVs. Therefore, PV will form part of the LZCGT strategy for this development.	Air source heat pumps are a well-established technology that can readily provide the heating and hot water loads anticipated for these buildings with excellent efficiency. An ASHP will therefore form part of the energy strategy for this development.	The lack of an existing or planned network in the local area means this technology cannot currently be proposed. However, the systems for the development are being designed to facilitate a future connection to a 5th generation low temperature network; with a local WSHP using it as a primary heat source for the building.

4.3 LZCGT Strategy

In response to Glasgow City Development Plan CDP1 and CDP5 + SG1 and SG5, 7 + National Planning Framework 4 Policy 1. Policy 2, Policy 11, and Policy 19

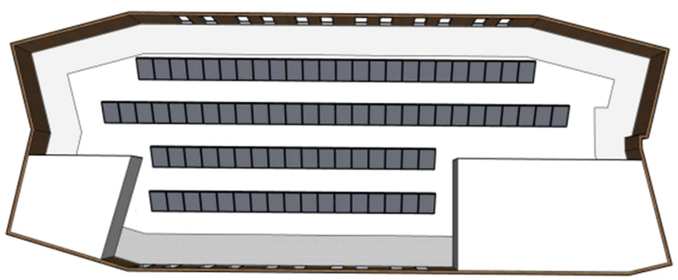
Air Source Heat Pumps and Photovoltaic panels
A review of potential LZCG technologies has been undertaken, and two were found to have clear advantages for decarbonisation of this project: photovoltaic panels (PVs), to generate electricity from sunlight, and air-source heat pumps (ASHPs), to provide Low-Temperature Hot Water (LTHW) for space heating and hot water.

The combination of these technologies is complimentary on a number of levels – for example, the electricity generated by the PVs can act as an energy source for ASHP units, effectively providing low-cost and low-carbon heat and domestic hot water. Furthermore the high unit-cost of electricity and relatively low cost of PVs mean that by generating high-grade energy (electricity) PVs perform better than solar-thermal panels in the context of this scheme.

From the perspective of reducing carbon emissions however, due to their very high efficiency (coupled with ongoing decarbonisation of grid electricity in Scotland) the ASHP systems will be the dominant method of reducing carbon emissions - throughout their lifetime.

Heat pump technology is rapidly becoming more widespread, economical and straightforward to maintain. ASHPs significantly reduce grid demand for electricity, which helps to mitigate ongoing need for electrical grid reinforcement. Installing a centralised air source heat pump system can be done in a way that allows future connection to a low temperature district heating network as noted in Policy 19 of NPF4 without extensive or prohibitive changes to internal heating distribution systems.

Figure 10 - Indicative PV layout used for energy modelling of 150m2 of photovoltaic panels



Heat recovery systems
High-efficiency heat recovery systems will be used throughout the mechanical ventilation systems. An overview of the approach is set out below:

- All PBSA student bedrooms, kitchens and amenity areas will be provided with mechanical ventilation with heat recovery to maintain excellent air quality while reducing energy demand.
- High performance heat-recovery mechanical ventilation units will also be specified for all amenity areas, gym, commercial areas and staff accommodation.
- These units will be provided with demand control so that air flow rates track occupancy and further reduce energy demand. Each of the residential spaces will also have openable windows to provide fresh air and cooling in summertime months.
- A similar approach is deployed in the new Scottish Opera Rehearsal building. High-performance heat recovery heat exchangers (both thermal wheel type and cross-flow type, as appropriate) will be specified for the supply and extract ventilation units throughout this building.

On-site emissions reductions for Gold Hybrid Sustainability Level
Alongside this, meeting the mandatory 20% on-site emissions reduction target (set out in SG5) makes combined use of ASHPs, PVs and heat-recovery systems a favourable choice - as robust and intrinsically low-carbon technologies.

As such, modular ASHPs plus PVs and heat recovery ventilation systems are incorporated into the energy strategy for both PBSA blocks and the Scottish Opera building.

- Approximately 300m^2 PV panels will be installed at roof level of the PBSA buildings, giving a total installed PV area of approximately 150m^2 per block
- Approximately 400m^2 PV panels will be installed at roof level of the Scottish Opera building, giving a total installed PV area of approximately 700m^2.
- The PV area will achieve a balance between the provision of PV panels and any necessary roof plant equipment, ensuring sufficient and safe access to all roof items for replacement and maintenance.
- Incorporating both PVs and ASHP into the energy strategy is beneficial as the PVs will provide electricity to run the ASHP and will offset some of the cost associated with them.
- ASHP will be provided to meet the DHW demand of the PBSA blocks, plus space heating of the amenity spaces within the PBSA blocks. Small direct-electric heaters are deployed within the student bedrooms as these have relatively very low heat loss (this approach helps to optimise heating control, minimise distribution energy losses and minimise any effect of losses contributing to overheating in summer).
- ASHPs are deployed to provide space heating demand of the Scottish Opera Rehearsal Building – refer to Section 3.0 for further details of this proposal. ASHPs are also used to provide heating and cooling of ventilation systems for the Scottish Opera Rehearsal building, although demand is also minimised by comprehensive use of heat recovery on these systems.
- The relatively small domestic hot water load for the Scottish Opera Rehearsal building will be met with localised direct-electric hot water generators. These will be located close to points of use to avoid need for circulation loops (thus avoiding need for circulation pump energy demand). This approach is in line with our latest research on minimising standing system energy losses for Passivhaus buildings (i.e. for systems of this size and demand profile).

Design for Future Connection to a District Heating Network
The LTHW heating system in the Scottish Opera Rehearsal building and centralised domestic hot water systems plus LTHW systems in the PBSA buildings will be designed to facilitate future connection of a district / decentralised heating (and potentially cooling) network. Space for incoming network pipework and heat exchange (if required) will be anticipated in the scheme design. Network flow and return temperatures for the internal distribution systems (LTHW) will be selected to suit 4th Generation or 5th Generation District Heating Cooling technology (4GDHC and 5GDHC). This approach is designed to optimise the scheme in the context of the proposed IHNZ: North 3, as set out in the Glasgow City Council LHEES.

BMS and Energy Metering
All buildings will be provided with building management systems and automatic energy metering systems to enable building operators to monitor, manage and optimise energy use. Intuitive and responsive control systems will be installed throughout. For example: demand controlled ventilation will be incorporated to reduce air flow rates when occupancies are lower; zone controlled heating systems; automatic lighting controls will reduce lighting energy. Heat, electrical and water meters will monitor energy use to allow the building occupants to understand and monitor where energy is being used.

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5.0 ENERGY AND EMISSIONS TARGETS, STANDARDS AND COMPLIANCE

5.1 Project Targets and Requirements

There are several key policy documents that the proposed development must comply with in relation sustainability, most notably those below:

- National Planning Policy Framework 4 (2021)
- Glasgow City Development Plan (2017)
- City Development Plan Supplementary Guidance
- Building Standards Section 6 and Section 7

A summary of these policies is provided in *APPENDIX I – Sustainability Focused Planning* Policy and how the development adheres to these policies is outlined in Sections 3-8 of this statement.

Two key energy and emissions targets emerge from the Glasgow policy CDP5, Resource Management:

- A 20% CO_2 emissions reduction when compared to the notional building. This target results from the requirement to meet gold level aspect 1 compliance, as set out in section 7 of the Non-Domestic Technical Handbook
- A 20% emissions abatement through the use of Low or Zero Carbon Generating Technologies (LZCGTs). This is calculated by comparing emissions to a building with no LZCGTs.

In order to demonstrate compliance with these policies a dynamic simulation model (DSM) of the proposals has been undertaken using IESVE 2023 software – an AM11 compliant software package. This modelled has been used to assess the individual buildings against the requirements of Section 6 and to assess the emissions reductions required by planning.

5.2 Section 6 Compliance

In accordance with the requirements of Section 6 of the Scottish Technical Handbooks, an NCM calculation has been undertaken to compare the energy performance of the proposed building to that of the 'Notional Building'.

As all heating systems are 'non-direct emissions', in accordance with the Scottish Technical Handbook, the development is exempt from the emissions test, and must only comply with the delivered energy test – that is that the Building Delivered Energy Rate (BDER) is lower than the Target Delivered Energy Rate (TDER). However, as can be seen from the results presented in Table 2 – all buildings in the development meet both the delivered energy and emissions tests. Refer to APPENDIX III – BRUKL Outputs for the BRUKL certificates demonstrating compliance.

Table 2 – Section 6 Compliance

	Scottish Opera Building	PBSA North Block	PBSA South Block
TDER (kWh/m².annum)	32.77	36.27	40.39
BDER (kWh/m².annum)	21.06	31.23	36.57
TER ($kgCO_2$/annum)	5.22	6.14	6.94
BER ($kgCO_2$/annum)	3.82	4.59	5.24

5.3 SG5 Compliance

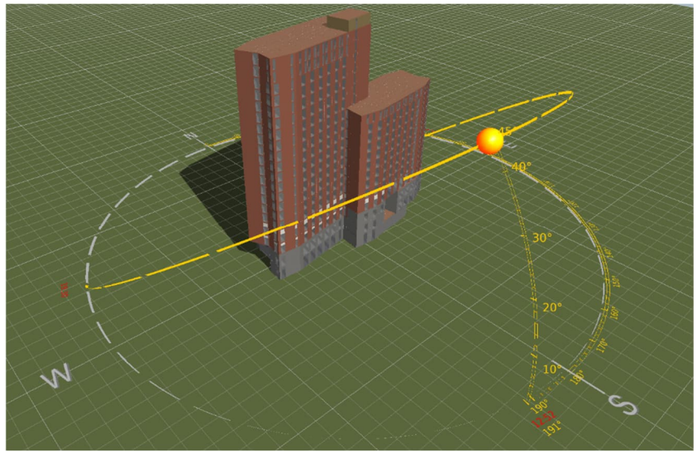
To demonstrate compliance with the two planning targets described in Section 5.1, the Section 6 model has been used alongside the methodology given in Annex A of SG5.

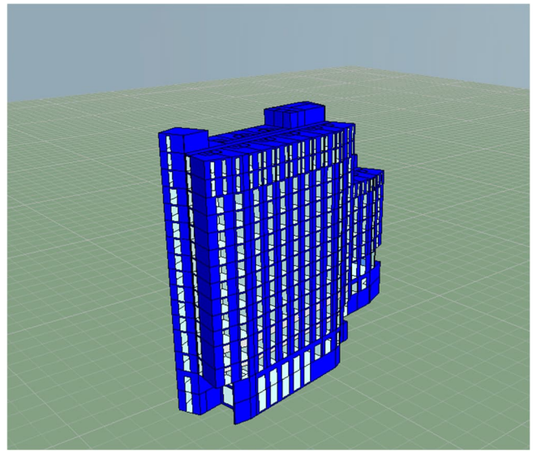
Gold Level 1 Emissions Compliance
In order to meet Gold Level 1 Carbon Dioxide emissions, the predicted emissions from the Section 6 calculation for the actual building (BER) must be 20% lower than those for the notional building (TER).

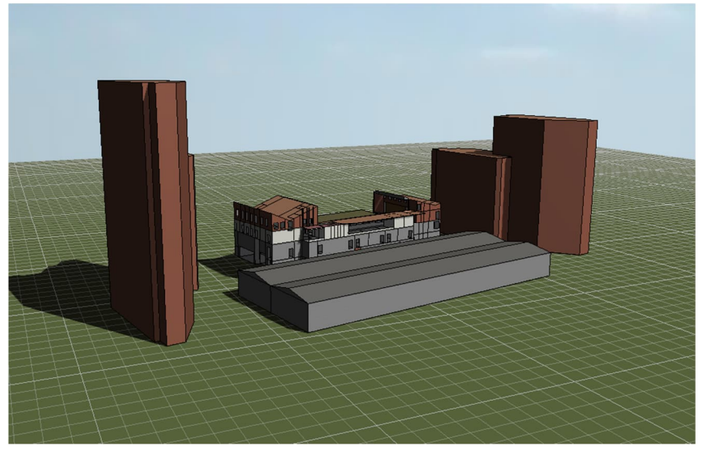
This relatively simple test simply requires that the emissions be compared and the reduction calculated – refer to Table 3 below for results of this test.

Table 3 - Annual Regulated CO_2 Emissions

Gold Level 1 Carbon Dioxide Emissions Test				
Building	Annual Regulated CO_2 Emissions ($kgCO_2/m^2$)		Reduction (%)	Meeting Gold Level 1 Emissions?
	TER	BER		
Scottish Opera Building	5.22	3.82	26%	Yes
PBSA North Block	6.14	4.59	25%	Yes
PBSA South Block	6.94	5.24	24%	Yes







LZCGT Emissions Abatement
For the second planning test, the methodology is somewhat more complex. In order to capture the contribution of LZCGT to the emissions reductions, and test whether 20% is achieved, a version of the proposed building must be modelled without any LZCGT.

To achieve this, baseline building models were created for each of the buildings in the development. In accordance with the methodology in Annex A of SG5 this involved:

- Replacement of all LZCGT heating technologies with a gas boiler – including those proposed for both space heating and DHW heating.
- Removal of any electricity generating LZCGTs – in this case the PV panels.

These models were then run using the Section 6 NCM methodology, and the emissions for the baseline building compared to those for the proposed building. In order to demonstrate compliance, those for the proposed building must be at least 20% below the baseline emissions.

LZCGT Emissions Abatement Test				
Building	Annual Regulated CO_2 Emissions ($kgCO_2/m^2$)		Reduction (%)	LZCGT Abatement Achieved?
	Baseline	Proposals		
Scottish Opera Building	5.6	3.82	31%	Yes
PBSA North Block	7.23	4.59	37%	Yes
PBSA South Block	8.85	5.24	40%	Yes

Copies of the as-designed BRUKL certificates for the proposed and baseline buildings, and the Annex A pro-forma given in SG5 are included as individual appendices.

5.4 Conclusions

This report demonstrates that the New Rotterdam Wharf development is predicted to meet the requirements of Section 6 and Policy CDP 5 (SG5) of the Glasgow City Development Plan, by achieving compliance with all of the following:

- the delivered energy target
- a minimum 20% reduction in regulated carbon emissions compared against the 2022 notional building
- a 20% carbon abatement through the use of low and zero carbon generating technologies.

Note that all three buildings meet the requirements independently as well as the wider scheme meeting the targets.

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6.0 RESOURCE MANAGEMENT

6.1 Materials

In response to Glasgow City Development Plan CDP1 and CDP5 + SG1, 5. Detailed Design and SG5, 6. Waste + National Planning Framework 4 Policy 1 and Policy 12

Material Selection
Consideration has been made into opportunities for low-carbon materials to be specified. The following areas on all buildings have been identified for further exploration:

- Timber structure for the pavilions on the roof of the SO building
- Lightweight rainscreen façades
- Bio-based insulation – SO building
- Low-carbon materials – K-briq, etc
- Low-carbon concrete (target 25% cement replacement – potentially GGBS) for foundations and ground slabs
- Potential for recycled aggregate in drainage pipe bedding
- Techcrete – façade elements on both buildings

The design proposals will use materials that are robust, durable and have a long lifespan. All hard works materials will be assessed based on their sustainability credentials and longevity benefits with consideration to extraction process and production of harmful emissions. The material palette will reference the industrial history of the site and use reclaimed materials where possible. The contractor shall provide evidence to confirm the percentage of recycled aggregate to be used.

Material Sourcing
Materials will be sourced as locally as possible, from Scotland, the wider UK and Europe. All timber will be legally sourced and FSC certified. There is potential that some elements of the fit out could be manufactured on-site at the existing SO Production Studios.

From existing site materials, the clay bricks from sections of the removed perimeter wall can be reused as new external walling or as a crushed sub-base layer to new surfacing.

Lean Design
Lean design measures have been incorporated within the Structural Design for the Scottish Opera building to reduce embodied carbon impact. The steel trusses used in the main rehearsal space have been designed with a larger depth to reduce the section size and therefore steel quantity. The use of timber structure in the pavilions will reduce the load on the rest of the building. Timber structural elements are also being considered in the mixed-use spaces below the pavilions. Lean design will also be implemented in the finishes for the SO building.

The PBSA has less opportunities for a lean design, due to its height and increased structural load. Shallow floor zones are being used to reduce building height and material use on the façade. No suspended ceilings are included in the bedrooms to maximise space and light.

Figure 11 - Techcrete Pre-Cast Panel

6.2 Whole Life Carbon

In response to Glasgow City Development Plan CDP1 and CDP5 + SG1, 5. Detailed Design and SG5, 6. Waste + National Planning Framework 4 Policy 1 and Policy 12

The project aims to reduce the Whole Life Carbon of the development through the material strategies discussed above, Circular Economy strategies, and the reduction of carbon in-use. Some of this reduction will be due to strategies in the reduction of operational energy, however effort is also being made to reduce B1-5 emissions. These are the emissions associated with maintenance, repair, and replacement of the building in use. This will be achieved by making services easy to access, using low GWP refrigerants and specifying high performance fabric to minimise need of replacement.

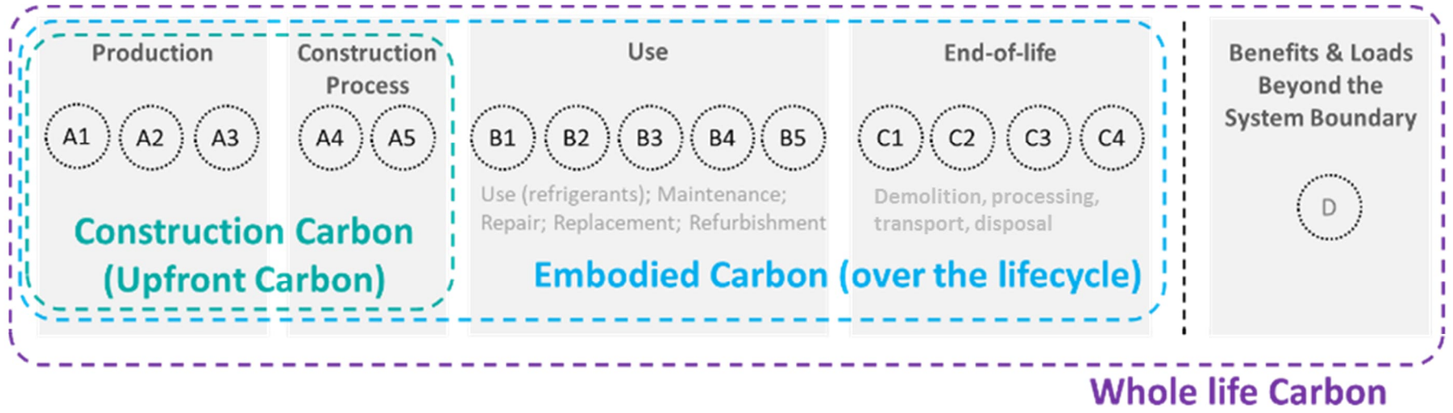

Figure 12 - Whole Life Carbon Diagram

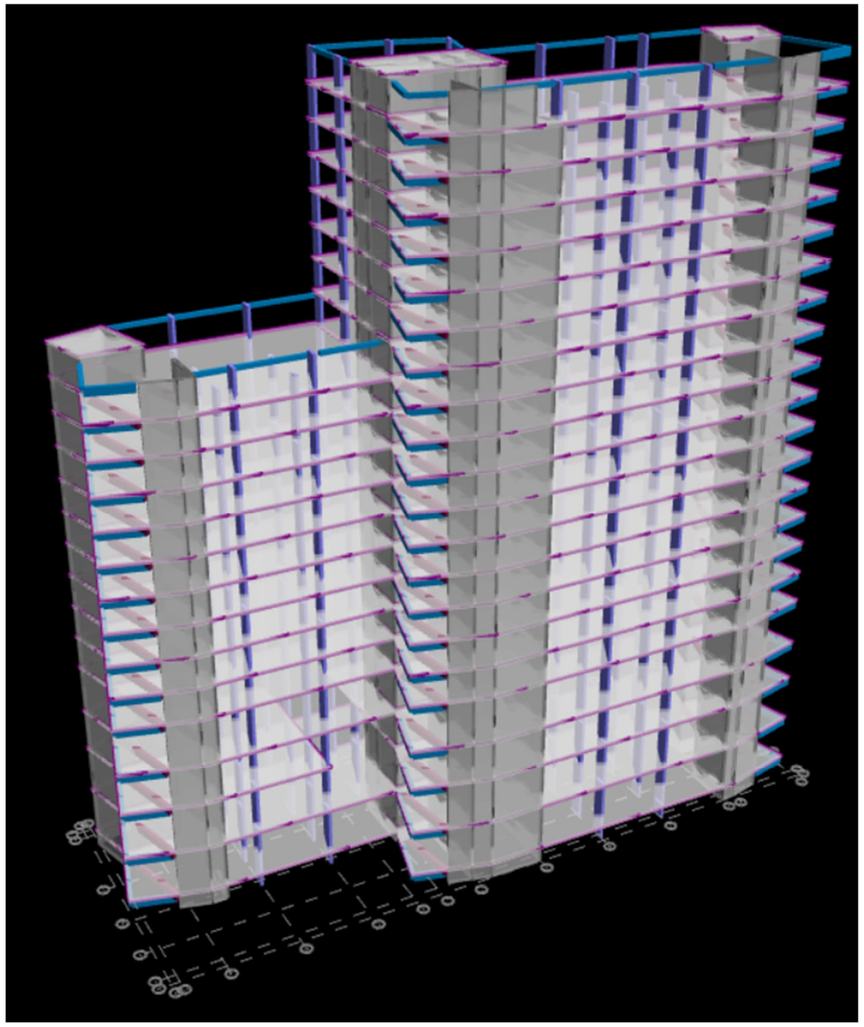

Figure 13 – North PBSA Structural Model (Struer)

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6.3 Waste

In response to Glasgow City Development Plan CDP1 and CDP5 + SG1, 7. Waste Storage, Recycling & Collection and SG5, 6. Waste + National Planning Framework 4 Policy 1 and Policy 12

A hierarchical waste management strategy of "Prevent, Reduce, Reuse, and Recycle" has been employed during the design, construction, and operation of the building. During the design phase, this means striving for material efficiency and eliminating excessive material usage and where possible re-using materials from the demolition of the existing buildings, avoiding waste.

Figure 14 - Waste Hierarchy

Construction
The management, disposal and recycling of waste generated during the construction phase will be managed by the Contractor who will put in place a Site Waste Management Plan covering non-hazardous waste materials, any offsite manufacturing and fabrication, and data records on waste arising and management routes. Routes for best practice recovery of waste streams will be implemented. Key actions will include:

- Following the waste hierarchy and provide adequate space and facilities for efficient segregation and processing of waste streams.
- Minimisation of water and energy use during construction through management procedures and monitoring; and in-use through low carbon design and specification of energy and water efficient equipment
- Targeting diversion of 70% of construction waste from landfill

The contractor will be expected to exceed compliance with the Considerate Constructors Scheme in order to demonstrate that the construction site is managed in an environmentally and socially considerate, responsible, and accountable manner.

Operational
For operational waste, the development is designed to accommodate the waste targets set in the City Development plan. These are as follows:

- 70% of operational waste to be recycled.
- Maximum of 5% sent to landfill. Waste and recycling areas are to be provided in the storage areas at either end of the 'spine block' at level 0. The north space is the bin store and has an area of 29.4m^2. The southern storage area is 18.8m^2 and is covered but not enclosed. The spaces are located close to the stair / lift core for ease of transporting waste internally. There is easy access for collection from the north and south service yards.

6.4 Circular Economy

In response to Glasgow City Development Plan CDP1 and CDP5 + SG1, 5. Detailed Design and SG5, 6. Waste + National Planning Framework 4 Policy 1 and Policy 12

Design for Adaptability and Flexibility
The Scottish Opera building is to be designed with Circular Economy principles in mind. Building in layers to allow for future change of use in spaces and replacement of parts will form part of the strategy.

Various spaces within the Scottish Opera Building itself will be able to be adapted for a variety of purposes. For example, the rehearsal space can also be used as a performing space or recording studio, and other studio spaces can accommodate performances, workshops, and social events.

There is also a consideration for the existing SO Production Studios building to be re-clad and a new roof put in. This would help to extend the life of the building and improve the fabric performance.

All sections and connections will be standardised as far as is practicably possible in an effort to simplify details and to reduce fabrication/procurement costs and timescales. This will allow for future adaptation of structural elements as required.

The upper floors of the PBSA blocks are being designed in a way that they could be converted into flatted accommodation at a later stage if this becomes desirable. Designing for ease of replacement of systems within the building will also be implemented. As the internal partitions are largely non-structural, the building could be re-configured in the future. For example, the lower floors will be dedicated to communal learning space, cafes and commercial use but could be reconfigured for a multitude of different use cases.

Efficient Construction
The contractor will be required to use efficient construction methods where possible. This will include off-site construction for the bathroom pods, as well as the use of Techcrete. This is pre-cast panels manufactured offsite, reducing construction times, and generating less waste than on-site construction. These panels are also recyclable at end-of-life.

Design for Disassembly
Demountable shear studs will be considered as a potential solution to allow for a dismantlable structural design, but this would have a considerable impact on costs - primarily on tonnage and fabrication costs but also on floor slab thicknesses given longer studs would be required.

Building services systems will be designed to offer maximum flexibility and future change of use; for example, using modular electrical systems that prevent the need for extensive re-wiring of the building. HVAC systems will be designed to support a wide range of activities to make the spaces work well for many years and avoid wholesale replacement of central plant or distribution equipment.

Material Re-use
It is the intention for the development to specify recycled materials where possible. There is consideration for part of the façade to be brick or brick-faced. This could be an opportunity to used recycled brick or a low-carbon material such as K-briq.

The existing site is paved, and an investigation into whether this is suitable for re-use as concrete aggregate is to be undertaken. This would provide a Type 1 grade aggregate and could be used as subbase for new slabs, roads, and hard standings. If this is not possible on-site, this could be sold for re-use elsewhere.

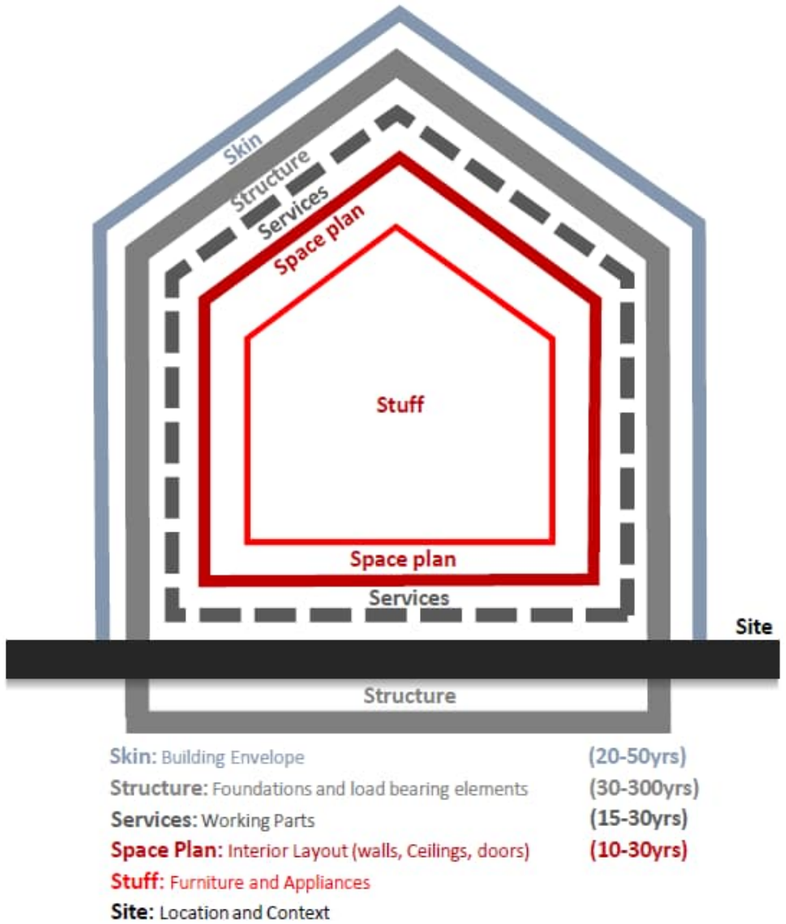

Figure 15 - 'Building in layers' (How Buildings Learn, Brand 1994)

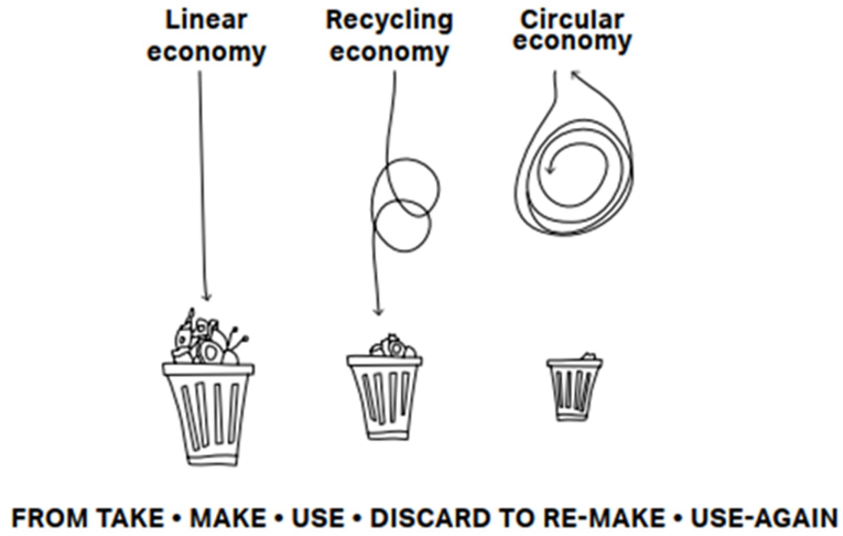

Figure 16 – The principle of Circular Economy

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7.0 HEALTH AND WELLBEING

The buildings will be designed for health and wellbeing in relation to user control over their chosen environment, access to daylight and views out. Contaminating finish sources will be limited, fresh air will be provided, spaces will be designed to be flexible and adaptable for future changes.

Air Quality
The proposed development offers new pedestrian pathways, better connections, and traffic considerations to minimise negative health impact to the Site. The vehicular access to the site has been carefully developed to minimise vehicle traffic movements within the site and the design encourages sustainable modes of transport (cycling, walking) reducing further any emissions associated with vehicle use.

Noise
A Noise Impact Assessment has been carried out on site to reduce the impact of the new development on the local areas. To establish baseline noise conditions on-site, a set of short-term (attended) 'spot' measurements were carried out on 25th October 2023. A long-term (unattended) noise survey was also carried out from 25th to 31st October 2023 on-site to establish representative existing noise levels.

Recommendations have been made by the acoustic consultant for minimum sound insulation performance requirements for the windows and external walls.

To assess the impact of the plant equipment noise at noise sensitive receivers a 3D environmental noise model has been created. The model shows that using representative noise spectrum for the plant equipment with proposed noise control solutions the targets of rating level 10 dB below background noise levels. The noise level prediction respect to background also represents a low impact under a BS 4142:2014 assessment. It is therefore considered unlikely that noise from plant will have an adverse impact. Acoustic mitigation measures for plant equipment have been outlined in the Noise Impact Assessment.

Security
The scheme has been developed with consideration of creating a safe and secure site. External lighting shall be provided to the public facing building façade and entrance to offer security at night-time. A CCTV camera system will be used to enhance security to the PBSA reception area, deliveries entrance and all external areas. Controlled access gates will be used to limit access to the servicing yard and SO building where necessary. A secure entry system will be put in place for the PBSA building to ensure residents' safety.

Overheating
In response to National Planning Framework 4 Policy 2

The potential overheating risk has been identified early in the design process, and suitable passive measures have been incorporated within the building envelope and services design to mitigate the extent of solar gain and to reduce cooling demand in line with the cooling hierarchy shown on the right.

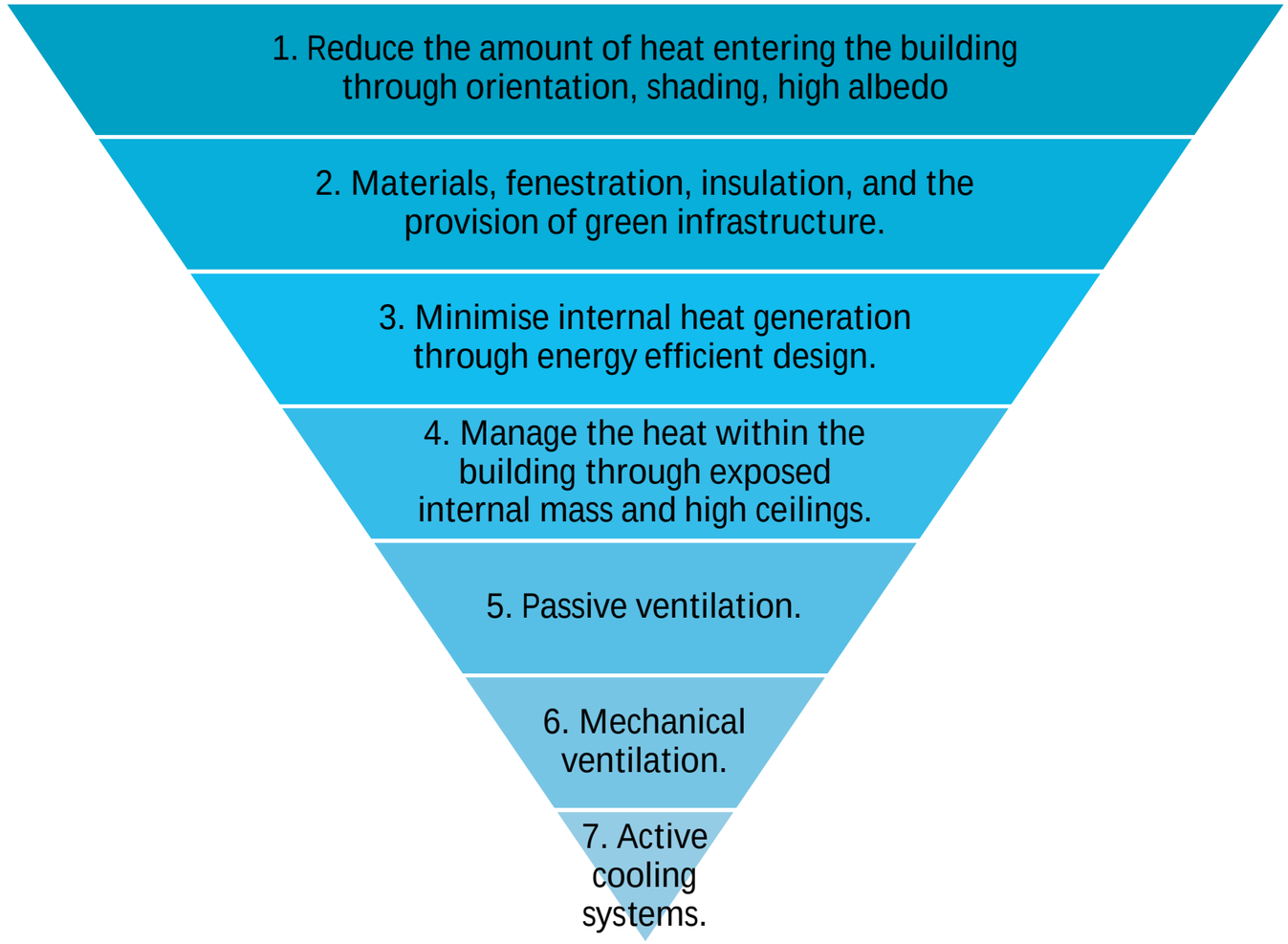

Figure 17 - Cooling Hierarchy

The building has been sited and window locations designed in a way which minimise solar gains on the South and West facades. This has been a particular consideration for the PBSA buildings due to their increased height. Deep window revels have been designed to facilitate self-shading. The Scottish Opera building will feature a metal mesh over some elevations which will act as a shading device (refer to Figure 18).

Daylight and Sunlight

Ensuring access to daylight was an important consideration for the development, particularly for the PBSA Blocks. The siting and massing of the Blocks ensure that no significant shadows are cast on adjacent buildings, improving the amount of sunlight hitting the facades (refer to Figure 19.

The design was assessed by lighting specialists at Max Fordham, to ensure the design maximised daylight where required. From this analysis, the internal layouts of the PBSA Blocks were optimised to ensure that apartments and studios to the North have a window facing within 180° of due South. Windows have been positioned across the development to maximise the daylight levels in the spaces (refer to Figure 20).

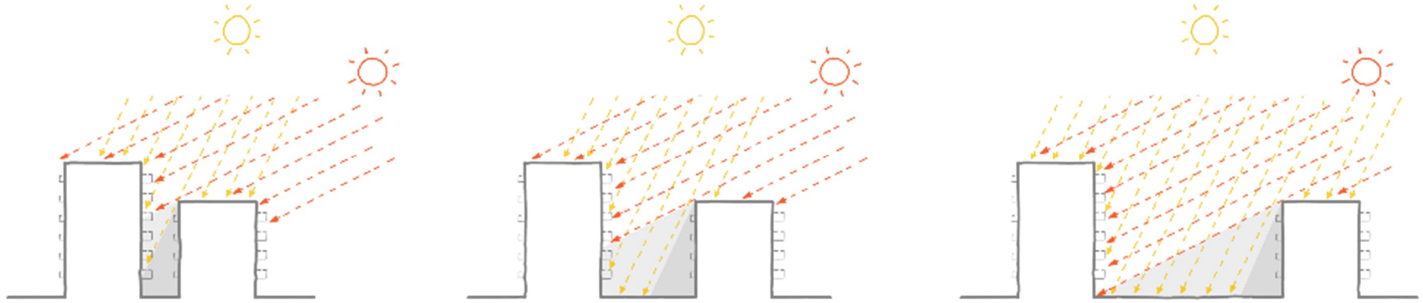

Figure 19 - Building spacing for solar access

Figure 18 - Metal Mesh for Shading on SO Building

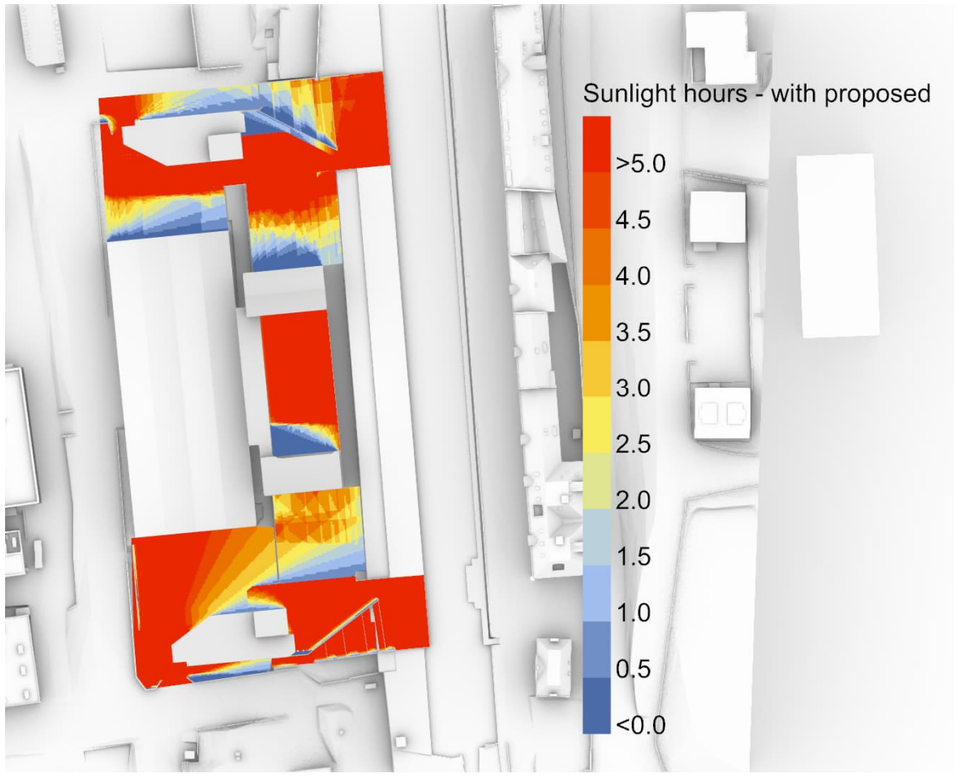

Figure 20 - Sunlight Simulation

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8.0 SUSTAINABLE TRAVEL

8.1 Sustainable Transport Infrastructure

In response to Glasgow City Development Plan CDP1, CDP2, CDP 10 and CDP11 + SG11, 4. Cycle Parking, 6. Vehicle Parking and 7. Electric Vehicles + National Planning Framework 4 Policy 13

Cycling Infrastructure
For the Scottish Opera building, it is the intention to provide bike parking as required in *SG11 Sustainable Transport*. There is some bike parking at the existing building, and this will be expanded on to ensure the quantities below are met:

- Staff: 1 space per 120 sqm gross floor area
- Visitor: 1 space per 500 sqm gross floor area

Lockers and showers will also be provided for the use of staff and visitors in the building.

For the PBSA, the guidance requires one bike parking space per 2 staff and students. For this development, this would require 355 spaces. The current proposal is to include 176 cycle parking spaces across the development. It is thought that 355 spaces would detract from the amenity space, and PBSA operators are finding that students do not use all of the cycle parking provision. If it was to prove popular at this location, more spaces could be added.

There is also consideration to provide non-standard cycle parking spaces. As the canal path forms a part of National Cycle Route 754 and Sustrans are currently working on improving accessibility along their routes, adding non-standard stands could be a positive contribution to the overall environment.

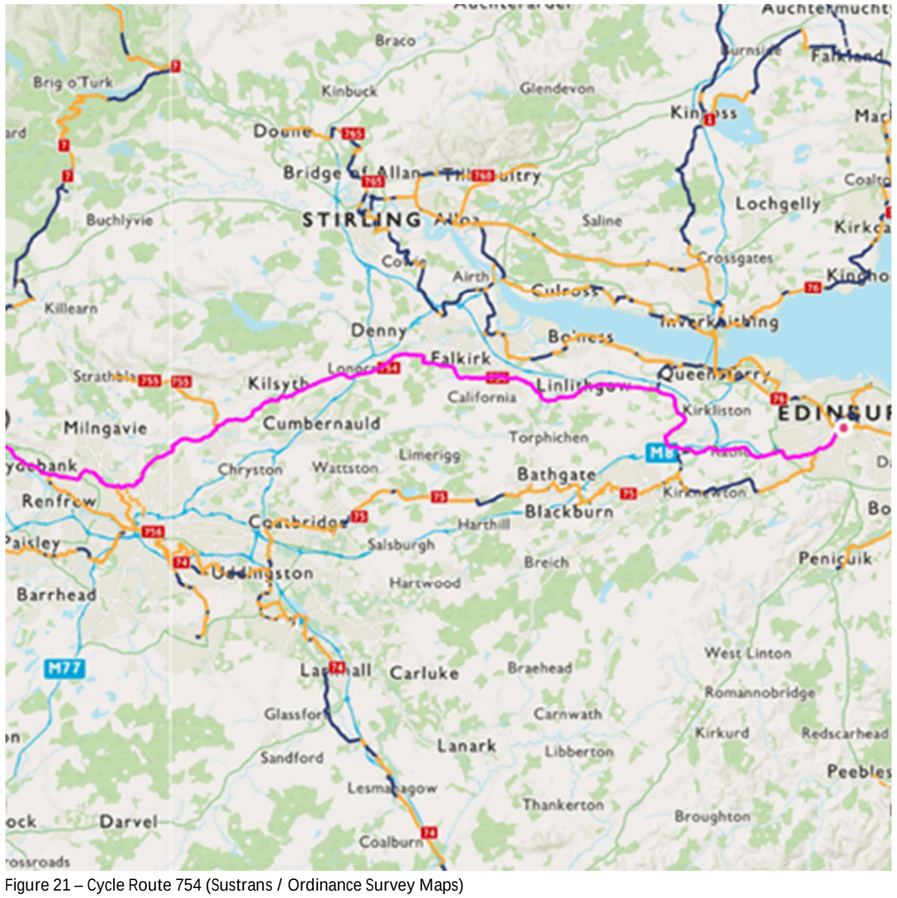

Figure 21 – Cycle Route 754 (Sustrans / Ordinance Survey Maps)

Car Parking
The existing Scottish Opera building has around 44 parking spaces. A number of these will be removed with the construction of the new building and PBSA blocks. New spaces will be provided as part of this development, but there will be an overall net loss of car parking spaces. The proposal includes 27 standard spaces and 2 accessible spaces at ground level for the Scottish Opera building and 4 accessible spaces for the PBSA blocks.

EV Charging
There are two EV parking spaces provided at the existing Scottish Opera building. All new spaces to be added to the site will be passive to allow for future increase in EV usage.

8.2 Local Area

In response to Glasgow City Development Plan CDP1, CDP2, CDP 10 and CDP11 + SG11, 3. Access and Active Travel and 10. Transport Assessments and Travel Plans + National Planning Framework 4 Policy 1, Policy 13 and Policy 15

A Transport Assessment has been undertaken for the development by Dougal Baillie Associates. This has analysed the potential impacts on the local area. It is thought that the proposal will not impact the vehicle traffic to the area, with the exception of move in/out days for the PBSA. There is parking in the surrounding streets, and spaces in a car park less than 500m away.

There is also ample foot and cycle paths leading to public transport provision and other amenities. The site is located in a High Accessibility Area in terms of public transport access, and the traffic from the development should not result on any adverse impacts to the current transport provision.

Public Transport
Due to the development's proximity to the city centre, the public transport infrastructure in the area is good. There are bus stops on Garscube Road, St Georges Road and Maryhill Road a short walk from the development. Cowcaddens subway station is less than 10 minutes away, and Glasgow Queen Street station is less than 20 minutes away on foot or by other public transport (refer to Figure 22).

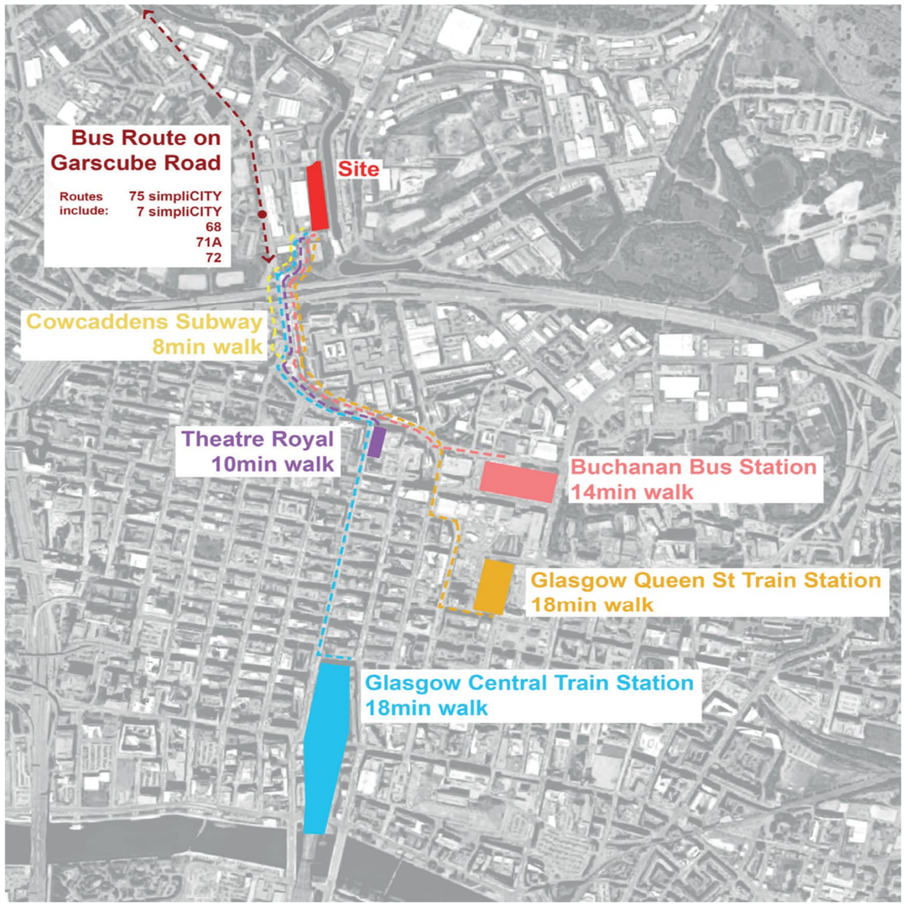

Figure 22 - Public transport links (Page/Park)

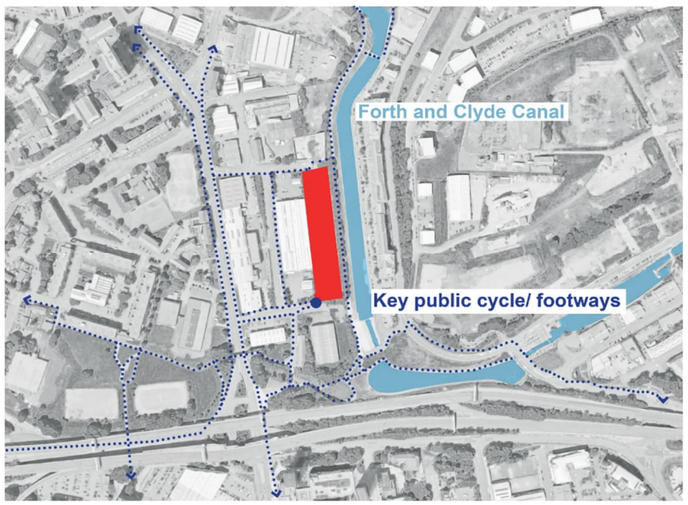

Figure 23 - Cycle and Foot paths (Page/Park)

Walking and Cycling
There is a popular walking and cycle path along the canal nearby, and a new cycle path along Garscube Road. The new development will be connected to the canal towpath through a new stair, encouraging resident and office workers to take advantage of these nearby amenities.

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9.0 LANDSCAPE DESIGN

9.1 Ecology and Biodiversity

In response to Glasgow City Development Plan CDP1, CDP2 and CDP7 + SG7, 2. Site Appraisal and Ecological Surveys, 5. Enhancing Biodiversity and 8. Trees, Woodlands And Hedgerows + National Planning Framework 4 Policy 1 and Policy 3

Existing
A preliminary Ecological Appraisal, Roost Assessment, and Habitat Survey have been carried out for the site. The Ecological Assessment confirms that there are no protected species on site requiring development licenses from NatureScot. Additionally, there is no evidence for suitable habitats for water vole, or great crested newt, and no evidence of badger or other protected species. There is potential that otters and nesting birds could pose a problem for the development.

It is recommended that a pre-construction otter survey should be carried out. Vegetation removal and treatment of trees should take place outside of March to August, and if not then a nesting bird check, bird protection plan and mitigation measures will be required. Refer to Figure 24.

Biodiversity Net Gain
The new tree and planting strategies are in line with recommendations highlighted in PEA, Arboricultural Surveys and National Planning Framework 4 and are aimed on significant biodiversity enhancements and nature networks, linking to, and strengthening habitat connectivity within and beyond the development. The project is aiming to add around 50 new trees which are native to Scotland and the UK environment and will provide homes for wildlife across the year. The ornamental planting will consist of mix of native shrubs, grasses, and perennials, attracting pollinators and other insects to the site.

For the construction of the PBSA, some existing trees and scrub will need to be removed. This will be re-provided at various location on site in order to achieve an overall net gain. The existing planting does not have a high level of biodiversity, so for the new development native biodiverse planting will be a priority.

The selection for planting species has been assessed in relation to the designed areas, including key considerations such as but not limited to:

- Native species and biodiversity
- Seasonal variation
- Sun and wind exposure
- Size
- Form and structure
- Growing conditions
- Spatial characteristics

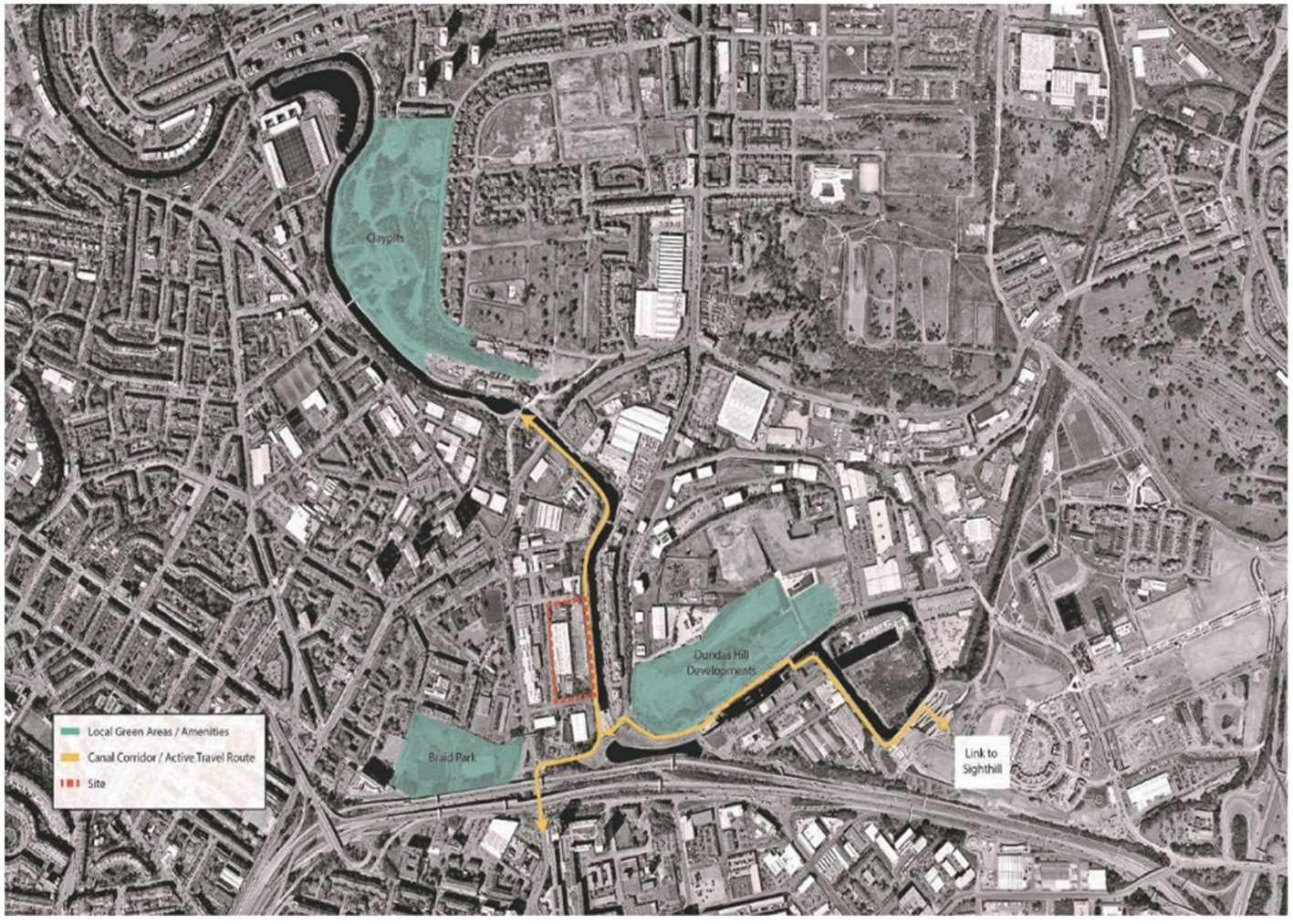

Figure 24 - Greenspace around the site (ESS Ecology)

9.2 Green Infrastructure

In response to Glasgow City Development Plan CDP1, CDP2 and CDP7 + SG1, 6. Public Realm and SG7, 5. Enhancing Biodiversity + National Planning Framework 4 Policy 1 and Policy 20

The existing site is dominated by paving and car parking areas, with some planted areas in the corners and along the side of the exiting Scottish Opera building.

The project is informed by an understanding of the existing characteristics of the site and its local ecological context. The proposal will retain most of the existing trees that are of Category B 'Good' as identified in Arboricultural Survey and look to integrate nature-based solutions where possible. This will include future management of the natural assets to ensure that the objectives are met. Around 70 new trees are proposed as part of the planting strategy. All suggested species have been carefully considered to reflect existing trees selection and goals for improved biodiversity.

The landscape proposal seeks to maximise the area of open space within the development while providing a safe and attractive amenity for the residents. This will be a combination of public and private spaces to accommodate the needs of both buildings. The following spaces are provided as part of the landscape design:

- South-West Plaza: provides access to the PBSA from public routes, terraced landscaping including planting and site drainage;
- North-West Plaza: similar, provides connection between PBSA and street level. Includes a spill out space to accommodate private and public temporary events;
- South Courtyard: mixed-use area, including a green wall along the existing retaining wall and transitional green paving;
- North Courtyard: same as South Courtyard, both also provide HGV access and public access to rehearsal building;
- South Steps: steps connect to the canal towpath, planting and trees will be incorporated throughout;
- North Steps: provide another link to the canal towpath from the site, trees, planting and seating will be provided across the steps;
- Canal Landscape: proposed addition of cycle parking, and seating to encourage users to stop at this point on the towpath;
- Walled Garden: on the roof of the Scottish Opera building, accessible to all, terraced planting, and seating. Connected to the canal towpath via bridge.

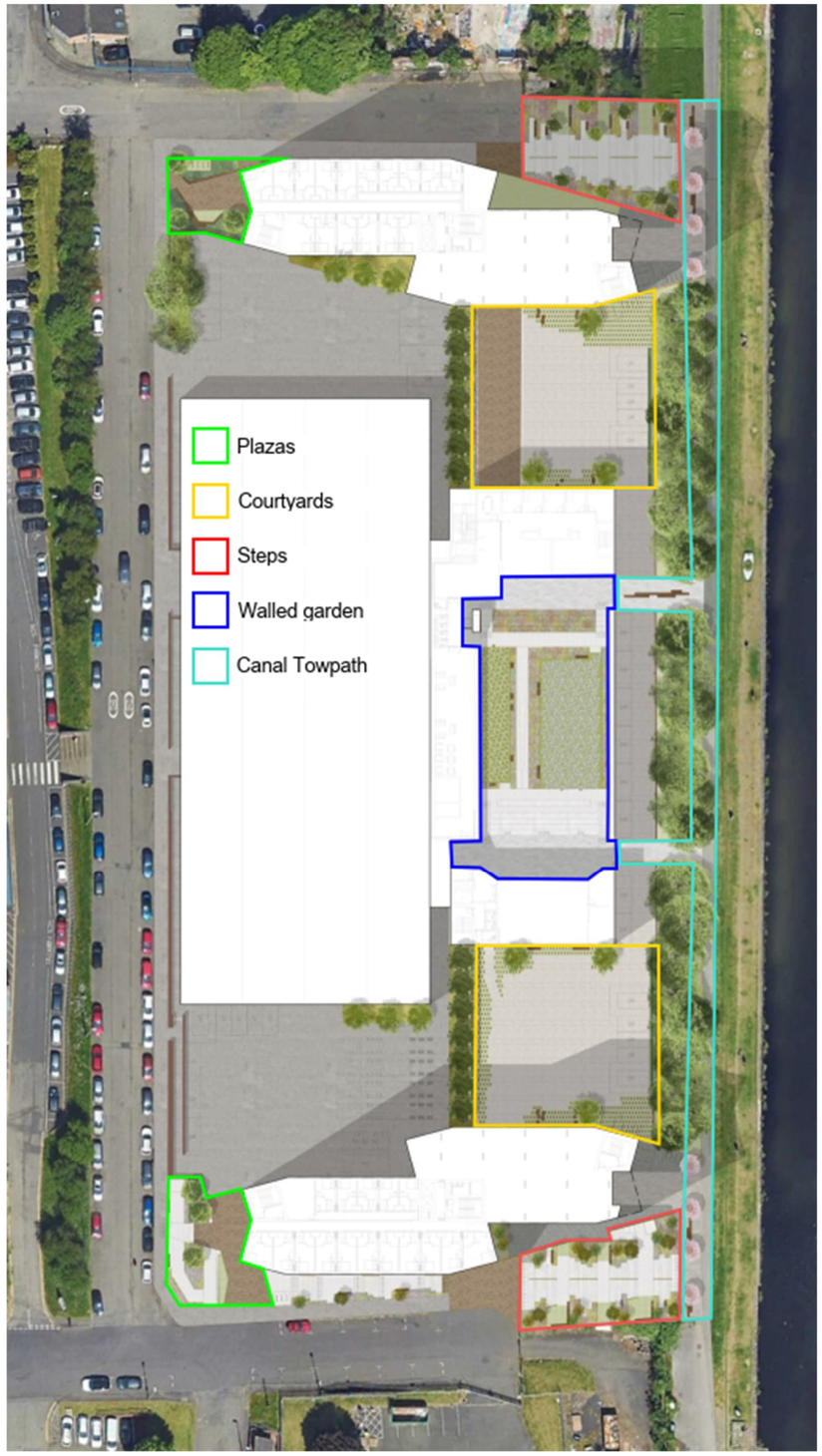

Figure 25 - Green Infrastructure Overview

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10.0 WATER EFFICIENCY AND FLOOD RISK

10.1 Flood Risk

In response to Glasgow City Development Plan CDP1, CDP2 and CDP8 + SG8, 5. Flood Risk Screening and 8. Surface Water Drainage Strategy + National Planning Framework 4 Policy 22

Risk
A Flood Risk Assessment was carried out for the site. This concludes that the site is not at risk of flooding from sea, fluvial, groundwater, surface water and local drainage. There is some risk of localised nuisance ponding and shallow flow within the eastern section of the site, but this would not have significant effects on the usage of the development. Below can be seen a surface water flood risk map from the SEPA website, showing some risk areas nearby on the existing Scottish Opera site, but not on the proposed development site.

Mitigation
The development will include an appropriate drainage strategy and will adopt the use of an appropriate Sustainable Drainage System (SuDS). The use of an appropriate SuDS will assist in mitigating the effects of surface water flooding within areas and decrease the impact of the increased hardstanding. Details of the strategy for across the site can be found in the next section.

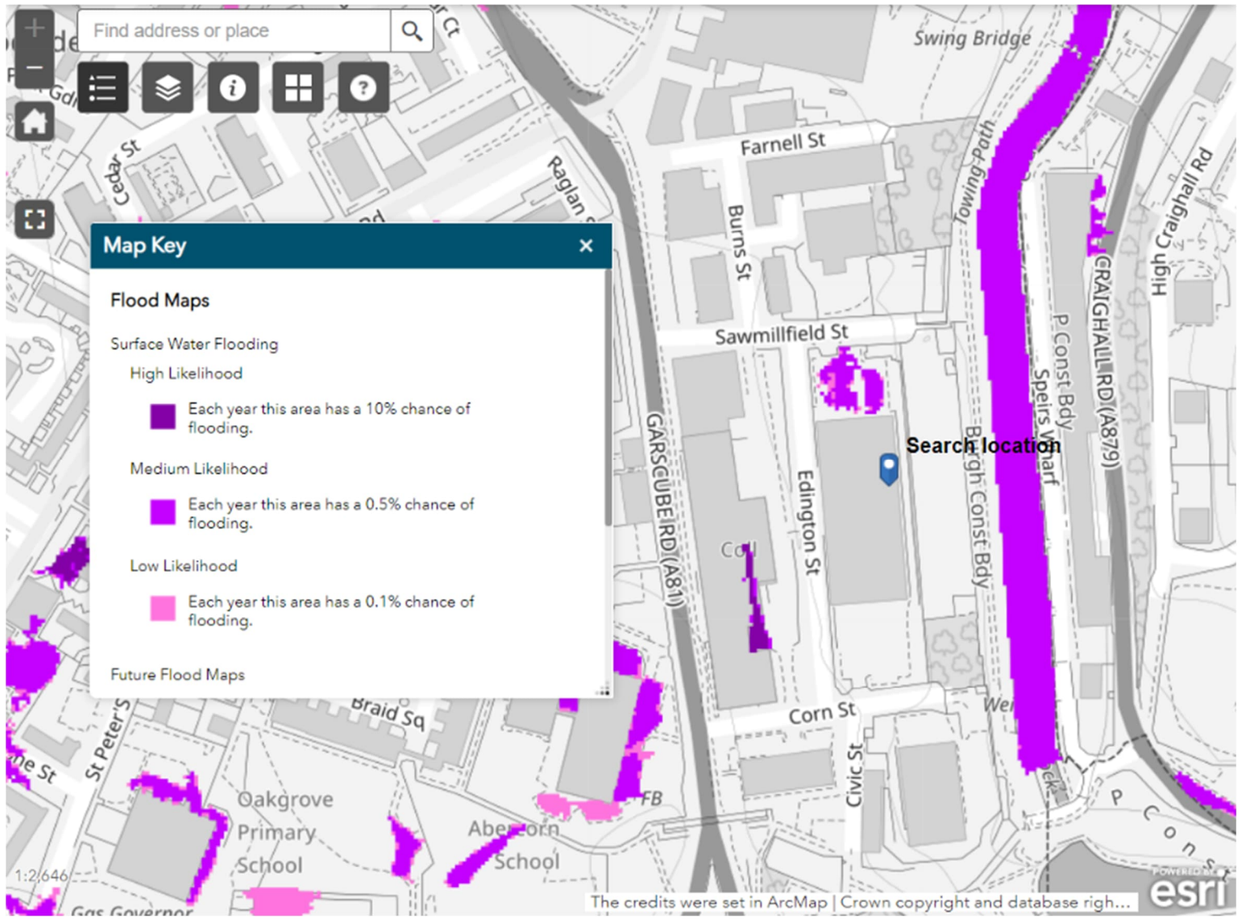

Figure 26 - Surface Water flooding map

10.2 Water Efficiency

In response to Glasgow City Development Plan CDP1, CDP2 and CDP8 + SG1, 1. Sustainable Development and SG8, 12. Sustainable Drainage Systems (SuDS) + National Planning Framework 4 Policy 22

Water Consumption
Low flow sanitaryware will be used throughout the PBSA and Scottish Opera buildings to minimise the use of potable water in all buildings. The following consumption levels could be targeted:

- WCs – 4.5L flush volume
- Wash hand basin taps – 4-5L/minute
- Showers – 8-10L/minute
- Kitchen taps – 5-6L/minute
- Domestic dishwashers – 12L/cycle
- Domestic washing machines – 30-40L/use

Leak detection and water monitoring systems will be included on all tanks and main water distribution to avoid wastage and reduce overall consumption.

Sustainable Drainage
The existing site drainage strategy is a conventional system of gullies and pipes. The new drainage system proposals will manage surface water in a more sustainable way. It is currently proposed to use a mixture of permeable paving, raingardens, and blue/green roofs to control the surface water volume and run-off from the site.

Surface water storage will be below ground, with the specified system containing a geotextile to filter out silt and gravel. The Scottish Opera building drainage system will connect to a public combined sewer and will be treated in case of future separation of foul and surface water.

Raingardens will allow surface water run-off to be used as a watering strategy for planting around the site, reducing water consumption further. They will also help to clean the water before it reaches the piped network. Areas of permeable paving will be used in public spaces around the building. These will be systems suitable for heavy vehicle traffic for durability.

For the PBSA, surface water storage is to be provided at roof level. This will be a combination of blue and green roof systems. Green roof systems would provide treatment and storage, and blue roof systems would be used for storage only. The extent of these is still to be confirmed. It is proposed to outfall the water into the canal. There is also potential to include some blue or green roof on the Scottish Opera building, also draining into the canal. This needs to be explored further as weight implications may change the structural requirements.

Figure 27 - UK Water Consumption Targets

Figure 28 – Enhanced Biodiversity – Cathcart Road SuDS (SG 8: Water Environment)

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11.0 CONCLUSION

The proposed New Rotterdam Wharf Development responds to local, regional, and national planning policies relating to sustainability. The Proposed Development's Sustainability initiatives cover the following:

Energy Efficiency: The energy strategy measures will be included to make the development as sustainable as possible, such as: all of the heating will be supplied by air source heat pumps, overheating and daylight assessments have been carried out to allow the building to be designed to reduce the need for cooling and lighting, and a fabric-first approach will be utilised to reduce heating and domestic hot water energy demand.

Low and Zero Carbon Technology: The feasibility for a variety of on-site LZCGT has been analysed. Use of ASHPs for the heating and cooling strategy, as well as rooftop PVs has been decided upon as the most effective use of LZCGT for this development. This will help to reduce the operational carbon of the development.

Resource Management: The material selection will be made with an aim to reduce Whole Life Carbon as far as possible, and lean design choices have been made in the structural design for all buildings on site. Circular Economy principles have been implemented in the design such as designing for adaptability and flexibility, efficient construction techniques, designing for ease of disassembly and material re-use. A site waste management plan will be put into place by the contractor, and sufficient space will be provided to allow for efficient waste management in operation.

Health and Wellbeing: Air quality, overheating risk and security of occupants have been carefully considered in the design of both the SO building and the PBSA. A Noise Impact Assessment has been completed, looking into the impact of noise on the community and the building occupants. Recommendations are to be implemented in the design.

Sustainable Travel: Car parking has been minimised, and all spaces are to be passive to allow for potential future installation of EV charging. Bike parking has been provided across the development, with end-of-journey facilities provided for staff in the SO building. A Transport Assessment has been completed, looking at the impact of the new development on the area. The development is situated in a location easily accessed by foot, bike, and various modes of public transport.

Green Infrastructure: An ecology report has been prepared, looking at the ecological value on the existing site and surrounding area. The planting strategy for the development will aim to increase biodiversity and the amount of Urban Greening. A variety of external amenity spaces will be provided, both open to the public and for private use. These spaces will facilitate planting, seating, event and socialisation spaces and connection to the canal towpath.

Water Efficiency and Flood Risk: The flood risk assessment completed confirmed the site as low risk from all types of flooding. Water efficiency measures will be implemented. The proposed surface water drainage strategy seeks to utilise a combination of Sustainable Drainage Systems such as permeable paving, green and blue roof systems, and rain gardens to provide attenuation and water quality improvements.

Figure 29 - Development image (Page/Park)

APPENDIX I – SUSTAINABILITY FOCUSED PLANNING POLICY

Glasgow City Development Plan (2017)
CDP 1 The Placemaking Principle

- Delivering sustainable buildings, areas and spaces that are attractive and enhance the quality of life for everyone;
- Demonstrating efforts to responsively engage with all stakeholders;
- Promoting connectivity, active travel, and public transport use rather than private car use;
- Ensuring new activity does not result in the deterioration of air quality
- Ensuring new activity does not introduce unacceptable additional noise

CDP 2 Sustainable Spatial Strategy

- Utilise brownfield sites in preference to greenfield sites;
- Meet the requirements of the Metropolitan Glasgow Strategic Drainage Partnership Scheme;
- Support the use of, and improved access to, the City's waterways
- Contribute towards the development of an active travel network and enhanced public transport accessibility

CPD 5 Resource Management

New buildings should include low and zero-carbon generating technologies (LZCGT) to offset a proportion of emissions arising from the use of the buildings. Building must receive a Gold level rating.

CDP 6 Green Belt and Green Network

Standards for the provision of open space in new development will be brought forward through the City's Open Space Strategy (OSS).

CDP 8 Water Environment

- Applicants will be required to demonstrate that proposals contribute to:
    - minimising and reducing flood risk;
    - avoiding any increased risk of flooding from any source either within the development site, or outwith the site as a consequence of the development; and
    - avoiding any increase in the quantity and rate of surface water run-off from any site.
- All development proposals will require to make satisfactory provision for Sustainable Urban Drainage Systems (SUDS)

CDP 11 Sustainable transport

The Council will require new developments to be designed to promote and facilitate walking and cycling, including the provision of cycle parking and direct connections to the walking, and cycling network.

SG1 The Placemaking Principle
1.63: All new development in Glasgow will be expected to incorporate a range of resource efficiency measures in order to minimise energy consumption, reduce CO2 emissions and make best use of the City's natural resources.

1.65: All new development should consider potential solar gain and the prevailing wind direction when siting buildings.

1.67: Massing should also be considered in terms of the ability to maximise natural energy.

1.69: Building Design - Individual buildings should be designed to reduce energy consumption.

1.70: The Council will expect developments to incorporate water conservation measures designed to minimise mains water usage.

1.73: Developers should also consider incorporating green roofs, green walls, and other green infrastructure.

7.1: All new developments must include appropriate and well-designed provision for waste storage, recycling, and collection.

SG5 Resource Management
4.2: Policy CDP5 Resource Management requires all new developments to be designed to reduce the need for energy from the outset.

5.21: Applicants shall submit a Statement on Energy (see Section 7 of this SG) proportionate to the scale of their proposed development.

6.1: Scotland's Zero Waste Plan sets out the Scottish Government's vision for a zero-waste society, and envisages that, by 2025, 70 per cent of all waste will be recycled and a maximum of 5 per cent sent to landfill.

6.5: SPP indicates that planning policies and decisions should help to reduce waste, facilitate its management, and promote resource recovery. Para 176 states that the planning system should:

- promote developments that minimise the unnecessary use of primary materials and promote efficient use of secondary materials;
- support the emergence of a diverse range of new technologies and investment opportunities to secure economic value from secondary resources, including reuse, refurbishment, remanufacturing and reprocessing;

7.2: A Statement on Energy shall include:

- LZCGT feasibility report
- An SAP/SBEM calculation output showing a compliant DER/BER with LZCGT included;
- An SAP/SBEM calculation output indicating the DER/BER with the renewables removed allowing the percentage reduction due to renewables to be calculated;
- An explanation of key energy efficient design measures implemented, including materials;
- Reductions of CO2 emissions through the use of renewable energy technologies;
- Details of the viability of the installation of new, or connection to existing, District Heating networks
- Where developments are unable to meet low and zero carbon targets, a clear explanation of the technical and practical constraints of the development.

SG7 Natural Environment
2.2: A typical site appraisal should:

a) highlight any designations (including Local Geodiversity Sites) on or near to the site;
b) identify potential important habitats (mature trees, woodland, hedgerows, ponds, or watercourses);
c) identify if protected species are likely to be in, or near, the site;
d) give an indication of the ecological data required for progressing a planning application; and
e) recommend if more detailed surveys will be necessary.

5.2:

- Development shall not result in a loss of biodiversity or habitat connectivity. Wherever possible, development shall enhance biodiversity and/or habitat connectivity.
- Sustainable Drainage Systems (SuDS) require to be provided to support most new developments,
- Habitat and species surveys shall be carried out prior to any form of site disturbance including ground investigation works.

8.11: Proposed tree removals or retentions should be submitted for consideration as part of the planning application.

SG8 Water Environment
5.1: Planning applications of 5 or more dwellings or introducing a new building of more than 250 sq. metres ground floor area will require to be accompanied by a completed Flood Risk Screening checklist.

5.6: If any flood risks are identified during the screening exercise, there will be a requirement to carry out a Flood Risk Assessment (FRA).

8.2: The site drainage strategy will require to set out the following:

- To which network/waterbody will surface water will be discharged;
- Water quality treatment requirements (Sustainable Drainage Systems (SuDS));
- Strategy to manage in-curtilage, roads, and open space drainage;
- Percentage of permeable area within in the development;
- Attenuation requirements;
- Attenuation measures and
- How the design has taken account of placemaking principles.

SG10 Meeting Housing Needs
2.6: The Council will generally support student accommodation in locations with good access to university and college facilities by active travel routes and/or public transport.

SG11 Sustainable Transport
3.10: To ensure new developments are designed to facilitate and promote walking and cycling, and as an integral part of a placemaking approach:

a) the design of new developments should be permeable for pedestrians and cyclists and be inclusive;
b) developments should provide direct access to public transport facilities, the existing path network and the wider network of cycle routes;
c) major destinations/entrances within new developments should be located where they would help minimise journey lengths for pedestrians and cyclists;
d) pedestrian and cycle routes within new developments should be on the desire line;

e) development proposals located on, or beside, a walking and/or cycling route should incorporate links to it;
f) pedestrian and cycle access should be provided for the public on an unrestricted 24-hour basis;
g) paths and cycle routes should be designed and built to accord with standards and design guidance.

4.3: The Council shall require the provision of cycle parking in new development and redevelopment proposals in line with the minimum cycle parking standards.

a) Wherever possible, employee cycle parking should be located within buildings or a secure compound.
b) Cycle parking for residents should, generally, be located within, or to the rear of, the residential building.
c) Bike storage lockers/cupboards allocated to each unit, or cycle stands in a secure, covered compound, are the preferred solution for flatted developments.
d) Visitor parking should be located at an easily accessible location.
e) Cycle parking should always be safe, sheltered, and secure.
f) Employment sites shall provide on-site showers, lockers, changing and drying facilities.

Student Flats/Halls of Residence:

- 1 space per 2 staff and residents

Offices and Business (including Science Parks and ancillary office use (Class 4))

- Staff: 1 space per 120 sqm gross floor area
- Visitor: 1 space per 500 sqm gross floor area

6.1: To encourage the use of non-car transport modes, this SG sets out maximum car parking standards for certain types of development.

Halls of Residence

- City Centre
  - Basic - 0
  - Maximum - 1 space per 30 students and staff.
- High Accessibility
  - Basic - 1 space per 30 students and staff.
  - Maximum - 1 space per 20 students and staff.
- Base Accessibility
  - Basic - 1 space per 20 students and staff.
  - Maximum - 1 space per 15 students and staff.

Office and Business

- City Centre, 0.4 spaces per staff.
- High Accessibility, Inner Urban Area 1.5 spaces per staff.
- High Accessibility, Outer Urban Area 3.0 spaces per staff.

6.11: Provision for electric vehicle charging should be made in accordance with Section 7 of this SG.

Residential (over 10 units) with communal off-street parking provision

- 100%

Office and Business (over 500 sqm)

- Minimum Passive 20%
- Minimum Active 5% of operational and staff parking combined.

10.6: The Council requires the submission of a TA to support development applications that are likely to have significant transport implications.

10.7: TAs will be expected to cover all transport considerations, including public transport, walking, and cycling. TAs must demonstrate how traffic generation has been minimised and that the local road and path network is capable of coping with the impacts of the development without adverse effects.

National Planning Framework 4
Policy 1 Tackling the climate and nature crisis

When considering all development proposals significant weight will be given to the global climate and nature crises.

Policy 2 Climate mitigation and adaptation

a) Development proposals will be sited and designed to minimise lifecycle greenhouse gas emissions as far as possible.

b) Development proposals will be sited and designed to adapt to current and future risks from climate change.

Policy 3 Biodiversity

Development proposals will contribute to the enhancement of biodiversity, including restoring degraded habitats, and building and strengthening nature networks.

Policy 9 Brownfield, vacant and derelict land, and empty buildings

Development proposals that will result in the sustainable reuse of brownfield land including vacant and derelict land and buildings, whether permanent or temporary, will be supported.

Policy 11 Energy

Development proposals for all forms of renewable, low-carbon and zero emissions technologies will be supported.

Policy 12 Zero waste

Development proposals will seek to reduce, reuse, or recycle materials in line with the waste hierarchy.

Development proposals will be supported where they:

i. reuse existing buildings and infrastructure;
ii. minimise demolition and salvage materials for reuse;
iii. minimise waste, reduce pressure on virgin resources and enable building materials, components, and products to be disassembled, and reused at the end of their useful life;
iv. use materials with the lowest forms of embodied emissions;
v. use materials that are suitable for reuse with minimal reprocessing.

Development proposals that are likely to generate waste when operational, will set out how much waste the proposal is expected to generate and how it will be managed.

Policy 13 Sustainable transport

Provide direct, easy, segregated, and safe links to local facilities via walking, wheeling and cycling networks before occupation;

i. ii. Will be accessible by public transport, ideally supporting the use of existing services;
ii. Integrate transport modes;
iii. Provide low or zero-emission vehicle and cycle charging points in safe and convenient locations, in alignment with building standards;
iv. Supply safe, secure and convenient cycle parking to meet the needs of users and which is more conveniently located than car parking

Policy 15 Local Living and 20 minute neighbourhoods

Development proposals will contribute to local living including, where relevant, 20 minute neighbourhoods To establish this, consideration will be given to existing settlement pattern, and the level and quality of interconnectivity of the proposed development with the surrounding area, including local access to:

- sustainable modes of transport including local public transport and safe, high quality walking, wheeling, and cycling networks;
- employment;
- shopping;
- health and social care facilities;
- childcare, schools and lifelong learning opportunities;
- playgrounds and informal play opportunities, parks, green streets and spaces, community gardens, opportunities for food growth and allotments, sport and recreation facilities;
- publicly accessible toilets;
- affordable and accessible housing options, ability to age in place and housing diversity.

Policy 19 Heat and cooling

Where a heat network is planned but not yet in place, development proposals will only be supported where they are designed and constructed to allow for cost-effective connection at a later date.

Policy 20 Blue and green infrastructure

Development proposals for or incorporating new or enhanced blue and/or green infrastructure will be supported. Where appropriate, this will be an integral element of the design that responds to local circumstances.

Policy 22 Flood risk and water management

Development proposals will:

i. not increase the risk of surface water flooding to others, or itself be at risk.
ii. manage all rain and surface water through sustainable urban drainage systems (SUDS);
iii. seek to minimise the area of impermeable surface.

APPENDIX II – ENERGY STATEMENT PRO-FORMA

ANNEX A: STATEMENT ON ENERGY

This Statement on Energy analyses the energy and CO2 savings that can be achieved by utilising energy efficient design, practice and technologies from the outset of a proposed development. This form should be completed by a registered SAP assessor (for domestic) or Low carbon energy assessor (for non-domestic). This form is for planning applications **submitted after 1 September 2018**.

A. Sustainability level to be achieved

Option 1 Gold Hybrid (●) Option 2 Nearly Zero Emissions ( ) Option 3 Net-Zero Carbon ( )

B. Planning Application Number and Summary of Development

The proposal is for a new rehearsal and office space for Scottish Opera, and two blocks of Purpose-Built Student Accommodation (PBSA). The Scottish Opera Building comprises basement, ground floor and first floor, then two 2-storey pavilions on the roof. The building will be connected to the existing Scottish Opera Production Studios adjacent. The North and South PBSA blocks are comprised of basement and ground floors with plant and amenity spaces, with a further 15 and 20 floors respectively dedicated to student residential studios, with some

C. Energy Efficient Design Measures

Please explain the key energy efficient design features, including materials.

Passive design measures are prioritised, starting with achieving low building fabric U-values, and excellent air tightness. Solar heat gains are mitigated through the use of shading from the roof, structural elements of the facade, surrounding buildings and solar control glass. In the PBSA blocks heat pumps are used to generate Domestic Hot Water which will be the dominant energy load. A reversible heat pump is proposed to provide heating and cooling for the communal spaces in the PBSA blocks and electric heaters in bedrooms. In the

D. Energy Efficiency Measures

Please explain the measures utilised (e.g. BMS, smart meters, controls, specification, etc.)

All buildings will be provided with building management systems and automatic energy metering systems to enable building operators to monitor, manage and optimise energy use. Intuitive and responsive control systems will be installed throughout. For example: demand controlled ventilation will be incorporated to reduce air flow rates when occupancies are lower; zone controlled heating systems; automatic lighting controls will reduce lighting energy. Heat, electrical and water meters will monitor energy use to allow the building occupants to

E. Decentralised Heat

Is there an existing or proposed decentralised heat network in this area?	YES ☐	NO ☑
If yes, will the development link to the decentralised heat network?	YES ☐	NO ☑

If the development will not link in to an existing or proposed decentralised heat network please explain why below:

There is presently no decentralised heating networks (DHN) exist near the proposed site. As part of the Glasgow City Council LHEES it is proposed that a DHN will be available in future so the buildings will be designed to accept a DHN connection in future.

If there is no proposed or existing decentralised heat network available, will the development install its own decentralised heat network?	YES ☐	NO ☑

If yes, please describe the proposed network below:

If no, please explain why not below:

There is no decentralised heat network (DHN) currently available in the local area but as part of the Glasgow City Council Local Heat and Energy Efficiency Strategy it is proposed that this will become available in the future. At this point the strategy for each of the buildings is to use centralised air source heat pumps for each building. In future when these have reached the end of their design life, if there is a DHN available the

What is the main heating source?

F. Low and Zero Carbon Generating Technologies (LZCGT): Proposed Technologies

Please tick chosen LZCGT:

Photovoltaics	✔	Solar thermal		Geothermal	
Micro-wind		Air source heat pump	✔	Biomass	
Micro-hydro		Ground source heat pump		CHP	
Fuel cells		Water source heat pump		Heat Exchange & Recovery Systems	
Other (please name)					

Please explain why this is the most appropriate LZCGT for the development including reference to: design considerations (see SG1: Placemaking); size of the scheme; expected output in energy consumption (kWh per year); carbon emissions savings when compared with non-renewable energy source (tonnes of CO2 per year); and its location in relation to other buildings on-site and any sensitive receptors on or off-site.

A review of potential LZCG technologies has been undertaken, and two were found to have clear advantages for decarbonisation of this project: photovoltaic panels (PVs), to generate electricity from sunlight, and air-source heat pumps (ASHPs), to provide Low-Temperature Hot Water (LTHW) for space heating and hot water. The combination of these technologies is complimentary on a number of levels – for example, the electricity generated by the PVs can act as an energy source for ASHP units, effectively providing low-cost and low-carbon heat and domestic hot water. Furthermore the high unit-cost of electricity and relatively low cost of PVs mean that by generating high-grade energy (electricity) PVs perform better than solar-thermal panels in the context of this scheme.
From the perspective of reducing carbon emissions however, due to their very high efficiency (coupled with ongoing decarbonisation of grid electricity in Scotland) the ASHP systems will be the dominant method of reducing carbon emissions - throughout their lifetime.

G. Estimated Energy Consumption of the Development

Using the Standard Assessment Procedure Energy Rating (SAP) for dwellings and the Simplified Building Energy Model (SBEM) for all other developments, please supply the following:

1	The **Target Emissions Rate (TER)**, which is an output from the SAP/SBEM calculation.	18.31
2	The **Compliant Dwelling or Building Emissions Rate (DER/BER)**, which is the predicted CO2 emissions for the actual proposal, which includes the low and zero carbon generating technology (LZCGT).	13.65
3	**Re-calculation of the DER/BER without the low and zero carbon generating technologies.**	21.68
4	**The percentage reduction in carbon due to renewables:** [(1-(Step 2 ÷ Step 3)) x100]	37%

Note:
When calculating the energy contribution and CO2 emissions saved from the LZC installation the following rules should be applied:

1. The net yield of the LZC installation(s) must be used (i.e. subtract any CO2 related to the energy used by the LZC technology itself such as pumps, inverters, controllers, etc).
2. The percentage CO2 savings should be calculated using the following assumptions:
   a. It should be assumed that renewable heat energy is displacing natural gas.
   b. Renewable electrical energy is displacing grid electricity at the national CO2 conversion rate.

H. Estimated Annual Energy Consumption of the Development

Gas consumption (kWh per year)	0
Electricity consumption (kWh per year)	991,100
Others fuels (annual units, depending on the source fuel)	0

I. SAP/LCEA Assessors Details

Name of SAP/LCEA assessor	Raj Chall
Name of SAP/LCEA assessor company	Scottish Energy Services
Name of SAP/LCEA assessor protocol body and registration details	raj@scottishenergyservices.co.uk

Print Email

Development and Regeneration Services Privacy Statement for Planning and Building Standards Statutory Functions under the Town and Country Planning (Scotland) Act 1997, Building (Scotland) Act 2003, Licensing (Scotland) Act 2005, Civic Government (Scotland) Act 1982 and related legislation.

Who we are?

Glasgow City Council is a local authority established under the Local Government etc. (Scotland) Act 1994. Its head office is located at City Chambers, George Square, Glasgow G2 1DU, United Kingdom. You can contact our Data Protection Officer by post at this address, by email at: dataprotection@glasgow.gov.uk, and by phone on 0141 287 1055.

Why do we need your personal information and what do we do with it?

You are giving us your personal information to allow us to allow us to carry out our statutory functions under the Town and Country Planning (Scotland) Act 1997, Building (Scotland) Act 2003, Licensing (Scotland) Act 2005, Civic Government (Scotland) Act 1982 and related legislation. We also use your information to verify your identity where required, contact you by post, email or telephone and to maintain our records.

Legal basis for using your information:

We provide these services to you as part of our statutory function as your local authority. You can find more details of our role on our website at www.glasgow.gov.uk/privacy. Processing your personal information is necessary for the performance of a task carried out in the public interest by the council and necessary for compliance with a legal obligation to which the council is subject.

If you do not provide us with the information we have asked for then we will not be able to provide this service to you.

We also in some cases need to process more sensitive personal information about you for reasons of substantial public interest as set out in the Data Protection Act 2018. It is necessary for us to process it to carry out key functions as set out in law.

Who do we share your information with?

We are legally obliged to safeguard public funds so we are required to verify and check your details internally for fraud prevention. We may share this information with other public bodies (and also receive information from these other bodies) for fraud checking purposes.

We are also legally obliged to share certain data with other public bodies, such as HMRC and will do so where the law requires this. We will also generally comply with requests for specific information from other regulatory and law enforcement bodies where this is necessary and appropriate. Your information is also analysed internally to help us improve our services.

This data sharing is in accordance with our Information Use and Privacy Policy and covered in our full privacy statement on our website. It also forms part of our requirements in line with our Records Management Plan approved in terms of the Public Records (Scotland) Act 2011.

Personal data you have provided will also be made available online as required to allow us to carry out our statutory functions under the Town and Country Planning (Scotland) Act 1997, Building (Scotland) Act 2003, Licensing (Scotland) Act 2005, Civic Government (Scotland) Act 1982 and related legislation. We may also share your personal data which you have provided with other statutory bodies and consultees.

How long do we keep your information for?

We only keep your personal information for the minimum period amount of time necessary. Sometimes this time period is set out in the law, but in most cases it is based on the business need. We maintain a records retention and disposal schedule which sets out how long we hold different types of information for.

You can view this on our website at www.glasgow.gov.uk/rrds or you can request a hard copy from the contact address stated above.

Your rights under data protection law:

- **Access to your information** – you have the right to request a copy of the personal information that we hold about you.

- **Correcting your information** – we want to make sure that your personal information is accurate, complete and up to date. Therefore you may ask us to correct any personal information about you that you believe does not meet these standards.

- **Deletion of your information** – you have the right to ask us to delete personal information about you where:

  - you think that we no longer need to hold the information for the purposes for which it was originally obtained
  - you have a genuine objection to our use of your personal information – see *Objecting to how we may use your information* below
  - our use of your personal information is contrary to law or our other legal obligations.

- **Objecting to how we may use your information** – You have the right at any time to tell us to stop using your personal information for direct marketing purposes.

- **Restricting how we may use your information** – in some cases, you may ask us to restrict how we use your personal information. This right might apply, for example, where we are checking the accuracy of personal information that we hold about you or we are assessing the objection you have made to our use of your information.

  This right might also apply if we no longer have a basis for using your personal information but you don't want us to delete the data. Where this right is realistically applied will mean that we may only use the relevant personal information with your consent, for legal claims or where there are other public interest grounds to do so.

Please contact us as stated above if you wish to exercise any of these rights.

Information you have given us about other people:

If you have provided anyone else's details on this form, please make sure that you have told them that you have given their information to Glasgow City Council. We will only use this information to contact them in relation to the application you have made or in carrying out the related planning or building standards function. If they want any more information on how we will use their information they can visit our web site at www.glasgow.gov.uk/privacy or email dataprotection@glasgow.gov.uk.

Complaints

We aim to directly resolve all complaints about how we handle personal information. If your complaint is about how we have handled your personal information, you can contact the Council's Data Protection Officer by email at dataprotection@glasgow.gov.uk or by phone on 0141 287 1055.

However, you also have the right to lodge a complaint with the Information Commissioner's Office, who can be contacted by post at: Information Commissioner's Office, Wycliffe House, Water Lane, Wilmslow, Cheshire SK9 5AF. By phone on 0303 123 1113 (local rate) or 01625 545 745 or Visit their website for more information at https://ico.org.uk/concerns.

Please note if your complaint is not about a data protection matter or concerns the handling of personal information please contact us using the complaints procedures in place at https://www.glasgow.gov.uk/complaints.

More information

For more details on how we process your personal information visit www.glasgow.gov.uk/privacy
If you do not have access to the internet you can contact us via telephone to request hard copies of our documents.

APPENDIX III – BRUKL OUTPUTS

Apache Specification Information

Scottish Building Regulations 2022 Section 6 Guidance

Carbon Dioxide Emissions, Energy Consumption, U-Values, Air Permeability, and HVAC

Project name

150m2_PV_TGU

Date: Tue Feb 06 09:28:13 2024

Administrative information

Building Details

Address: Address 1, City, Postcode

Agent details

Name: Name

Telephone number: Phone

Address: Street Address, City, Postcode

Certification tool

Calculation engine: Apache

Calculation engine version: 7.0.24.0

Interface to calculation engine: IES Virtual Environment

Interface to calculation engine version: 7.0.24.0

Compliance module version: v6.1.e.1

Foundation area [m^2]: 728.13

1- The predicted CO_2 emissions and energy consumption

Target CO_2 emission rate (TER), $kgCO_2/m^2$annum	6.1	
Building CO_2 emission rate (BER), $kgCO_2/m^2$annum	4.6	
Target delivered energy rate (TDER), kWh/m^2annum	36.27	
Building delivered energy rate (BDER), kWh/m^2annum	31.23	
Do the building's emission and delivered energy rates exceed the targets?	TER N/A	BDER =< TDER

2- The performance of the building fabric and the building services systems

Fabric element	$U_{a\text{-}Limit}$	$U_{a\text{-}Calc}$	$U_{i\text{-}Limit}$	$U_{i\text{-}Calc}$	First surface with maximum value
Walls	0.21	0.15	0.7	0.21	L3000016:Surf[27]
Floors	0.18	0.1	0.7	0.1	L000000A:Surf[0]
Roofs	0.16	0.1	0.35	0.1	L0000008:Surf[1]
Windows* and roof windows	1.6	0.81	3.3	1.1	L3000016:Surf[29]
Rooflights**	2.2	-	3.8	-	No roof lights in building
Personnel doors	1.4	0.71	3.3	0.71	L200003E:Surf[1]
Vehicle access & similar large doors	1.5	-	3.3	-	No vehicle access doors in building
High usage entrance doors	3	-	N/A	-	No high usage entrance doors in building

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

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

Air Permeability	This building's value
m3/(h.m2) at 50 Pa	4

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	>0.95

1- J7374_Electric Radiators

	Heating efficiency	**Cooling efficiency**	**Radiant efficiency**	**SFP [W/(l/s)]**	**HR efficiency**
This system	1	-	0.2	-	0.85
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- J7374_Amenity_VRF+ MVHR

	Heating efficiency	**Cooling efficiency**	**Radiant efficiency**	**SFP [W/(l/s)]**	**HR efficiency**
This system	3.42	5.78	0	1.8	0.85
Standard value	2.5*	N/A	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.

3- J7374_Stairs_VRF

	Heating efficiency	**Cooling efficiency**	**Radiant efficiency**	**SFP [W/(l/s)]**	**HR efficiency**
This system	3.42	-	0.2	1.8	0.85
Standard value	2.5*	N/A	N/A	1.9^	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.

1- J7374_DHW

	Water heating efficiency	**Storage loss factor [kWh/litre per day]**
This building	3.65	-
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**		
Standard value	0.3	1.1	0.5	2.3	2	0.5	0.5	0.4	1	**Zone**	**Standard**
L2_Bedroom	-	-	-	0.8	-	-	-	-	-	-	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**
L2_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L2_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L2_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L2_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L2_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L2_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L2_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L2_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L2_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L2_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L2_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L2_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L2_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L2_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L3_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L3_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L3_Studio	-	-	-	0.8	-	-	-	-	0.4	-	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**
L3_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L3_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L3_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L3_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L3_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L3_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L3_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L3_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L3_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	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
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bedroom	-	-	-	0.8	-	-	-	-	-	-	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**
L5_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	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**
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	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
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	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
L7_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	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
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	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
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	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
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Bedroom	-	-	-	0.8	-	-	-	-	-	-	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**
L10_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	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**
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	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**
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	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**
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	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**
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L13_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L13_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L13_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L13_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L13_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L13_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L13_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L13_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L13_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L13_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L13_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L13_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_Bedroom	-	-	-	0.8	-	-	-	-	-	-	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**
L14_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L14_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L14_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L14_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L14_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L14_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L14_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L14_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L14_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L14_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L14_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L14_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L14_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L15_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L15_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L15_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L15_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L15_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L15_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L15_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L15_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L15_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L15_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L15_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L15_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L15_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L15_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L15_Studio	-	-	-	0.8	-	-	-	-	0.4	-	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**
L15_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L15_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L15_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L15_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L15_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L15_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L15_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L15_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L15_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L15_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L15_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L15_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L15_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L15_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L15_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L15_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L15_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L15_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L16_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L16_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L16_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L16_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L16_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L16_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L16_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L16_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L16_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L16_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L16_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L16_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L16_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L16_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L16_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L16_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L16_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L16_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L16_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L16_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L16_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L16_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L16_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L16_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L16_WC	-	-	-	0.8	-	-	-	-	-	-	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**
L16_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L16_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L16_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L16_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L16_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L16_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L16_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L16_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L17_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L17_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L17_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L17_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L17_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L17_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L17_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L17_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L17_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L17_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L17_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L17_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L17_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L17_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L17_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L17_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L17_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L17_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L17_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L17_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L17_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L17_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L17_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L17_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L17_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L17_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L17_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L17_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L17_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L17_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L17_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L17_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L17_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L18_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L18_Bedroom	-	-	-	0.8	-	-	-	-	-	-	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**
L18_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L18_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L18_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L18_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L18_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L18_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L18_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L18_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L18_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L18_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L18_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L18_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L18_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L18_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L18_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L18_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L18_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L18_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L18_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L18_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L18_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L18_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L18_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L18_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L18_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L18_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L18_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L18_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L18_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L18_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L18_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L19_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L19_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L19_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L19_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L19_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L19_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L19_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L19_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L19_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L19_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L19_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L19_Studio	-	-	-	0.8	-	-	-	-	0.4	-	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**
L19_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L19_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L19_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L19_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L19_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L19_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L19_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L19_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L19_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L19_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L19_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L19_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L19_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L19_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L19_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L19_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L19_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L19_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L19_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L19_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L19_WC	-	-	-	0.8	-	-	-	-	-	-	N/A

General lighting and display lighting	General luminaire	Display light source	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m^2]**
Standard value	95	80	0.3
L0_Circulation	100	-	-
L0_Circulation	100	-	-
L0_Plant	100	-	-
L0_Plant	100	-	-
L0_Plant	100	-	-
L0_Plant	100	-	-
L0_Shop	100	15	10
L0_Stair	100	-	-
L0_Stair	100	-	-
L0_StairLobby	100	-	-
L1_CommunalDiningArea	100	-	-
L1_CommunalDiningArea	100	-	-
L1_Circulation	100	-	-
L1_Circulation	100	-	-
L1_Plant	100	-	-
L1_Plant	100	-	-
L1_Bike Storage	100	-	-
L1_Bin and recycling	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
L1_Plant	100	-	-
L1_Stair	100	-	-
L1_Stair	100	-	-
L1_Stair	100	-	-
L1_StairLobby	100	-	-
L1_StairLobby	100	-	-
L2_Bedroom	100	-	-
L2_Bedroom	100	-	-
L2_Bedroom	100	-	-
L2_Bedroom	100	-	-
L2_Bedroom	100	-	-
L2_Circulation	100	-	-
L2_Circulation	100	-	-
L2_Circulation	100	-	-
L2_Circulation	100	-	-
L2_ClusterKitchen	100	-	-
L2_Plant	100	-	-
L2_Plant	100	-	-
L2_Plant	100	-	-
L2_Stair	100	-	-
L2_Stair	100	-	-
L2_Stair	100	-	-
L2_StairLobby	100	-	-
L2_StairLobby	100	-	-
L2_Studio	100	-	-
L2_Studio	100	-	-
L2_Studio	100	-	-
L2_Studio	100	-	-
L2_Studio	100	-	-
L2_Studio	100	-	-
L2_Studio	100	-	-
L2_Studio	100	-	-
L2_Studio	100	-	-
L2_Studio	100	-	-
L2_Studio	100	-	-
L2_Studio	100	-	-
L2_Studio	100	-	-
L2_WC	100	-	-
L2_WC	100	-	-
L2_WC	100	-	-
L2_WC	100	-	-
L2_WC	100	-	-
L2_WC	100	-	-
L2_WC	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
L2_WC	100	-	-
L2_WC	100	-	-
L2_WC	100	-	-
L2_WC	100	-	-
L2_WC	100	-	-
L2_WC	100	-	-
L2_WC	100	-	-
L2_WC	100	-	-
L2_WC	100	-	-
L2_WC	100	-	-
L3_Bedroom	100	-	-
L3_Bedroom	100	-	-
L3_Bedroom	100	-	-
L3_Bedroom	100	-	-
L3_Bedroom	100	-	-
L3_Circulation	100	-	-
L3_Circulation	100	-	-
L3_Circulation	100	-	-
L3_ClusterKitchen	100	-	-
L3_Stair	100	-	-
L3_Stair	100	-	-
L3_Stair	100	-	-
L3_StairLobby	100	-	-
L3_StairLobby	100	-	-
L3_Studio	100	-	-
L3_Studio	100	-	-
L3_Studio	100	-	-
L3_Studio	100	-	-
L3_Studio	100	-	-
L3_Studio	100	-	-
L3_Studio	100	-	-
L3_Studio	100	-	-
L3_Studio	100	-	-
L3_Studio	100	-	-
L3_Studio	100	-	-
L3_WC	100	-	-
L3_WC	100	-	-
L3_WC	100	-	-
L3_WC	100	-	-
L3_WC	100	-	-
L3_WC	100	-	-
L3_WC	100	-	-
L3_WC	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
L3_WC	100	-	-
L3_WC	100	-	-
L3_WC	100	-	-
L3_WC	100	-	-
L3_WC	100	-	-
L3_WC	100	-	-
L3_WC	100	-	-
L3_WC	100	-	-
L4_Bedroom	100	-	-
L4_Bedroom	100	-	-
L4_Bedroom	100	-	-
L4_Bedroom	100	-	-
L4_Bedroom	100	-	-
L4_Bedroom	100	-	-
L4_Bedroom	100	-	-
L4_Bedroom	100	-	-
L4_Bedroom	100	-	-
L4_Bedroom	100	-	-
L4_Circulation	100	-	-
L4_Circulation	100	-	-
L4_Circulation	100	-	-
L4_Circulation	100	-	-
L4_Circulation	100	-	-
L4_ClusterKitchen	100	-	-
L4_ClusterKitchen	100	-	-
L4_Stair	100	-	-
L4_Stair	100	-	-
L4_Stair	100	-	-
L4_StairLobby	100	-	-
L4_StairLobby	100	-	-
L4_Studio	100	-	-
L4_Studio	100	-	-
L4_Studio	100	-	-
L4_Studio	100	-	-
L4_Studio	100	-	-
L4_Studio	100	-	-
L4_Studio	100	-	-
L4_Studio	100	-	-
L4_Studio	100	-	-
L4_Studio	100	-	-
L4_Studio	100	-	-
L4_Studio	100	-	-

General lighting and display lighting	General luminaire	Display light source	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m^2]**
Standard value	95	80	0.3
L4_Studio	100	-	-
L4_Studio	100	-	-
L4_Studio	100	-	-
L4_Studio	100	-	-
L4_Studio	100	-	-
L4_Studio	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
North Plant Roof	100	-	-
L5_Bedroom	100	-	-
L5_Bedroom	100	-	-
L5_Bedroom	100	-	-
L5_Bedroom	100	-	-
L5_Bedroom	100	-	-
L5_Bedroom	100	-	-
L5_Bedroom	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
L5_Bedroom	100	-	-
L5_Bedroom	100	-	-
L5_Bedroom	100	-	-
L5_Circulation	100	-	-
L5_Circulation	100	-	-
L5_Circulation	100	-	-
L5_Circulation	100	-	-
L5_Circulation	100	-	-
L5_ClusterKitchen	100	-	-
L5_ClusterKitchen	100	-	-
L5_Stair	100	-	-
L5_Stair	100	-	-
L5_Stair	100	-	-
L5_StairLobby	100	-	-
L5_StairLobby	100	-	-
L5_Studio	100	-	-
L5_Studio	100	-	-
L5_Studio	100	-	-
L5_Studio	100	-	-
L5_Studio	100	-	-
L5_Studio	100	-	-
L5_Studio	100	-	-
L5_Studio	100	-	-
L5_Studio	100	-	-
L5_Studio	100	-	-
L5_Studio	100	-	-
L5_Studio	100	-	-
L5_Studio	100	-	-
L5_Studio	100	-	-
L5_Studio	100	-	-
L5_Studio	100	-	-
L5_Studio	100	-	-
L5_Studio	100	-	-
L5_Studio	100	-	-
L5_WC	100	-	-
L5_WC	100	-	-
L5_WC	100	-	-
L5_WC	100	-	-
L5_WC	100	-	-
L5_WC	100	-	-
L5_WC	100	-	-
L5_WC	100	-	-
L5_WC	100	-	-

General lighting and display lighting	General luminaire	Display light source	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m^2]**
Standard value	95	80	0.3
L5_WC	100	-	-
L5_WC	100	-	-
L5_WC	100	-	-
L5_WC	100	-	-
L5_WC	100	-	-
L5_WC	100	-	-
L5_WC	100	-	-
L5_WC	100	-	-
L5_WC	100	-	-
L5_WC	100	-	-
L5_WC	100	-	-
L5_WC	100	-	-
L5_WC	100	-	-
L5_WC	100	-	-
L5_WC	100	-	-
L5_WC	100	-	-
L5_WC	100	-	-
L5_WC	100	-	-
L5_WC	100	-	-
L5_WC	100	-	-
L6_Bedroom	100	-	-
L6_Bedroom	100	-	-
L6_Bedroom	100	-	-
L6_Bedroom	100	-	-
L6_Bedroom	100	-	-
L6_Bedroom	100	-	-
L6_Bedroom	100	-	-
L6_Bedroom	100	-	-
L6_Bedroom	100	-	-
L6_Bedroom	100	-	-
L6_Circulation	100	-	-
L6_Circulation	100	-	-
L6_Circulation	100	-	-
L6_Circulation	100	-	-
L6_Circulation	100	-	-
L6_ClusterKitchen	100	-	-
L6_ClusterKitchen	100	-	-
L6_Stair	100	-	-
L6_Stair	100	-	-
L6_Stair	100	-	-
L6_StairLobby	100	-	-
L6_StairLobby	100	-	-
L6_Studio	100	-	-

General lighting and display lighting	**General luminaire**	**Display light source**	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m^2]**
Standard value	95	80	0.3
L6_Studio	100	-	-
L6_Studio	100	-	-
L6_Studio	100	-	-
L6_Studio	100	-	-
L6_Studio	100	-	-
L6_Studio	100	-	-
L6_Studio	100	-	-
L6_Studio	100	-	-
L6_Studio	100	-	-
L6_Studio	100	-	-
L6_Studio	100	-	-
L6_Studio	100	-	-
L6_Studio	100	-	-
L6_Studio	100	-	-
L6_Studio	100	-	-
L6_Studio	100	-	-
L6_Studio	100	-	-
L6_Studio	100	-	-
L6_WC	100	-	-
L6_WC	100	-	-
L6_WC	100	-	-
L6_WC	100	-	-
L6_WC	100	-	-
L6_WC	100	-	-
L6_WC	100	-	-
L6_WC	100	-	-
L6_WC	100	-	-
L6_WC	100	-	-
L6_WC	100	-	-
L6_WC	100	-	-
L6_WC	100	-	-
L6_WC	100	-	-
L6_WC	100	-	-
L6_WC	100	-	-
L6_WC	100	-	-
L6_WC	100	-	-
L6_WC	100	-	-
L6_WC	100	-	-
L6_WC	100	-	-
L6_WC	100	-	-
L6_WC	100	-	-
L6_WC	100	-	-
L6_WC	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
L6_WC	100	-	-
L6_WC	100	-	-
L6_WC	100	-	-
L6_WC	100	-	-
L7_Bedroom	100	-	-
L7_Bedroom	100	-	-
L7_Bedroom	100	-	-
L7_Bedroom	100	-	-
L7_Bedroom	100	-	-
L7_Bedroom	100	-	-
L7_Bedroom	100	-	-
L7_Bedroom	100	-	-
L7_Bedroom	100	-	-
L7_Bedroom	100	-	-
L7_Circulation	100	-	-
L7_Circulation	100	-	-
L7_Circulation	100	-	-
L7_Circulation	100	-	-
L7_Circulation	100	-	-
L7_ClusterKitchen	100	-	-
L7_ClusterKitchen	100	-	-
L7_Stair	100	-	-
L7_Stair	100	-	-
L7_Stair	100	-	-
L7_StairLobby	100	-	-
L7_StairLobby	100	-	-
L7_Studio	100	-	-
L7_Studio	100	-	-
L7_Studio	100	-	-
L7_Studio	100	-	-
L7_Studio	100	-	-
L7_Studio	100	-	-
L7_Studio	100	-	-
L7_Studio	100	-	-
L7_Studio	100	-	-
L7_Studio	100	-	-
L7_Studio	100	-	-
L7_Studio	100	-	-
L7_Studio	100	-	-
L7_Studio	100	-	-
L7_Studio	100	-	-
L7_Studio	100	-	-

General lighting and display lighting	General luminaire	Display light source	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m^2]**
Standard value	95	80	0.3
L7_Studio	100	-	-
L7_Studio	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L8_Bedroom	100	-	-
L8_Bedroom	100	-	-
L8_Bedroom	100	-	-
L8_Bedroom	100	-	-
L8_Bedroom	100	-	-
L8_Bedroom	100	-	-
L8_Bedroom	100	-	-
L8_Bedroom	100	-	-
L8_Bedroom	100	-	-
L8_Bedroom	100	-	-
L8_Circulation	100	-	-
L8_Circulation	100	-	-

General lighting and display lighting

	General luminaire	Display light source	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m^2]**
Standard value	95	80	0.3
L8_Circulation	100	-	-
L8_Circulation	100	-	-
L8_Circulation	100	-	-
L8_ClusterKitchen	100	-	-
L8_ClusterKitchen	100	-	-
L8_Stair	100	-	-
L8_Stair	100	-	-
L8_Stair	100	-	-
L8_StairLobby	100	-	-
L8_StairLobby	100	-	-
L8_Studio	100	-	-
L8_Studio	100	-	-
L8_Studio	100	-	-
L8_Studio	100	-	-
L8_Studio	100	-	-
L8_Studio	100	-	-
L8_Studio	100	-	-
L8_Studio	100	-	-
L8_Studio	100	-	-
L8_Studio	100	-	-
L8_Studio	100	-	-
L8_Studio	100	-	-
L8_Studio	100	-	-
L8_Studio	100	-	-
L8_Studio	100	-	-
L8_Studio	100	-	-
L8_Studio	100	-	-
L8_Studio	100	-	-
L8_Studio	100	-	-
L8_WC	100	-	-
L8_WC	100	-	-
L8_WC	100	-	-
L8_WC	100	-	-
L8_WC	100	-	-
L8_WC	100	-	-
L8_WC	100	-	-
L8_WC	100	-	-
L8_WC	100	-	-
L8_WC	100	-	-
L8_WC	100	-	-
L8_WC	100	-	-
L8_WC	100	-	-
L8_WC	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
L8_WC	100	-	-
L8_WC	100	-	-
L8_WC	100	-	-
L8_WC	100	-	-
L8_WC	100	-	-
L8_WC	100	-	-
L8_WC	100	-	-
L8_WC	100	-	-
L8_WC	100	-	-
L8_WC	100	-	-
L8_WC	100	-	-
L8_WC	100	-	-
L8_WC	100	-	-
L8_WC	100	-	-
L8_WC	100	-	-
L9_Bedroom	100	-	-
L9_Bedroom	100	-	-
L9_Bedroom	100	-	-
L9_Bedroom	100	-	-
L9_Bedroom	100	-	-
L9_Bedroom	100	-	-
L9_Bedroom	100	-	-
L9_Bedroom	100	-	-
L9_Bedroom	100	-	-
L9_Bedroom	100	-	-
L9_Circulation	100	-	-
L9_Circulation	100	-	-
L9_Circulation	100	-	-
L9_Circulation	100	-	-
L9_Circulation	100	-	-
L9_ClusterKitchen	100	-	-
L9_ClusterKitchen	100	-	-
L9_Stair	100	-	-
L9_Stair	100	-	-
L9_Stair	100	-	-
L9_StairLobby	100	-	-
L9_StairLobby	100	-	-
L9_Studio	100	-	-
L9_Studio	100	-	-
L9_Studio	100	-	-
L9_Studio	100	-	-
L9_Studio	100	-	-
L9_Studio	100	-	-

General lighting and display lighting	**General luminaire**	**Display light source**	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m^2]**
Standard value	95	80	0.3
L9_Studio	100	-	-
L9_Studio	100	-	-
L9_Studio	100	-	-
L9_Studio	100	-	-
L9_Studio	100	-	-
L9_Studio	100	-	-
L9_Studio	100	-	-
L9_Studio	100	-	-
L9_Studio	100	-	-
L9_Studio	100	-	-
L9_Studio	100	-	-
L9_Studio	100	-	-
L9_Studio	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L10_Bedroom	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
L10_Bedroom	100	-	-
L10_Bedroom	100	-	-
L10_Bedroom	100	-	-
L10_Bedroom	100	-	-
L10_Bedroom	100	-	-
L10_Bedroom	100	-	-
L10_Bedroom	100	-	-
L10_Bedroom	100	-	-
L10_Bedroom	100	-	-
L10_Circulation	100	-	-
L10_Circulation	100	-	-
L10_Circulation	100	-	-
L10_Circulation	100	-	-
L10_Circulation	100	-	-
L10_ClusterKitchen	100	-	-
L10_ClusterKitchen	100	-	-
L10_Stair	100	-	-
L10_Stair	100	-	-
L10_Stair	100	-	-
L10_StairLobby	100	-	-
L10_StairLobby	100	-	-
L10_Studio	100	-	-
L10_Studio	100	-	-
L10_Studio	100	-	-
L10_Studio	100	-	-
L10_Studio	100	-	-
L10_Studio	100	-	-
L10_Studio	100	-	-
L10_Studio	100	-	-
L10_Studio	100	-	-
L10_Studio	100	-	-
L10_Studio	100	-	-
L10_Studio	100	-	-
L10_Studio	100	-	-
L10_Studio	100	-	-
L10_Studio	100	-	-
L10_Studio	100	-	-
L10_Studio	100	-	-
L10_Studio	100	-	-
L10_Studio	100	-	-
L10_WC	100	-	-
L10_WC	100	-	-
L10_WC	100	-	-

General lighting and display lighting	**General luminaire**	**Display light source**	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m^2]**
Standard value	95	80	0.3
L10_WC	100	-	-
L10_WC	100	-	-
L10_WC	100	-	-
L10_WC	100	-	-
L10_WC	100	-	-
L10_WC	100	-	-
L10_WC	100	-	-
L10_WC	100	-	-
L10_WC	100	-	-
L10_WC	100	-	-
L10_WC	100	-	-
L10_WC	100	-	-
L10_WC	100	-	-
L10_WC	100	-	-
L10_WC	100	-	-
L10_WC	100	-	-
L10_WC	100	-	-
L10_WC	100	-	-
L10_WC	100	-	-
L10_WC	100	-	-
L10_WC	100	-	-
L10_WC	100	-	-
L10_WC	100	-	-
L10_WC	100	-	-
L10_WC	100	-	-
L10_WC	100	-	-
L11_Bedroom	100	-	-
L11_Bedroom	100	-	-
L11_Bedroom	100	-	-
L11_Bedroom	100	-	-
L11_Bedroom	100	-	-
L11_Bedroom	100	-	-
L11_Bedroom	100	-	-
L11_Bedroom	100	-	-
L11_Bedroom	100	-	-
L11_Bedroom	100	-	-
L11_Circulation	100	-	-
L11_Circulation	100	-	-
L11_Circulation	100	-	-
L11_Circulation	100	-	-
L11_Circulation	100	-	-
L11_ClusterKitchen	100	-	-
L11_ClusterKitchen	100	-	-

General lighting and display lighting	General luminaire	Display light source	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m^2]**
Standard value	95	80	0.3
L11_Stair	100	-	-
L11_Stair	100	-	-
L11_Stair	100	-	-
L11_StairLobby	100	-	-
L11_StairLobby	100	-	-
L11_Studio	100	-	-
L11_Studio	100	-	-
L11_Studio	100	-	-
L11_Studio	100	-	-
L11_Studio	100	-	-
L11_Studio	100	-	-
L11_Studio	100	-	-
L11_Studio	100	-	-
L11_Studio	100	-	-
L11_Studio	100	-	-
L11_Studio	100	-	-
L11_Studio	100	-	-
L11_Studio	100	-	-
L11_Studio	100	-	-
L11_Studio	100	-	-
L11_Studio	100	-	-
L11_Studio	100	-	-
L11_Studio	100	-	-
L11_Studio	100	-	-
L11_WC	100	-	-
L11_WC	100	-	-
L11_WC	100	-	-
L11_WC	100	-	-
L11_WC	100	-	-
L11_WC	100	-	-
L11_WC	100	-	-
L11_WC	100	-	-
L11_WC	100	-	-
L11_WC	100	-	-
L11_WC	100	-	-
L11_WC	100	-	-
L11_WC	100	-	-
L11_WC	100	-	-
L11_WC	100	-	-
L11_WC	100	-	-
L11_WC	100	-	-
L11_WC	100	-	-
L11_WC	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
L11_WC	100	-	-
L11_WC	100	-	-
L11_WC	100	-	-
L11_WC	100	-	-
L11_WC	100	-	-
L11_WC	100	-	-
L11_WC	100	-	-
L11_WC	100	-	-
L11_WC	100	-	-
L11_WC	100	-	-
L12_Bedroom	100	-	-
L12_Bedroom	100	-	-
L12_Bedroom	100	-	-
L12_Bedroom	100	-	-
L12_Bedroom	100	-	-
L12_Bedroom	100	-	-
L12_Bedroom	100	-	-
L12_Bedroom	100	-	-
L12_Bedroom	100	-	-
L12_Bedroom	100	-	-
L12_Circulation	100	-	-
L12_Circulation	100	-	-
L12_Circulation	100	-	-
L12_Circulation	100	-	-
L12_Circulation	100	-	-
L12_ClusterKitchen	100	-	-
L12_ClusterKitchen	100	-	-
L12_Stair	100	-	-
L12_Stair	100	-	-
L12_Stair	100	-	-
L12_StairLobby	100	-	-
L12_StairLobby	100	-	-
L12_Studio	100	-	-
L12_Studio	100	-	-
L12_Studio	100	-	-
L12_Studio	100	-	-
L12_Studio	100	-	-
L12_Studio	100	-	-
L12_Studio	100	-	-
L12_Studio	100	-	-
L12_Studio	100	-	-
L12_Studio	100	-	-
L12_Studio	100	-	-

General lighting and display lighting

	General luminaire	Display light source	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m^2]**
Standard value	95	80	0.3
L12_Studio	100	-	-
L12_Studio	100	-	-
L12_Studio	100	-	-
L12_Studio	100	-	-
L12_Studio	100	-	-
L12_Studio	100	-	-
L12_Studio	100	-	-
L12_Studio	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L13_Bedroom	100	-	-
L13_Bedroom	100	-	-
L13_Bedroom	100	-	-
L13_Bedroom	100	-	-
L13_Bedroom	100	-	-
L13_Circulation	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
L13_Circulation	100	-	-
L13_Circulation	100	-	-
L13_ClusterKitchen	100	-	-
L13_Stair	100	-	-
L13_Stair	100	-	-
L13_StairLobby	100	-	-
L13_Studio	100	-	-
L13_Studio	100	-	-
L13_Studio	100	-	-
L13_Studio	100	-	-
L13_Studio	100	-	-
L13_Studio	100	-	-
L13_Studio	100	-	-
L13_Studio	100	-	-
L13_Studio	100	-	-
L13_Studio	100	-	-
L13_Studio	100	-	-
L13_WC	100	-	-
L13_WC	100	-	-
L13_WC	100	-	-
L13_WC	100	-	-
L13_WC	100	-	-
L13_WC	100	-	-
L13_WC	100	-	-
L13_WC	100	-	-
L13_WC	100	-	-
L13_WC	100	-	-
L13_WC	100	-	-
L13_WC	100	-	-
L13_WC	100	-	-
L13_WC	100	-	-
L13_WC	100	-	-
L13_WC	100	-	-
L14_Bedroom	100	-	-
L14_Bedroom	100	-	-
L14_Bedroom	100	-	-
L14_Bedroom	100	-	-
L14_Bedroom	100	-	-
L14_Circulation	100	-	-
L14_Circulation	100	-	-
L14_Circulation	100	-	-
L14_ClusterKitchen	100	-	-
L14_Stair	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
L14_Stair	100	-	-
L14_StairLobby	100	-	-
L14_Studio	100	-	-
L14_Studio	100	-	-
L14_Studio	100	-	-
L14_Studio	100	-	-
L14_Studio	100	-	-
L14_Studio	100	-	-
L14_Studio	100	-	-
L14_Studio	100	-	-
L14_Studio	100	-	-
L14_Studio	100	-	-
L14_Studio	100	-	-
L14_Studio	100	-	-
L14_WC	100	-	-
L14_WC	100	-	-
L14_WC	100	-	-
L14_WC	100	-	-
L14_WC	100	-	-
L14_WC	100	-	-
L14_WC	100	-	-
L14_WC	100	-	-
L14_WC	100	-	-
L14_WC	100	-	-
L14_WC	100	-	-
L14_WC	100	-	-
L14_WC	100	-	-
L14_WC	100	-	-
L14_WC	100	-	-
L14_WC	100	-	-
L14_WC	100	-	-
L15_Bedroom	100	-	-
L15_Bedroom	100	-	-
L15_Bedroom	100	-	-
L15_Bedroom	100	-	-
L15_Bedroom	100	-	-
L15_Circulation	100	-	-
L15_Circulation	100	-	-
L15_Circulation	100	-	-
L15_ClusterKitchen	100	-	-
L15_Stair	100	-	-
L15_Stair	100	-	-
L15_StairLobby	100	-	-
L15_Studio	100	-	-
L15_Studio	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
L15_Studio	100	-	-
L15_Studio	100	-	-
L15_Studio	100	-	-
L15_Studio	100	-	-
L15_Studio	100	-	-
L15_Studio	100	-	-
L15_Studio	100	-	-
L15_Studio	100	-	-
L15_Studio	100	-	-
L15_WC	100	-	-
L15_WC	100	-	-
L15_WC	100	-	-
L15_WC	100	-	-
L15_WC	100	-	-
L15_WC	100	-	-
L15_WC	100	-	-
L15_WC	100	-	-
L15_WC	100	-	-
L15_WC	100	-	-
L15_WC	100	-	-
L15_WC	100	-	-
L15_WC	100	-	-
L15_WC	100	-	-
L15_WC	100	-	-
L15_WC	100	-	-
L15_WC	100	-	-
L16_Bedroom	100	-	-
L16_Bedroom	100	-	-
L16_Bedroom	100	-	-
L16_Bedroom	100	-	-
L16_Bedroom	100	-	-
L16_Circulation	100	-	-
L16_Circulation	100	-	-
L16_Circulation	100	-	-
L16_ClusterKitchen	100	-	-
L16_Stair	100	-	-
L16_Stair	100	-	-
L16_StairLobby	100	-	-
L16_Studio	100	-	-
L16_Studio	100	-	-
L16_Studio	100	-	-
L16_Studio	100	-	-
L16_Studio	100	-	-
L16_Studio	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
L16_Studio	100	-	-
L16_Studio	100	-	-
L16_Studio	100	-	-
L16_Studio	100	-	-
L16_Studio	100	-	-
L16_WC	100	-	-
L16_WC	100	-	-
L16_WC	100	-	-
L16_WC	100	-	-
L16_WC	100	-	-
L16_WC	100	-	-
L16_WC	100	-	-
L16_WC	100	-	-
L16_WC	100	-	-
L16_WC	100	-	-
L16_WC	100	-	-
L16_WC	100	-	-
L16_WC	100	-	-
L16_WC	100	-	-
L16_WC	100	-	-
L16_WC	100	-	-
L17_Bedroom	100	-	-
L17_Bedroom	100	-	-
L17_Bedroom	100	-	-
L17_Bedroom	100	-	-
L17_Bedroom	100	-	-
L17_Circulation	100	-	-
L17_Circulation	100	-	-
L17_Circulation	100	-	-
L17_ClusterKitchen	100	-	-
L17_Stair	100	-	-
L17_Stair	100	-	-
L17_StairLobby	100	-	-
L17_Studio	100	-	-
L17_Studio	100	-	-
L17_Studio	100	-	-
L17_Studio	100	-	-
L17_Studio	100	-	-
L17_Studio	100	-	-
L17_Studio	100	-	-
L17_Studio	100	-	-
L17_Studio	100	-	-
L17_Studio	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
L17_Studio	100	-	-
L17_WC	100	-	-
L17_WC	100	-	-
L17_WC	100	-	-
L17_WC	100	-	-
L17_WC	100	-	-
L17_WC	100	-	-
L17_WC	100	-	-
L17_WC	100	-	-
L17_WC	100	-	-
L17_WC	100	-	-
L17_WC	100	-	-
L17_WC	100	-	-
L17_WC	100	-	-
L17_WC	100	-	-
L17_WC	100	-	-
L17_WC	100	-	-
L17_WC	100	-	-
L18_Bedroom	100	-	-
L18_Bedroom	100	-	-
L18_Bedroom	100	-	-
L18_Bedroom	100	-	-
L18_Bedroom	100	-	-
L18_Circulation	100	-	-
L18_Circulation	100	-	-
L18_Circulation	100	-	-
L18_ClusterKitchen	100	-	-
L18_Stair	100	-	-
L18_Stair	100	-	-
L18_StairLobby	100	-	-
L18_Studio	100	-	-
L18_Studio	100	-	-
L18_Studio	100	-	-
L18_Studio	100	-	-
L18_Studio	100	-	-
L18_Studio	100	-	-
L18_Studio	100	-	-
L18_Studio	100	-	-
L18_Studio	100	-	-
L18_Studio	100	-	-
L18_Studio	100	-	-
L18_WC	100	-	-
L18_WC	100	-	-
L18_WC	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
L18_WC	100	-	-
L18_WC	100	-	-
L18_WC	100	-	-
L18_WC	100	-	-
L18_WC	100	-	-
L18_WC	100	-	-
L18_WC	100	-	-
L18_WC	100	-	-
L18_WC	100	-	-
L18_WC	100	-	-
L18_WC	100	-	-
L18_WC	100	-	-
L18_WC	100	-	-
L19_Bedroom	100	-	-
L19_Bedroom	100	-	-
L19_Bedroom	100	-	-
L19_Bedroom	100	-	-
L19_Bedroom	100	-	-
L19_Circulation	100	-	-
L19_Circulation	100	-	-
L19_Circulation	100	-	-
L19_ClusterKitchen	100	-	-
L19_Stair	100	-	-
L19_Stair	100	-	-
L19_StairLobby	100	-	-
L19_Studio	100	-	-
L19_Studio	100	-	-
L19_Studio	100	-	-
L19_Studio	100	-	-
L19_Studio	100	-	-
L19_Studio	100	-	-
L19_Studio	100	-	-
L19_Studio	100	-	-
L19_Studio	100	-	-
L19_Studio	100	-	-
L19_Studio	100	-	-
L19_WC	100	-	-
L19_WC	100	-	-
L19_WC	100	-	-
L19_WC	100	-	-
L19_WC	100	-	-
L19_WC	100	-	-
L19_WC	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
L19_WC	100	-	-
L19_WC	100	-	-
L19_WC	100	-	-
L19_WC	100	-	-
L19_WC	100	-	-
L19_WC	100	-	-
L19_WC	100	-	-
L19_WC	100	-	-
L19_WC	100	-	-
L3_Gym	100	-	-

3- The solar gains

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
L0_Shop	NO (-13.1%)	NO
L1_CommunalDiningArea	NO (-14.5%)	NO
L1_CommunalDiningArea	NO (-2.8%)	NO
L2_Bedroom	NO (-60.2%)	NO
L2_Bedroom	NO (-59.6%)	NO
L2_Bedroom	NO (-60.2%)	NO
L2_Bedroom	NO (-59.6%)	NO
L2_Bedroom	NO (-60.2%)	NO
L2_Studio	NO (-59.6%)	NO
L2_Studio	NO (-57.9%)	NO
L2_Studio	NO (-79.4%)	NO
L2_Studio	NO (-47.5%)	NO
L2_Studio	NO (-85.2%)	NO
L2_Studio	NO (-40.6%)	NO
L2_Studio	NO (-48.2%)	NO
L2_Studio	NO (-39.1%)	NO
L2_Studio	NO (-78.8%)	NO
L2_Studio	NO (-39.2%)	NO
L2_Studio	NO (-57.8%)	NO
L2_Studio	NO (-39.7%)	NO
L3_Bedroom	NO (-59.6%)	NO
L3_Bedroom	NO (-59.6%)	NO
L3_Bedroom	NO (-60.2%)	NO
L3_Bedroom	NO (-60.2%)	NO
L3_Bedroom	NO (-61.5%)	NO
L3_Studio	NO (-57.8%)	NO
L3_Studio	NO (-39%)	NO
L3_Studio	NO (-85.2%)	NO
L3_Studio	NO (-60.1%)	NO
L3_Studio	NO (-48.1%)	NO
L3_Studio	NO (-57.8%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
L3_Studio	NO (-59.5%)	NO
L3_Studio	NO (-39.6%)	NO
L3_Studio	NO (-40.6%)	NO
L3_Studio	NO (-59.5%)	NO
L3_Studio	NO (-47.5%)	NO
L4_Bedroom	NO (-60%)	NO
L4_Bedroom	NO (-58.8%)	NO
L4_Bedroom	NO (-58.7%)	NO
L4_Bedroom	NO (-60%)	NO
L4_Bedroom	NO (-62.5%)	NO
L4_Bedroom	NO (-69.5%)	NO
L4_Bedroom	NO (-58.2%)	NO
L4_Bedroom	NO (-58.2%)	NO
L4_Bedroom	NO (-60.2%)	NO
L4_Bedroom	NO (-58.8%)	NO
L4_Studio	NO (-56.3%)	NO
L4_Studio	NO (-46.3%)	NO
L4_Studio	NO (-56.4%)	NO
L4_Studio	NO (-37.5%)	NO
L4_Studio	NO (-38.5%)	NO
L4_Studio	NO (-36.9%)	NO
L4_Studio	NO (-58.7%)	NO
L4_Studio	NO (-36.2%)	NO
L4_Studio	NO (-35.3%)	NO
L4_Studio	NO (-58.1%)	NO
L4_Studio	NO (-35.3%)	NO
L4_Studio	NO (-36.2%)	NO
L4_Studio	NO (-84.7%)	NO
L4_Studio	NO (-37.6%)	NO
L4_Studio	NO (-45.6%)	NO
L4_Studio	NO (-36.2%)	NO
L4_Studio	NO (-78.1%)	NO
L4_Studio	NO (-58.1%)	NO
L4_Studio	NO (-44.9%)	NO
L5_Bedroom	NO (-60%)	NO
L5_Bedroom	NO (-58.8%)	NO
L5_Bedroom	NO (-58.7%)	NO
L5_Bedroom	NO (-60%)	NO
L5_Bedroom	NO (-62.5%)	NO
L5_Bedroom	NO (-69.5%)	NO
L5_Bedroom	NO (-58.2%)	NO
L5_Bedroom	NO (-58.2%)	NO
L5_Bedroom	NO (-60.2%)	NO
L5_Bedroom	NO (-58.8%)	NO
L5_Studio	NO (-56.3%)	NO
L5_Studio	NO (-46.3%)	NO
L5_Studio	NO (-56.4%)	NO
L5_Studio	NO (-37.5%)	NO
L5_Studio	NO (-38.5%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
L5_Studio	NO (-36.9%)	NO
L5_Studio	NO (-58.7%)	NO
L5_Studio	NO (-36.2%)	NO
L5_Studio	NO (-35.3%)	NO
L5_Studio	NO (-58.1%)	NO
L5_Studio	NO (-35.3%)	NO
L5_Studio	NO (-36.2%)	NO
L5_Studio	NO (-84.7%)	NO
L5_Studio	NO (-37.6%)	NO
L5_Studio	NO (-45.6%)	NO
L5_Studio	NO (-36.2%)	NO
L5_Studio	NO (-78.1%)	NO
L5_Studio	NO (-58.1%)	NO
L5_Studio	NO (-44.9%)	NO
L6_Bedroom	NO (-60%)	NO
L6_Bedroom	NO (-58.8%)	NO
L6_Bedroom	NO (-58.7%)	NO
L6_Bedroom	NO (-60%)	NO
L6_Bedroom	NO (-62.5%)	NO
L6_Bedroom	NO (-69.5%)	NO
L6_Bedroom	NO (-58.2%)	NO
L6_Bedroom	NO (-58.2%)	NO
L6_Bedroom	NO (-60.2%)	NO
L6_Bedroom	NO (-58.8%)	NO
L6_Studio	NO (-56.3%)	NO
L6_Studio	NO (-46.4%)	NO
L6_Studio	NO (-56.2%)	NO
L6_Studio	NO (-37.5%)	NO
L6_Studio	NO (-38.5%)	NO
L6_Studio	NO (-36.9%)	NO
L6_Studio	NO (-58.7%)	NO
L6_Studio	NO (-36.2%)	NO
L6_Studio	NO (-35.3%)	NO
L6_Studio	NO (-58.1%)	NO
L6_Studio	NO (-35.3%)	NO
L6_Studio	NO (-36.2%)	NO
L6_Studio	NO (-84.7%)	NO
L6_Studio	NO (-37.6%)	NO
L6_Studio	NO (-44.3%)	NO
L6_Studio	NO (-36.2%)	NO
L6_Studio	NO (-78.1%)	NO
L6_Studio	NO (-58.1%)	NO
L6_Studio	NO (-44.9%)	NO
L7_Bedroom	NO (-60%)	NO
L7_Bedroom	NO (-58.8%)	NO
L7_Bedroom	NO (-58.7%)	NO
L7_Bedroom	NO (-60%)	NO
L7_Bedroom	NO (-62.5%)	NO
L7_Bedroom	NO (-69.5%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
L7_Bedroom	NO (-58.2%)	NO
L7_Bedroom	NO (-58.2%)	NO
L7_Bedroom	NO (-60.2%)	NO
L7_Bedroom	NO (-58.8%)	NO
L7_Studio	NO (-56.3%)	NO
L7_Studio	NO (-46.3%)	NO
L7_Studio	NO (-56.1%)	NO
L7_Studio	NO (-37.5%)	NO
L7_Studio	NO (-38.5%)	NO
L7_Studio	NO (-36.9%)	NO
L7_Studio	NO (-58.7%)	NO
L7_Studio	NO (-36.2%)	NO
L7_Studio	NO (-35.3%)	NO
L7_Studio	NO (-58.1%)	NO
L7_Studio	NO (-35.3%)	NO
L7_Studio	NO (-36.2%)	NO
L7_Studio	NO (-84.7%)	NO
L7_Studio	NO (-37.6%)	NO
L7_Studio	NO (-44%)	NO
L7_Studio	NO (-36.2%)	NO
L7_Studio	NO (-78.1%)	NO
L7_Studio	NO (-58.1%)	NO
L7_Studio	NO (-44.9%)	NO
L8_Bedroom	NO (-60%)	NO
L8_Bedroom	NO (-58.8%)	NO
L8_Bedroom	NO (-58.7%)	NO
L8_Bedroom	NO (-60%)	NO
L8_Bedroom	NO (-62.5%)	NO
L8_Bedroom	NO (-69.5%)	NO
L8_Bedroom	NO (-58.2%)	NO
L8_Bedroom	NO (-58.2%)	NO
L8_Bedroom	NO (-60.2%)	NO
L8_Bedroom	NO (-58.8%)	NO
L8_Studio	NO (-56.3%)	NO
L8_Studio	NO (-46.3%)	NO
L8_Studio	NO (-56%)	NO
L8_Studio	NO (-37.5%)	NO
L8_Studio	NO (-38.5%)	NO
L8_Studio	NO (-36.9%)	NO
L8_Studio	NO (-58.7%)	NO
L8_Studio	NO (-36.2%)	NO
L8_Studio	NO (-35.3%)	NO
L8_Studio	NO (-58.1%)	NO
L8_Studio	NO (-35.3%)	NO
L8_Studio	NO (-36.2%)	NO
L8_Studio	NO (-84.7%)	NO
L8_Studio	NO (-37.6%)	NO
L8_Studio	NO (-43.9%)	NO
L8_Studio	NO (-36.2%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
L8_Studio	NO (-78.1%)	NO
L8_Studio	NO (-58.1%)	NO
L8_Studio	NO (-44.9%)	NO
L9_Bedroom	NO (-61.5%)	NO
L9_Bedroom	NO (-60.3%)	NO
L9_Bedroom	NO (-60.2%)	NO
L9_Bedroom	NO (-61.4%)	NO
L9_Bedroom	NO (-63.9%)	NO
L9_Bedroom	NO (-70.6%)	NO
L9_Bedroom	NO (-59.7%)	NO
L9_Bedroom	NO (-59.7%)	NO
L9_Bedroom	NO (-61.7%)	NO
L9_Bedroom	NO (-60.3%)	NO
L9_Studio	NO (-57.9%)	NO
L9_Studio	NO (-48.2%)	NO
L9_Studio	NO (-57.6%)	NO
L9_Studio	NO (-39.7%)	NO
L9_Studio	NO (-40.7%)	NO
L9_Studio	NO (-39.2%)	NO
L9_Studio	NO (-60.2%)	NO
L9_Studio	NO (-38.6%)	NO
L9_Studio	NO (-37.6%)	NO
L9_Studio	NO (-59.6%)	NO
L9_Studio	NO (-37.6%)	NO
L9_Studio	NO (-38.6%)	NO
L9_Studio	NO (-85.2%)	NO
L9_Studio	NO (-39.9%)	NO
L9_Studio	NO (-45.9%)	NO
L9_Studio	NO (-38.6%)	NO
L9_Studio	NO (-78.9%)	NO
L9_Studio	NO (-59.6%)	NO
L9_Studio	NO (-46.9%)	NO
L10_Bedroom	NO (-60%)	NO
L10_Bedroom	NO (-58.8%)	NO
L10_Bedroom	NO (-58.7%)	NO
L10_Bedroom	NO (-60%)	NO
L10_Bedroom	NO (-62.5%)	NO
L10_Bedroom	NO (-69.5%)	NO
L10_Bedroom	NO (-58.2%)	NO
L10_Bedroom	NO (-58.2%)	NO
L10_Bedroom	NO (-60.2%)	NO
L10_Bedroom	NO (-58.8%)	NO
L10_Studio	NO (-56.3%)	NO
L10_Studio	NO (-46.3%)	NO
L10_Studio	NO (-55.1%)	NO
L10_Studio	NO (-37%)	NO
L10_Studio	NO (-38%)	NO
L10_Studio	NO (-36.5%)	NO
L10_Studio	NO (-58.7%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
L10_Studio	NO (-36.2%)	NO
L10_Studio	NO (-35.3%)	NO
L10_Studio	NO (-58.1%)	NO
L10_Studio	NO (-35.3%)	NO
L10_Studio	NO (-36.2%)	NO
L10_Studio	NO (-84.7%)	NO
L10_Studio	NO (-37.6%)	NO
L10_Studio	NO (-43.2%)	NO
L10_Studio	NO (-36.2%)	NO
L10_Studio	NO (-78.1%)	NO
L10_Studio	NO (-58.1%)	NO
L10_Studio	NO (-44.9%)	NO
L11_Bedroom	NO (-60%)	NO
L11_Bedroom	NO (-58.8%)	NO
L11_Bedroom	NO (-58.7%)	NO
L11_Bedroom	NO (-60%)	NO
L11_Bedroom	NO (-62.5%)	NO
L11_Bedroom	NO (-69.5%)	NO
L11_Bedroom	NO (-58.2%)	NO
L11_Bedroom	NO (-58.2%)	NO
L11_Bedroom	NO (-60.2%)	NO
L11_Bedroom	NO (-58.8%)	NO
L11_Studio	NO (-56.3%)	NO
L11_Studio	NO (-46.2%)	NO
L11_Studio	NO (-52.3%)	NO
L11_Studio	NO (-36.5%)	NO
L11_Studio	NO (-36.1%)	NO
L11_Studio	NO (-36.3%)	NO
L11_Studio	NO (-58.7%)	NO
L11_Studio	NO (-36.2%)	NO
L11_Studio	NO (-35.3%)	NO
L11_Studio	NO (-58.1%)	NO
L11_Studio	NO (-35.3%)	NO
L11_Studio	NO (-36.2%)	NO
L11_Studio	NO (-84.7%)	NO
L11_Studio	NO (-37.6%)	NO
L11_Studio	NO (-39.3%)	NO
L11_Studio	NO (-36.2%)	NO
L11_Studio	NO (-78.1%)	NO
L11_Studio	NO (-58.1%)	NO
L11_Studio	NO (-44.9%)	NO
L12_Bedroom	NO (-59.9%)	NO
L12_Bedroom	NO (-58.8%)	NO
L12_Bedroom	NO (-58.7%)	NO
L12_Bedroom	NO (-59.8%)	NO
L12_Bedroom	NO (-62.8%)	NO
L12_Bedroom	NO (-68.3%)	NO
L12_Bedroom	NO (-58.2%)	NO
L12_Bedroom	NO (-58.2%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
L12_Bedroom	NO (-60.2%)	NO
L12_Bedroom	NO (-58.8%)	NO
L12_Studio	NO (-56.3%)	NO
L12_Studio	NO (-46.2%)	NO
L12_Studio	NO (-38.9%)	NO
L12_Studio	NO (-36.2%)	NO
L12_Studio	NO (-35.3%)	NO
L12_Studio	NO (-36.2%)	NO
L12_Studio	NO (-58.7%)	NO
L12_Studio	NO (-36.2%)	NO
L12_Studio	NO (-35.3%)	NO
L12_Studio	NO (-58.1%)	NO
L12_Studio	NO (-35.3%)	NO
L12_Studio	NO (-36.2%)	NO
L12_Studio	NO (-84.7%)	NO
L12_Studio	NO (-37.9%)	NO
L12_Studio	NO (-35.4%)	NO
L12_Studio	NO (-36.2%)	NO
L12_Studio	NO (-78.1%)	NO
L12_Studio	NO (-58.1%)	NO
L12_Studio	NO (-45%)	NO
L13_Bedroom	NO (-58.8%)	NO
L13_Bedroom	NO (-58.2%)	NO
L13_Bedroom	NO (-58.2%)	NO
L13_Bedroom	NO (-60.2%)	NO
L13_Bedroom	NO (-58.8%)	NO
L13_Studio	NO (-56.3%)	NO
L13_Studio	NO (-46.2%)	NO
L13_Studio	NO (-32.3%)	NO
L13_Studio	NO (-36.2%)	NO
L13_Studio	NO (-35.3%)	NO
L13_Studio	NO (-36.2%)	NO
L13_Studio	NO (-58.7%)	NO
L13_Studio	NO (-58.1%)	NO
L13_Studio	NO (-84.7%)	NO
L13_Studio	NO (-35.3%)	NO
L13_Studio	NO (-58.1%)	NO
L14_Bedroom	NO (-58.8%)	NO
L14_Bedroom	NO (-58.2%)	NO
L14_Bedroom	NO (-58.2%)	NO
L14_Bedroom	NO (-60.2%)	NO
L14_Bedroom	NO (-58.8%)	NO
L14_Studio	NO (-56.3%)	NO
L14_Studio	NO (-46.2%)	NO
L14_Studio	NO (-32.3%)	NO
L14_Studio	NO (-36.2%)	NO
L14_Studio	NO (-35.3%)	NO
L14_Studio	NO (-36.2%)	NO
L14_Studio	NO (-58.7%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
L14_Studio	NO (-58.1%)	NO
L14_Studio	NO (-84.7%)	NO
L14_Studio	NO (-35.3%)	NO
L14_Studio	NO (-58.1%)	NO
L15_Bedroom	NO (-58.8%)	NO
L15_Bedroom	NO (-58.2%)	NO
L15_Bedroom	NO (-58.2%)	NO
L15_Bedroom	NO (-60.2%)	NO
L15_Bedroom	NO (-58.8%)	NO
L15_Studio	NO (-56.3%)	NO
L15_Studio	NO (-46.2%)	NO
L15_Studio	NO (-32.3%)	NO
L15_Studio	NO (-36.2%)	NO
L15_Studio	NO (-35.3%)	NO
L15_Studio	NO (-36.2%)	NO
L15_Studio	NO (-58.7%)	NO
L15_Studio	NO (-58.1%)	NO
L15_Studio	NO (-84.7%)	NO
L15_Studio	NO (-35.3%)	NO
L15_Studio	NO (-58.1%)	NO
L16_Bedroom	NO (-58.8%)	NO
L16_Bedroom	NO (-58.2%)	NO
L16_Bedroom	NO (-58.2%)	NO
L16_Bedroom	NO (-60.2%)	NO
L16_Bedroom	NO (-58.8%)	NO
L16_Studio	NO (-56.3%)	NO
L16_Studio	NO (-46.2%)	NO
L16_Studio	NO (-32.3%)	NO
L16_Studio	NO (-36.2%)	NO
L16_Studio	NO (-35.3%)	NO
L16_Studio	NO (-36.2%)	NO
L16_Studio	NO (-58.7%)	NO
L16_Studio	NO (-58.1%)	NO
L16_Studio	NO (-84.7%)	NO
L16_Studio	NO (-35.3%)	NO
L16_Studio	NO (-58.1%)	NO
L17_Bedroom	NO (-58.8%)	NO
L17_Bedroom	NO (-58.2%)	NO
L17_Bedroom	NO (-58.2%)	NO
L17_Bedroom	NO (-60.2%)	NO
L17_Bedroom	NO (-58.8%)	NO
L17_Studio	NO (-56.3%)	NO
L17_Studio	NO (-46.2%)	NO
L17_Studio	NO (-32.3%)	NO
L17_Studio	NO (-36.2%)	NO
L17_Studio	NO (-35.3%)	NO
L17_Studio	NO (-36.2%)	NO
L17_Studio	NO (-58.7%)	NO
L17_Studio	NO (-58.1%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
L17_Studio	NO (-84.7%)	NO
L17_Studio	NO (-35.3%)	NO
L17_Studio	NO (-58.1%)	NO
L18_Bedroom	NO (-58.8%)	NO
L18_Bedroom	NO (-58.2%)	NO
L18_Bedroom	NO (-58.2%)	NO
L18_Bedroom	NO (-60.1%)	NO
L18_Bedroom	NO (-58.8%)	NO
L18_Studio	NO (-78%)	NO
L18_Studio	NO (-47%)	NO
L18_Studio	NO (-32.3%)	NO
L18_Studio	NO (-36.2%)	NO
L18_Studio	NO (-35.3%)	NO
L18_Studio	NO (-36.2%)	NO
L18_Studio	NO (-58.7%)	NO
L18_Studio	NO (-58.1%)	NO
L18_Studio	NO (-84.7%)	NO
L18_Studio	NO (-35.3%)	NO
L18_Studio	NO (-58.1%)	NO
L19_Bedroom	NO (-58.8%)	NO
L19_Bedroom	NO (-58.2%)	NO
L19_Bedroom	NO (-58.2%)	NO
L19_Bedroom	NO (-60.1%)	NO
L19_Bedroom	NO (-58.8%)	NO
L19_Studio	NO (-78%)	NO
L19_Studio	NO (-47%)	NO
L19_Studio	NO (-32.3%)	NO
L19_Studio	NO (-36.2%)	NO
L19_Studio	NO (-35.3%)	NO
L19_Studio	NO (-36.2%)	NO
L19_Studio	NO (-58.7%)	NO
L19_Studio	NO (-58.1%)	NO
L19_Studio	NO (-84.7%)	NO
L19_Studio	NO (-35.3%)	NO
L19_Studio	NO (-58.1%)	NO
L3_Gym	NO (-3.1%)	NO

Consideration of high efficiency alternative energy systems

Were alternative energy systems considered and analysed as part of the design process?	YES
Is evidence of such assessment available as a separate submission?	YES
Are any such measures included in the proposed design?	YES

Technical Data Sheet (Actual vs. Notional Building)

Building Global Parameters

	Actual	Notional
Floor area [m^2]	15343.7	15343.7
External area [m^2]	12027	12027
Weather	GLA	GLA
Infiltration [m^3/hm^2@ 50Pa]	4	4
Average conductance [W/K]	3471.07	5271.12
Average U-value [W/m^2K]	0.29	0.44
Alpha value* [%]	25.34	10

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

Building Use

% Area	Building Type
2	**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
98	**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	13.88	15.86
Cooling	0.65	0.46
Auxiliary	4.42	5.53
Lighting	8.15	7.58
Hot water	5.58	8.74
Equipment*	36.27	36.27
TOTAL**	**32.69**	**38.17**

* 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	1.46	1.9
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0
Displaced electricity	*1.46*	*1.9*

Energy & CO_2 Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m^2]	62.93	70.87
Primary energy [kWh_{PE}/m^2]	95.45	82.79
Total emissions [kg/m^2]	4.59	6.14

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] Other local room heater - unfanned, [HS] Direct or storage electric heater, [HFT] Electricity, [CFT] Electricity										
	Actual	62.3	0	17.3	0	2.5	1	0	1	0
	Notional	68.6	0	19.5	0	2.9	0.98	0	----	----
[ST] Variable refrigerant flow, [HS] ASHP, [HFT] Electricity, [CFT] Electricity										
	Actual	33.1	107	2.8	7.9	11.6	3.33	3.74	3.42	5.78
	Notional	36.4	109.1	3.2	5.6	21.5	3.16	5.37	----	----
[ST] Central heating using air distribution, [HS] ASHP, [HFT] Electricity, [CFT] Electricity										
	Actual	33.8	0	2.6	0	17	3.6	0	3.42	0
	Notional	62.3	0	5.5	0	15.2	3.16	0	----	----
[ST] No Heating or Cooling										
	Actual	0	0	0	0	0	0	0	0	0
	Notional	0	0	0	0	0	0	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

Apache Specification Information

Scottish Building Regulations 2022 Section 6 Guidance

Carbon Dioxide Emissions, Energy Consumption, U-Values, Air Permeability, and HVAC

Project name

J7374_PBSA_North_Nat_gas_TGU

Date: Fri Feb 09 13:51:47 2024

Administrative information

Building Details

Address: Address 1, City, Postcode

Agent details

Name: Name

Telephone number: Phone

Address: Street Address, City, Postcode

Certification tool

Calculation engine: Apache

Calculation engine version: 7.0.24.0

Interface to calculation engine: IES Virtual Environment

Interface to calculation engine version: 7.0.24.0

Compliance module version: v6.1.e.1

Foundation area [m^2]: 728.13

1- The predicted CO_2 emissions and energy consumption

Target CO_2 emission rate (TER), $kgCO_2/m^2$annum	8.4	
Building CO_2 emission rate (BER), $kgCO_2/m^2$annum	7.2	
Target delivered energy rate (TDER), kWh/m^2annum	45.3	
Building delivered energy rate (BDER), kWh/m^2annum	42.49	
Do the building's emission and delivered energy rates exceed the targets?	BER =< TER	BDER =< TDER

2- The performance of the building fabric and the building services systems

Fabric element	$U_{a\text{-}Limit}$	$U_{a\text{-}Calc}$	$U_{i\text{-}Limit}$	$U_{i\text{-}Calc}$	First surface with maximum value
Walls	0.21	0.15	0.7	0.21	L3000016:Surf[27]
Floors	0.18	0.1	0.7	0.1	L000000A:Surf[0]
Roofs	0.16	0.1	0.35	0.1	L0000008:Surf[1]
Windows* and roof windows	1.6	0.81	3.3	1.1	L3000016:Surf[29]
Rooflights**	2.2	-	3.8	-	No roof lights in building
Personnel doors	1.4	0.71	3.3	0.71	L200003E:Surf[1]
Vehicle access & similar large doors	1.5	-	3.3	-	No vehicle access doors in building
High usage entrance doors	3	-	N/A	-	No high usage entrance doors in building

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

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

Air Permeability	This building's value
m3/(h.m2) at 50 Pa	4

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	>0.95

1- J7374_Electric Radiators

	Heating efficiency	**Cooling efficiency**	**Radiant efficiency**	**SFP [W/(l/s)]**	**HR efficiency**
This system	1	-	0.2	-	0.85
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- J7374_Amenity_VRF+ MVHR

	Heating efficiency	**Cooling efficiency**	**Radiant efficiency**	**SFP [W/(l/s)]**	**HR efficiency**
This system	3.42	5.78	0	1.8	0.85
Standard value	2.5*	N/A	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.					

3- J7374_Stairs_VRF

	Heating efficiency	**Cooling efficiency**	**Radiant efficiency**	**SFP [W/(l/s)]**	**HR efficiency**
This system	3.42	-	0.2	1.8	0.85
Standard value	2.5*	N/A	N/A	1.9^	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.					

1- J7374_DHW nat gas boiler

	Water heating efficiency	**Storage loss factor [kWh/litre per day]**
This building	1	-
Standard value	0.91	N/A

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**		
Standard value	0.3	1.1	0.5	2.3	2	0.5	0.5	0.4	1	**Zone**	**Standard**
L2_Bedroom	-	-	-	0.8	-	-	-	-	-	-	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
L2_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L2_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L2_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L2_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L2_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L2_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L2_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L2_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L2_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L2_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L2_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L2_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L2_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L2_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L3_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L3_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L3_Studio	-	-	-	0.8	-	-	-	-	0.4	-	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**
L3_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L3_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L3_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L3_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L3_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L3_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L3_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L3_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L3_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	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
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bedroom	-	-	-	0.8	-	-	-	-	-	-	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
L5_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	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
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	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
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	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
L7_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	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**
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	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**
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	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
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Bedroom	-	-	-	0.8	-	-	-	-	-	-	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**
L10_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	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**
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	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**
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	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
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	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**
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L13_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L13_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L13_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L13_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L13_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L13_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L13_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L13_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L13_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L13_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L13_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L13_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_Bedroom	-	-	-	0.8	-	-	-	-	-	-	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
L14_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L14_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L14_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L14_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L14_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L14_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L14_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L14_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L14_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L14_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L14_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L14_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L14_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L15_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L15_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L15_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L15_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L15_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L15_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L15_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L15_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L15_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L15_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L15_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L15_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L15_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L15_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L15_Studio	-	-	-	0.8	-	-	-	-	0.4	-	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**
L15_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L15_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L15_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L15_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L15_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L15_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L15_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L15_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L15_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L15_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L15_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L15_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L15_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L15_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L15_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L15_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L15_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L15_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L16_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L16_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L16_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L16_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L16_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L16_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L16_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L16_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L16_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L16_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L16_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L16_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L16_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L16_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L16_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L16_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L16_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L16_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L16_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L16_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L16_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L16_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L16_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L16_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L16_WC	-	-	-	0.8	-	-	-	-	-	-	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**
L16_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L16_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L16_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L16_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L16_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L16_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L16_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L16_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L17_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L17_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L17_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L17_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L17_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L17_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L17_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L17_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L17_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L17_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L17_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L17_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L17_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L17_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L17_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L17_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L17_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L17_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L17_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L17_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L17_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L17_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L17_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L17_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L17_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L17_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L17_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L17_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L17_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L17_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L17_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L17_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L17_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L18_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L18_Bedroom	-	-	-	0.8	-	-	-	-	-	-	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
L18_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L18_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L18_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L18_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L18_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L18_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L18_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L18_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L18_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L18_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L18_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L18_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L18_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L18_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L18_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L18_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L18_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L18_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L18_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L18_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L18_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L18_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L18_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L18_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L18_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L18_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L18_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L18_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L18_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L18_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L18_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L19_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L19_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L19_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L19_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L19_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L19_ClusterKitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L19_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L19_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L19_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L19_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L19_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L19_Studio	-	-	-	0.8	-	-	-	-	0.4	-	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**
L19_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L19_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L19_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L19_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L19_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L19_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L19_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L19_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L19_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L19_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L19_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L19_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L19_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L19_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L19_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L19_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L19_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L19_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L19_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L19_WC	-	-	-	0.8	-	-	-	-	-	-	N/A
L19_WC	-	-	-	0.8	-	-	-	-	-	-	N/A

General lighting and display lighting	**General luminaire**	**Display light source**	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m^2]**
Standard value	95	80	0.3
L0_Circulation	100	-	-
L0_Circulation	100	-	-
L0_Plant	100	-	-
L0_Plant	100	-	-
L0_Plant	100	-	-
L0_Plant	100	-	-
L0_Shop	100	15	10
L0_Stair	100	-	-
L0_Stair	100	-	-
L0_StairLobby	100	-	-
L1_CommunalDiningArea	100	-	-
L1_CommunalDiningArea	100	-	-
L1_Circulation	100	-	-
L1_Circulation	100	-	-
L1_Plant	100	-	-
L1_Plant	100	-	-
L1_Bike Storage	100	-	-
L1_Bin and recycling	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
L1_Plant	100	-	-
L1_Stair	100	-	-
L1_Stair	100	-	-
L1_Stair	100	-	-
L1_StairLobby	100	-	-
L1_StairLobby	100	-	-
L2_Bedroom	100	-	-
L2_Bedroom	100	-	-
L2_Bedroom	100	-	-
L2_Bedroom	100	-	-
L2_Bedroom	100	-	-
L2_Circulation	100	-	-
L2_Circulation	100	-	-
L2_Circulation	100	-	-
L2_Circulation	100	-	-
L2_ClusterKitchen	100	-	-
L2_Plant	100	-	-
L2_Plant	100	-	-
L2_Plant	100	-	-
L2_Stair	100	-	-
L2_Stair	100	-	-
L2_Stair	100	-	-
L2_StairLobby	100	-	-
L2_StairLobby	100	-	-
L2_Studio	100	-	-
L2_Studio	100	-	-
L2_Studio	100	-	-
L2_Studio	100	-	-
L2_Studio	100	-	-
L2_Studio	100	-	-
L2_Studio	100	-	-
L2_Studio	100	-	-
L2_Studio	100	-	-
L2_Studio	100	-	-
L2_Studio	100	-	-
L2_Studio	100	-	-
L2_Studio	100	-	-
L2_WC	100	-	-
L2_WC	100	-	-
L2_WC	100	-	-
L2_WC	100	-	-
L2_WC	100	-	-
L2_WC	100	-	-
L2_WC	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
L2_WC	100	-	-
L2_WC	100	-	-
L2_WC	100	-	-
L2_WC	100	-	-
L2_WC	100	-	-
L2_WC	100	-	-
L2_WC	100	-	-
L2_WC	100	-	-
L2_WC	100	-	-
L2_WC	100	-	-
L3_Bedroom	100	-	-
L3_Bedroom	100	-	-
L3_Bedroom	100	-	-
L3_Bedroom	100	-	-
L3_Bedroom	100	-	-
L3_Circulation	100	-	-
L3_Circulation	100	-	-
L3_Circulation	100	-	-
L3_ClusterKitchen	100	-	-
L3_Stair	100	-	-
L3_Stair	100	-	-
L3_Stair	100	-	-
L3_StairLobby	100	-	-
L3_StairLobby	100	-	-
L3_Studio	100	-	-
L3_Studio	100	-	-
L3_Studio	100	-	-
L3_Studio	100	-	-
L3_Studio	100	-	-
L3_Studio	100	-	-
L3_Studio	100	-	-
L3_Studio	100	-	-
L3_Studio	100	-	-
L3_Studio	100	-	-
L3_Studio	100	-	-
L3_WC	100	-	-
L3_WC	100	-	-
L3_WC	100	-	-
L3_WC	100	-	-
L3_WC	100	-	-
L3_WC	100	-	-
L3_WC	100	-	-
L3_WC	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
L3_WC	100	-	-
L3_WC	100	-	-
L3_WC	100	-	-
L3_WC	100	-	-
L3_WC	100	-	-
L3_WC	100	-	-
L3_WC	100	-	-
L3_WC	100	-	-
L4_Bedroom	100	-	-
L4_Bedroom	100	-	-
L4_Bedroom	100	-	-
L4_Bedroom	100	-	-
L4_Bedroom	100	-	-
L4_Bedroom	100	-	-
L4_Bedroom	100	-	-
L4_Bedroom	100	-	-
L4_Bedroom	100	-	-
L4_Bedroom	100	-	-
L4_Circulation	100	-	-
L4_Circulation	100	-	-
L4_Circulation	100	-	-
L4_Circulation	100	-	-
L4_Circulation	100	-	-
L4_ClusterKitchen	100	-	-
L4_ClusterKitchen	100	-	-
L4_Stair	100	-	-
L4_Stair	100	-	-
L4_Stair	100	-	-
L4_StairLobby	100	-	-
L4_StairLobby	100	-	-
L4_Studio	100	-	-
L4_Studio	100	-	-
L4_Studio	100	-	-
L4_Studio	100	-	-
L4_Studio	100	-	-
L4_Studio	100	-	-
L4_Studio	100	-	-
L4_Studio	100	-	-
L4_Studio	100	-	-
L4_Studio	100	-	-
L4_Studio	100	-	-
L4_Studio	100	-	-

General lighting and display lighting	General luminaire	Display light source	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m^2]**
Standard value	95	80	0.3
L4_Studio	100	-	-
L4_Studio	100	-	-
L4_Studio	100	-	-
L4_Studio	100	-	-
L4_Studio	100	-	-
L4_Studio	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
L4_WC	100	-	-
North Plant Roof	100	-	-
L5_Bedroom	100	-	-
L5_Bedroom	100	-	-
L5_Bedroom	100	-	-
L5_Bedroom	100	-	-
L5_Bedroom	100	-	-
L5_Bedroom	100	-	-
L5_Bedroom	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
L5_Bedroom	100	-	-
L5_Bedroom	100	-	-
L5_Bedroom	100	-	-
L5_Circulation	100	-	-
L5_Circulation	100	-	-
L5_Circulation	100	-	-
L5_Circulation	100	-	-
L5_Circulation	100	-	-
L5_ClusterKitchen	100	-	-
L5_ClusterKitchen	100	-	-
L5_Stair	100	-	-
L5_Stair	100	-	-
L5_Stair	100	-	-
L5_StairLobby	100	-	-
L5_StairLobby	100	-	-
L5_Studio	100	-	-
L5_Studio	100	-	-
L5_Studio	100	-	-
L5_Studio	100	-	-
L5_Studio	100	-	-
L5_Studio	100	-	-
L5_Studio	100	-	-
L5_Studio	100	-	-
L5_Studio	100	-	-
L5_Studio	100	-	-
L5_Studio	100	-	-
L5_Studio	100	-	-
L5_Studio	100	-	-
L5_Studio	100	-	-
L5_Studio	100	-	-
L5_Studio	100	-	-
L5_Studio	100	-	-
L5_Studio	100	-	-
L5_Studio	100	-	-
L5_WC	100	-	-
L5_WC	100	-	-
L5_WC	100	-	-
L5_WC	100	-	-
L5_WC	100	-	-
L5_WC	100	-	-
L5_WC	100	-	-
L5_WC	100	-	-
L5_WC	100	-	-

General lighting and display lighting	General luminaire	Display light source	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m^2]**
Standard value	95	80	0.3
L5_WC	100	-	-
L5_WC	100	-	-
L5_WC	100	-	-
L5_WC	100	-	-
L5_WC	100	-	-
L5_WC	100	-	-
L5_WC	100	-	-
L5_WC	100	-	-
L5_WC	100	-	-
L5_WC	100	-	-
L5_WC	100	-	-
L5_WC	100	-	-
L5_WC	100	-	-
L5_WC	100	-	-
L5_WC	100	-	-
L5_WC	100	-	-
L5_WC	100	-	-
L5_WC	100	-	-
L5_WC	100	-	-
L5_WC	100	-	-
L6_Bedroom	100	-	-
L6_Bedroom	100	-	-
L6_Bedroom	100	-	-
L6_Bedroom	100	-	-
L6_Bedroom	100	-	-
L6_Bedroom	100	-	-
L6_Bedroom	100	-	-
L6_Bedroom	100	-	-
L6_Bedroom	100	-	-
L6_Bedroom	100	-	-
L6_Circulation	100	-	-
L6_Circulation	100	-	-
L6_Circulation	100	-	-
L6_Circulation	100	-	-
L6_Circulation	100	-	-
L6_ClusterKitchen	100	-	-
L6_ClusterKitchen	100	-	-
L6_Stair	100	-	-
L6_Stair	100	-	-
L6_Stair	100	-	-
L6_StairLobby	100	-	-
L6_StairLobby	100	-	-
L6_Studio	100	-	-

General lighting and display lighting	**General luminaire**	**Display light source**	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m^2]**
Standard value	95	80	0.3
L6_Studio	100	-	-
L6_Studio	100	-	-
L6_Studio	100	-	-
L6_Studio	100	-	-
L6_Studio	100	-	-
L6_Studio	100	-	-
L6_Studio	100	-	-
L6_Studio	100	-	-
L6_Studio	100	-	-
L6_Studio	100	-	-
L6_Studio	100	-	-
L6_Studio	100	-	-
L6_Studio	100	-	-
L6_Studio	100	-	-
L6_Studio	100	-	-
L6_Studio	100	-	-
L6_Studio	100	-	-
L6_Studio	100	-	-
L6_WC	100	-	-
L6_WC	100	-	-
L6_WC	100	-	-
L6_WC	100	-	-
L6_WC	100	-	-
L6_WC	100	-	-
L6_WC	100	-	-
L6_WC	100	-	-
L6_WC	100	-	-
L6_WC	100	-	-
L6_WC	100	-	-
L6_WC	100	-	-
L6_WC	100	-	-
L6_WC	100	-	-
L6_WC	100	-	-
L6_WC	100	-	-
L6_WC	100	-	-
L6_WC	100	-	-
L6_WC	100	-	-
L6_WC	100	-	-
L6_WC	100	-	-
L6_WC	100	-	-
L6_WC	100	-	-
L6_WC	100	-	-
L6_WC	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
L6_WC	100	-	-
L6_WC	100	-	-
L6_WC	100	-	-
L6_WC	100	-	-
L7_Bedroom	100	-	-
L7_Bedroom	100	-	-
L7_Bedroom	100	-	-
L7_Bedroom	100	-	-
L7_Bedroom	100	-	-
L7_Bedroom	100	-	-
L7_Bedroom	100	-	-
L7_Bedroom	100	-	-
L7_Bedroom	100	-	-
L7_Bedroom	100	-	-
L7_Circulation	100	-	-
L7_Circulation	100	-	-
L7_Circulation	100	-	-
L7_Circulation	100	-	-
L7_Circulation	100	-	-
L7_ClusterKitchen	100	-	-
L7_ClusterKitchen	100	-	-
L7_Stair	100	-	-
L7_Stair	100	-	-
L7_Stair	100	-	-
L7_StairLobby	100	-	-
L7_StairLobby	100	-	-
L7_Studio	100	-	-
L7_Studio	100	-	-
L7_Studio	100	-	-
L7_Studio	100	-	-
L7_Studio	100	-	-
L7_Studio	100	-	-
L7_Studio	100	-	-
L7_Studio	100	-	-
L7_Studio	100	-	-
L7_Studio	100	-	-
L7_Studio	100	-	-
L7_Studio	100	-	-
L7_Studio	100	-	-
L7_Studio	100	-	-
L7_Studio	100	-	-
L7_Studio	100	-	-

General lighting and display lighting	**General luminaire**	**Display light source**	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m^2]**
Standard value	95	80	0.3
L7_Studio	100	-	-
L7_Studio	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L7_WC	100	-	-
L8_Bedroom	100	-	-
L8_Bedroom	100	-	-
L8_Bedroom	100	-	-
L8_Bedroom	100	-	-
L8_Bedroom	100	-	-
L8_Bedroom	100	-	-
L8_Bedroom	100	-	-
L8_Bedroom	100	-	-
L8_Bedroom	100	-	-
L8_Bedroom	100	-	-
L8_Circulation	100	-	-
L8_Circulation	100	-	-

General lighting and display lighting	General luminaire	Display light source	
Zone name	Efficacy [lm/W]	Efficacy [lm/W]	Power density [W/m^2]
Standard value	95	80	0.3
L8_Circulation	100	-	-
L8_Circulation	100	-	-
L8_Circulation	100	-	-
L8_ClusterKitchen	100	-	-
L8_ClusterKitchen	100	-	-
L8_Stair	100	-	-
L8_Stair	100	-	-
L8_Stair	100	-	-
L8_StairLobby	100	-	-
L8_StairLobby	100	-	-
L8_Studio	100	-	-
L8_Studio	100	-	-
L8_Studio	100	-	-
L8_Studio	100	-	-
L8_Studio	100	-	-
L8_Studio	100	-	-
L8_Studio	100	-	-
L8_Studio	100	-	-
L8_Studio	100	-	-
L8_Studio	100	-	-
L8_Studio	100	-	-
L8_Studio	100	-	-
L8_Studio	100	-	-
L8_Studio	100	-	-
L8_Studio	100	-	-
L8_Studio	100	-	-
L8_Studio	100	-	-
L8_Studio	100	-	-
L8_WC	100	-	-
L8_WC	100	-	-
L8_WC	100	-	-
L8_WC	100	-	-
L8_WC	100	-	-
L8_WC	100	-	-
L8_WC	100	-	-
L8_WC	100	-	-
L8_WC	100	-	-
L8_WC	100	-	-
L8_WC	100	-	-
L8_WC	100	-	-
L8_WC	100	-	-
L8_WC	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
L8_WC	100	-	-
L8_WC	100	-	-
L8_WC	100	-	-
L8_WC	100	-	-
L8_WC	100	-	-
L8_WC	100	-	-
L8_WC	100	-	-
L8_WC	100	-	-
L8_WC	100	-	-
L8_WC	100	-	-
L8_WC	100	-	-
L8_WC	100	-	-
L8_WC	100	-	-
L8_WC	100	-	-
L8_WC	100	-	-
L9_Bedroom	100	-	-
L9_Bedroom	100	-	-
L9_Bedroom	100	-	-
L9_Bedroom	100	-	-
L9_Bedroom	100	-	-
L9_Bedroom	100	-	-
L9_Bedroom	100	-	-
L9_Bedroom	100	-	-
L9_Bedroom	100	-	-
L9_Bedroom	100	-	-
L9_Circulation	100	-	-
L9_Circulation	100	-	-
L9_Circulation	100	-	-
L9_Circulation	100	-	-
L9_Circulation	100	-	-
L9_ClusterKitchen	100	-	-
L9_ClusterKitchen	100	-	-
L9_Stair	100	-	-
L9_Stair	100	-	-
L9_Stair	100	-	-
L9_StairLobby	100	-	-
L9_StairLobby	100	-	-
L9_Studio	100	-	-
L9_Studio	100	-	-
L9_Studio	100	-	-
L9_Studio	100	-	-
L9_Studio	100	-	-
L9_Studio	100	-	-

General lighting and display lighting	General luminaire	Display light source	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m^2]**
Standard value	95	80	0.3
L9_Studio	100	-	-
L9_Studio	100	-	-
L9_Studio	100	-	-
L9_Studio	100	-	-
L9_Studio	100	-	-
L9_Studio	100	-	-
L9_Studio	100	-	-
L9_Studio	100	-	-
L9_Studio	100	-	-
L9_Studio	100	-	-
L9_Studio	100	-	-
L9_Studio	100	-	-
L9_Studio	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L9_WC	100	-	-
L10_Bedroom	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
L10_Bedroom	100	-	-
L10_Bedroom	100	-	-
L10_Bedroom	100	-	-
L10_Bedroom	100	-	-
L10_Bedroom	100	-	-
L10_Bedroom	100	-	-
L10_Bedroom	100	-	-
L10_Bedroom	100	-	-
L10_Bedroom	100	-	-
L10_Circulation	100	-	-
L10_Circulation	100	-	-
L10_Circulation	100	-	-
L10_Circulation	100	-	-
L10_Circulation	100	-	-
L10_ClusterKitchen	100	-	-
L10_ClusterKitchen	100	-	-
L10_Stair	100	-	-
L10_Stair	100	-	-
L10_Stair	100	-	-
L10_StairLobby	100	-	-
L10_StairLobby	100	-	-
L10_Studio	100	-	-
L10_Studio	100	-	-
L10_Studio	100	-	-
L10_Studio	100	-	-
L10_Studio	100	-	-
L10_Studio	100	-	-
L10_Studio	100	-	-
L10_Studio	100	-	-
L10_Studio	100	-	-
L10_Studio	100	-	-
L10_Studio	100	-	-
L10_Studio	100	-	-
L10_Studio	100	-	-
L10_Studio	100	-	-
L10_Studio	100	-	-
L10_Studio	100	-	-
L10_Studio	100	-	-
L10_Studio	100	-	-
L10_Studio	100	-	-
L10_WC	100	-	-
L10_WC	100	-	-
L10_WC	100	-	-

General lighting and display lighting	**General luminaire**	**Display light source**	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m^2]**
Standard value	95	80	0.3
L10_WC	100	-	-
L10_WC	100	-	-
L10_WC	100	-	-
L10_WC	100	-	-
L10_WC	100	-	-
L10_WC	100	-	-
L10_WC	100	-	-
L10_WC	100	-	-
L10_WC	100	-	-
L10_WC	100	-	-
L10_WC	100	-	-
L10_WC	100	-	-
L10_WC	100	-	-
L10_WC	100	-	-
L10_WC	100	-	-
L10_WC	100	-	-
L10_WC	100	-	-
L10_WC	100	-	-
L10_WC	100	-	-
L10_WC	100	-	-
L10_WC	100	-	-
L10_WC	100	-	-
L10_WC	100	-	-
L10_WC	100	-	-
L10_WC	100	-	-
L10_WC	100	-	-
L11_Bedroom	100	-	-
L11_Bedroom	100	-	-
L11_Bedroom	100	-	-
L11_Bedroom	100	-	-
L11_Bedroom	100	-	-
L11_Bedroom	100	-	-
L11_Bedroom	100	-	-
L11_Bedroom	100	-	-
L11_Bedroom	100	-	-
L11_Bedroom	100	-	-
L11_Circulation	100	-	-
L11_Circulation	100	-	-
L11_Circulation	100	-	-
L11_Circulation	100	-	-
L11_Circulation	100	-	-
L11_ClusterKitchen	100	-	-
L11_ClusterKitchen	100	-	-

General lighting and display lighting	General luminaire	Display light source	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m^2]**
Standard value	95	80	0.3
L11_Stair	100	-	-
L11_Stair	100	-	-
L11_Stair	100	-	-
L11_StairLobby	100	-	-
L11_StairLobby	100	-	-
L11_Studio	100	-	-
L11_Studio	100	-	-
L11_Studio	100	-	-
L11_Studio	100	-	-
L11_Studio	100	-	-
L11_Studio	100	-	-
L11_Studio	100	-	-
L11_Studio	100	-	-
L11_Studio	100	-	-
L11_Studio	100	-	-
L11_Studio	100	-	-
L11_Studio	100	-	-
L11_Studio	100	-	-
L11_Studio	100	-	-
L11_Studio	100	-	-
L11_Studio	100	-	-
L11_Studio	100	-	-
L11_Studio	100	-	-
L11_Studio	100	-	-
L11_WC	100	-	-
L11_WC	100	-	-
L11_WC	100	-	-
L11_WC	100	-	-
L11_WC	100	-	-
L11_WC	100	-	-
L11_WC	100	-	-
L11_WC	100	-	-
L11_WC	100	-	-
L11_WC	100	-	-
L11_WC	100	-	-
L11_WC	100	-	-
L11_WC	100	-	-
L11_WC	100	-	-
L11_WC	100	-	-
L11_WC	100	-	-
L11_WC	100	-	-
L11_WC	100	-	-
L11_WC	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
L11_WC	100	-	-
L11_WC	100	-	-
L11_WC	100	-	-
L11_WC	100	-	-
L11_WC	100	-	-
L11_WC	100	-	-
L11_WC	100	-	-
L11_WC	100	-	-
L11_WC	100	-	-
L11_WC	100	-	-
L12_Bedroom	100	-	-
L12_Bedroom	100	-	-
L12_Bedroom	100	-	-
L12_Bedroom	100	-	-
L12_Bedroom	100	-	-
L12_Bedroom	100	-	-
L12_Bedroom	100	-	-
L12_Bedroom	100	-	-
L12_Bedroom	100	-	-
L12_Bedroom	100	-	-
L12_Circulation	100	-	-
L12_Circulation	100	-	-
L12_Circulation	100	-	-
L12_Circulation	100	-	-
L12_Circulation	100	-	-
L12_ClusterKitchen	100	-	-
L12_ClusterKitchen	100	-	-
L12_Stair	100	-	-
L12_Stair	100	-	-
L12_Stair	100	-	-
L12_StairLobby	100	-	-
L12_StairLobby	100	-	-
L12_Studio	100	-	-
L12_Studio	100	-	-
L12_Studio	100	-	-
L12_Studio	100	-	-
L12_Studio	100	-	-
L12_Studio	100	-	-
L12_Studio	100	-	-
L12_Studio	100	-	-
L12_Studio	100	-	-
L12_Studio	100	-	-
L12_Studio	100	-	-

General lighting and display lighting	General luminaire	Display light source	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m^2]**
Standard value	95	80	0.3
L12_Studio	100	-	-
L12_Studio	100	-	-
L12_Studio	100	-	-
L12_Studio	100	-	-
L12_Studio	100	-	-
L12_Studio	100	-	-
L12_Studio	100	-	-
L12_Studio	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L12_WC	100	-	-
L13_Bedroom	100	-	-
L13_Bedroom	100	-	-
L13_Bedroom	100	-	-
L13_Bedroom	100	-	-
L13_Bedroom	100	-	-
L13_Circulation	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
L13_Circulation	100	-	-
L13_Circulation	100	-	-
L13_ClusterKitchen	100	-	-
L13_Stair	100	-	-
L13_Stair	100	-	-
L13_StairLobby	100	-	-
L13_Studio	100	-	-
L13_Studio	100	-	-
L13_Studio	100	-	-
L13_Studio	100	-	-
L13_Studio	100	-	-
L13_Studio	100	-	-
L13_Studio	100	-	-
L13_Studio	100	-	-
L13_Studio	100	-	-
L13_Studio	100	-	-
L13_Studio	100	-	-
L13_WC	100	-	-
L13_WC	100	-	-
L13_WC	100	-	-
L13_WC	100	-	-
L13_WC	100	-	-
L13_WC	100	-	-
L13_WC	100	-	-
L13_WC	100	-	-
L13_WC	100	-	-
L13_WC	100	-	-
L13_WC	100	-	-
L13_WC	100	-	-
L13_WC	100	-	-
L13_WC	100	-	-
L13_WC	100	-	-
L13_WC	100	-	-
L14_Bedroom	100	-	-
L14_Bedroom	100	-	-
L14_Bedroom	100	-	-
L14_Bedroom	100	-	-
L14_Bedroom	100	-	-
L14_Circulation	100	-	-
L14_Circulation	100	-	-
L14_Circulation	100	-	-
L14_ClusterKitchen	100	-	-
L14_Stair	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
L14_Stair	100	-	-
L14_StairLobby	100	-	-
L14_Studio	100	-	-
L14_Studio	100	-	-
L14_Studio	100	-	-
L14_Studio	100	-	-
L14_Studio	100	-	-
L14_Studio	100	-	-
L14_Studio	100	-	-
L14_Studio	100	-	-
L14_Studio	100	-	-
L14_Studio	100	-	-
L14_Studio	100	-	-
L14_Studio	100	-	-
L14_WC	100	-	-
L14_WC	100	-	-
L14_WC	100	-	-
L14_WC	100	-	-
L14_WC	100	-	-
L14_WC	100	-	-
L14_WC	100	-	-
L14_WC	100	-	-
L14_WC	100	-	-
L14_WC	100	-	-
L14_WC	100	-	-
L14_WC	100	-	-
L14_WC	100	-	-
L14_WC	100	-	-
L14_WC	100	-	-
L14_WC	100	-	-
L14_WC	100	-	-
L14_WC	100	-	-
L15_Bedroom	100	-	-
L15_Bedroom	100	-	-
L15_Bedroom	100	-	-
L15_Bedroom	100	-	-
L15_Bedroom	100	-	-
L15_Circulation	100	-	-
L15_Circulation	100	-	-
L15_Circulation	100	-	-
L15_ClusterKitchen	100	-	-
L15_Stair	100	-	-
L15_Stair	100	-	-
L15_StairLobby	100	-	-
L15_Studio	100	-	-
L15_Studio	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
L15_Studio	100	-	-
L15_Studio	100	-	-
L15_Studio	100	-	-
L15_Studio	100	-	-
L15_Studio	100	-	-
L15_Studio	100	-	-
L15_Studio	100	-	-
L15_Studio	100	-	-
L15_Studio	100	-	-
L15_WC	100	-	-
L15_WC	100	-	-
L15_WC	100	-	-
L15_WC	100	-	-
L15_WC	100	-	-
L15_WC	100	-	-
L15_WC	100	-	-
L15_WC	100	-	-
L15_WC	100	-	-
L15_WC	100	-	-
L15_WC	100	-	-
L15_WC	100	-	-
L15_WC	100	-	-
L15_WC	100	-	-
L15_WC	100	-	-
L15_WC	100	-	-
L15_WC	100	-	-
L16_Bedroom	100	-	-
L16_Bedroom	100	-	-
L16_Bedroom	100	-	-
L16_Bedroom	100	-	-
L16_Bedroom	100	-	-
L16_Circulation	100	-	-
L16_Circulation	100	-	-
L16_Circulation	100	-	-
L16_ClusterKitchen	100	-	-
L16_Stair	100	-	-
L16_Stair	100	-	-
L16_StairLobby	100	-	-
L16_Studio	100	-	-
L16_Studio	100	-	-
L16_Studio	100	-	-
L16_Studio	100	-	-
L16_Studio	100	-	-
L16_Studio	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
L16_Studio	100	-	-
L16_Studio	100	-	-
L16_Studio	100	-	-
L16_Studio	100	-	-
L16_Studio	100	-	-
L16_WC	100	-	-
L16_WC	100	-	-
L16_WC	100	-	-
L16_WC	100	-	-
L16_WC	100	-	-
L16_WC	100	-	-
L16_WC	100	-	-
L16_WC	100	-	-
L16_WC	100	-	-
L16_WC	100	-	-
L16_WC	100	-	-
L16_WC	100	-	-
L16_WC	100	-	-
L16_WC	100	-	-
L16_WC	100	-	-
L16_WC	100	-	-
L17_Bedroom	100	-	-
L17_Bedroom	100	-	-
L17_Bedroom	100	-	-
L17_Bedroom	100	-	-
L17_Bedroom	100	-	-
L17_Circulation	100	-	-
L17_Circulation	100	-	-
L17_Circulation	100	-	-
L17_ClusterKitchen	100	-	-
L17_Stair	100	-	-
L17_Stair	100	-	-
L17_StairLobby	100	-	-
L17_Studio	100	-	-
L17_Studio	100	-	-
L17_Studio	100	-	-
L17_Studio	100	-	-
L17_Studio	100	-	-
L17_Studio	100	-	-
L17_Studio	100	-	-
L17_Studio	100	-	-
L17_Studio	100	-	-
L17_Studio	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
L17_Studio	100	-	-
L17_WC	100	-	-
L17_WC	100	-	-
L17_WC	100	-	-
L17_WC	100	-	-
L17_WC	100	-	-
L17_WC	100	-	-
L17_WC	100	-	-
L17_WC	100	-	-
L17_WC	100	-	-
L17_WC	100	-	-
L17_WC	100	-	-
L17_WC	100	-	-
L17_WC	100	-	-
L17_WC	100	-	-
L17_WC	100	-	-
L17_WC	100	-	-
L17_WC	100	-	-
L18_Bedroom	100	-	-
L18_Bedroom	100	-	-
L18_Bedroom	100	-	-
L18_Bedroom	100	-	-
L18_Bedroom	100	-	-
L18_Circulation	100	-	-
L18_Circulation	100	-	-
L18_Circulation	100	-	-
L18_ClusterKitchen	100	-	-
L18_Stair	100	-	-
L18_Stair	100	-	-
L18_StairLobby	100	-	-
L18_Studio	100	-	-
L18_Studio	100	-	-
L18_Studio	100	-	-
L18_Studio	100	-	-
L18_Studio	100	-	-
L18_Studio	100	-	-
L18_Studio	100	-	-
L18_Studio	100	-	-
L18_Studio	100	-	-
L18_Studio	100	-	-
L18_Studio	100	-	-
L18_WC	100	-	-
L18_WC	100	-	-
L18_WC	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
L18_WC	100	-	-
L18_WC	100	-	-
L18_WC	100	-	-
L18_WC	100	-	-
L18_WC	100	-	-
L18_WC	100	-	-
L18_WC	100	-	-
L18_WC	100	-	-
L18_WC	100	-	-
L18_WC	100	-	-
L18_WC	100	-	-
L18_WC	100	-	-
L18_WC	100	-	-
L18_WC	100	-	-
L19_Bedroom	100	-	-
L19_Bedroom	100	-	-
L19_Bedroom	100	-	-
L19_Bedroom	100	-	-
L19_Bedroom	100	-	-
L19_Circulation	100	-	-
L19_Circulation	100	-	-
L19_Circulation	100	-	-
L19_ClusterKitchen	100	-	-
L19_Stair	100	-	-
L19_Stair	100	-	-
L19_StairLobby	100	-	-
L19_Studio	100	-	-
L19_Studio	100	-	-
L19_Studio	100	-	-
L19_Studio	100	-	-
L19_Studio	100	-	-
L19_Studio	100	-	-
L19_Studio	100	-	-
L19_Studio	100	-	-
L19_Studio	100	-	-
L19_Studio	100	-	-
L19_Studio	100	-	-
L19_WC	100	-	-
L19_WC	100	-	-
L19_WC	100	-	-
L19_WC	100	-	-
L19_WC	100	-	-
L19_WC	100	-	-
L19_WC	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
L19_WC	100	-	-
L19_WC	100	-	-
L19_WC	100	-	-
L19_WC	100	-	-
L19_WC	100	-	-
L19_WC	100	-	-
L19_WC	100	-	-
L19_WC	100	-	-
L19_WC	100	-	-
L3_Gym	100	-	-

3- The solar gains

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
L0_Shop	NO (-11.8%)	NO
L1_CommunalDiningArea	NO (-13.1%)	NO
L1_CommunalDiningArea	NO (-1.2%)	NO
L2_Bedroom	NO (-59.1%)	NO
L2_Bedroom	NO (-58.5%)	NO
L2_Bedroom	NO (-59.1%)	NO
L2_Bedroom	NO (-58.5%)	NO
L2_Bedroom	NO (-59.1%)	NO
L2_Studio	NO (-58.4%)	NO
L2_Studio	NO (-56.7%)	NO
L2_Studio	NO (-78.8%)	NO
L2_Studio	NO (-46.1%)	NO
L2_Studio	NO (-84.8%)	NO
L2_Studio	NO (-39%)	NO
L2_Studio	NO (-46.7%)	NO
L2_Studio	NO (-37.4%)	NO
L2_Studio	NO (-78.2%)	NO
L2_Studio	NO (-37.5%)	NO
L2_Studio	NO (-56.6%)	NO
L2_Studio	NO (-38%)	NO
L3_Bedroom	NO (-58.5%)	NO
L3_Bedroom	NO (-58.5%)	NO
L3_Bedroom	NO (-59.1%)	NO
L3_Bedroom	NO (-59.1%)	NO
L3_Bedroom	NO (-60.5%)	NO
L3_Studio	NO (-56.6%)	NO
L3_Studio	NO (-37.3%)	NO
L3_Studio	NO (-84.8%)	NO
L3_Studio	NO (-59%)	NO
L3_Studio	NO (-46.7%)	NO
L3_Studio	NO (-56.6%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
L3_Studio	NO (-58.4%)	NO
L3_Studio	NO (-37.9%)	NO
L3_Studio	NO (-38.9%)	NO
L3_Studio	NO (-58.4%)	NO
L3_Studio	NO (-46%)	NO
L4_Bedroom	NO (-58.9%)	NO
L4_Bedroom	NO (-57.7%)	NO
L4_Bedroom	NO (-57.6%)	NO
L4_Bedroom	NO (-58.9%)	NO
L4_Bedroom	NO (-61.5%)	NO
L4_Bedroom	NO (-68.7%)	NO
L4_Bedroom	NO (-57.1%)	NO
L4_Bedroom	NO (-57.1%)	NO
L4_Bedroom	NO (-59.1%)	NO
L4_Bedroom	NO (-57.7%)	NO
L4_Studio	NO (-55%)	NO
L4_Studio	NO (-44.8%)	NO
L4_Studio	NO (-55.1%)	NO
L4_Studio	NO (-35.7%)	NO
L4_Studio	NO (-36.8%)	NO
L4_Studio	NO (-35.1%)	NO
L4_Studio	NO (-57.6%)	NO
L4_Studio	NO (-34.4%)	NO
L4_Studio	NO (-33.5%)	NO
L4_Studio	NO (-56.9%)	NO
L4_Studio	NO (-33.5%)	NO
L4_Studio	NO (-34.4%)	NO
L4_Studio	NO (-84.3%)	NO
L4_Studio	NO (-35.9%)	NO
L4_Studio	NO (-44.1%)	NO
L4_Studio	NO (-34.4%)	NO
L4_Studio	NO (-77.4%)	NO
L4_Studio	NO (-56.9%)	NO
L4_Studio	NO (-43.4%)	NO
L5_Bedroom	NO (-58.9%)	NO
L5_Bedroom	NO (-57.7%)	NO
L5_Bedroom	NO (-57.6%)	NO
L5_Bedroom	NO (-58.9%)	NO
L5_Bedroom	NO (-61.5%)	NO
L5_Bedroom	NO (-68.7%)	NO
L5_Bedroom	NO (-57.1%)	NO
L5_Bedroom	NO (-57.1%)	NO
L5_Bedroom	NO (-59.1%)	NO
L5_Bedroom	NO (-57.7%)	NO
L5_Studio	NO (-55%)	NO
L5_Studio	NO (-44.9%)	NO
L5_Studio	NO (-55.1%)	NO
L5_Studio	NO (-35.7%)	NO
L5_Studio	NO (-36.8%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
L5_Studio	NO (-35.1%)	NO
L5_Studio	NO (-57.6%)	NO
L5_Studio	NO (-34.4%)	NO
L5_Studio	NO (-33.5%)	NO
L5_Studio	NO (-56.9%)	NO
L5_Studio	NO (-33.5%)	NO
L5_Studio	NO (-34.4%)	NO
L5_Studio	NO (-84.3%)	NO
L5_Studio	NO (-35.9%)	NO
L5_Studio	NO (-44.1%)	NO
L5_Studio	NO (-34.4%)	NO
L5_Studio	NO (-77.4%)	NO
L5_Studio	NO (-56.9%)	NO
L5_Studio	NO (-43.4%)	NO
L6_Bedroom	NO (-58.9%)	NO
L6_Bedroom	NO (-57.7%)	NO
L6_Bedroom	NO (-57.6%)	NO
L6_Bedroom	NO (-58.9%)	NO
L6_Bedroom	NO (-61.5%)	NO
L6_Bedroom	NO (-68.7%)	NO
L6_Bedroom	NO (-57.1%)	NO
L6_Bedroom	NO (-57.1%)	NO
L6_Bedroom	NO (-59.1%)	NO
L6_Bedroom	NO (-57.7%)	NO
L6_Studio	NO (-55%)	NO
L6_Studio	NO (-44.9%)	NO
L6_Studio	NO (-55%)	NO
L6_Studio	NO (-35.7%)	NO
L6_Studio	NO (-36.8%)	NO
L6_Studio	NO (-35.1%)	NO
L6_Studio	NO (-57.6%)	NO
L6_Studio	NO (-34.4%)	NO
L6_Studio	NO (-33.5%)	NO
L6_Studio	NO (-56.9%)	NO
L6_Studio	NO (-33.5%)	NO
L6_Studio	NO (-34.4%)	NO
L6_Studio	NO (-84.3%)	NO
L6_Studio	NO (-35.9%)	NO
L6_Studio	NO (-42.8%)	NO
L6_Studio	NO (-34.4%)	NO
L6_Studio	NO (-77.4%)	NO
L6_Studio	NO (-56.9%)	NO
L6_Studio	NO (-43.4%)	NO
L7_Bedroom	NO (-58.9%)	NO
L7_Bedroom	NO (-57.7%)	NO
L7_Bedroom	NO (-57.6%)	NO
L7_Bedroom	NO (-58.9%)	NO
L7_Bedroom	NO (-61.5%)	NO
L7_Bedroom	NO (-68.7%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
L7_Bedroom	NO (-57.1%)	NO
L7_Bedroom	NO (-57.1%)	NO
L7_Bedroom	NO (-59.1%)	NO
L7_Bedroom	NO (-57.7%)	NO
L7_Studio	NO (-55%)	NO
L7_Studio	NO (-44.9%)	NO
L7_Studio	NO (-54.8%)	NO
L7_Studio	NO (-35.7%)	NO
L7_Studio	NO (-36.8%)	NO
L7_Studio	NO (-35.1%)	NO
L7_Studio	NO (-57.6%)	NO
L7_Studio	NO (-34.4%)	NO
L7_Studio	NO (-33.5%)	NO
L7_Studio	NO (-56.9%)	NO
L7_Studio	NO (-33.5%)	NO
L7_Studio	NO (-34.4%)	NO
L7_Studio	NO (-84.3%)	NO
L7_Studio	NO (-35.9%)	NO
L7_Studio	NO (-42.4%)	NO
L7_Studio	NO (-34.4%)	NO
L7_Studio	NO (-77.4%)	NO
L7_Studio	NO (-56.9%)	NO
L7_Studio	NO (-43.4%)	NO
L8_Bedroom	NO (-58.9%)	NO
L8_Bedroom	NO (-57.7%)	NO
L8_Bedroom	NO (-57.6%)	NO
L8_Bedroom	NO (-58.9%)	NO
L8_Bedroom	NO (-61.5%)	NO
L8_Bedroom	NO (-68.7%)	NO
L8_Bedroom	NO (-57.1%)	NO
L8_Bedroom	NO (-57.1%)	NO
L8_Bedroom	NO (-59.1%)	NO
L8_Bedroom	NO (-57.7%)	NO
L8_Studio	NO (-55%)	NO
L8_Studio	NO (-44.9%)	NO
L8_Studio	NO (-54.8%)	NO
L8_Studio	NO (-35.7%)	NO
L8_Studio	NO (-36.8%)	NO
L8_Studio	NO (-35.1%)	NO
L8_Studio	NO (-57.6%)	NO
L8_Studio	NO (-34.4%)	NO
L8_Studio	NO (-33.5%)	NO
L8_Studio	NO (-56.9%)	NO
L8_Studio	NO (-33.5%)	NO
L8_Studio	NO (-34.4%)	NO
L8_Studio	NO (-84.3%)	NO
L8_Studio	NO (-35.9%)	NO
L8_Studio	NO (-42.4%)	NO
L8_Studio	NO (-34.4%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
L8_Studio	NO (-77.4%)	NO
L8_Studio	NO (-56.9%)	NO
L8_Studio	NO (-43.4%)	NO
L9_Bedroom	NO (-60.4%)	NO
L9_Bedroom	NO (-59.2%)	NO
L9_Bedroom	NO (-59.1%)	NO
L9_Bedroom	NO (-60.4%)	NO
L9_Bedroom	NO (-62.9%)	NO
L9_Bedroom	NO (-69.8%)	NO
L9_Bedroom	NO (-58.6%)	NO
L9_Bedroom	NO (-58.6%)	NO
L9_Bedroom	NO (-60.6%)	NO
L9_Bedroom	NO (-59.2%)	NO
L9_Studio	NO (-56.7%)	NO
L9_Studio	NO (-46.8%)	NO
L9_Studio	NO (-56.4%)	NO
L9_Studio	NO (-38%)	NO
L9_Studio	NO (-39.1%)	NO
L9_Studio	NO (-37.5%)	NO
L9_Studio	NO (-59.1%)	NO
L9_Studio	NO (-36.8%)	NO
L9_Studio	NO (-35.9%)	NO
L9_Studio	NO (-58.5%)	NO
L9_Studio	NO (-35.9%)	NO
L9_Studio	NO (-36.8%)	NO
L9_Studio	NO (-84.8%)	NO
L9_Studio	NO (-38.2%)	NO
L9_Studio	NO (-44.4%)	NO
L9_Studio	NO (-36.8%)	NO
L9_Studio	NO (-78.3%)	NO
L9_Studio	NO (-58.5%)	NO
L9_Studio	NO (-45.5%)	NO
L10_Bedroom	NO (-58.9%)	NO
L10_Bedroom	NO (-57.7%)	NO
L10_Bedroom	NO (-57.6%)	NO
L10_Bedroom	NO (-58.9%)	NO
L10_Bedroom	NO (-61.5%)	NO
L10_Bedroom	NO (-68.7%)	NO
L10_Bedroom	NO (-57.1%)	NO
L10_Bedroom	NO (-57.1%)	NO
L10_Bedroom	NO (-59.1%)	NO
L10_Bedroom	NO (-57.7%)	NO
L10_Studio	NO (-55%)	NO
L10_Studio	NO (-44.8%)	NO
L10_Studio	NO (-53.8%)	NO
L10_Studio	NO (-35.3%)	NO
L10_Studio	NO (-36.3%)	NO
L10_Studio	NO (-34.7%)	NO
L10_Studio	NO (-57.6%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
L10_Studio	NO (-34.4%)	NO
L10_Studio	NO (-33.5%)	NO
L10_Studio	NO (-56.9%)	NO
L10_Studio	NO (-33.5%)	NO
L10_Studio	NO (-34.4%)	NO
L10_Studio	NO (-84.3%)	NO
L10_Studio	NO (-35.9%)	NO
L10_Studio	NO (-41.6%)	NO
L10_Studio	NO (-34.4%)	NO
L10_Studio	NO (-77.4%)	NO
L10_Studio	NO (-56.9%)	NO
L10_Studio	NO (-43.4%)	NO
L11_Bedroom	NO (-58.9%)	NO
L11_Bedroom	NO (-57.7%)	NO
L11_Bedroom	NO (-57.6%)	NO
L11_Bedroom	NO (-58.9%)	NO
L11_Bedroom	NO (-61.5%)	NO
L11_Bedroom	NO (-68.7%)	NO
L11_Bedroom	NO (-57.1%)	NO
L11_Bedroom	NO (-57.1%)	NO
L11_Bedroom	NO (-59.1%)	NO
L11_Bedroom	NO (-57.7%)	NO
L11_Studio	NO (-55%)	NO
L11_Studio	NO (-44.7%)	NO
L11_Studio	NO (-51%)	NO
L11_Studio	NO (-34.7%)	NO
L11_Studio	NO (-34.3%)	NO
L11_Studio	NO (-34.5%)	NO
L11_Studio	NO (-57.6%)	NO
L11_Studio	NO (-34.4%)	NO
L11_Studio	NO (-33.5%)	NO
L11_Studio	NO (-56.9%)	NO
L11_Studio	NO (-33.5%)	NO
L11_Studio	NO (-34.4%)	NO
L11_Studio	NO (-84.3%)	NO
L11_Studio	NO (-35.9%)	NO
L11_Studio	NO (-37.6%)	NO
L11_Studio	NO (-34.4%)	NO
L11_Studio	NO (-77.4%)	NO
L11_Studio	NO (-56.9%)	NO
L11_Studio	NO (-43.4%)	NO
L12_Bedroom	NO (-58.8%)	NO
L12_Bedroom	NO (-57.7%)	NO
L12_Bedroom	NO (-57.6%)	NO
L12_Bedroom	NO (-58.7%)	NO
L12_Bedroom	NO (-61.7%)	NO
L12_Bedroom	NO (-67.4%)	NO
L12_Bedroom	NO (-57.1%)	NO
L12_Bedroom	NO (-57.1%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
L12_Bedroom	NO (-59.1%)	NO
L12_Bedroom	NO (-57.7%)	NO
L12_Studio	NO (-55%)	NO
L12_Studio	NO (-44.7%)	NO
L12_Studio	NO (-37.2%)	NO
L12_Studio	NO (-34.4%)	NO
L12_Studio	NO (-33.5%)	NO
L12_Studio	NO (-34.4%)	NO
L12_Studio	NO (-57.6%)	NO
L12_Studio	NO (-34.4%)	NO
L12_Studio	NO (-33.5%)	NO
L12_Studio	NO (-56.9%)	NO
L12_Studio	NO (-33.5%)	NO
L12_Studio	NO (-34.4%)	NO
L12_Studio	NO (-84.3%)	NO
L12_Studio	NO (-36.2%)	NO
L12_Studio	NO (-33.6%)	NO
L12_Studio	NO (-34.4%)	NO
L12_Studio	NO (-77.4%)	NO
L12_Studio	NO (-56.9%)	NO
L12_Studio	NO (-43.5%)	NO
L13_Bedroom	NO (-57.7%)	NO
L13_Bedroom	NO (-57.1%)	NO
L13_Bedroom	NO (-57.1%)	NO
L13_Bedroom	NO (-59.1%)	NO
L13_Bedroom	NO (-57.7%)	NO
L13_Studio	NO (-55%)	NO
L13_Studio	NO (-44.7%)	NO
L13_Studio	NO (-30.4%)	NO
L13_Studio	NO (-34.4%)	NO
L13_Studio	NO (-33.4%)	NO
L13_Studio	NO (-34.4%)	NO
L13_Studio	NO (-57.6%)	NO
L13_Studio	NO (-56.9%)	NO
L13_Studio	NO (-84.3%)	NO
L13_Studio	NO (-33.4%)	NO
L13_Studio	NO (-56.9%)	NO
L14_Bedroom	NO (-57.7%)	NO
L14_Bedroom	NO (-57.1%)	NO
L14_Bedroom	NO (-57.1%)	NO
L14_Bedroom	NO (-59.1%)	NO
L14_Bedroom	NO (-57.7%)	NO
L14_Studio	NO (-55%)	NO
L14_Studio	NO (-44.7%)	NO
L14_Studio	NO (-30.4%)	NO
L14_Studio	NO (-34.4%)	NO
L14_Studio	NO (-33.4%)	NO
L14_Studio	NO (-34.4%)	NO
L14_Studio	NO (-57.6%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
L14_Studio	NO (-56.9%)	NO
L14_Studio	NO (-84.3%)	NO
L14_Studio	NO (-33.4%)	NO
L14_Studio	NO (-56.9%)	NO
L15_Bedroom	NO (-57.7%)	NO
L15_Bedroom	NO (-57.1%)	NO
L15_Bedroom	NO (-57.1%)	NO
L15_Bedroom	NO (-59.1%)	NO
L15_Bedroom	NO (-57.7%)	NO
L15_Studio	NO (-55%)	NO
L15_Studio	NO (-44.7%)	NO
L15_Studio	NO (-30.4%)	NO
L15_Studio	NO (-34.4%)	NO
L15_Studio	NO (-33.4%)	NO
L15_Studio	NO (-34.4%)	NO
L15_Studio	NO (-57.6%)	NO
L15_Studio	NO (-56.9%)	NO
L15_Studio	NO (-84.3%)	NO
L15_Studio	NO (-33.4%)	NO
L15_Studio	NO (-56.9%)	NO
L16_Bedroom	NO (-57.7%)	NO
L16_Bedroom	NO (-57.1%)	NO
L16_Bedroom	NO (-57.1%)	NO
L16_Bedroom	NO (-59.1%)	NO
L16_Bedroom	NO (-57.7%)	NO
L16_Studio	NO (-55%)	NO
L16_Studio	NO (-44.7%)	NO
L16_Studio	NO (-30.4%)	NO
L16_Studio	NO (-34.4%)	NO
L16_Studio	NO (-33.4%)	NO
L16_Studio	NO (-34.4%)	NO
L16_Studio	NO (-57.6%)	NO
L16_Studio	NO (-56.9%)	NO
L16_Studio	NO (-84.3%)	NO
L16_Studio	NO (-33.4%)	NO
L16_Studio	NO (-56.9%)	NO
L17_Bedroom	NO (-57.7%)	NO
L17_Bedroom	NO (-57.1%)	NO
L17_Bedroom	NO (-57.1%)	NO
L17_Bedroom	NO (-59.1%)	NO
L17_Bedroom	NO (-57.7%)	NO
L17_Studio	NO (-55%)	NO
L17_Studio	NO (-44.7%)	NO
L17_Studio	NO (-30.4%)	NO
L17_Studio	NO (-34.4%)	NO
L17_Studio	NO (-33.4%)	NO
L17_Studio	NO (-34.4%)	NO
L17_Studio	NO (-57.6%)	NO
L17_Studio	NO (-56.9%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
L17_Studio	NO (-84.3%)	NO
L17_Studio	NO (-33.4%)	NO
L17_Studio	NO (-56.9%)	NO
L18_Bedroom	NO (-57.7%)	NO
L18_Bedroom	NO (-57.1%)	NO
L18_Bedroom	NO (-57.1%)	NO
L18_Bedroom	NO (-59%)	NO
L18_Bedroom	NO (-57.7%)	NO
L18_Studio	NO (-77.4%)	NO
L18_Studio	NO (-45.5%)	NO
L18_Studio	NO (-30.4%)	NO
L18_Studio	NO (-34.4%)	NO
L18_Studio	NO (-33.4%)	NO
L18_Studio	NO (-34.4%)	NO
L18_Studio	NO (-57.6%)	NO
L18_Studio	NO (-56.9%)	NO
L18_Studio	NO (-84.3%)	NO
L18_Studio	NO (-33.4%)	NO
L18_Studio	NO (-56.9%)	NO
L19_Bedroom	NO (-57.7%)	NO
L19_Bedroom	NO (-57.1%)	NO
L19_Bedroom	NO (-57.1%)	NO
L19_Bedroom	NO (-59%)	NO
L19_Bedroom	NO (-57.7%)	NO
L19_Studio	NO (-77.4%)	NO
L19_Studio	NO (-45.5%)	NO
L19_Studio	NO (-30.4%)	NO
L19_Studio	NO (-34.4%)	NO
L19_Studio	NO (-33.4%)	NO
L19_Studio	NO (-34.4%)	NO
L19_Studio	NO (-57.6%)	NO
L19_Studio	NO (-56.9%)	NO
L19_Studio	NO (-84.3%)	NO
L19_Studio	NO (-33.4%)	NO
L19_Studio	NO (-56.9%)	NO
L3_Gym	NO (-1.8%)	NO

Consideration of high efficiency alternative energy systems

Were alternative energy systems considered and analysed as part of the design process?	YES
Is evidence of such assessment available as a separate submission?	YES
Are any such measures included in the proposed design?	YES

Technical Data Sheet (Actual vs. Notional Building)

Building Global Parameters

	Actual	Notional
Floor area [m^2]	15343.7	15343.7
External area [m^2]	12027	12027
Weather	GLA	GLA
Infiltration [m^3/hm^2@ 50Pa]	4	4
Average conductance [W/K]	3471.07	5271.12
Average U-value [W/m^2K]	0.29	0.44
Alpha value* [%]	25.34	10

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

Building Use

% Area	Building Type
2	**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
98	**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	13.79	15.86
Cooling	0.66	0.46
Auxiliary	4.42	5.53
Lighting	8.15	7.58
Hot water	15.47	17.77
Equipment*	36.27	36.27
TOTAL**	**42.49**	**47.2**

* 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	1.9
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0
Displaced electricity	*0*	*1.9*

Energy & CO_2 Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m^2]	62.68	70.87
Primary energy [kWh_{PE}/m^2]	94.69	82.99
Total emissions [kg/m^2]	7.23	8.38

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] Other local room heater - unfanned, [HS] Direct or storage electric heater, [HFT] Electricity, [CFT] Electricity										
	Actual	61.9	0	17.2	0	2.5	1	0	1	0
	Notional	68.6	0	19.5	0	2.9	0.98	0	----	----
[ST] Variable refrigerant flow, [HS] ASHP, [HFT] Electricity, [CFT] Electricity										
	Actual	32.9	108.3	2.7	8	11.6	3.33	3.74	3.42	5.78
	Notional	36.4	109.1	3.2	5.6	21.5	3.16	5.37	----	----
[ST] Central heating using air distribution, [HS] ASHP, [HFT] Electricity, [CFT] Electricity										
	Actual	33.6	0	2.6	0	17	3.6	0	3.42	0
	Notional	62.3	0	5.5	0	15.2	3.16	0	----	----
[ST] No Heating or Cooling										
	Actual	0	0	0	0	0	0	0	0	0
	Notional	0	0	0	0	0	0	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

Apache Specification Information

Scottish Building Regulations 2022 Section 6 Guidance

Carbon Dioxide Emissions, Energy Consumption, U-Values, Air Permeability, and HVAC

Project name

J7374_NRW_PBSA_SouthTower_TripleGlazing_150m2_PV

Date: Mon Feb 05 16:08:32 2024

Administrative information

Building Details

Address: Address 1, City, Postcode

Agent details

Name: Name

Telephone number: Phone

Address: Street Address, City, Postcode

Certification tool

Calculation engine: Apache

Calculation engine version: 7.0.24.0

Interface to calculation engine: IES Virtual Environment

Interface to calculation engine version: 7.0.24.0

Compliance module version: v6.1.e.1

Foundation area [m^2]: 672.53

1- The predicted CO_2 emissions and energy consumption

Target CO_2 emission rate (TER), $kgCO_2/m^2$annum	6.9	
Building CO_2 emission rate (BER), $kgCO_2/m^2$annum	5.2	
Target delivered energy rate (TDER), kWh/m^2annum	40.36	
Building delivered energy rate (BDER), kWh/m^2annum	35.79	
Do the building's emission and delivered energy rates exceed the targets?	TER N/A	BDER =< TDER

2- The performance of the building fabric and the building services systems

Fabric element	$U_{a\text{-}Limit}$	$U_{a\text{-}Calc}$	$U_{i\text{-}Limit}$	$U_{i\text{-}Calc}$	First surface with maximum value
Walls	0.21	0.16	0.7	0.7	L200000E:Surf[1]
Floors	0.18	0.1	0.7	0.1	L0000001:Surf[0]
Roofs	0.16	0.1	0.35	0.1	L000000C:Surf[1]
Windows* and roof windows	1.6	0.8	3.3	1.2	L1000012:Surf[1]
Rooflights**	2.2	-	3.8	-	No roof lights in building
Personnel doors	1.4	-	3.3	-	No personnel doors in building
Vehicle access & similar large doors	1.5	-	3.3	-	No vehicle access doors in building
High usage entrance doors	3	-	N/A	-	No high usage entrance doors in building

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

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

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

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

* Display windows and similar glazing are excluded from the U-value check.

** Values for rooflights refer to the horizontal position.

Air Permeability	This building's value
m3/(h.m2) at 50 Pa	4

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	>0.95

1- J7374_Amenity_VRF + MVHR

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	3.42	5.78	0	1.8	0.85
Standard value	2.5*	N/A	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.

2- J7374_Stairs_VRF

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	3.42	-	0.2	1.8	0.85
Standard value	2.5*	N/A	N/A	1.9^	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.

3- J7374_Electric Radiators

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	1	-	0.2	-	0.85
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

1- J7374_DHW

	Water heating efficiency	Storage loss factor [kWh/litre per day]
This building	3.65	0.002
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**		
Standard value	0.3	1.1	0.5	2.3	2	0.5	0.5	0.4	1	**Zone**	**Standard**
L2_Shared Kitchen	-	-	-	0.8	-	-	-	-	0.4	-	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
L2_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L2_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L2_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L2_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L2_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L2_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L2_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L2_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L2_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L2_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L2_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L2_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L2_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L2_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L3_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L3_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L3_Studio	-	-	-	0.8	-	-	-	-	0.4	-	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**
L3_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L3_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L3_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L3_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L3_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L3_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L3_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L3_Shared Kitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L3_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	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**
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Shared Kitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Shared Kitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	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**
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Shared Kitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Shared Kitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bedroom	-	-	-	0.8	-	-	-	-	-	-	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
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	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**
L6_Shared Kitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Shared Kitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	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**
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Shared Kitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Shared Kitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	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**
L7_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Shared Kitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	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**
L8_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Shared Kitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	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**
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Shared Kitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Shared Kitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	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**
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Shared Kitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Bedroom	-	-	-	0.8	-	-	-	-	-	-	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**
L10_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Shared Kitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Bathroom	-	-	-	0.8	-	-	-	-	-	-	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**
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Shared Kitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L13_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L13_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L13_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L13_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L13_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L13_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L13_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L13_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L13_Bathroom	-	-	-	0.8	-	-	-	-	-	-	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**
L13_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L13_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L13_Shared Kitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L13_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L14_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L14_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L14_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L14_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L14_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L14_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L14_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L14_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L14_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L14_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L14_Shared Kitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L14_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_Bathroom	-	-	-	0.8	-	-	-	-	-	-	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
L14_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_Bathroom	-	-	-	0.8	-	-	-	-	-	-	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
L0_Plant	100	-	-
L0_Reception	100	15	9
L0_StairCore	100	-	-
L0_StairCore	100	-	-
L0_Circulation	100	-	-
L0_Staircore	100	-	-
L0_Circulation	100	-	-
L0_Plant	100	-	-
L0_Plant	100	-	-
L1_Circulation	100	-	-
L1_Staircore	100	-	-
L1_Entrance	100	-	-
L1_Study/CommunalArea	100	-	-
L1_Secondary Switchroom	100	-	-
L1_Primary Switchroom	100	-	-
L1_SPEN Substation	100	-	-
L1_Study/CommunalArea	100	-	-
L1_Staircore	100	-	-
L1_Bike Store	100	-	-
L1_Bin and Recycling	100	-	-
L1_Telecoms/Data	100	-	-
L1_Staircore	100	-	-
L2_Heating Plant	100	-	-
L2_Staircore	100	-	-
L2_Hot Water Plant	100	-	-
L2_Hot Water Plant	100	-	-
L2_Circulation	100	-	-
L2_Staircore	100	-	-
L2_Circulation	100	-	-
L2_Shared Kitchen	100	-	-
L2_Staircore	100	-	-
L2_Circulation	100	-	-
L2_Bathroom	100	-	-
L2_Bedroom	100	-	-
L2_Circulation	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
L2_Bathroom	100	-	-
L2_Studio	100	-	-
L2_Bathroom	100	-	-
L2_Studio	100	-	-
L2_Bathroom	100	-	-
L2_Studio	100	-	-
L2_Bathroom	100	-	-
L2_Studio	100	-	-
L2_Bathroom	100	-	-
L2_Studio	100	-	-
L2_Bathroom	100	-	-
L2_Studio	100	-	-
L2_Bathroom	100	-	-
L2_Studio	100	-	-
L2_Bathroom	100	-	-
L2_Studio	100	-	-
L2_Bathroom	100	-	-
L2_Studio	100	-	-
L2_Bathroom	100	-	-
L2_Studio	100	-	-
L2_Bedroom	100	-	-
L2_Bathroom	100	-	-
L2_Bedroom	100	-	-
L2_Bathroom	100	-	-
L2_Bathroom	100	-	-
L2_Bedroom	100	-	-
L2_Bedroom	100	-	-
L2_Bathroom	100	-	-
L2_Studio	100	-	-
L2_Bathroom	100	-	-
L2_Studio	100	-	-
L2_Bathroom	100	-	-
L2_Studio	100	-	-
L2_Bathroom	100	-	-
L3_Staircore	100	-	-
L3_Circulation	100	-	-
L3_Staircore	100	-	-
L3_Library	100	-	-
L3_Staircore	100	-	-
L3_Circulation	100	-	-
L3_Bathroom	100	-	-
L3_Studio	100	-	-
L3_Bathroom	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
L3_Studio	100	-	-
L3_Bathroom	100	-	-
L3_Studio	100	-	-
L3_Studio	100	-	-
L3_Bathroom	100	-	-
L3_Bathroom	100	-	-
L3_Studio	100	-	-
L3_Bathroom	100	-	-
L3_Studio	100	-	-
L3_Bathroom	100	-	-
L3_Studio	100	-	-
L3_Bathroom	100	-	-
L3_Studio	100	-	-
L3_Bathroom	100	-	-
L3_Studio	100	-	-
L3_Bathroom	100	-	-
L3_Studio	100	-	-
L3_Bathroom	100	-	-
L3_Studio	100	-	-
L3_Bathroom	100	-	-
L3_Studio	100	-	-
L3_Shared Kitchen	100	-	-
L3_Circulation	100	-	-
L3_Bedroom	100	-	-
L3_Bathroom	100	-	-
L3_Bedroom	100	-	-
L3_Bathroom	100	-	-
L3_Bedroom	100	-	-
L3_Bathroom	100	-	-
L3_Bedroom	100	-	-
L3_Bathroom	100	-	-
L3_Bedroom	100	-	-
L3_Bathroom	100	-	-
L4_Staircore	100	-	-
L4_Circulation	100	-	-
L4_Staircore	100	-	-
L4_Circulation	100	-	-
L4_Bathroom	100	-	-
L4_Studio	100	-	-
L4_Bathroom	100	-	-
L4_Studio	100	-	-
L4_Bathroom	100	-	-
L4_Studio	100	-	-
L4_Studio	100	-	-
L4_Bathroom	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
L4_Bathroom	100	-	-
L4_Studio	100	-	-
L4_Bathroom	100	-	-
L4_Studio	100	-	-
L4_Bathroom	100	-	-
L4_Studio	100	-	-
L4_Bathroom	100	-	-
L4_Studio	100	-	-
L4_Bathroom	100	-	-
L4_Studio	100	-	-
L4_Bathroom	100	-	-
L4_Studio	100	-	-
L4_Bathroom	100	-	-
L4_Studio	100	-	-
L4_Shared Kitchen	100	-	-
L4_Circulation	100	-	-
L4_Bedroom	100	-	-
L4_Bathroom	100	-	-
L4_Bedroom	100	-	-
L4_Bathroom	100	-	-
L4_Bedroom	100	-	-
L4_Bathroom	100	-	-
L4_Bedroom	100	-	-
L4_Bathroom	100	-	-
L4_Bedroom	100	-	-
L4_Bathroom	100	-	-
L4_Staircore	100	-	-
L4_Shared Kitchen	100	-	-
L4_Circulation	100	-	-
L4_Circulation	100	-	-
L4_Studio	100	-	-
L4_Bathroom	100	-	-
L4_Studio	100	-	-
L4_Bathroom	100	-	-
L4_Bedroom	100	-	-
L4_Bathroom	100	-	-
L4_Bedroom	100	-	-
L4_Bathroom	100	-	-
L4_Bedroom	100	-	-
L4_Bathroom	100	-	-
L4_Bedroom	100	-	-
L4_Bathroom	100	-	-
L4_Bedroom	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
L4_Bathroom	100	-	-
L4_Bathroom	100	-	-
L4_Studio	100	-	-
L4_Bathroom	100	-	-
L4_Studio	100	-	-
L4_Bathroom	100	-	-
L4_Studio	100	-	-
L4_Bathroom	100	-	-
L4_Studio	100	-	-
L4_Bathroom	100	-	-
L4_Studio	100	-	-
L4_Bathroom	100	-	-
L4_Studio	100	-	-
L4_Bathroom	100	-	-
L4_Studio	100	-	-
L5_Staircore	100	-	-
L5_Circulation	100	-	-
L5_Staircore	100	-	-
L5_Circulation	100	-	-
L5_Bathroom	100	-	-
L5_Studio	100	-	-
L5_Bathroom	100	-	-
L5_Studio	100	-	-
L5_Bathroom	100	-	-
L5_Studio	100	-	-
L5_Studio	100	-	-
L5_Bathroom	100	-	-
L5_Bathroom	100	-	-
L5_Studio	100	-	-
L5_Bathroom	100	-	-
L5_Studio	100	-	-
L5_Bathroom	100	-	-
L5_Studio	100	-	-
L5_Bathroom	100	-	-
L5_Studio	100	-	-
L5_Bathroom	100	-	-
L5_Studio	100	-	-
L5_Bathroom	100	-	-
L5_Studio	100	-	-
L5_Shared Kitchen	100	-	-
L5_Circulation	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
L5_Bedroom	100	-	-
L5_Bathroom	100	-	-
L5_Bedroom	100	-	-
L5_Bathroom	100	-	-
L5_Bedroom	100	-	-
L5_Bathroom	100	-	-
L5_Bedroom	100	-	-
L5_Bathroom	100	-	-
L5_Bedroom	100	-	-
L5_Bathroom	100	-	-
L5_Staircore	100	-	-
L5_Shared Kitchen	100	-	-
L5_Circulation	100	-	-
L5_Circulation	100	-	-
L5_Studio	100	-	-
L5_Bathroom	100	-	-
L5_Studio	100	-	-
L5_Bathroom	100	-	-
L5_Bedroom	100	-	-
L5_Bathroom	100	-	-
L5_Bedroom	100	-	-
L5_Bathroom	100	-	-
L5_Bedroom	100	-	-
L5_Bathroom	100	-	-
L5_Bedroom	100	-	-
L5_Bathroom	100	-	-
L5_Bedroom	100	-	-
L5_Bathroom	100	-	-
L5_Bathroom	100	-	-
L5_Studio	100	-	-
L5_Bathroom	100	-	-
L5_Studio	100	-	-
L5_Bathroom	100	-	-
L5_Studio	100	-	-
L5_Bathroom	100	-	-
L5_Studio	100	-	-
L5_Bathroom	100	-	-
L5_Studio	100	-	-
L5_Bathroom	100	-	-
L5_Studio	100	-	-
L5_Bathroom	100	-	-
L5_Studio	100	-	-
L6_Staircore	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
L6_Circulation	100	-	-
L6_Staircore	100	-	-
L6_Circulation	100	-	-
L6_Bathroom	100	-	-
L6_Studio	100	-	-
L6_Bathroom	100	-	-
L6_Studio	100	-	-
L6_Bathroom	100	-	-
L6_Studio	100	-	-
L6_Studio	100	-	-
L6_Bathroom	100	-	-
L6_Bathroom	100	-	-
L6_Studio	100	-	-
L6_Bathroom	100	-	-
L6_Studio	100	-	-
L6_Bathroom	100	-	-
L6_Studio	100	-	-
L6_Bathroom	100	-	-
L6_Studio	100	-	-
L6_Bathroom	100	-	-
L6_Studio	100	-	-
L6_Bathroom	100	-	-
L6_Studio	100	-	-
L6_Shared Kitchen	100	-	-
L6_Circulation	100	-	-
L6_Bedroom	100	-	-
L6_Bathroom	100	-	-
L6_Bedroom	100	-	-
L6_Bathroom	100	-	-
L6_Bedroom	100	-	-
L6_Bathroom	100	-	-
L6_Bedroom	100	-	-
L6_Bathroom	100	-	-
L6_Bedroom	100	-	-
L6_Bathroom	100	-	-
L6_Staircore	100	-	-
L6_Shared Kitchen	100	-	-
L6_Circulation	100	-	-
L6_Circulation	100	-	-
L6_Studio	100	-	-
L6_Bathroom	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
L6_Studio	100	-	-
L6_Bathroom	100	-	-
L6_Bedroom	100	-	-
L6_Bathroom	100	-	-
L6_Bedroom	100	-	-
L6_Bathroom	100	-	-
L6_Bedroom	100	-	-
L6_Bathroom	100	-	-
L6_Bedroom	100	-	-
L6_Bathroom	100	-	-
L6_Bedroom	100	-	-
L6_Bathroom	100	-	-
L6_Bathroom	100	-	-
L6_Studio	100	-	-
L6_Bathroom	100	-	-
L6_Studio	100	-	-
L6_Bathroom	100	-	-
L6_Studio	100	-	-
L6_Bathroom	100	-	-
L6_Studio	100	-	-
L6_Bathroom	100	-	-
L6_Studio	100	-	-
L6_Bathroom	100	-	-
L6_Studio	100	-	-
L6_Bathroom	100	-	-
L6_Studio	100	-	-
L7_Staircore	100	-	-
L7_Circulation	100	-	-
L7_Staircore	100	-	-
L7_Circulation	100	-	-
L7_Bathroom	100	-	-
L7_Studio	100	-	-
L7_Bathroom	100	-	-
L7_Studio	100	-	-
L7_Bathroom	100	-	-
L7_Studio	100	-	-
L7_Studio	100	-	-
L7_Bathroom	100	-	-
L7_Bathroom	100	-	-
L7_Studio	100	-	-
L7_Bathroom	100	-	-
L7_Studio	100	-	-
L7_Bathroom	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
L7_Studio	100	-	-
L7_Bathroom	100	-	-
L7_Studio	100	-	-
L7_Bathroom	100	-	-
L7_Studio	100	-	-
L7_Bathroom	100	-	-
L7_Studio	100	-	-
L7_Bathroom	100	-	-
L7_Studio	100	-	-
L7_Shared Kitchen	100	-	-
L7_Circulation	100	-	-
L7_Bedroom	100	-	-
L7_Bathroom	100	-	-
L7_Bedroom	100	-	-
L7_Bathroom	100	-	-
L7_Bedroom	100	-	-
L7_Bathroom	100	-	-
L7_Bedroom	100	-	-
L7_Bathroom	100	-	-
L7_Staircore	100	-	-
L7_Shared Kitchen	100	-	-
L7_Circulation	100	-	-
L7_Circulation	100	-	-
L7_Studio	100	-	-
L7_Bathroom	100	-	-
L7_Studio	100	-	-
L7_Bathroom	100	-	-
L7_Bedroom	100	-	-
L7_Bathroom	100	-	-
L7_Bedroom	100	-	-
L7_Bathroom	100	-	-
L7_Bedroom	100	-	-
L7_Bathroom	100	-	-
L7_Bedroom	100	-	-
L7_Bathroom	100	-	-
L7_Bedroom	100	-	-
L7_Bathroom	100	-	-
L7_Bathroom	100	-	-
L7_Studio	100	-	-
L7_Bathroom	100	-	-
L7_Studio	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
L7_Bathroom	100	-	-
L7_Studio	100	-	-
L7_Bathroom	100	-	-
L7_Studio	100	-	-
L7_Bathroom	100	-	-
L7_Studio	100	-	-
L7_Bathroom	100	-	-
L7_Studio	100	-	-
L7_Bathroom	100	-	-
L7_Studio	100	-	-
L8_Staircore	100	-	-
L8_Circulation	100	-	-
L8_Staircore	100	-	-
L8_Circulation	100	-	-
L8_Bathroom	100	-	-
L8_Studio	100	-	-
L8_Bathroom	100	-	-
L8_Studio	100	-	-
L8_Bathroom	100	-	-
L8_Studio	100	-	-
L8_Studio	100	-	-
L8_Bathroom	100	-	-
L8_Bathroom	100	-	-
L8_Studio	100	-	-
L8_Bathroom	100	-	-
L8_Studio	100	-	-
L8_Bathroom	100	-	-
L8_Studio	100	-	-
L8_Bathroom	100	-	-
L8_Studio	100	-	-
L8_Bathroom	100	-	-
L8_Studio	100	-	-
L8_Bathroom	100	-	-
L8_Studio	100	-	-
L8_Bathroom	100	-	-
L8_Studio	100	-	-
L8_Shared Kitchen	100	-	-
L8_Circulation	100	-	-
L8_Bedroom	100	-	-
L8_Bathroom	100	-	-
L8_Bedroom	100	-	-
L8_Bathroom	100	-	-
L8_Bedroom	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
L8_Bathroom	100	-	-
L8_Bedroom	100	-	-
L8_Bathroom	100	-	-
L8_Bedroom	100	-	-
L8_Bathroom	100	-	-
L8_Staircore	100	-	-
L8_Shared Kitchen	100	-	-
L8_Circulation	100	-	-
L8_Circulation	100	-	-
L8_Studio	100	-	-
L8_Bathroom	100	-	-
L8_Studio	100	-	-
L8_Bathroom	100	-	-
L8_Bedroom	100	-	-
L8_Bathroom	100	-	-
L8_Bedroom	100	-	-
L8_Bathroom	100	-	-
L8_Bedroom	100	-	-
L8_Bathroom	100	-	-
L8_Bedroom	100	-	-
L8_Bathroom	100	-	-
L8_Bedroom	100	-	-
L8_Bathroom	100	-	-
L8_Bathroom	100	-	-
L8_Studio	100	-	-
L8_Bathroom	100	-	-
L8_Studio	100	-	-
L8_Bathroom	100	-	-
L8_Studio	100	-	-
L8_Bathroom	100	-	-
L8_Studio	100	-	-
L8_Bathroom	100	-	-
L8_Studio	100	-	-
L8_Bathroom	100	-	-
L8_Studio	100	-	-
L8_Bathroom	100	-	-
L8_Studio	100	-	-
L9_Staircore	100	-	-
L9_Circulation	100	-	-
L9_Staircore	100	-	-
L9_Circulation	100	-	-
L9_Bathroom	100	-	-
L9_Studio	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
L9_Bathroom	100	-	-
L9_Studio	100	-	-
L9_Bathroom	100	-	-
L9_Studio	100	-	-
L9_Studio	100	-	-
L9_Bathroom	100	-	-
L9_Bathroom	100	-	-
L9_Studio	100	-	-
L9_Bathroom	100	-	-
L9_Studio	100	-	-
L9_Bathroom	100	-	-
L9_Studio	100	-	-
L9_Bathroom	100	-	-
L9_Studio	100	-	-
L9_Bathroom	100	-	-
L9_Studio	100	-	-
L9_Bathroom	100	-	-
L9_Studio	100	-	-
L9_Bathroom	100	-	-
L9_Studio	100	-	-
L9_Shared Kitchen	100	-	-
L9_Circulation	100	-	-
L9_Bedroom	100	-	-
L9_Bathroom	100	-	-
L9_Bedroom	100	-	-
L9_Bathroom	100	-	-
L9_Bedroom	100	-	-
L9_Bathroom	100	-	-
L9_Bedroom	100	-	-
L9_Bathroom	100	-	-
L9_Bedroom	100	-	-
L9_Bathroom	100	-	-
L9_Staircore	100	-	-
L9_Shared Kitchen	100	-	-
L9_Circulation	100	-	-
L9_Circulation	100	-	-
L9_Studio	100	-	-
L9_Bathroom	100	-	-
L9_Studio	100	-	-
L9_Bathroom	100	-	-
L9_Bedroom	100	-	-
L9_Bathroom	100	-	-
L9_Bedroom	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
L9_Bathroom	100	-	-
L9_Bedroom	100	-	-
L9_Bathroom	100	-	-
L9_Bedroom	100	-	-
L9_Bathroom	100	-	-
L9_Bedroom	100	-	-
L9_Bathroom	100	-	-
L9_Bathroom	100	-	-
L9_Studio	100	-	-
L9_Bathroom	100	-	-
L9_Studio	100	-	-
L9_Bathroom	100	-	-
L9_Studio	100	-	-
L9_Bathroom	100	-	-
L9_Studio	100	-	-
L9_Bathroom	100	-	-
L9_Studio	100	-	-
L9_Bathroom	100	-	-
L9_Studio	100	-	-
L10_Staircore	100	-	-
L10_Circulation	100	-	-
L10_Staircore	100	-	-
L10_Circulation	100	-	-
L10_Bathroom	100	-	-
L10_Studio	100	-	-
L10_Bathroom	100	-	-
L10_Studio	100	-	-
L10_Bathroom	100	-	-
L10_Studio	100	-	-
L10_Studio	100	-	-
L10_Bathroom	100	-	-
L10_Bathroom	100	-	-
L10_Studio	100	-	-
L10_Bathroom	100	-	-
L10_Studio	100	-	-
L10_Bathroom	100	-	-
L10_Studio	100	-	-
L10_Bathroom	100	-	-
L10_Studio	100	-	-
L10_Bathroom	100	-	-
L10_Studio	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
L10_Bathroom	100	-	-
L10_Studio	100	-	-
L10_Bathroom	100	-	-
L10_Studio	100	-	-
L10_Shared Kitchen	100	-	-
L10_Circulation	100	-	-
L10_Bedroom	100	-	-
L10_Bathroom	100	-	-
L10_Bedroom	100	-	-
L10_Bathroom	100	-	-
L10_Bedroom	100	-	-
L10_Bathroom	100	-	-
L10_Bedroom	100	-	-
L10_Bathroom	100	-	-
L10_Bedroom	100	-	-
L10_Bathroom	100	-	-
L11_Staircore	100	-	-
L11_Circulation	100	-	-
L11_Staircore	100	-	-
L11_Circulation	100	-	-
L11_Bathroom	100	-	-
L11_Studio	100	-	-
L11_Bathroom	100	-	-
L11_Studio	100	-	-
L11_Bathroom	100	-	-
L11_Studio	100	-	-
L11_Studio	100	-	-
L11_Bathroom	100	-	-
L11_Bathroom	100	-	-
L11_Studio	100	-	-
L11_Bathroom	100	-	-
L11_Studio	100	-	-
L11_Bathroom	100	-	-
L11_Studio	100	-	-
L11_Bathroom	100	-	-
L11_Studio	100	-	-
L11_Bathroom	100	-	-
L11_Studio	100	-	-
L11_Bathroom	100	-	-
L11_Studio	100	-	-
L11_Bathroom	100	-	-
L11_Studio	100	-	-
L11_Shared Kitchen	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
L11_Circulation	100	-	-
L11_Bedroom	100	-	-
L11_Bathroom	100	-	-
L11_Bedroom	100	-	-
L11_Bathroom	100	-	-
L11_Bedroom	100	-	-
L11_Bathroom	100	-	-
L11_Bedroom	100	-	-
L11_Bathroom	100	-	-
L11_Bedroom	100	-	-
L11_Bathroom	100	-	-
L12_Staircore	100	-	-
L12_Circulation	100	-	-
L12_Staircore	100	-	-
L12_Circulation	100	-	-
L12_Bathroom	100	-	-
L12_Studio	100	-	-
L12_Bathroom	100	-	-
L12_Studio	100	-	-
L12_Bathroom	100	-	-
L12_Studio	100	-	-
L12_Studio	100	-	-
L12_Bathroom	100	-	-
L12_Bathroom	100	-	-
L12_Studio	100	-	-
L12_Bathroom	100	-	-
L12_Studio	100	-	-
L12_Bathroom	100	-	-
L12_Studio	100	-	-
L12_Bathroom	100	-	-
L12_Studio	100	-	-
L12_Bathroom	100	-	-
L12_Studio	100	-	-
L12_Bathroom	100	-	-
L12_Studio	100	-	-
L12_Bathroom	100	-	-
L12_Studio	100	-	-
L12_Shared Kitchen	100	-	-
L12_Circulation	100	-	-
L12_Bedroom	100	-	-
L12_Bathroom	100	-	-
L12_Bedroom	100	-	-
L12_Bathroom	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
L12_Bedroom	100	-	-
L12_Bathroom	100	-	-
L12_Bedroom	100	-	-
L12_Bathroom	100	-	-
L12_Bedroom	100	-	-
L12_Bathroom	100	-	-
L13_Staircore	100	-	-
L13_Circulation	100	-	-
L13_Staircore	100	-	-
L13_Circulation	100	-	-
L13_Bathroom	100	-	-
L13_Studio	100	-	-
L13_Bathroom	100	-	-
L13_Studio	100	-	-
L13_Bathroom	100	-	-
L13_Studio	100	-	-
L13_Studio	100	-	-
L13_Bathroom	100	-	-
L13_Bathroom	100	-	-
L13_Studio	100	-	-
L13_Bathroom	100	-	-
L13_Studio	100	-	-
L13_Bathroom	100	-	-
L13_Studio	100	-	-
L13_Bathroom	100	-	-
L13_Studio	100	-	-
L13_Bathroom	100	-	-
L13_Studio	100	-	-
L13_Bathroom	100	-	-
L13_Studio	100	-	-
L13_Bathroom	100	-	-
L13_Studio	100	-	-
L13_Shared Kitchen	100	-	-
L13_Circulation	100	-	-
L13_Bedroom	100	-	-
L13_Bathroom	100	-	-
L13_Bedroom	100	-	-
L13_Bathroom	100	-	-
L13_Bedroom	100	-	-
L13_Bathroom	100	-	-
L13_Bedroom	100	-	-
L13_Bathroom	100	-	-
L13_Bedroom	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
L13_Bathroom	100	-	-
L14_Staircore	100	-	-
L14_Circulation	100	-	-
L14_Staircore	100	-	-
L14_Circulation	100	-	-
L14_Bathroom	100	-	-
L14_Studio	100	-	-
L14_Bathroom	100	-	-
L14_Studio	100	-	-
L14_Bathroom	100	-	-
L14_Studio	100	-	-
L14_Studio	100	-	-
L14_Bathroom	100	-	-
L14_Bathroom	100	-	-
L14_Studio	100	-	-
L14_Bathroom	100	-	-
L14_Studio	100	-	-
L14_Bathroom	100	-	-
L14_Studio	100	-	-
L14_Bathroom	100	-	-
L14_Studio	100	-	-
L14_Bathroom	100	-	-
L14_Studio	100	-	-
L14_Bathroom	100	-	-
L14_Studio	100	-	-
L14_Bathroom	100	-	-
L14_Studio	100	-	-
L14_Bathroom	100	-	-
L14_Studio	100	-	-
L14_Shared Kitchen	100	-	-
L14_Circulation	100	-	-
L14_Bedroom	100	-	-
L14_Bathroom	100	-	-
L14_Bedroom	100	-	-
L14_Bathroom	100	-	-
L14_Bedroom	100	-	-
L14_Bathroom	100	-	-
L14_Bedroom	100	-	-
L14_Bathroom	100	-	-
L14_Bedroom	100	-	-
L14_Bathroom	100	-	-
L15_Staircore	100	-	-
L15_Circulation	100	-	-
L15_Staircore	100	-	-
L10_Staircore	100	-	-

3- The solar gains

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
L0_Reception	NO (-4.1%)	NO
L1_Entrance	NO (-4.3%)	NO
L1_Study/CommunalArea	NO (-5.3%)	NO
L1_Study/CommunalArea	NO (-51.4%)	NO
L2_Bedroom	NO (-51.2%)	NO
L2_Studio	NO (-72%)	NO
L2_Studio	NO (-19.9%)	NO
L2_Studio	NO (-15.9%)	NO
L2_Studio	NO (-18.4%)	NO
L2_Studio	NO (-18.4%)	NO
L2_Studio	NO (-15.9%)	NO
L2_Studio	NO (-18.4%)	NO
L2_Studio	NO (-18.4%)	NO
L2_Studio	NO (-18.4%)	NO
L2_Studio	NO (-18.9%)	NO
L2_Bedroom	NO (-52.3%)	NO
L2_Bedroom	NO (-53.4%)	NO
L2_Bedroom	NO (-56.7%)	NO
L2_Bedroom	NO (-63%)	NO
L2_Studio	NO (-82.3%)	NO
L2_Studio	NO (-50.3%)	NO
L2_Studio	NO (-83.8%)	NO
L3_Library	NO (-0.7%)	NO
L3_Studio	NO (-72%)	NO
L3_Studio	NO (-19.9%)	NO
L3_Studio	NO (-15.9%)	NO
L3_Studio	NO (-18.4%)	NO
L3_Studio	NO (-18.4%)	NO
L3_Studio	NO (-15.9%)	NO
L3_Studio	NO (-18.4%)	NO
L3_Studio	NO (-18.4%)	NO
L3_Studio	NO (-18.4%)	NO
L3_Studio	NO (-18.9%)	NO
L3_Studio	NO (-72.5%)	NO
L3_Bedroom	NO (-51.1%)	NO
L3_Bedroom	NO (-52.2%)	NO
L3_Bedroom	NO (-54.6%)	NO
L3_Bedroom	NO (-55.3%)	NO
L3_Bedroom	NO (-63%)	NO
L4_Studio	NO (-72%)	NO
L4_Studio	NO (-19.9%)	NO
L4_Studio	NO (-16%)	NO
L4_Studio	NO (-18.4%)	NO
L4_Studio	NO (-18.4%)	NO
L4_Studio	NO (-16%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
L4_Studio	NO (-18.4%)	NO
L4_Studio	NO (-18.4%)	NO
L4_Studio	NO (-18.4%)	NO
L4_Studio	NO (-18.9%)	NO
L4_Studio	NO (-72.5%)	NO
L4_Bedroom	NO (-51%)	NO
L4_Bedroom	NO (-52.2%)	NO
L4_Bedroom	NO (-54.5%)	NO
L4_Bedroom	NO (-55.3%)	NO
L4_Bedroom	NO (-63%)	NO
L4_Studio	NO (-81.9%)	NO
L4_Studio	NO (-47%)	NO
L4_Bedroom	NO (-48.2%)	NO
L4_Bedroom	NO (-49.7%)	NO
L4_Bedroom	NO (-49.5%)	NO
L4_Bedroom	NO (-48.8%)	NO
L4_Bedroom	NO (-48%)	NO
L4_Studio	NO (-45.1%)	NO
L4_Studio	NO (-35%)	NO
L4_Studio	NO (-23.9%)	NO
L4_Studio	NO (-22.6%)	NO
L4_Studio	NO (-19.9%)	NO
L4_Studio	NO (-18.9%)	NO
L4_Studio	NO (-71.7%)	NO
L5_Studio	NO (-72%)	NO
L5_Studio	NO (-19.9%)	NO
L5_Studio	NO (-16%)	NO
L5_Studio	NO (-18.4%)	NO
L5_Studio	NO (-18.4%)	NO
L5_Studio	NO (-16%)	NO
L5_Studio	NO (-18.4%)	NO
L5_Studio	NO (-18.4%)	NO
L5_Studio	NO (-18.4%)	NO
L5_Studio	NO (-18.9%)	NO
L5_Studio	NO (-72.5%)	NO
L5_Bedroom	NO (-50.9%)	NO
L5_Bedroom	NO (-52.1%)	NO
L5_Bedroom	NO (-54.5%)	NO
L5_Bedroom	NO (-55.2%)	NO
L5_Bedroom	NO (-63%)	NO
L5_Studio	NO (-81.9%)	NO
L5_Studio	NO (-47%)	NO
L5_Bedroom	NO (-48.2%)	NO
L5_Bedroom	NO (-49.7%)	NO
L5_Bedroom	NO (-49.5%)	NO
L5_Bedroom	NO (-48.8%)	NO
L5_Bedroom	NO (-48%)	NO
L5_Studio	NO (-45.1%)	NO
L5_Studio	NO (-35%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
L5_Studio	NO (-23.9%)	NO
L5_Studio	NO (-22.6%)	NO
L5_Studio	NO (-19.9%)	NO
L5_Studio	NO (-18.9%)	NO
L5_Studio	NO (-71.7%)	NO
L6_Studio	NO (-72%)	NO
L6_Studio	NO (-19.9%)	NO
L6_Studio	NO (-16%)	NO
L6_Studio	NO (-18.4%)	NO
L6_Studio	NO (-18.4%)	NO
L6_Studio	NO (-16%)	NO
L6_Studio	NO (-18.4%)	NO
L6_Studio	NO (-18.4%)	NO
L6_Studio	NO (-18.4%)	NO
L6_Studio	NO (-18.9%)	NO
L6_Studio	NO (-72.5%)	NO
L6_Bedroom	NO (-50.7%)	NO
L6_Bedroom	NO (-52%)	NO
L6_Bedroom	NO (-54.2%)	NO
L6_Bedroom	NO (-55%)	NO
L6_Bedroom	NO (-62.9%)	NO
L6_Studio	NO (-81.9%)	NO
L6_Studio	NO (-47%)	NO
L6_Bedroom	NO (-48.2%)	NO
L6_Bedroom	NO (-49.7%)	NO
L6_Bedroom	NO (-49.5%)	NO
L6_Bedroom	NO (-48.8%)	NO
L6_Bedroom	NO (-48%)	NO
L6_Studio	NO (-45.1%)	NO
L6_Studio	NO (-35%)	NO
L6_Studio	NO (-23.9%)	NO
L6_Studio	NO (-22.4%)	NO
L6_Studio	NO (-19.9%)	NO
L6_Studio	NO (-18.9%)	NO
L6_Studio	NO (-71.7%)	NO
L7_Studio	NO (-72%)	NO
L7_Studio	NO (-19.9%)	NO
L7_Studio	NO (-16%)	NO
L7_Studio	NO (-18.4%)	NO
L7_Studio	NO (-18.4%)	NO
L7_Studio	NO (-16%)	NO
L7_Studio	NO (-18.4%)	NO
L7_Studio	NO (-18.4%)	NO
L7_Studio	NO (-18.4%)	NO
L7_Studio	NO (-18.9%)	NO
L7_Studio	NO (-72.5%)	NO
L7_Bedroom	NO (-50.6%)	NO
L7_Bedroom	NO (-51.5%)	NO
L7_Bedroom	NO (-53.9%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
L7_Bedroom	NO (-54.7%)	NO
L7_Bedroom	NO (-62.8%)	NO
L7_Studio	NO (-81.9%)	NO
L7_Studio	NO (-47%)	NO
L7_Bedroom	NO (-48.2%)	NO
L7_Bedroom	NO (-49.7%)	NO
L7_Bedroom	NO (-49.5%)	NO
L7_Bedroom	NO (-48.8%)	NO
L7_Bedroom	NO (-48%)	NO
L7_Studio	NO (-45.1%)	NO
L7_Studio	NO (-35%)	NO
L7_Studio	NO (-23.9%)	NO
L7_Studio	NO (-22.4%)	NO
L7_Studio	NO (-19.9%)	NO
L7_Studio	NO (-18.9%)	NO
L7_Studio	NO (-71.7%)	NO
L8_Studio	NO (-72%)	NO
L8_Studio	NO (-19.9%)	NO
L8_Studio	NO (-16%)	NO
L8_Studio	NO (-18.4%)	NO
L8_Studio	NO (-18.4%)	NO
L8_Studio	NO (-16%)	NO
L8_Studio	NO (-18.4%)	NO
L8_Studio	NO (-18.4%)	NO
L8_Studio	NO (-18.4%)	NO
L8_Studio	NO (-18.9%)	NO
L8_Studio	NO (-72.5%)	NO
L8_Bedroom	NO (-50.3%)	NO
L8_Bedroom	NO (-50.9%)	NO
L8_Bedroom	NO (-53%)	NO
L8_Bedroom	NO (-53.2%)	NO
L8_Bedroom	NO (-61.9%)	NO
L8_Studio	NO (-81.9%)	NO
L8_Studio	NO (-47%)	NO
L8_Bedroom	NO (-48.2%)	NO
L8_Bedroom	NO (-49.7%)	NO
L8_Bedroom	NO (-49.5%)	NO
L8_Bedroom	NO (-48.8%)	NO
L8_Bedroom	NO (-48%)	NO
L8_Studio	NO (-45.1%)	NO
L8_Studio	NO (-34.9%)	NO
L8_Studio	NO (-23.8%)	NO
L8_Studio	NO (-22.4%)	NO
L8_Studio	NO (-19.9%)	NO
L8_Studio	NO (-18.9%)	NO
L8_Studio	NO (-71.7%)	NO
L9_Studio	NO (-72%)	NO
L9_Studio	NO (-19.9%)	NO
L9_Studio	NO (-16%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
L9_Studio	NO (-18.4%)	NO
L9_Studio	NO (-18.4%)	NO
L9_Studio	NO (-16%)	NO
L9_Studio	NO (-18.4%)	NO
L9_Studio	NO (-18.4%)	NO
L9_Studio	NO (-18.4%)	NO
L9_Studio	NO (-18.9%)	NO
L9_Studio	NO (-72.5%)	NO
L9_Bedroom	NO (-49.8%)	NO
L9_Bedroom	NO (-50.2%)	NO
L9_Bedroom	NO (-51.4%)	NO
L9_Bedroom	NO (-49.3%)	NO
L9_Bedroom	NO (-56.9%)	NO
L9_Studio	NO (-80.6%)	NO
L9_Studio	NO (-45.3%)	NO
L9_Bedroom	NO (-44.5%)	NO
L9_Bedroom	NO (-46.1%)	NO
L9_Bedroom	NO (-45.6%)	NO
L9_Bedroom	NO (-45.1%)	NO
L9_Bedroom	NO (-44.2%)	NO
L9_Studio	NO (-39.4%)	NO
L9_Studio	NO (-31.2%)	NO
L9_Studio	NO (-18.9%)	NO
L9_Studio	NO (-16.8%)	NO
L9_Studio	NO (-14.4%)	NO
L9_Studio	NO (-14.3%)	NO
L9_Studio	NO (-69.6%)	NO
L10_Studio	NO (-72%)	NO
L10_Studio	NO (-19.9%)	NO
L10_Studio	NO (-16%)	NO
L10_Studio	NO (-18.4%)	NO
L10_Studio	NO (-18.4%)	NO
L10_Studio	NO (-16%)	NO
L10_Studio	NO (-18.4%)	NO
L10_Studio	NO (-18.4%)	NO
L10_Studio	NO (-18.4%)	NO
L10_Studio	NO (-18.9%)	NO
L10_Studio	NO (-72.5%)	NO
L10_Bedroom	NO (-49.1%)	NO
L10_Bedroom	NO (-49%)	NO
L10_Bedroom	NO (-49.8%)	NO
L10_Bedroom	NO (-45%)	NO
L10_Bedroom	NO (-49.7%)	NO
L11_Studio	NO (-72%)	NO
L11_Studio	NO (-19.9%)	NO
L11_Studio	NO (-16%)	NO
L11_Studio	NO (-18.4%)	NO
L11_Studio	NO (-18.4%)	NO
L11_Studio	NO (-16%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
L11_Studio	NO (-18.4%)	NO
L11_Studio	NO (-18.4%)	NO
L11_Studio	NO (-18.4%)	NO
L11_Studio	NO (-18.9%)	NO
L11_Studio	NO (-72.5%)	NO
L11_Bedroom	NO (-48.2%)	NO
L11_Bedroom	NO (-48.2%)	NO
L11_Bedroom	NO (-49.6%)	NO
L11_Bedroom	NO (-44.9%)	NO
L11_Bedroom	NO (-48.7%)	NO
L12_Studio	NO (-72%)	NO
L12_Studio	NO (-19.9%)	NO
L12_Studio	NO (-16%)	NO
L12_Studio	NO (-18.4%)	NO
L12_Studio	NO (-18.4%)	NO
L12_Studio	NO (-16%)	NO
L12_Studio	NO (-18.4%)	NO
L12_Studio	NO (-18.4%)	NO
L12_Studio	NO (-18.4%)	NO
L12_Studio	NO (-18.9%)	NO
L12_Studio	NO (-72.5%)	NO
L12_Bedroom	NO (-48.2%)	NO
L12_Bedroom	NO (-48.2%)	NO
L12_Bedroom	NO (-49.6%)	NO
L12_Bedroom	NO (-44.9%)	NO
L12_Bedroom	NO (-48.7%)	NO
L13_Studio	NO (-70.1%)	NO
L13_Studio	NO (-57%)	NO
L13_Studio	NO (-10%)	NO
L13_Studio	NO (-12.6%)	NO
L13_Studio	NO (-12.6%)	NO
L13_Studio	NO (-10%)	NO
L13_Studio	NO (-12.6%)	NO
L13_Studio	NO (-12.6%)	NO
L13_Studio	NO (-12.6%)	NO
L13_Studio	NO (-13.9%)	NO
L13_Studio	NO (-70.5%)	NO
L13_Bedroom	NO (-44.5%)	NO
L13_Bedroom	NO (-44.5%)	NO
L13_Bedroom	NO (-46.1%)	NO
L13_Bedroom	NO (-41%)	NO
L13_Bedroom	NO (-45%)	NO
L14_Studio	NO (-70.1%)	NO
L14_Studio	NO (-57%)	NO
L14_Studio	NO (-10%)	NO
L14_Studio	NO (-12.6%)	NO
L14_Studio	NO (-12.6%)	NO
L14_Studio	NO (-10%)	NO
L14_Studio	NO (-12.6%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
L14_Studio	NO (-12.6%)	NO
L14_Studio	NO (-12.6%)	NO
L14_Studio	NO (-13.9%)	NO
L14_Studio	NO (-70.5%)	NO
L14_Bedroom	NO (-44.5%)	NO
L14_Bedroom	NO (-44.5%)	NO
L14_Bedroom	NO (-46.1%)	NO
L14_Bedroom	NO (-41%)	NO
L14_Bedroom	NO (-45%)	NO

Consideration of high efficiency alternative energy systems

Were alternative energy systems considered and analysed as part of the design process?	YES
Is evidence of such assessment available as a separate submission?	YES
Are any such measures included in the proposed design?	YES

Technical Data Sheet (Actual vs. Notional Building)

Building Global Parameters

	Actual	Notional
Floor area [m^2]	11410.3	11410.3
External area [m^2]	10049.6	10049.6
Weather	GLA	GLA
Infiltration [m^3/hm^2@ 50Pa]	4	4
Average conductance [W/K]	2748.46	4113.43
Average U-value [W/m^2K]	0.27	0.41
Alpha value* [%]	25.71	10

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

Building Use

% Area	Building Type
	Retail/Financial and Professional Services
	Restaurants and Cafes/Drinking Establishments/Takeaways
	Offices and Workshop Businesses
	General Industrial and Special Industrial Groups
	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	18.32	19.19
Cooling	0.51	0.38
Auxiliary	5.62	5.51
Lighting	8.27	7.96
Hot water	5.29	9.63
Equipment*	32.19	32.19
TOTAL**	**38.02**	**42.66**

* 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	2.23	2.3
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0
Displaced electricity	*2.23*	*2.3*

Energy & CO_2 Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m^2]	79.53	84.05
Primary energy [kWh_{PE}/m^2]	111.01	90.3
Total emissions [kg/m^2]	5.24	6.94

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] Other local room heater - unfanned, [HS] Direct or storage electric heater, [HFT] Electricity, [CFT] Electricity										
	Actual	86.2	0	24	0	4.3	1	0	1	0
	Notional	86.7	0	24.6	0	3.3	0.98	0	----	----
[ST] Variable refrigerant flow, [HS] ASHP, [HFT] Electricity, [CFT] Electricity										
	Actual	53.3	65.2	4.5	4.8	5.1	3.33	3.74	3.42	5.78
	Notional	51.1	69.7	4.5	3.6	12.3	3.16	5.37	----	----
[ST] Central heating using air distribution, [HS] ASHP, [HFT] Electricity, [CFT] Electricity										
	Actual	35.8	0	2.8	0	18.3	3.6	0	3.42	0
	Notional	73.9	0	6.5	0	15.5	3.16	0	----	----
[ST] No Heating or Cooling										
	Actual	0	0	0	0	0	0	0	0	0
	Notional	0	0	0	0	0	0	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

Apache Specification Information

Scottish Building Regulations 2022 Section 6 Guidance

Carbon Dioxide Emissions, Energy Consumption, U-Values, Air Permeability, and HVAC

Project name

J7374_NRW_PBSA_SouthTower_TripleGlazing_VRF_NatGasBaseline

Date: Tue Jan 30 14:28:06 2024

Administrative information

Building Details

Address: Address 1, City, Postcode

Agent details

Name: Name

Telephone number: Phone

Address: Street Address, City, Postcode

Certification tool

Calculation engine: Apache

Calculation engine version: 7.0.23.0

Interface to calculation engine: IES Virtual Environment

Interface to calculation engine version: 7.0.23.0

Compliance module version: v6.1.e.1

Foundation area [m^2]: 672.53

1- The predicted CO_2 emissions and energy consumption

Target CO_2 emission rate (TER), $kgCO_2/m^2$annum	9.8	
Building CO_2 emission rate (BER), $kgCO_2/m^2$annum	8.8	
Target delivered energy rate (TDER), kWh/m^2annum	52.06	
Building delivered energy rate (BDER), kWh/m^2annum	52.04	
Do the building's emission and delivered energy rates exceed the targets?	BER =< TER	BDER =< TDER

2- The performance of the building fabric and the building services systems

Fabric element	$U_{a\text{-}Limit}$	$U_{a\text{-}Calc}$	$U_{i\text{-}Limit}$	$U_{i\text{-}Calc}$	First surface with maximum value
Walls	0.21	0.16	0.7	0.7	L200000E:Surf[1]
Floors	0.18	0.1	0.7	0.1	L0000001:Surf[0]
Roofs	0.16	0.1	0.35	0.1	L000000C:Surf[1]
Windows* and roof windows	1.6	0.8	3.3	1.2	L1000012:Surf[1]
Rooflights**	2.2	-	3.8	-	No roof lights in building
Personnel doors	1.4	-	3.3	-	No personnel doors in building
Vehicle access & similar large doors	1.5	-	3.3	-	No vehicle access doors in building
High usage entrance doors	3	-	N/A	-	No high usage entrance doors in building

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

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

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

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

* Display windows and similar glazing are excluded from the U-value check.

** Values for rooflights refer to the horizontal position.

Air Permeability	This building's value
m3/(h.m2) at 50 Pa	4

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	>0.95

1- J7374_Amenity_VRF + MVHR

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	3.42	5.78	0	1.8	0.85
Standard value	2.5*	N/A	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.

2- J7374_Stairs_VRF

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	3.42	-	0.2	1.8	0.85
Standard value	2.5*	N/A	N/A	1.9^	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.

3- J7374_Electric Radiators

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	1	-	0.2	-	0.85
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

1- J7374_DHW_NatGas

	Water heating efficiency	Storage loss factor [kWh/litre per day]
This building	1	0.002
Standard value	0.91	N/A

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		
Standard value	0.3	1.1	0.5	2.3	2	0.5	0.5	0.4	1	Zone	Standard
L2_Shared Kitchen	-	-	-	0.8	-	-	-	-	0.4	-	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**
L2_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L2_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L2_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L2_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L2_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L2_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L2_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L2_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L2_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L2_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L2_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L2_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L2_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L2_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L2_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L3_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L3_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L3_Studio	-	-	-	0.8	-	-	-	-	0.4	-	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**
L3_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L3_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L3_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L3_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L3_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L3_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L3_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L3_Shared Kitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L3_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L3_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	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
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Shared Kitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Shared Kitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	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**
L4_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L4_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Shared Kitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Shared Kitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bedroom	-	-	-	0.8	-	-	-	-	-	-	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**
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L5_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L5_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	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**
L6_Shared Kitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Shared Kitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L6_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L6_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	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**
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Shared Kitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Shared Kitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	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**
L7_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L7_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L7_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Shared Kitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	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**
L8_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Shared Kitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L8_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L8_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	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**
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Shared Kitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Shared Kitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	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**
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L9_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L9_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Shared Kitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L10_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L10_Bedroom	-	-	-	0.8	-	-	-	-	-	-	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**
L10_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Shared Kitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L11_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L11_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Bathroom	-	-	-	0.8	-	-	-	-	-	-	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**
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Shared Kitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L12_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L12_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L13_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L13_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L13_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L13_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L13_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L13_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L13_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L13_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L13_Bathroom	-	-	-	0.8	-	-	-	-	-	-	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**
L13_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L13_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L13_Shared Kitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L13_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L13_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L14_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L14_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L14_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L14_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L14_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L14_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L14_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L14_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L14_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L14_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_Studio	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L14_Shared Kitchen	-	-	-	0.8	-	-	-	-	0.4	-	N/A
L14_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_Bathroom	-	-	-	0.8	-	-	-	-	-	-	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
L14_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_Bathroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_Bedroom	-	-	-	0.8	-	-	-	-	-	-	N/A
L14_Bathroom	-	-	-	0.8	-	-	-	-	-	-	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
L0_Plant	100	-	-
L0_Reception	100	15	9
L0_StairCore	100	-	-
L0_StairCore	100	-	-
L0_Circulation	100	-	-
L0_Staircore	100	-	-
L0_Circulation	100	-	-
L0_Plant	100	-	-
L0_Plant	100	-	-
L1_Circulation	100	-	-
L1_Staircore	100	-	-
L1_Entrance	100	-	-
L1_Study/CommunalArea	100	-	-
L1_Secondary Switchroom	100	-	-
L1_Primary Switchroom	100	-	-
L1_SPEN Substation	100	-	-
L1_Study/CommunalArea	100	-	-
L1_Staircore	100	-	-
L1_Bike Store	100	-	-
L1_Bin and Recycling	100	-	-
L1_Telecoms/Data	100	-	-
L1_Staircore	100	-	-
L2_Heating Plant	100	-	-
L2_Staircore	100	-	-
L2_Hot Water Plant	100	-	-
L2_Hot Water Plant	100	-	-
L2_Circulation	100	-	-
L2_Staircore	100	-	-
L2_Circulation	100	-	-
L2_Shared Kitchen	100	-	-
L2_Staircore	100	-	-
L2_Circulation	100	-	-
L2_Bathroom	100	-	-
L2_Bedroom	100	-	-
L2_Circulation	100	-	-

General lighting and display lighting	General luminaire	Display light source	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m^2]**
Standard value	95	80	0.3
L2_Bathroom	100	-	-
L2_Studio	100	-	-
L2_Bathroom	100	-	-
L2_Studio	100	-	-
L2_Bathroom	100	-	-
L2_Studio	100	-	-
L2_Bathroom	100	-	-
L2_Studio	100	-	-
L2_Bathroom	100	-	-
L2_Studio	100	-	-
L2_Bathroom	100	-	-
L2_Studio	100	-	-
L2_Bathroom	100	-	-
L2_Studio	100	-	-
L2_Bathroom	100	-	-
L2_Studio	100	-	-
L2_Bathroom	100	-	-
L2_Studio	100	-	-
L2_Bathroom	100	-	-
L2_Studio	100	-	-
L2_Bedroom	100	-	-
L2_Bathroom	100	-	-
L2_Bedroom	100	-	-
L2_Bathroom	100	-	-
L2_Bathroom	100	-	-
L2_Bedroom	100	-	-
L2_Bedroom	100	-	-
L2_Bathroom	100	-	-
L2_Studio	100	-	-
L2_Bathroom	100	-	-
L2_Studio	100	-	-
L2_Bathroom	100	-	-
L2_Studio	100	-	-
L2_Bathroom	100	-	-
L3_Staircore	100	-	-
L3_Circulation	100	-	-
L3_Staircore	100	-	-
L3_Library	100	-	-
L3_Staircore	100	-	-
L3_Circulation	100	-	-
L3_Bathroom	100	-	-
L3_Studio	100	-	-
L3_Bathroom	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
L3_Studio	100	-	-
L3_Bathroom	100	-	-
L3_Studio	100	-	-
L3_Studio	100	-	-
L3_Bathroom	100	-	-
L3_Bathroom	100	-	-
L3_Studio	100	-	-
L3_Bathroom	100	-	-
L3_Studio	100	-	-
L3_Bathroom	100	-	-
L3_Studio	100	-	-
L3_Bathroom	100	-	-
L3_Studio	100	-	-
L3_Bathroom	100	-	-
L3_Studio	100	-	-
L3_Bathroom	100	-	-
L3_Studio	100	-	-
L3_Bathroom	100	-	-
L3_Studio	100	-	-
L3_Shared Kitchen	100	-	-
L3_Circulation	100	-	-
L3_Bedroom	100	-	-
L3_Bathroom	100	-	-
L3_Bedroom	100	-	-
L3_Bathroom	100	-	-
L3_Bedroom	100	-	-
L3_Bathroom	100	-	-
L3_Bedroom	100	-	-
L3_Bathroom	100	-	-
L3_Bedroom	100	-	-
L3_Bathroom	100	-	-
L4_Staircore	100	-	-
L4_Circulation	100	-	-
L4_Staircore	100	-	-
L4_Circulation	100	-	-
L4_Bathroom	100	-	-
L4_Studio	100	-	-
L4_Bathroom	100	-	-
L4_Studio	100	-	-
L4_Bathroom	100	-	-
L4_Studio	100	-	-
L4_Studio	100	-	-
L4_Bathroom	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
L4_Bathroom	100	-	-
L4_Studio	100	-	-
L4_Bathroom	100	-	-
L4_Studio	100	-	-
L4_Bathroom	100	-	-
L4_Studio	100	-	-
L4_Bathroom	100	-	-
L4_Studio	100	-	-
L4_Bathroom	100	-	-
L4_Studio	100	-	-
L4_Bathroom	100	-	-
L4_Studio	100	-	-
L4_Bathroom	100	-	-
L4_Studio	100	-	-
L4_Shared Kitchen	100	-	-
L4_Circulation	100	-	-
L4_Bedroom	100	-	-
L4_Bathroom	100	-	-
L4_Bedroom	100	-	-
L4_Bathroom	100	-	-
L4_Bedroom	100	-	-
L4_Bathroom	100	-	-
L4_Bedroom	100	-	-
L4_Bathroom	100	-	-
L4_Bedroom	100	-	-
L4_Bathroom	100	-	-
L4_Staircore	100	-	-
L4_Shared Kitchen	100	-	-
L4_Circulation	100	-	-
L4_Circulation	100	-	-
L4_Studio	100	-	-
L4_Bathroom	100	-	-
L4_Studio	100	-	-
L4_Bathroom	100	-	-
L4_Bedroom	100	-	-
L4_Bathroom	100	-	-
L4_Bedroom	100	-	-
L4_Bathroom	100	-	-
L4_Bedroom	100	-	-
L4_Bathroom	100	-	-
L4_Bedroom	100	-	-
L4_Bathroom	100	-	-
L4_Bedroom	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
L4_Bathroom	100	-	-
L4_Bathroom	100	-	-
L4_Studio	100	-	-
L4_Bathroom	100	-	-
L4_Studio	100	-	-
L4_Bathroom	100	-	-
L4_Studio	100	-	-
L4_Bathroom	100	-	-
L4_Studio	100	-	-
L4_Bathroom	100	-	-
L4_Studio	100	-	-
L4_Bathroom	100	-	-
L4_Studio	100	-	-
L4_Bathroom	100	-	-
L4_Studio	100	-	-
L5_Staircore	100	-	-
L5_Circulation	100	-	-
L5_Staircore	100	-	-
L5_Circulation	100	-	-
L5_Bathroom	100	-	-
L5_Studio	100	-	-
L5_Bathroom	100	-	-
L5_Studio	100	-	-
L5_Bathroom	100	-	-
L5_Studio	100	-	-
L5_Studio	100	-	-
L5_Bathroom	100	-	-
L5_Bathroom	100	-	-
L5_Studio	100	-	-
L5_Bathroom	100	-	-
L5_Studio	100	-	-
L5_Bathroom	100	-	-
L5_Studio	100	-	-
L5_Bathroom	100	-	-
L5_Studio	100	-	-
L5_Bathroom	100	-	-
L5_Studio	100	-	-
L5_Bathroom	100	-	-
L5_Studio	100	-	-
L5_Shared Kitchen	100	-	-
L5_Circulation	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
L5_Bedroom	100	-	-
L5_Bathroom	100	-	-
L5_Bedroom	100	-	-
L5_Bathroom	100	-	-
L5_Bedroom	100	-	-
L5_Bathroom	100	-	-
L5_Bedroom	100	-	-
L5_Bathroom	100	-	-
L5_Bedroom	100	-	-
L5_Bathroom	100	-	-
L5_Staircore	100	-	-
L5_Shared Kitchen	100	-	-
L5_Circulation	100	-	-
L5_Circulation	100	-	-
L5_Studio	100	-	-
L5_Bathroom	100	-	-
L5_Studio	100	-	-
L5_Bathroom	100	-	-
L5_Bedroom	100	-	-
L5_Bathroom	100	-	-
L5_Bedroom	100	-	-
L5_Bathroom	100	-	-
L5_Bedroom	100	-	-
L5_Bathroom	100	-	-
L5_Bedroom	100	-	-
L5_Bathroom	100	-	-
L5_Bedroom	100	-	-
L5_Bathroom	100	-	-
L5_Bathroom	100	-	-
L5_Studio	100	-	-
L5_Bathroom	100	-	-
L5_Studio	100	-	-
L5_Bathroom	100	-	-
L5_Studio	100	-	-
L5_Bathroom	100	-	-
L5_Studio	100	-	-
L5_Bathroom	100	-	-
L5_Studio	100	-	-
L5_Bathroom	100	-	-
L5_Studio	100	-	-
L5_Bathroom	100	-	-
L5_Studio	100	-	-
L6_Staircore	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
L6_Circulation	100	-	-
L6_Staircore	100	-	-
L6_Circulation	100	-	-
L6_Bathroom	100	-	-
L6_Studio	100	-	-
L6_Bathroom	100	-	-
L6_Studio	100	-	-
L6_Bathroom	100	-	-
L6_Studio	100	-	-
L6_Studio	100	-	-
L6_Bathroom	100	-	-
L6_Bathroom	100	-	-
L6_Studio	100	-	-
L6_Bathroom	100	-	-
L6_Studio	100	-	-
L6_Bathroom	100	-	-
L6_Studio	100	-	-
L6_Bathroom	100	-	-
L6_Studio	100	-	-
L6_Bathroom	100	-	-
L6_Studio	100	-	-
L6_Bathroom	100	-	-
L6_Studio	100	-	-
L6_Bathroom	100	-	-
L6_Studio	100	-	-
L6_Shared Kitchen	100	-	-
L6_Circulation	100	-	-
L6_Bedroom	100	-	-
L6_Bathroom	100	-	-
L6_Bedroom	100	-	-
L6_Bathroom	100	-	-
L6_Bedroom	100	-	-
L6_Bathroom	100	-	-
L6_Bedroom	100	-	-
L6_Bathroom	100	-	-
L6_Bedroom	100	-	-
L6_Bathroom	100	-	-
L6_Staircore	100	-	-
L6_Shared Kitchen	100	-	-
L6_Circulation	100	-	-
L6_Circulation	100	-	-
L6_Studio	100	-	-
L6_Bathroom	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
L6_Studio	100	-	-
L6_Bathroom	100	-	-
L6_Bedroom	100	-	-
L6_Bathroom	100	-	-
L6_Bedroom	100	-	-
L6_Bathroom	100	-	-
L6_Bedroom	100	-	-
L6_Bathroom	100	-	-
L6_Bedroom	100	-	-
L6_Bathroom	100	-	-
L6_Bedroom	100	-	-
L6_Bathroom	100	-	-
L6_Bathroom	100	-	-
L6_Studio	100	-	-
L6_Bathroom	100	-	-
L6_Studio	100	-	-
L6_Bathroom	100	-	-
L6_Studio	100	-	-
L6_Bathroom	100	-	-
L6_Studio	100	-	-
L6_Bathroom	100	-	-
L6_Studio	100	-	-
L6_Bathroom	100	-	-
L6_Studio	100	-	-
L6_Bathroom	100	-	-
L6_Studio	100	-	-
L7_Staircore	100	-	-
L7_Circulation	100	-	-
L7_Staircore	100	-	-
L7_Circulation	100	-	-
L7_Bathroom	100	-	-
L7_Studio	100	-	-
L7_Bathroom	100	-	-
L7_Studio	100	-	-
L7_Bathroom	100	-	-
L7_Studio	100	-	-
L7_Studio	100	-	-
L7_Bathroom	100	-	-
L7_Bathroom	100	-	-
L7_Studio	100	-	-
L7_Bathroom	100	-	-
L7_Studio	100	-	-
L7_Bathroom	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
L7_Studio	100	-	-
L7_Bathroom	100	-	-
L7_Studio	100	-	-
L7_Bathroom	100	-	-
L7_Studio	100	-	-
L7_Bathroom	100	-	-
L7_Studio	100	-	-
L7_Bathroom	100	-	-
L7_Studio	100	-	-
L7_Shared Kitchen	100	-	-
L7_Circulation	100	-	-
L7_Bedroom	100	-	-
L7_Bathroom	100	-	-
L7_Bedroom	100	-	-
L7_Bathroom	100	-	-
L7_Bedroom	100	-	-
L7_Bathroom	100	-	-
L7_Bedroom	100	-	-
L7_Bathroom	100	-	-
L7_Staircore	100	-	-
L7_Shared Kitchen	100	-	-
L7_Circulation	100	-	-
L7_Circulation	100	-	-
L7_Studio	100	-	-
L7_Bathroom	100	-	-
L7_Studio	100	-	-
L7_Bathroom	100	-	-
L7_Bedroom	100	-	-
L7_Bathroom	100	-	-
L7_Bedroom	100	-	-
L7_Bathroom	100	-	-
L7_Bedroom	100	-	-
L7_Bathroom	100	-	-
L7_Bedroom	100	-	-
L7_Bathroom	100	-	-
L7_Bedroom	100	-	-
L7_Bathroom	100	-	-
L7_Bathroom	100	-	-
L7_Studio	100	-	-
L7_Bathroom	100	-	-
L7_Studio	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
L7_Bathroom	100	-	-
L7_Studio	100	-	-
L7_Bathroom	100	-	-
L7_Studio	100	-	-
L7_Bathroom	100	-	-
L7_Studio	100	-	-
L7_Bathroom	100	-	-
L7_Studio	100	-	-
L7_Bathroom	100	-	-
L7_Studio	100	-	-
L8_Staircore	100	-	-
L8_Circulation	100	-	-
L8_Staircore	100	-	-
L8_Circulation	100	-	-
L8_Bathroom	100	-	-
L8_Studio	100	-	-
L8_Bathroom	100	-	-
L8_Studio	100	-	-
L8_Bathroom	100	-	-
L8_Studio	100	-	-
L8_Studio	100	-	-
L8_Bathroom	100	-	-
L8_Bathroom	100	-	-
L8_Studio	100	-	-
L8_Bathroom	100	-	-
L8_Studio	100	-	-
L8_Bathroom	100	-	-
L8_Studio	100	-	-
L8_Bathroom	100	-	-
L8_Studio	100	-	-
L8_Bathroom	100	-	-
L8_Studio	100	-	-
L8_Shared Kitchen	100	-	-
L8_Circulation	100	-	-
L8_Bedroom	100	-	-
L8_Bathroom	100	-	-
L8_Bedroom	100	-	-
L8_Bathroom	100	-	-
L8_Bedroom	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
L8_Bathroom	100	-	-
L8_Bedroom	100	-	-
L8_Bathroom	100	-	-
L8_Bedroom	100	-	-
L8_Bathroom	100	-	-
L8_Staircore	100	-	-
L8_Shared Kitchen	100	-	-
L8_Circulation	100	-	-
L8_Circulation	100	-	-
L8_Studio	100	-	-
L8_Bathroom	100	-	-
L8_Studio	100	-	-
L8_Bathroom	100	-	-
L8_Bedroom	100	-	-
L8_Bathroom	100	-	-
L8_Bedroom	100	-	-
L8_Bathroom	100	-	-
L8_Bedroom	100	-	-
L8_Bathroom	100	-	-
L8_Bedroom	100	-	-
L8_Bathroom	100	-	-
L8_Bedroom	100	-	-
L8_Bathroom	100	-	-
L8_Bathroom	100	-	-
L8_Studio	100	-	-
L8_Bathroom	100	-	-
L8_Studio	100	-	-
L8_Bathroom	100	-	-
L8_Studio	100	-	-
L8_Bathroom	100	-	-
L8_Studio	100	-	-
L8_Bathroom	100	-	-
L8_Studio	100	-	-
L8_Bathroom	100	-	-
L8_Studio	100	-	-
L8_Bathroom	100	-	-
L8_Studio	100	-	-
L9_Staircore	100	-	-
L9_Circulation	100	-	-
L9_Staircore	100	-	-
L9_Circulation	100	-	-
L9_Bathroom	100	-	-
L9_Studio	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
L9_Bathroom	100	-	-
L9_Studio	100	-	-
L9_Bathroom	100	-	-
L9_Studio	100	-	-
L9_Studio	100	-	-
L9_Bathroom	100	-	-
L9_Bathroom	100	-	-
L9_Studio	100	-	-
L9_Bathroom	100	-	-
L9_Studio	100	-	-
L9_Bathroom	100	-	-
L9_Studio	100	-	-
L9_Bathroom	100	-	-
L9_Studio	100	-	-
L9_Bathroom	100	-	-
L9_Studio	100	-	-
L9_Bathroom	100	-	-
L9_Studio	100	-	-
L9_Bathroom	100	-	-
L9_Studio	100	-	-
L9_Shared Kitchen	100	-	-
L9_Circulation	100	-	-
L9_Bedroom	100	-	-
L9_Bathroom	100	-	-
L9_Bedroom	100	-	-
L9_Bathroom	100	-	-
L9_Bedroom	100	-	-
L9_Bathroom	100	-	-
L9_Bedroom	100	-	-
L9_Bathroom	100	-	-
L9_Bedroom	100	-	-
L9_Bathroom	100	-	-
L9_Staircore	100	-	-
L9_Shared Kitchen	100	-	-
L9_Circulation	100	-	-
L9_Circulation	100	-	-
L9_Studio	100	-	-
L9_Bathroom	100	-	-
L9_Studio	100	-	-
L9_Bathroom	100	-	-
L9_Bedroom	100	-	-
L9_Bathroom	100	-	-
L9_Bedroom	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
L9_Bathroom	100	-	-
L9_Bedroom	100	-	-
L9_Bathroom	100	-	-
L9_Bedroom	100	-	-
L9_Bathroom	100	-	-
L9_Bedroom	100	-	-
L9_Bathroom	100	-	-
L9_Bathroom	100	-	-
L9_Studio	100	-	-
L9_Bathroom	100	-	-
L9_Studio	100	-	-
L9_Bathroom	100	-	-
L9_Studio	100	-	-
L9_Bathroom	100	-	-
L9_Studio	100	-	-
L9_Bathroom	100	-	-
L9_Studio	100	-	-
L9_Bathroom	100	-	-
L9_Studio	100	-	-
L10_Staircore	100	-	-
L10_Circulation	100	-	-
L10_Staircore	100	-	-
L10_Circulation	100	-	-
L10_Bathroom	100	-	-
L10_Studio	100	-	-
L10_Bathroom	100	-	-
L10_Studio	100	-	-
L10_Bathroom	100	-	-
L10_Studio	100	-	-
L10_Studio	100	-	-
L10_Bathroom	100	-	-
L10_Bathroom	100	-	-
L10_Studio	100	-	-
L10_Bathroom	100	-	-
L10_Studio	100	-	-
L10_Bathroom	100	-	-
L10_Studio	100	-	-
L10_Bathroom	100	-	-
L10_Studio	100	-	-
L10_Bathroom	100	-	-
L10_Studio	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
L10_Bathroom	100	-	-
L10_Studio	100	-	-
L10_Bathroom	100	-	-
L10_Studio	100	-	-
L10_Shared Kitchen	100	-	-
L10_Circulation	100	-	-
L10_Bedroom	100	-	-
L10_Bathroom	100	-	-
L10_Bedroom	100	-	-
L10_Bathroom	100	-	-
L10_Bedroom	100	-	-
L10_Bathroom	100	-	-
L10_Bedroom	100	-	-
L10_Bathroom	100	-	-
L10_Bedroom	100	-	-
L10_Bathroom	100	-	-
L11_Staircore	100	-	-
L11_Circulation	100	-	-
L11_Staircore	100	-	-
L11_Circulation	100	-	-
L11_Bathroom	100	-	-
L11_Studio	100	-	-
L11_Bathroom	100	-	-
L11_Studio	100	-	-
L11_Bathroom	100	-	-
L11_Studio	100	-	-
L11_Studio	100	-	-
L11_Bathroom	100	-	-
L11_Bathroom	100	-	-
L11_Studio	100	-	-
L11_Bathroom	100	-	-
L11_Studio	100	-	-
L11_Bathroom	100	-	-
L11_Studio	100	-	-
L11_Bathroom	100	-	-
L11_Studio	100	-	-
L11_Bathroom	100	-	-
L11_Studio	100	-	-
L11_Bathroom	100	-	-
L11_Studio	100	-	-
L11_Bathroom	100	-	-
L11_Studio	100	-	-
L11_Shared Kitchen	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
L11_Circulation	100	-	-
L11_Bedroom	100	-	-
L11_Bathroom	100	-	-
L11_Bedroom	100	-	-
L11_Bathroom	100	-	-
L11_Bedroom	100	-	-
L11_Bathroom	100	-	-
L11_Bedroom	100	-	-
L11_Bathroom	100	-	-
L11_Bedroom	100	-	-
L11_Bathroom	100	-	-
L12_Staircore	100	-	-
L12_Circulation	100	-	-
L12_Staircore	100	-	-
L12_Circulation	100	-	-
L12_Bathroom	100	-	-
L12_Studio	100	-	-
L12_Bathroom	100	-	-
L12_Studio	100	-	-
L12_Bathroom	100	-	-
L12_Studio	100	-	-
L12_Studio	100	-	-
L12_Bathroom	100	-	-
L12_Bathroom	100	-	-
L12_Studio	100	-	-
L12_Bathroom	100	-	-
L12_Studio	100	-	-
L12_Bathroom	100	-	-
L12_Studio	100	-	-
L12_Bathroom	100	-	-
L12_Studio	100	-	-
L12_Bathroom	100	-	-
L12_Studio	100	-	-
L12_Bathroom	100	-	-
L12_Studio	100	-	-
L12_Shared Kitchen	100	-	-
L12_Circulation	100	-	-
L12_Bedroom	100	-	-
L12_Bathroom	100	-	-
L12_Bedroom	100	-	-
L12_Bathroom	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
L12_Bedroom	100	-	-
L12_Bathroom	100	-	-
L12_Bedroom	100	-	-
L12_Bathroom	100	-	-
L12_Bedroom	100	-	-
L12_Bathroom	100	-	-
L13_Staircore	100	-	-
L13_Circulation	100	-	-
L13_Staircore	100	-	-
L13_Circulation	100	-	-
L13_Bathroom	100	-	-
L13_Studio	100	-	-
L13_Bathroom	100	-	-
L13_Studio	100	-	-
L13_Bathroom	100	-	-
L13_Studio	100	-	-
L13_Studio	100	-	-
L13_Bathroom	100	-	-
L13_Bathroom	100	-	-
L13_Studio	100	-	-
L13_Bathroom	100	-	-
L13_Studio	100	-	-
L13_Bathroom	100	-	-
L13_Studio	100	-	-
L13_Bathroom	100	-	-
L13_Studio	100	-	-
L13_Bathroom	100	-	-
L13_Studio	100	-	-
L13_Bathroom	100	-	-
L13_Studio	100	-	-
L13_Bathroom	100	-	-
L13_Studio	100	-	-
L13_Bathroom	100	-	-
L13_Studio	100	-	-
L13_Shared Kitchen	100	-	-
L13_Circulation	100	-	-
L13_Bedroom	100	-	-
L13_Bathroom	100	-	-
L13_Bedroom	100	-	-
L13_Bathroom	100	-	-
L13_Bedroom	100	-	-
L13_Bathroom	100	-	-
L13_Bedroom	100	-	-
L13_Bathroom	100	-	-
L13_Bedroom	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
L13_Bathroom	100	-	-
L14_Staircore	100	-	-
L14_Circulation	100	-	-
L14_Staircore	100	-	-
L14_Circulation	100	-	-
L14_Bathroom	100	-	-
L14_Studio	100	-	-
L14_Bathroom	100	-	-
L14_Studio	100	-	-
L14_Bathroom	100	-	-
L14_Studio	100	-	-
L14_Studio	100	-	-
L14_Bathroom	100	-	-
L14_Bathroom	100	-	-
L14_Studio	100	-	-
L14_Bathroom	100	-	-
L14_Studio	100	-	-
L14_Bathroom	100	-	-
L14_Studio	100	-	-
L14_Bathroom	100	-	-
L14_Studio	100	-	-
L14_Bathroom	100	-	-
L14_Studio	100	-	-
L14_Bathroom	100	-	-
L14_Studio	100	-	-
L14_Bathroom	100	-	-
L14_Studio	100	-	-
L14_Shared Kitchen	100	-	-
L14_Circulation	100	-	-
L14_Bedroom	100	-	-
L14_Bathroom	100	-	-
L14_Bedroom	100	-	-
L14_Bathroom	100	-	-
L14_Bedroom	100	-	-
L14_Bathroom	100	-	-
L14_Bedroom	100	-	-
L14_Bathroom	100	-	-
L14_Bedroom	100	-	-
L14_Bathroom	100	-	-
L15_Staircore	100	-	-
L15_Circulation	100	-	-
L15_Staircore	100	-	-
L10_Staircore	100	-	-

3- The solar gains

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
L0_Reception	YES (+11.2%)	NO
L1_Entrance	NO (-49%)	NO
L1_Study/CommunalArea	YES (+5%)	NO
L1_Study/CommunalArea	NO (-49.4%)	NO
L2_Bedroom	NO (-51.2%)	NO
L2_Studio	NO (-72%)	NO
L2_Studio	NO (-19.9%)	NO
L2_Studio	NO (-15.9%)	NO
L2_Studio	NO (-18.4%)	NO
L2_Studio	NO (-18.4%)	NO
L2_Studio	NO (-15.9%)	NO
L2_Studio	NO (-18.4%)	NO
L2_Studio	NO (-18.4%)	NO
L2_Studio	NO (-18.4%)	NO
L2_Studio	NO (-18.9%)	NO
L2_Bedroom	NO (-52.3%)	NO
L2_Bedroom	NO (-53.4%)	NO
L2_Bedroom	NO (-56.7%)	NO
L2_Bedroom	NO (-63%)	NO
L2_Studio	NO (-82.3%)	NO
L2_Studio	NO (-50.3%)	NO
L2_Studio	NO (-83.8%)	NO
L3_Library	NO (-0.7%)	NO
L3_Studio	NO (-72%)	NO
L3_Studio	NO (-19.9%)	NO
L3_Studio	NO (-15.9%)	NO
L3_Studio	NO (-18.4%)	NO
L3_Studio	NO (-18.4%)	NO
L3_Studio	NO (-15.9%)	NO
L3_Studio	NO (-18.4%)	NO
L3_Studio	NO (-18.4%)	NO
L3_Studio	NO (-18.4%)	NO
L3_Studio	NO (-18.9%)	NO
L3_Studio	NO (-72.5%)	NO
L3_Bedroom	NO (-51.1%)	NO
L3_Bedroom	NO (-52.2%)	NO
L3_Bedroom	NO (-54.6%)	NO
L3_Bedroom	NO (-55.3%)	NO
L3_Bedroom	NO (-63%)	NO
L4_Studio	NO (-72%)	NO
L4_Studio	NO (-19.9%)	NO
L4_Studio	NO (-16%)	NO
L4_Studio	NO (-18.4%)	NO
L4_Studio	NO (-18.4%)	NO
L4_Studio	NO (-16%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
L4_Studio	NO (-18.4%)	NO
L4_Studio	NO (-18.4%)	NO
L4_Studio	NO (-18.4%)	NO
L4_Studio	NO (-18.9%)	NO
L4_Studio	NO (-72.5%)	NO
L4_Bedroom	NO (-51%)	NO
L4_Bedroom	NO (-52.2%)	NO
L4_Bedroom	NO (-54.5%)	NO
L4_Bedroom	NO (-55.3%)	NO
L4_Bedroom	NO (-63%)	NO
L4_Studio	NO (-81.9%)	NO
L4_Studio	NO (-47%)	NO
L4_Bedroom	NO (-48.2%)	NO
L4_Bedroom	NO (-49.7%)	NO
L4_Bedroom	NO (-49.5%)	NO
L4_Bedroom	NO (-48.8%)	NO
L4_Bedroom	NO (-48%)	NO
L4_Studio	NO (-45.1%)	NO
L4_Studio	NO (-35%)	NO
L4_Studio	NO (-23.9%)	NO
L4_Studio	NO (-22.6%)	NO
L4_Studio	NO (-19.9%)	NO
L4_Studio	NO (-18.9%)	NO
L4_Studio	NO (-71.7%)	NO
L5_Studio	NO (-72%)	NO
L5_Studio	NO (-19.9%)	NO
L5_Studio	NO (-16%)	NO
L5_Studio	NO (-18.4%)	NO
L5_Studio	NO (-18.4%)	NO
L5_Studio	NO (-16%)	NO
L5_Studio	NO (-18.4%)	NO
L5_Studio	NO (-18.4%)	NO
L5_Studio	NO (-18.4%)	NO
L5_Studio	NO (-18.9%)	NO
L5_Studio	NO (-72.5%)	NO
L5_Bedroom	NO (-50.9%)	NO
L5_Bedroom	NO (-52.1%)	NO
L5_Bedroom	NO (-54.5%)	NO
L5_Bedroom	NO (-55.2%)	NO
L5_Bedroom	NO (-63%)	NO
L5_Studio	NO (-81.9%)	NO
L5_Studio	NO (-47%)	NO
L5_Bedroom	NO (-48.2%)	NO
L5_Bedroom	NO (-49.7%)	NO
L5_Bedroom	NO (-49.5%)	NO
L5_Bedroom	NO (-48.8%)	NO
L5_Bedroom	NO (-48%)	NO
L5_Studio	NO (-45.1%)	NO
L5_Studio	NO (-35%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
L5_Studio	NO (-23.9%)	NO
L5_Studio	NO (-22.6%)	NO
L5_Studio	NO (-19.9%)	NO
L5_Studio	NO (-18.9%)	NO
L5_Studio	NO (-71.7%)	NO
L6_Studio	NO (-72%)	NO
L6_Studio	NO (-19.9%)	NO
L6_Studio	NO (-16%)	NO
L6_Studio	NO (-18.4%)	NO
L6_Studio	NO (-18.4%)	NO
L6_Studio	NO (-16%)	NO
L6_Studio	NO (-18.4%)	NO
L6_Studio	NO (-18.4%)	NO
L6_Studio	NO (-18.4%)	NO
L6_Studio	NO (-18.9%)	NO
L6_Studio	NO (-72.5%)	NO
L6_Bedroom	NO (-50.7%)	NO
L6_Bedroom	NO (-52%)	NO
L6_Bedroom	NO (-54.2%)	NO
L6_Bedroom	NO (-55%)	NO
L6_Bedroom	NO (-62.9%)	NO
L6_Studio	NO (-81.9%)	NO
L6_Studio	NO (-47%)	NO
L6_Bedroom	NO (-48.2%)	NO
L6_Bedroom	NO (-49.7%)	NO
L6_Bedroom	NO (-49.5%)	NO
L6_Bedroom	NO (-48.8%)	NO
L6_Bedroom	NO (-48%)	NO
L6_Studio	NO (-45.1%)	NO
L6_Studio	NO (-35%)	NO
L6_Studio	NO (-23.9%)	NO
L6_Studio	NO (-22.4%)	NO
L6_Studio	NO (-19.9%)	NO
L6_Studio	NO (-18.9%)	NO
L6_Studio	NO (-71.7%)	NO
L7_Studio	NO (-72%)	NO
L7_Studio	NO (-19.9%)	NO
L7_Studio	NO (-16%)	NO
L7_Studio	NO (-18.4%)	NO
L7_Studio	NO (-18.4%)	NO
L7_Studio	NO (-16%)	NO
L7_Studio	NO (-18.4%)	NO
L7_Studio	NO (-18.4%)	NO
L7_Studio	NO (-18.4%)	NO
L7_Studio	NO (-18.9%)	NO
L7_Studio	NO (-72.5%)	NO
L7_Bedroom	NO (-50.6%)	NO
L7_Bedroom	NO (-51.5%)	NO
L7_Bedroom	NO (-53.9%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
L7_Bedroom	NO (-54.7%)	NO
L7_Bedroom	NO (-62.8%)	NO
L7_Studio	NO (-81.9%)	NO
L7_Studio	NO (-47%)	NO
L7_Bedroom	NO (-48.2%)	NO
L7_Bedroom	NO (-49.7%)	NO
L7_Bedroom	NO (-49.5%)	NO
L7_Bedroom	NO (-48.8%)	NO
L7_Bedroom	NO (-48%)	NO
L7_Studio	NO (-45.1%)	NO
L7_Studio	NO (-35%)	NO
L7_Studio	NO (-23.9%)	NO
L7_Studio	NO (-22.4%)	NO
L7_Studio	NO (-19.9%)	NO
L7_Studio	NO (-18.9%)	NO
L7_Studio	NO (-71.7%)	NO
L8_Studio	NO (-72%)	NO
L8_Studio	NO (-19.9%)	NO
L8_Studio	NO (-16%)	NO
L8_Studio	NO (-18.4%)	NO
L8_Studio	NO (-18.4%)	NO
L8_Studio	NO (-16%)	NO
L8_Studio	NO (-18.4%)	NO
L8_Studio	NO (-18.4%)	NO
L8_Studio	NO (-18.4%)	NO
L8_Studio	NO (-18.9%)	NO
L8_Studio	NO (-72.5%)	NO
L8_Bedroom	NO (-50.3%)	NO
L8_Bedroom	NO (-50.9%)	NO
L8_Bedroom	NO (-53%)	NO
L8_Bedroom	NO (-53.2%)	NO
L8_Bedroom	NO (-61.9%)	NO
L8_Studio	NO (-81.9%)	NO
L8_Studio	NO (-47%)	NO
L8_Bedroom	NO (-48.2%)	NO
L8_Bedroom	NO (-49.7%)	NO
L8_Bedroom	NO (-49.5%)	NO
L8_Bedroom	NO (-48.8%)	NO
L8_Bedroom	NO (-48%)	NO
L8_Studio	NO (-45.1%)	NO
L8_Studio	NO (-34.9%)	NO
L8_Studio	NO (-23.8%)	NO
L8_Studio	NO (-22.4%)	NO
L8_Studio	NO (-19.9%)	NO
L8_Studio	NO (-18.9%)	NO
L8_Studio	NO (-71.7%)	NO
L9_Studio	NO (-72%)	NO
L9_Studio	NO (-19.9%)	NO
L9_Studio	NO (-16%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
L9_Studio	NO (-18.4%)	NO
L9_Studio	NO (-18.4%)	NO
L9_Studio	NO (-16%)	NO
L9_Studio	NO (-18.4%)	NO
L9_Studio	NO (-18.4%)	NO
L9_Studio	NO (-18.4%)	NO
L9_Studio	NO (-18.9%)	NO
L9_Studio	NO (-72.5%)	NO
L9_Bedroom	NO (-49.8%)	NO
L9_Bedroom	NO (-50.2%)	NO
L9_Bedroom	NO (-51.4%)	NO
L9_Bedroom	NO (-49.3%)	NO
L9_Bedroom	NO (-56.9%)	NO
L9_Studio	NO (-80.6%)	NO
L9_Studio	NO (-45.3%)	NO
L9_Bedroom	NO (-44.5%)	NO
L9_Bedroom	NO (-46.1%)	NO
L9_Bedroom	NO (-45.6%)	NO
L9_Bedroom	NO (-45.1%)	NO
L9_Bedroom	NO (-44.2%)	NO
L9_Studio	NO (-39.4%)	NO
L9_Studio	NO (-31.2%)	NO
L9_Studio	NO (-18.9%)	NO
L9_Studio	NO (-16.8%)	NO
L9_Studio	NO (-14.4%)	NO
L9_Studio	NO (-14.3%)	NO
L9_Studio	NO (-69.6%)	NO
L10_Studio	NO (-72%)	NO
L10_Studio	NO (-19.9%)	NO
L10_Studio	NO (-16%)	NO
L10_Studio	NO (-18.4%)	NO
L10_Studio	NO (-18.4%)	NO
L10_Studio	NO (-16%)	NO
L10_Studio	NO (-18.4%)	NO
L10_Studio	NO (-18.4%)	NO
L10_Studio	NO (-18.4%)	NO
L10_Studio	NO (-18.9%)	NO
L10_Studio	NO (-72.5%)	NO
L10_Bedroom	NO (-49.1%)	NO
L10_Bedroom	NO (-49%)	NO
L10_Bedroom	NO (-49.8%)	NO
L10_Bedroom	NO (-45%)	NO
L10_Bedroom	NO (-49.7%)	NO
L11_Studio	NO (-72%)	NO
L11_Studio	NO (-19.9%)	NO
L11_Studio	NO (-16%)	NO
L11_Studio	NO (-18.4%)	NO
L11_Studio	NO (-18.4%)	NO
L11_Studio	NO (-16%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
L11_Studio	NO (-18.4%)	NO
L11_Studio	NO (-18.4%)	NO
L11_Studio	NO (-18.4%)	NO
L11_Studio	NO (-18.9%)	NO
L11_Studio	NO (-72.5%)	NO
L11_Bedroom	NO (-48.2%)	NO
L11_Bedroom	NO (-48.2%)	NO
L11_Bedroom	NO (-49.6%)	NO
L11_Bedroom	NO (-44.9%)	NO
L11_Bedroom	NO (-48.7%)	NO
L12_Studio	NO (-72%)	NO
L12_Studio	NO (-19.9%)	NO
L12_Studio	NO (-16%)	NO
L12_Studio	NO (-18.4%)	NO
L12_Studio	NO (-18.4%)	NO
L12_Studio	NO (-16%)	NO
L12_Studio	NO (-18.4%)	NO
L12_Studio	NO (-18.4%)	NO
L12_Studio	NO (-18.4%)	NO
L12_Studio	NO (-18.9%)	NO
L12_Studio	NO (-72.5%)	NO
L12_Bedroom	NO (-48.2%)	NO
L12_Bedroom	NO (-48.2%)	NO
L12_Bedroom	NO (-49.6%)	NO
L12_Bedroom	NO (-44.9%)	NO
L12_Bedroom	NO (-48.7%)	NO
L13_Studio	NO (-70.1%)	NO
L13_Studio	NO (-57%)	NO
L13_Studio	NO (-10%)	NO
L13_Studio	NO (-12.6%)	NO
L13_Studio	NO (-12.6%)	NO
L13_Studio	NO (-10%)	NO
L13_Studio	NO (-12.6%)	NO
L13_Studio	NO (-12.6%)	NO
L13_Studio	NO (-12.6%)	NO
L13_Studio	NO (-13.9%)	NO
L13_Studio	NO (-70.5%)	NO
L13_Bedroom	NO (-44.5%)	NO
L13_Bedroom	NO (-44.5%)	NO
L13_Bedroom	NO (-46.1%)	NO
L13_Bedroom	NO (-41%)	NO
L13_Bedroom	NO (-45%)	NO
L14_Studio	NO (-70.1%)	NO
L14_Studio	NO (-57%)	NO
L14_Studio	NO (-10%)	NO
L14_Studio	NO (-12.6%)	NO
L14_Studio	NO (-12.6%)	NO
L14_Studio	NO (-10%)	NO
L14_Studio	NO (-12.6%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
L14_Studio	NO (-12.6%)	NO
L14_Studio	NO (-12.6%)	NO
L14_Studio	NO (-13.9%)	NO
L14_Studio	NO (-70.5%)	NO
L14_Bedroom	NO (-44.5%)	NO
L14_Bedroom	NO (-44.5%)	NO
L14_Bedroom	NO (-46.1%)	NO
L14_Bedroom	NO (-41%)	NO
L14_Bedroom	NO (-45%)	NO

Consideration of high efficiency alternative energy systems

Were alternative energy systems considered and analysed as part of the design process?	YES
Is evidence of such assessment available as a separate submission?	YES
Are any such measures included in the proposed design?	YES

Technical Data Sheet (Actual vs. Notional Building)

Building Global Parameters

	Actual	Notional
Floor area [m^2]	11410.3	11410.3
External area [m^2]	10049.6	10049.6
Weather	GLA	GLA
Infiltration [m^3/hm^2@ 50Pa]	4	4
Average conductance [W/K]	2749.91	4113.43
Average U-value [W/m^2K]	0.27	0.41
Alpha value* [%]	25.71	10

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

Building Use

% Area	Building Type
	Retail/Financial and Professional Services
	Restaurants and Cafes/Drinking Establishments/Takeaways
	Offices and Workshop Businesses
	General Industrial and Special Industrial Groups
	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	18.31	19.19
Cooling	0.52	0.38
Auxiliary	5.62	5.51
Lighting	8.26	7.96
Hot water	19.33	21.33
Equipment*	32.19	32.19
TOTAL**	**52.04**	**54.36**

* 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	2.31
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0
Displaced electricity	*0*	*2.31*

Energy & CO_2 Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m^2]	79.54	84.05
Primary energy [kWh_{PE}/m^2]	115.23	90.56
Total emissions [kg/m^2]	8.85	9.83

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] Other local room heater - unfanned, [HS] Direct or storage electric heater, [HFT] Electricity, [CFT] Electricity										
	Actual	86.2	0	23.9	0	4.3	1	0	1	0
	Notional	86.7	0	24.6	0	3.3	0.98	0	----	----
[ST] Variable refrigerant flow, [HS] ASHP, [HFT] Electricity, [CFT] Electricity										
	Actual	52.7	66.1	4.4	4.9	5.1	3.33	3.74	3.42	5.78
	Notional	51.1	69.7	4.5	3.6	12.3	3.16	5.37	----	----
[ST] Central heating using air distribution, [HS] ASHP, [HFT] Electricity, [CFT] Electricity										
	Actual	35.8	0	2.8	0	18.3	3.6	0	3.42	0
	Notional	73.9	0	6.5	0	15.5	3.16	0	----	----
[ST] No Heating or Cooling										
	Actual	0	0	0	0	0	0	0	0	0
	Notional	0	0	0	0	0	0	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

Apache Specification Information

Scottish Building Regulations 2022 Section 6 Guidance

Carbon Dioxide Emissions, Energy Consumption, U-Values, Air Permeability, and HVAC

Project name

J7374_Section6_SO_400m2_pv

Date: Wed Feb 14 13:06:25 2024

Administrative information

Building Details

Address: Address 1, City, Postcode

Agent details

Name: Name

Telephone number: Phone

Address: Street Address, City, Postcode

Certification tool

Calculation engine: Apache

Calculation engine version: 7.0.24.0

Interface to calculation engine: IES Virtual Environment

Interface to calculation engine version: 7.0.24.0

Compliance module version: v6.1.e.1

Foundation area [m^2]: 917.06

1- The predicted CO_2 emissions and energy consumption

Target CO_2 emission rate (TER), $kgCO_2/m^2$annum	5.2	
Building CO_2 emission rate (BER), $kgCO_2/m^2$annum	3.8	
Target delivered energy rate (TDER), kWh/m^2annum	32.77	
Building delivered energy rate (BDER), kWh/m^2annum	21.06	
Do the building's emission and delivered energy rates exceed the targets?	BER =< TER	BDER =< TDER

2- The performance of the building fabric and the building services systems

Fabric element	$U_{a\text{-}Limit}$	$U_{a\text{-}Calc}$	$U_{i\text{-}Limit}$	$U_{i\text{-}Calc}$	First surface with maximum value
Walls	0.21	0.15	0.7	0.15	00000009:Surf[1]
Floors	0.18	0.11	0.7	0.58	0100003B:Surf[29]
Roofs	0.16	0.1	0.35	0.1	L0000002:Surf[2]
Windows* and roof windows	1.6	1.2	3.3	1.2	01000000:Surf[0]
Rooflights**	2.2	-	3.8	-	No roof lights in building
Personnel doors	1.4	1	3.3	1	L0000016:Surf[11]
Vehicle access & similar large doors	1.5	-	3.3	-	No vehicle access doors in building
High usage entrance doors	3	-	N/A	-	No high usage entrance doors in building

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

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

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

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

* Display windows and similar glazing are excluded from the U-value check.

** Values for rooflights refer to the horizontal position.

Air Permeability	This building's value
m3/(h.m2) at 50 Pa	4

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	>0.95

1- SO - ASHP Radiators Circulation/Basement

	Heating efficiency	**Cooling efficiency**	**Radiant efficiency**	**SFP [W/(l/s)]**	**HR efficiency**
This system	2.98	-	0.2	-	0.8
Standard value	2.5*	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 all types >12 kW output, except absorption and gas engine heat pumps.					

2- SO - ASHP UFH Open Plan Office/Cafe

	Heating efficiency	**Cooling efficiency**	**Radiant efficiency**	**SFP [W/(l/s)]**	**HR efficiency**
This system	2.98	-	0.2	-	0.8
Standard value	2.5*	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 all types >12 kW output, except absorption and gas engine heat pumps.					

3- SO - ASHP AHU Orchestra & Studios

	Heating efficiency	**Cooling efficiency**	**Radiant efficiency**	**SFP [W/(l/s)]**	**HR efficiency**
This system	2.98	5.48	0	1.8	0.8
Standard value	2.5*	N/A	N/A	2^	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					YES
* 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.					

4- SO - ASHP Radiators WC

	Heating efficiency	**Cooling efficiency**	**Radiant efficiency**	**SFP [W/(l/s)]**	**HR efficiency**
This system	2.98	-	0.2	-	0.8
Standard value	2.5*	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 all types >12 kW output, except absorption and gas engine heat pumps.					

5- SO - ASHP FCU Practice Rooms

	Heating efficiency	**Cooling efficiency**	**Radiant efficiency**	**SFP [W/(l/s)]**	**HR efficiency**
This system	2.98	5.48	0	1.2	0.8
Standard value	2.5*	N/A	N/A	1.5^	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					YES
* 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.					

1- SO - DHW PoU

	Water heating efficiency	**Storage loss factor [kWh/litre per day]**
This building	1	-
Standard value	0.91	N/A

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		
Standard value	0.3	1.1	0.5	2.3	2	0.5	0.5	0.4	1	Zone	Standard
01 Laundry	-	-	-	1.2	-	-	-	-	-	-	N/A
01 Office	-	-	-	1.2	-	-	-	-	-	-	N/A
01 WCs	-	-	-	1.2	-	-	-	-	-	-	N/A
01 WCs	-	-	-	1.2	-	-	-	-	-	-	N/A
01 WCs	-	-	-	1.2	-	-	-	-	-	-	N/A
01 WCs	-	-	-	1.2	-	-	-	-	-	-	N/A
01 WCs	-	-	-	1.2	-	-	-	-	-	-	N/A
01 WCs	-	-	-	1.2	-	-	-	-	-	-	N/A
02 Conductor	-	-	-	-	-	-	-	0.3	-	-	N/A
02 Green room	-	-	-	1.2	-	-	-	-	-	-	N/A
02 Music Library	-	-	-	1.2	-	-	-	-	-	-	N/A
02 Practice room	-	-	-	-	-	-	-	0.3	-	-	N/A
02 Practice room	-	-	-	-	-	-	-	0.3	-	-	N/A
02 Practice room	-	-	-	-	-	-	-	0.3	-	-	N/A
02 Practice room	-	-	-	-	-	-	-	0.3	-	-	N/A
02 Practice room	-	-	-	-	-	-	-	0.3	-	-	N/A
02 Practice room	-	-	-	-	-	-	-	0.3	-	-	N/A
02 Practice room	-	-	-	-	-	-	-	0.3	-	-	N/A
02 Practice room	-	-	-	-	-	-	-	0.3	-	-	N/A
02 Showers and changing	-	-	-	1.2	-	-	-	-	-	-	N/A
02 WCs	-	-	-	1.2	-	-	-	-	-	-	N/A
03 Kitchen	-	-	-	1.2	-	-	-	-	0.4	-	N/A
03 Meeting Room	-	-	-	1.2	-	-	-	-	-	-	N/A
03 Office	-	-	-	1.2	-	-	-	-	-	-	N/A
03 Office	-	-	-	1.2	-	-	-	-	-	-	N/A
03 Office	-	-	-	1.2	-	-	-	-	-	-	N/A
03 Office	-	-	-	1.2	-	-	-	-	-	-	N/A
03 Scottish Opera Offices	-	-	-	1.2	-	-	-	-	-	-	N/A
03 Staff Break/Cafe	-	-	-	1.2	-	-	-	-	-	-	N/A
03 WC	-	-	-	1.2	-	-	-	-	-	-	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
03 WC	-	-	-	1.2	-	-	-	-	-	-	N/A
03 WC	-	-	-	1.2	-	-	-	-	-	-	N/A
03 WC	-	-	-	1.2	-	-	-	-	-	-	N/A
03 WC	-	-	-	1.2	-	-	-	-	-	-	N/A
L04 MeetingRoom	-	-	-	1.2	-	-	-	-	-	-	N/A
L04 Kitchenette	-	-	-	1.2	-	-	-	-	-	-	N/A
L04 Director	-	-	-	1.2	-	-	-	-	-	-	N/A
L04 Director	-	-	-	1.2	-	-	-	-	-	-	N/A
L04 Director	-	-	-	1.2	-	-	-	-	-	-	N/A
L04 Director	-	-	-	1.2	-	-	-	-	-	-	N/A
L04 Open Plan Office	-	-	-	1.2	-	-	-	-	-	-	N/A
L04 Boardroom	-	-	-	1.2	-	-	-	-	-	-	N/A
L04 Gen Director	-	-	-	1.2	-	-	-	-	-	-	N/A
L04 WC	-	-	-	1.2	-	-	-	-	-	-	N/A
L04 AWC	-	-	-	1.2	-	-	-	-	-	-	N/A
L03 Tea prep	-	-	-	1.2	-	-	-	-	-	-	N/A
L03 Room	-	-	-	1.2	-	-	-	-	-	-	N/A
L03 AWC	-	-	-	1.2	-	-	-	-	-	-	N/A
L03 WC	-	-	-	1.2	-	-	-	-	-	-	N/A
L03 WC	-	-	-	1.2	-	-	-	-	-	-	N/A
L04 Gallery	-	-	-	1.2	-	-	-	-	-	-	N/A
L04 Room	-	-	-	1.2	-	-	-	-	-	-	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
00 Audio equipment	110	-	-
00 BT intake	110	-	-
00 Circ	110	-	-
00 Costume Store 2	110	-	-
00 E. light batt	110	-	-
00 Ecav lift batt	110	-	-
00 Lobby	110	-	-
00 Lobby	110	-	-
00 Main I.T	110	-	-
00 Riser Room	110	-	-
00 Riser Room	110	-	-
00 Second switch	110	-	-
00 Tech Power equipment	110	-	-
00 Water services	110	-	-
01 Circ	110	-	-
01 Flexible space	110	-	-
01 Instrument store	110	-	-

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
01 Laundry	110	-	-
01 Lobby	110	-	-
01 Lobby	110	-	-
01 Lobby	110	-	-
01 Lobby	110	-	-
01 Lobby	110	-	-
01 Lobby	110	-	-
01 Lobby/Circulation	110	-	-
01 Office	110	-	-
01 Orchestral Rehearsal	110	-	-
01 Ozone	110	-	-
01 Packing	110	-	-
01 Stairs	110	-	-
01 Stairs	110	-	-
01 Stairs	110	-	-
01 Studio/Education/Break Out Room	110	-	-
01 WCs	110	-	-
01 WCs	110	-	-
01 WCs	110	-	-
01 WCs	110	-	-
01 WCs	110	-	-
01 WCs	110	-	-
01 Welfare/Storage/Computer	110	-	-
02 Circ	110	-	-
02 Circ	110	-	-
02 Circ	110	-	-
02 Circ	110	-	-
02 Circulation	110	-	-
02 Conductor	110	-	-
02 Control room	110	-	-
02 Green room	110	80	1.688
02 Lobby	110	-	-
02 Lobby	110	-	-
02 Lobby	110	-	-
02 Music Library	110	-	-
02 Plant	110	-	-
02 Practice room	110	-	-
02 Practice room	110	-	-
02 Practice room	110	-	-
02 Practice room	110	-	-
02 Practice room	110	-	-
02 Practice room	110	-	-
02 Practice room	110	-	-

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
02 Practice room	110	-	-
02 Recording room	110	-	-
02 Showers and changing	110	-	-
02 Stairs	110	-	-
02 Stairs	110	-	-
02 Stairs	110	-	-
02 Stairs	110	-	-
02 Store	110	-	-
02 Store	110	-	-
02 WCs	110	-	-
03 Entrance	110	-	-
03 Kitchen	110	-	-
03 Meeting Room	110	-	-
03 Office	110	-	-
03 Office	110	-	-
03 Office	110	-	-
03 Office	110	-	-
03 Scottish Opera Offices	110	-	-
03 Staff Break/Cafe	110	-	-
03 Stairs	110	-	-
03 Stairs	110	-	-
03 WC	110	-	-
03 WC	110	-	-
03 WC	110	-	-
03 WC	110	-	-
03 WC	110	-	-
01 Circ	110	-	-
01 Costume store	110	-	-
L04 Stairs	110	-	-
L04 Store	110	-	-
L04 Lobby	110	-	-
L04 MeetingRoom	110	-	-
L04 Kitchenette	110	-	-
L04 Director	110	-	-
L04 Director	110	-	-
L04 Director	110	-	-
L04 Director	110	-	-
L04 Open Plan Office	110	-	-
L04 Boardroom	110	-	-
L04 Gen Director	110	-	-
L04 WC	110	-	-
L04 AWC	110	-	-
L04 Lobby/Circulation	110	-	-

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
L04 WC Lobby	110	-	-
L03 Tea prep	110	-	-
L03 Room	110	-	-
L03 Studio 3	110	-	-
L03 AWC	110	-	-
L03 WC	110	-	-
L03 WC	110	-	-
L03 CC	110	-	-
L03 Circ	110	-	-
L03 Lobby	110	-	-
L04 Stair	110	-	-
L03 Stair	110	-	-
L04 Plant	110	-	-
L04 Gallery	110	-	-
L04 Room	110	-	-

3- The solar gains

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
01 Laundry	N/A	N/A
01 Office	N/A	N/A
01 Orchestral Rehearsal	NO (-47%)	NO
01 Ozone	N/A	N/A
01 Studio/Education/Break Out Room	NO (-8.9%)	NO
02 Conductor	NO (-54.5%)	NO
02 Control room	N/A	N/A
02 Green room	NO (-1.2%)	NO
02 Music Library	NO (-51.7%)	NO
02 Practice room	NO (-73.4%)	NO
02 Practice room	NO (-36.1%)	NO
02 Practice room	NO (-33.7%)	NO
02 Practice room	NO (-49.8%)	NO
02 Practice room	NO (-38.4%)	NO
02 Practice room	NO (-67.8%)	NO
02 Practice room	NO (-34.2%)	NO
02 Practice room	NO (-34.7%)	NO
02 Recording room	NO (-99.4%)	NO
03 Meeting Room	N/A	N/A
03 Office	NO (-56.7%)	NO
03 Office	NO (-61.6%)	NO
03 Office	NO (-60.5%)	NO
03 Office	NO (-65.1%)	NO
03 Scottish Opera Offices	NO (-62.1%)	NO
03 Staff Break/Cafe	NO (-6.5%)	NO
L04 Store	N/A	N/A

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
L04 MeetingRoom	NO (-56.4%)	NO
L04 Director	NO (-58.2%)	NO
L04 Director	NO (-55.8%)	NO
L04 Director	NO (-55.4%)	NO
L04 Director	NO (-54%)	NO
L04 Open Plan Office	NO (-1.9%)	NO
L04 Boardroom	NO (-33.4%)	NO
L04 Gen Director	NO (-2.2%)	NO
L03 Room	NO (-79.9%)	NO
L03 Studio 3	NO (-46.8%)	NO
L03 CC	N/A	N/A
L04 Room	NO (-63.8%)	NO

Consideration of high efficiency alternative energy systems

Were alternative energy systems considered and analysed as part of the design process?	YES
Is evidence of such assessment available as a separate submission?	YES
Are any such measures included in the proposed design?	YES

Technical Data Sheet (Actual vs. Notional Building)

Building Global Parameters

	Actual	Notional
Floor area [m^2]	4916	4916
External area [m^2]	8389.4	8260.3
Weather	GLA	GLA
Infiltration [m^3/hm^2@ 50Pa]	4	4
Average conductance [W/K]	1756.08	2103.25
Average U-value [W/m^2K]	0.21	0.25
Alpha value* [%]	25.43	10

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

Building Use

% Area	Building Type
	Retail/Financial and Professional Services
	Restaurants and Cafes/Drinking Establishments/Takeaways
	Offices and Workshop Businesses
	General Industrial and Special Industrial Groups
	Storage or Distribution
	Hotels
	Residential Institutions: Hospitals and Care Homes
	Residential Institutions: Residential Schools
	Residential Institutions: Universities and Colleges
	Secure Residential Institutions
	Residential Spaces
	Non-residential Institutions: Community/Day Centre
	Non-residential Institutions: Libraries, Museums, and Galleries
	Non-residential Institutions: Education
	Non-residential Institutions: Primary Health Care Building
	Non-residential Institutions: Crown and County Courts
100	**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	7.91	6.7
Cooling	0.38	0.75
Auxiliary	8.37	5.35
Lighting	9.24	10.35
Hot water	8.97	9.62
Equipment*	42.76	42.76
TOTAL**	**34.86**	**32.77**

* 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	13.8	0
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0
Displaced electricity	*13.8*	*0*

Energy & CO_2 Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m^2]	89.05	90.66
Primary energy [kWh_{PE}/m^2]	84.76	80.73
Total emissions [kg/m^2]	3.82	5.22

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] Fan coil systems, [HS] ASHP, [HFT] Electricity, [CFT] Electricity										
	Actual	52.4	80.6	5.5	5	15.1	2.67	4.49	2.98	5.48
	Notional	44.1	218.5	3.9	11.3	22	3.16	5.37	----	----
[ST] Central heating using water: radiators, [HS] ASHP, [HFT] Electricity, [CFT] Electricity										
	Actual	93.8	0	9.3	0	2.7	2.8	0	2.98	0
	Notional	102	0	9	0	2	3.16	0	----	----
[ST] Central heating using water: floor heating, [HS] ASHP, [HFT] Electricity, [CFT] Electricity										
	Actual	79	0	7.8	0	4	2.8	0	2.98	0
	Notional	42.9	0	3.8	0	3	3.16	0	----	----
[ST] Constant volume system (variable fresh air rate), [HS] ASHP, [HFT] Electricity, [CFT] Electricity										
	Actual	106.3	5.3	8.8	0.4	24	3.34	3.35	2.98	5.48
	Notional	86.1	9.7	7.6	0.5	10.7	3.16	5.37	----	----
[ST] Central heating using water: radiators, [HS] ASHP, [HFT] Electricity, [CFT] Electricity										
	Actual	19.9	0	2	0	12.2	2.8	0	2.98	0
	Notional	18.4	0	1.6	0	4.7	3.16	0	----	----
[ST] No Heating or Cooling										
	Actual	0	0	0	0	0	0	0	0	0
	Notional	0	0	0	0	0	0	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

Apache Specification Information

Scottish Building Regulations 2022 Section 6 Guidance

Carbon Dioxide Emissions, Energy Consumption, U-Values, Air Permeability, and HVAC

Project name

J7374_Section6_SO_Nat_Gas_DGU

Date: Fri Feb 09 14:00:18 2024

Administrative information

Building Details

Address: Address 1, City, Postcode

Agent details

Name: Name

Telephone number: Phone

Address: Street Address, City, Postcode

Certification tool

Calculation engine: Apache

Calculation engine version: 7.0.24.0

Interface to calculation engine: IES Virtual Environment

Interface to calculation engine version: 7.0.24.0

Compliance module version: v6.1.e.1

Foundation area [m^2]: 917.06

1- The predicted CO_2 emissions and energy consumption

The building does not comply with Scottish Building Regulations 2022 Section 6

Target CO_2 emission rate (TER), $kgCO_2/m^2$annum	5.2	
Building CO_2 emission rate (BER), $kgCO_2/m^2$annum	5.6	
Target delivered energy rate (TDER), kWh/m^2annum	32.77	
Building delivered energy rate (BDER), kWh/m^2annum	34.81	
Do the building's emission and delivered energy rates exceed the targets?	BER > TER	BDER > TDER

2- The performance of the building fabric and the building services systems

Fabric element	$U_{a\text{-}Limit}$	$U_{a\text{-}Calc}$	$U_{i\text{-}Limit}$	$U_{i\text{-}Calc}$	First surface with maximum value
Walls	0.21	0.15	0.7	0.15	00000009:Surf[1]
Floors	0.18	0.11	0.7	0.58	0100003B:Surf[29]
Roofs	0.16	0.1	0.35	0.1	L0000002:Surf[2]
Windows* and roof windows	1.6	1.2	3.3	1.2	01000000:Surf[0]
Rooflights**	2.2	-	3.8	-	No roof lights in building
Personnel doors	1.4	1	3.3	1	L0000016:Surf[11]
Vehicle access & similar large doors	1.5	-	3.3	-	No vehicle access doors in building
High usage entrance doors	3	-	N/A	-	No high usage entrance doors in building

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

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

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

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

* Display windows and similar glazing are excluded from the U-value check.

** Values for rooflights refer to the horizontal position.

Air Permeability	This building's value
m3/(h.m2) at 50 Pa	4

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	>0.95

1- SO - ASHP Radiators Circulation/Basement

	Heating efficiency	**Cooling efficiency**	**Radiant efficiency**	**SFP [W/(l/s)]**	**HR efficiency**
This system	2.98	-	0.2	-	0.8
Standard value	2.5*	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 all types >12 kW output, except absorption and gas engine heat pumps.					

2- SO - ASHP UFH Open Plan Office/Cafe

	Heating efficiency	**Cooling efficiency**	**Radiant efficiency**	**SFP [W/(l/s)]**	**HR efficiency**
This system	2.98	-	0.2	-	0.8
Standard value	2.5*	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 all types >12 kW output, except absorption and gas engine heat pumps.					

3- SO - ASHP AHU Orchestra & Studios

	Heating efficiency	**Cooling efficiency**	**Radiant efficiency**	**SFP [W/(l/s)]**	**HR efficiency**
This system	2.98	5.48	0	1.8	0.8
Standard value	2.5*	N/A	N/A	2^	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					YES
* 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.					

4- SO - ASHP Radiators WC

	Heating efficiency	**Cooling efficiency**	**Radiant efficiency**	**SFP [W/(l/s)]**	**HR efficiency**
This system	2.98	-	0.2	-	0.8
Standard value	2.5*	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 all types >12 kW output, except absorption and gas engine heat pumps.					

5- SO - ASHP FCU Practice Rooms

	Heating efficiency	**Cooling efficiency**	**Radiant efficiency**	**SFP [W/(l/s)]**	**HR efficiency**
This system	2.98	5.48	0	1.2	0.8
Standard value	2.5*	N/A	N/A	1.5^	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					YES
* 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.					

1- SO - DHW PoU

	Water heating efficiency	**Storage loss factor [kWh/litre per day]**
This building	1	-
Standard value	0.91	N/A

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**		
Standard value	0.3	1.1	0.5	2.3	2	0.5	0.5	0.4	1	**Zone**	**Standard**
01 Laundry	-	-	-	1.2	-	-	-	-	-	-	N/A
01 Office	-	-	-	1.2	-	-	-	-	-	-	N/A
01 WCs	-	-	-	1.2	-	-	-	-	-	-	N/A
01 WCs	-	-	-	1.2	-	-	-	-	-	-	N/A
01 WCs	-	-	-	1.2	-	-	-	-	-	-	N/A
01 WCs	-	-	-	1.2	-	-	-	-	-	-	N/A
01 WCs	-	-	-	1.2	-	-	-	-	-	-	N/A
01 WCs	-	-	-	1.2	-	-	-	-	-	-	N/A
02 Conductor	-	-	-	-	-	-	-	0.3	-	-	N/A
02 Green room	-	-	-	1.2	-	-	-	-	-	-	N/A
02 Music Library	-	-	-	1.2	-	-	-	-	-	-	N/A
02 Practice room	-	-	-	-	-	-	-	0.3	-	-	N/A
02 Practice room	-	-	-	-	-	-	-	0.3	-	-	N/A
02 Practice room	-	-	-	-	-	-	-	0.3	-	-	N/A
02 Practice room	-	-	-	-	-	-	-	0.3	-	-	N/A
02 Practice room	-	-	-	-	-	-	-	0.3	-	-	N/A
02 Practice room	-	-	-	-	-	-	-	0.3	-	-	N/A
02 Practice room	-	-	-	-	-	-	-	0.3	-	-	N/A
02 Practice room	-	-	-	-	-	-	-	0.3	-	-	N/A
02 Showers and changing	-	-	-	1.2	-	-	-	-	-	-	N/A
02 WCs	-	-	-	1.2	-	-	-	-	-	-	N/A
03 Kitchen	-	-	-	1.2	-	-	-	-	0.4	-	N/A
03 Meeting Room	-	-	-	1.2	-	-	-	-	-	-	N/A
03 Office	-	-	-	1.2	-	-	-	-	-	-	N/A
03 Office	-	-	-	1.2	-	-	-	-	-	-	N/A
03 Office	-	-	-	1.2	-	-	-	-	-	-	N/A
03 Office	-	-	-	1.2	-	-	-	-	-	-	N/A
03 Scottish Opera Offices	-	-	-	1.2	-	-	-	-	-	-	N/A
03 Staff Break/Cafe	-	-	-	1.2	-	-	-	-	-	-	N/A
03 WC	-	-	-	1.2	-	-	-	-	-	-	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
03 WC	-	-	-	1.2	-	-	-	-	-	-	N/A
03 WC	-	-	-	1.2	-	-	-	-	-	-	N/A
03 WC	-	-	-	1.2	-	-	-	-	-	-	N/A
03 WC	-	-	-	1.2	-	-	-	-	-	-	N/A
L04 MeetingRoom	-	-	-	1.2	-	-	-	-	-	-	N/A
L04 Kitchenette	-	-	-	1.2	-	-	-	-	-	-	N/A
L04 Director	-	-	-	1.2	-	-	-	-	-	-	N/A
L04 Director	-	-	-	1.2	-	-	-	-	-	-	N/A
L04 Director	-	-	-	1.2	-	-	-	-	-	-	N/A
L04 Director	-	-	-	1.2	-	-	-	-	-	-	N/A
L04 Open Plan Office	-	-	-	1.2	-	-	-	-	-	-	N/A
L04 Boardroom	-	-	-	1.2	-	-	-	-	-	-	N/A
L04 Gen Director	-	-	-	1.2	-	-	-	-	-	-	N/A
L04 WC	-	-	-	1.2	-	-	-	-	-	-	N/A
L04 AWC	-	-	-	1.2	-	-	-	-	-	-	N/A
L03 Tea prep	-	-	-	1.2	-	-	-	-	-	-	N/A
L03 Room	-	-	-	1.2	-	-	-	-	-	-	N/A
L03 AWC	-	-	-	1.2	-	-	-	-	-	-	N/A
L03 WC	-	-	-	1.2	-	-	-	-	-	-	N/A
L03 WC	-	-	-	1.2	-	-	-	-	-	-	N/A
L04 Gallery	-	-	-	1.2	-	-	-	-	-	-	N/A
L04 Room	-	-	-	1.2	-	-	-	-	-	-	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
00 Audio equipment	110	-	-
00 BT intake	110	-	-
00 Circ	110	-	-
00 Costume Store 2	110	-	-
00 E. light batt	110	-	-
00 Ecav lift batt	110	-	-
00 Lobby	110	-	-
00 Lobby	110	-	-
00 Main I.T	110	-	-
00 Riser Room	110	-	-
00 Riser Room	110	-	-
00 Second switch	110	-	-
00 Tech Power equipment	110	-	-
00 Water services	110	-	-
01 Circ	110	-	-
01 Flexible space	110	-	-
01 Instrument store	110	-	-

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
01 Laundry	110	-	-
01 Lobby	110	-	-
01 Lobby	110	-	-
01 Lobby	110	-	-
01 Lobby	110	-	-
01 Lobby	110	-	-
01 Lobby	110	-	-
01 Lobby/Circulation	110	-	-
01 Office	110	-	-
01 Orchestral Rehearsal	110	-	-
01 Ozone	110	-	-
01 Packing	110	-	-
01 Stairs	110	-	-
01 Stairs	110	-	-
01 Stairs	110	-	-
01 Studio/Education/Break Out Room	110	-	-
01 WCs	110	-	-
01 WCs	110	-	-
01 WCs	110	-	-
01 WCs	110	-	-
01 WCs	110	-	-
01 WCs	110	-	-
01 Welfare/Storage/Computer	110	-	-
02 Circ	110	-	-
02 Circ	110	-	-
02 Circ	110	-	-
02 Circ	110	-	-
02 Circulation	110	-	-
02 Conductor	110	-	-
02 Control room	110	-	-
02 Green room	110	80	1.688
02 Lobby	110	-	-
02 Lobby	110	-	-
02 Lobby	110	-	-
02 Music Library	110	-	-
02 Plant	110	-	-
02 Practice room	110	-	-
02 Practice room	110	-	-
02 Practice room	110	-	-
02 Practice room	110	-	-
02 Practice room	110	-	-
02 Practice room	110	-	-
02 Practice room	110	-	-

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
02 Practice room	110	-	-
02 Recording room	110	-	-
02 Showers and changing	110	-	-
02 Stairs	110	-	-
02 Stairs	110	-	-
02 Stairs	110	-	-
02 Stairs	110	-	-
02 Store	110	-	-
02 Store	110	-	-
02 WCs	110	-	-
03 Entrance	110	-	-
03 Kitchen	110	-	-
03 Meeting Room	110	-	-
03 Office	110	-	-
03 Office	110	-	-
03 Office	110	-	-
03 Office	110	-	-
03 Scottish Opera Offices	110	-	-
03 Staff Break/Cafe	110	-	-
03 Stairs	110	-	-
03 Stairs	110	-	-
03 WC	110	-	-
03 WC	110	-	-
03 WC	110	-	-
03 WC	110	-	-
03 WC	110	-	-
01 Circ	110	-	-
01 Costume store	110	-	-
L04 Stairs	110	-	-
L04 Store	110	-	-
L04 Lobby	110	-	-
L04 MeetingRoom	110	-	-
L04 Kitchenette	110	-	-
L04 Director	110	-	-
L04 Director	110	-	-
L04 Director	110	-	-
L04 Director	110	-	-
L04 Open Plan Office	110	-	-
L04 Boardroom	110	-	-
L04 Gen Director	110	-	-
L04 WC	110	-	-
L04 AWC	110	-	-
L04 Lobby/Circulation	110	-	-

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
L04 WC Lobby	110	-	-
L03 Tea prep	110	-	-
L03 Room	110	-	-
L03 Studio 3	110	-	-
L03 AWC	110	-	-
L03 WC	110	-	-
L03 WC	110	-	-
L03 CC	110	-	-
L03 Circ	110	-	-
L03 Lobby	110	-	-
L04 Stair	110	-	-
L03 Stair	110	-	-
L04 Plant	110	-	-
L04 Gallery	110	-	-
L04 Room	110	-	-

3- The solar gains

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
01 Laundry	N/A	N/A
01 Office	N/A	N/A
01 Orchestral Rehearsal	NO (-47%)	NO
01 Ozone	N/A	N/A
01 Studio/Education/Break Out Room	NO (-8.9%)	NO
02 Conductor	NO (-54.5%)	NO
02 Control room	N/A	N/A
02 Green room	NO (-1.2%)	NO
02 Music Library	NO (-51.7%)	NO
02 Practice room	NO (-73.4%)	NO
02 Practice room	NO (-36.1%)	NO
02 Practice room	NO (-33.7%)	NO
02 Practice room	NO (-49.8%)	NO
02 Practice room	NO (-38.4%)	NO
02 Practice room	NO (-67.8%)	NO
02 Practice room	NO (-34.2%)	NO
02 Practice room	NO (-34.7%)	NO
02 Recording room	NO (-99.4%)	NO
03 Meeting Room	N/A	N/A
03 Office	NO (-56.7%)	NO
03 Office	NO (-61.6%)	NO
03 Office	NO (-60.5%)	NO
03 Office	NO (-65.1%)	NO
03 Scottish Opera Offices	NO (-61.9%)	NO
03 Staff Break/Cafe	YES (+19.3%)	NO
L04 Store	N/A	N/A

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
L04 MeetingRoom	NO (-56.4%)	NO
L04 Director	NO (-58.2%)	NO
L04 Director	NO (-55.8%)	NO
L04 Director	NO (-55.4%)	NO
L04 Director	NO (-54%)	NO
L04 Open Plan Office	YES (+13.1%)	NO
L04 Boardroom	NO (-33.4%)	NO
L04 Gen Director	NO (-3.6%)	NO
L03 Room	NO (-79.9%)	NO
L03 Studio 3	NO (-46.8%)	NO
L03 CC	N/A	N/A
L04 Room	NO (-63.8%)	NO

Consideration of high efficiency alternative energy systems

Were alternative energy systems considered and analysed as part of the design process?	YES
Is evidence of such assessment available as a separate submission?	YES
Are any such measures included in the proposed design?	YES

Technical Data Sheet (Actual vs. Notional Building)

Building Global Parameters

	Actual	Notional
Floor area [m^2]	4916	4916
External area [m^2]	8389.4	8260.3
Weather	GLA	GLA
Infiltration [m^3/hm^2@ 50Pa]	4	4
Average conductance [W/K]	1756.08	2103.25
Average U-value [W/m^2K]	0.21	0.25
Alpha value* [%]	25.43	10

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

Building Use

% Area	Building Type
	Retail/Financial and Professional Services
	Restaurants and Cafes/Drinking Establishments/Takeaways
	Offices and Workshop Businesses
	General Industrial and Special Industrial Groups
	Storage or Distribution
	Hotels
	Residential Institutions: Hospitals and Care Homes
	Residential Institutions: Residential Schools
	Residential Institutions: Universities and Colleges
	Secure Residential Institutions
	Residential Spaces
	Non-residential Institutions: Community/Day Centre
	Non-residential Institutions: Libraries, Museums, and Galleries
	Non-residential Institutions: Education
	Non-residential Institutions: Primary Health Care Building
	Non-residential Institutions: Crown and County Courts
100	**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	7.83	6.7
Cooling	0.4	0.75
Auxiliary	8.37	5.35
Lighting	9.24	10.35
Hot water	8.97	9.62
Equipment*	42.76	42.76
TOTAL**	**34.81**	**32.77**

* 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]	88.65	90.66
Primary energy [kWh_{PE}/m^2]	84.62	80.73
Total emissions [kg/m^2]	5.6	5.22

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] Fan coil systems, [HS] ASHP, [HFT] Electricity, [CFT] Electricity										
	Actual	51.8	86	5.4	5.3	15.1	2.67	4.49	2.98	5.48
	Notional	44.1	218.5	3.9	11.3	22	3.16	5.37	----	----
[ST] Central heating using water: radiators, [HS] ASHP, [HFT] Electricity, [CFT] Electricity										
	Actual	93.6	0	9.3	0	2.7	2.8	0	2.98	0
	Notional	102	0	9	0	2	3.16	0	----	----
[ST] Central heating using water: floor heating, [HS] ASHP, [HFT] Electricity, [CFT] Electricity										
	Actual	75.8	0	7.5	0	4	2.8	0	2.98	0
	Notional	42.9	0	3.8	0	3	3.16	0	----	----
[ST] Constant volume system (variable fresh air rate), [HS] ASHP, [HFT] Electricity, [CFT] Electricity										
	Actual	105.9	5.6	8.8	0.5	24	3.34	3.35	2.98	5.48
	Notional	86.1	9.7	7.6	0.5	10.7	3.16	5.37	----	----
[ST] Central heating using water: radiators, [HS] ASHP, [HFT] Electricity, [CFT] Electricity										
	Actual	19.4	0	1.9	0	12.2	2.8	0	2.98	0
	Notional	18.4	0	1.6	0	4.7	3.16	0	----	----
[ST] No Heating or Cooling										
	Actual	0	0	0	0	0	0	0	0	0
	Notional	0	0	0	0	0	0	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